PREDICTIVE FACTORS OF CONDOM USE BEHAVIOR AMONG THAI ADOLESCENTS

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ABSTRACT

At present, the prevalence of premarital sexual activity among Thai adolescents is increasing, and most of them have unsafe sex behaviors. Thai adolescents are at great risk for STDs/HIV infections, unintended pregnancies, and abortions, partly due to the failure to use condoms during sex. The purpose of this cross-sectional descriptive study was to examine factors influencing condom use behavior among Thai adolescents using Ajzen and Fishbein's theory of planned behavior (TPB). Theoretical relationships among attitudes, subjective norms, perceived behavioral control, intention, and condom use behavior were examined by using a path analysis of the causal model. The sample of both genders consisted of 607 students in vocational schools in Bangkok. Multi-stage random sampling was employed to identify the subjects. A set of self-report questionnaires composed of attitudes, subjective norms, perceived behavioral control, intentions, condom use behavior, and demographic and background information, were completed by the subjects. Statistical analyses for descriptive and path analyses were done by using SPSS and LISREL 8.52 programs.

The proposed model showed a good fit with the empirical data (chi-square (χ^2) = 2.27, df = 6, p= 0.894, GFI= 0.99, AGFI= 0.99, RMSEA= 0.00), and explained 34.4 percent of variance in condom use behavior. The results indicated that intention and perceived behavioral control (PBC) had a significant positive direct effect on condom use behavior ($\beta = 0.35$, $p < .001$, and $\beta = 0.32$, $p < .001$). Attitudes, subjective norms and PBC had a significant positive indirect effect on condom use behavior via intention ($\beta = 0.08$, $p < .01$; $\beta = 0.08$, $p < .01$; $\beta = 0.07$, $p < .05$, respectively). Behavioral beliefs, normative beliefs and control beliefs were the exogenous variables which had a significant positive indirect effect on behavior via intention ($\beta = 0.06$, $p < .01$; $\beta = 0.06$, $p < .01$; $\beta = 0.33$, $p < .001$, respectively).

The results revealed that the TPB provided an empirical explanation of condom use behavior among Thai adolescents. The finding has provided a better understanding on condom use behavior and added to the knowledge base for developing appropriate condom use programs, protective strategies, and preventive programs. To maximize consistent condom use among adolescents, health care providers, multidisciplinary teams and policy makers should initiate intervention programs in order to enhance awareness of individual's intention and greater self control regarding condom use among adolescents.

KEY WORDS: ADOLESCENTS / CONDOM USE BEHAVIOR / THEORY OF PLANNED BEHAVIOR

201 pages

ปัจจัยทำนายพฤติกรรมการใช้ถุงยางอนามัยของวัยรุ่นไทย

PREDICTIVE FACTORS OF CONDOM USE BEHAVIOR AMONG THAI ADOLESCENTS

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บทคัดย่อ

ในปัจจุบันอุบัติการณ์การมีเพศสัมพันธ์ของวัยรุ่นไทยสูงขึ้น พบว่าวัยรุ่นส่วนใหญ่มีเพศสัมพันธ์ที่ไม่ปลอดภัย ทำให้เกิดภาวะเสี่ยงสูงต่อการติดเชื้อโรคทางเพศสัมพันธ์และเอชไอวี การตั้งครรภ์ไม่พึงประสงค์ และการทำแท้ง ซึ่งส่วนหนึ่งเป็นผลจากการไม่ใช้ถุงยางอนามัยหรือการใช้ไม่สม่ำเสมอ การศึกษาเชิงบรรยายครั้งนี้ มีวัตถุประสงค์เพื่อศึกษา ปัจจัยที่มีอิทธิพลทำนายพฤติกรรมการใช้ถุงยางอนามัยของวัยรุ่นไทย โดยใช้ทฤษฎีการแสดงพฤติกรรมตามแผนของไอเซ็นและฟิชบายน์ (Ajzen & Fishbein) ในการวิเคราะห์อิทธิพลหาความสัมพันธ์เชิงสาเหตุระหว่างตัวแปร ทัศนคติ การคล้อยตามกลุ่มอ้างอิง การรับรู้ความสามารถในการควบคุมตนเอง ความตั้งใจ และพฤติกรรมการใช้ถุงยางอนามัย กลุ่มตัวอย่างได้แก่นักเรียนชายและหญิง โรงเรียนอาชีวศึกษา เขตกรุงเทพมหานคร จำนวน607 คน ใช้วิธีการสุ่มตัวอย่างแบบหลายขั้นตอน เครื่องมือการวิจัยได้แก่ชุดแบบสอบถามตอบด้วยตนเองเองประกอบด้วย แบบวัดทัศนคติ แบบวัดการคล้อยตามกลุ่มอ้างอิง แบบวัดการรับรู้ความสามารถในการควบคุมตนเอง แบบวัดความตั้งใจ แบบวัดพฤติกรรมการใช้ถุงยางอนามัย และแบบบันทึกข้อมูลส่วนบุคคล วิเคราะห์อิทธิพลเชิงสาเหตุ (Path Analysis) ด้วยโปรแกรม SPSS และ LISREL

ผลการศึกษาพบว่าโมเดลที่เสนอมีความสอดคล้องกับข้อมูลเชิงประจักษ์ (Chi-square= 2.27, df= 6, p = 0.894, GFI = 0.99, AGFI = 0.99, RMSEA= 0.00) โดยสามารถอธิบายความแปรปรวนของพฤติกรรมการใช้ถุงยางอนามัยในวัยรุ่นไทยได้ร้อยละ 33.4 สำหรับปัจจัยที่มีอิทธิพลโดยตรงทางบวกต่อพฤติกรรมการใช้ถุงยางอนามัย อย่างมีนัยสำคัญทางสถิติได้แก่ความตั้งใจ และการรับรู้ความสามารถในการควบคุมตนเอง (ß = 0.35, p < .001 และ ß = 0.32, p < .001) ทัศนคติ การคล้อยตามกลุ่มอ้างอิงและการรับรู้ความสามารถในการควบคุมตนเอง มีอิทธิพลทางอ้อมต่อพฤติกรรมการใช้ถุงยางอนามัย โดยผ่านความตั้งใจ (ß= 0.08, p< .01; ß= 0.08, p< .01; ß= 0.07, p < .05 ตามลำดับ) ส่วนตัวแปรภายนอกได้แก่ความเชื่อในพฤติกรรม ความเชื่อตามกลุ่มอ้างอิง และความเชื่อในการควบคุมตนเอง มีอิทธิพลทางอ้อมต่อพฤติกรรมการใช้ถุงยางอนามัย ผ่านความตั้งใจ อย่างมีนัยสำคัญทางสถิติ (ß = 0.06, p < .01; ß = 0.06, p < .01; ß = 0.33, p < .001 ตามลำดับ)

ผลการศึกษาครั้งนี้แสดงให้เห็นว่า ทฤษฎีการแสดงพฤติกรรมตามแผน สามารถอธิบายพฤติกรรมการใช้ถุงยางอนามัยในวัยรุ่นไทยได้ กล่าวคือการรับรู้ความสามารถในการควบคุมตนเองและความตั้งใจ เป็นปัจจัยสำคัญต่อความสำเร็จในการใช้ถุงยางอนามัย ผลการศึกษาทำให้สามารถเข้าใจพฤติกรรมการใช้ถุงยางอนามัยในวัยรุ่นไทยได้ดีขึ้น และเป็นความรู้พื้นฐานสำหรับการพัฒนากลยุทธ์ การส่งเสริมพฤติกรรมการใช้ถุงยางอนามัยเพื่อเป็นแนวทางสำหรับบุคลากรในทีมสุขภาพ และผู้กำหนดนโยบายในการพัฒนาโปรแกรม เพื่อเพิ่มความตระหนักรู้เกี่ยวกับความตั้งใจ และการควบคุมตนเองในการใช้ถุงยางอนามัยของวัยรุ่นไทยต่อไป

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CHAPTER I
INTRODUCTION

Background and Significance of the Study

At present, Thai adolescents tend to have premarital sex and early initiation of engaging in sexual activity (http://www.unescobkk.org). There is a raising concern over adolescents and young adult's sexuality and sexual behaviors in Thai society. The prevalence of adolescent premarital sexual activity is high among college students. Thato and colleagues (2003) conducted research among vocational students in Bangkok which found that fifty percent of the sample reported having had premarital sexual intercourse. Another study found that 23 percent of male and 15 percent of female high school students reported having had premarital sexual intercourse (Sangkarat, 1997). Adolescent's premarital sexual activity may create negative consequences, such as, sexually transmitted diseases (STDs) including human immunodeficiency virus / acquired immune deficiency syndrome (HIV/AIDS), unintended pregnancies, and abortions (Ministry of Public Health of Thailand, 2000). These negative consequences become major public health concerns resulting in new trends in Thai teenage sexual activity. These affect not only adolescents themselves, but also their families and society (Thato et al., 2003).

HIV/AIDS is one of the most serious health problems among adolescent population. Recent data indicate that adolescents have a significantly higher risk of HIV/AIDS infections than any other population group of new HIV incidence (Blair et al., 2003; Burke et al., 1990) with nearly half of all new infections in the United States occurring among young people between the ages of 13 and 24 years (Youth and HIV/AIDS 2000). In Thailand, fifteen percent of HIV infections are reported to have occurred among teenagers and young adults. Rates of other STDs are also high among Thai adolescents. Approximately, twenty-nine percent of all youth reported contacting STDs (Ministry of Public Health of Thailand, 2000). Regarding unplanned pregnancies, eight percent of sexually active male students in the 11^{th} grade had

impregnated someone and 72.5 percent of their partners had had abortions. Among those 11th grade female students, four percent reported that they had been pregnant, and 75 percent reported they had had abortions (Wuttiprasit, 1991). Given that abortions in Thailand are illegal, receiving an illegal abortion in sub-optimal conditions can increase the risk of infections, hemorrhage, or uterine perforation, which leads to public health problems. Therefore, sexual risk behavior among Thai adolescent is a serious problem that has an impact on the individual, family, and society (Jaitrongdee, 2003).

The risk of sexual transmission of HIV extends to college students for a variety of reasons; in a campus environment, students encounter new independence, self-determination, and strong peer pressure to adopt unhealthy behaviors (Sanderson, & Jemmott, 1996). Most college students are sexually active, and many engage in sexual activity with multiple sexual partners in a serial-monogamy pattern (Caron, Davis, Halteman, & Stickle, 1993; Reinisch, Sanders, Hill, & Ziemba-Davis, 1992). In addition, it has been evident that many students have sex while under the influence of alcohol or other drugs. These circumstances increase the likelihood of HIV-risk-associated behavior, including the failure to use condoms (Bowen, & Michal-Johnson, 1995; Fisher & Misovich, 1990; Hawlow, Quina, Morokoff, Rose, & Grimley, 1993). Given these campus behavioral norms, it is not surprising that there are high rates of sexually transmitted diseases (STDs) among young adults in general and in college students in particular.

Although college students are clearly at risk of acquiring STDs and HIV, motivating students to change their sexual behavior is a difficult task because young adults often believe they are generally invulnerable and impervious to HIV infection. In fact, surveys of sexually active high school and college students show little evidence of reductions in HIV-risk-associated sexual behavior (Diclemente, Forrest, Mickler, & Principal Site Investigators, 1990; McDonald et al., 1990). When adolescents engage in unplanned sexual activities, they are less likely to use condoms or any contraceptives, thus, increasing the risks of unintended pregnancy and contract STDs (Keller, 1993; Warzak, Grow, Poler, & Walburn, 1995).

Since there is no effective cure for AIDS and no vaccine to prevent HIV infections at present, the most effective way to stem the AIDS epidemic among

adolescents is by implementing appropriate strategies to dissuade them from engaging in behaviors that create risk of HIV infection. Specific behavior, particularly the failure to use condoms during sexual activity, is the predominant cause of HIV infection in adolescents (Jemmott, & Jemmott, 1991). In fact, the use of latex condoms is effective in reducing the risk of sexually transmitted infection, including HIV infection (Center for Disease Control and Prevention, 1988, 1993). Studies of sexual behaviors seem to suggest that failure to use condoms is a pervasive risk behavior among adolescents. In addition, the use of condoms would attenuate the effects of engaging in risky sexual behaviors.

Condoms have dual benefits: they provide a barrier against infection from sexually transmitted diseases (STDs) including HIV, and they also protect against unwanted pregnancy in those who are not using other reliable contraceptive methods. Recent national surveys of sexual behavior revealed that the majority of young people use condoms infrequently or inconsistently (Johnson, Wadsworth, Wellings & Field, 1994; Laumann, Gagnon,Michael, & Michaels, 1994 cited in Sutton, S., McVey, D. & Glanz, A., 1999). Although in general, youths are aware of the effectiveness of condoms to prevent transmission of HIV, only a small proportion reported using condoms during sexual intercourse (Jemmott, Jemmott, & Villarruel, 2002).

Despite the availability of condoms, only 21.2 percent of sexually active male high school students and 20.8 percent of sexually active female high school students in Thailand reported having used condoms (Sangkarat, 1997). Condom usage during last intercourse was reported with 27 percent of sexually active male and 0.5 percent of sexually active female high school and vocational students (Wuttiprasit, 1991). The low rate and inconsistent condom use among the higher-risk high school students indicates the need for additional empirical studies, especially in the general population of adolescents who often engage in unprotected sex with sexual partners. The most effective means for preventing HIV infection and pregnancy among sexually active adolescents is the use of condoms (Reinecke, Schmidt, & Ajzen, 1997). It is, therefore, important to identify the use or non-use of condoms, as well as to increase understanding of decision making in the domain of sexual behavior. Such information could be used to guide the development and evaluation of future health education

campaigns and materials on the subject of safer sex, HIV risk reduction, and effective contraceptive use.

Since condom use can prevent infection of HIV and other STDs, health agencies have designed various interdisciplinary efforts and oriented by behavioral prediction models, to persuade people to use condoms consistently (Albarracin, Johnson, Fishbein, & Muellerleile, 2001). When condoms are used consistently, they significantly reduce the probability of STD/HIV transmission. Although the majority of young adults know that condom use is effective for prevention of various diseases, only a minority use condom consistently (Maticka-Tyndale & Herold, 1999). In explaining condom use and non-use, a number of researchers have frequently used value-expectancy models such as the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980) and the Theory of Planned Behavior (TPB) (Ajzen, 1985) as the framework of studies. Researchers have begun to use theoretical models to better understand the use of condoms (Maticka-Tyndale & Herold, 1999). In these theoretical models; behavior is seen as a direct result of intention, since intention is considered to be responsive to educational programs. Value-expectancy theories have made a substantial contribution to research on condom use, with studies demonstrating that the proportion of condom use can be explained by intentions.

Given that the TPB model has predicted a wide range of behaviors successfully and has served as a basis for several HIV prevention studies, it is expected that the model would also be valuable to predict condom use. Beyond the circumscribed context of condom use, the TPB is a comprehensive theory of behavior that specifies a limited number of psychological variables that can influence behavior (Albarracin, Johnson, Fishbein, & Muellerleile, 2001).

Since behavioral prevention efforts are likely to be most effective if they are based on the solid foundation of theory and systematic research, nurses have a critically important role in this connection. In particular, nurses who provide health care to sexually active adolescents must help the adolescents modify their behavior to reduce their risks of STDs and HIV infections (Jemmott & Jemmott, 1991). Unfortunately, relatively little theoretical or empirical attention has focused on determinants of AIDS risk behavior among adolescents. The TPB focuses on theoretical constructs that are concerned with individual motivational factors as

determinants of the likelihood of performing a specific behavior. In fact, there has been no research using the TPB to examine adolescents' condom use in Thailand. A substantial empirical base of demographic, psychosocial, and biobehavioral factors associated with condom use behavior has been developed using descriptive research designs. However, less systematic testing of theory has been conducted in condom use in Thailand. Testing of theoretically proposed relationships can advance knowledge and, ultimately, lead to theory-based interventions to promote health promotion behavior in sexually active adolescents and to accomplish goals set forth for Healthy People (Wambach, 1997).

This proposed study is conceptually guided by the Theory of Planned Behavior (Ajzen, 1985) to examine whether the TPB model is capable of predicting condom use intention and behavior from attitude, subjective norm and perceived behavioral control in Thai adolescents (see Figure 1).

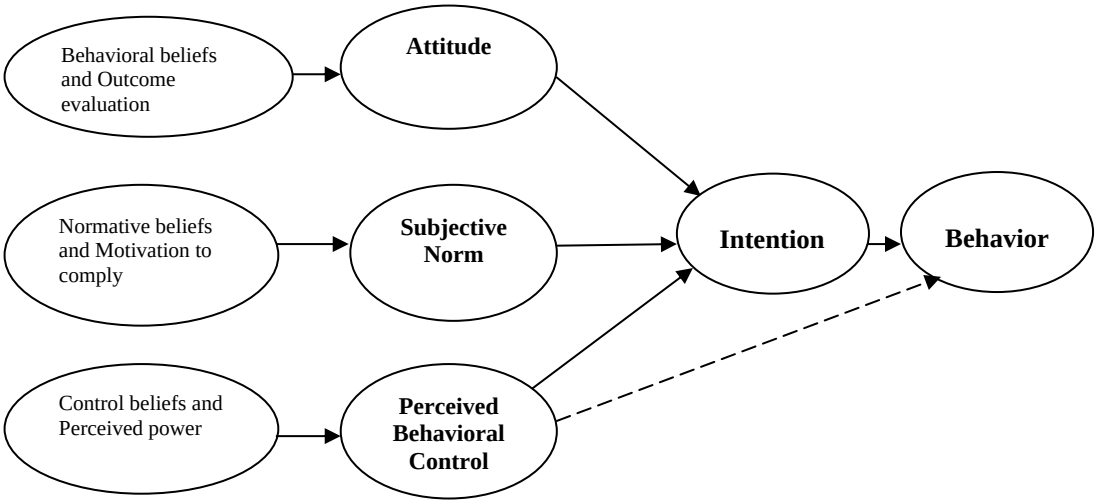


Figure 1: The Schematic Representation of Theory of Planned Behavior
Source: Glanz, K., Rimer, B. K., & Lewis, F.M. (2002).

Theoretical Framework

The conceptual framework of this study is guided by the Theory of Planned Behavior (TPB) (Ajzen, 1985, 1991). The TPB is an extension of the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Both

theories have been widely used to predict and explain such health-related intentions and behaviors as a framework for understanding and changing AIDS-related behaviors (Sutton, McVey, & Glanz, 1999).

The TPB provides an important framework for predicting and understanding social behavior. This model proposes that a person's intention to perform a behavior is the key predictor of behavioral performance. The theory states that the proximal determinant of behavior is the intention to act. The intention, in turn, is influenced by the attitude towards the behavior, subjective norms, and perceived behavioral control. Perceived behavioral control can also predict behavior directly, to the extent that the measure matches actual control. In addition, the TPB proposes that individual intentions to engage in a certain behavior are strong when they have positive attitudes toward that behavior; they individually believe that the people significant to them think they should do it; and they think that they can do it (Ajzen, 1985).

According to the TPB, a central determinant of behavior is the individual's *intention* to perform some behavior in question. Intentions are assumed to capture the motivational factors that influence a behavior; they are indications of how hard people are willing to try, and of how much of an effort they are planning to exert in order to perform the behavior. The theory postulates three conceptually independent determinants of intention. The first is the *attitude toward the behavior* which refers to the degree to which the person has a favorable or unfavorable evaluation of the behavior in question. The second predictor is a social factor termed *subjective norm*; it refers to the perceived social pressure to perform or not to perform the behavior. The third determinant of intention is the degree of *perceived behavioral control*; this refers to the perceived ease or difficulty of performing the behavior, and is assumed to reflect past experience as well as anticipated impediments and obstacles. As a general rule, the more favorable the attitude and subjective norm with respect to a behavior and the greater the perceived behavioral control, the stronger an individual's intention to perform the behavior under consideration. Intention, in turn, is viewed as an immediate antecedent of actual behavior. The stronger people's intentions to engage in a behavior or to achieve their behavioral goals, the more successful they are predicted to be.

The antecedents of attitude, subjective norm and perceived behavioral control are corresponding beliefs, reflecting the underlying cognitive structure. Each behavioral belief links a given behavior to a certain outcome, or to some other attributes, such as the cost incurred in performing the behavior. The attitude towards the behavior is determined by the strength of these associations, and by the beliefs that are salient at the time. The work on the principle of Fishbein and Ajzen's expectancy-value model (1975) proposed that the subjective value of a given outcome affects the attitude as direct proportion to the strength of the belief. Subjective norm is considered to be a function of salient normative beliefs. While subjective norm relates to perceptions of general social pressure, the underlying normative beliefs are concerned with the likelihood that specific individuals or groups (referents) with whom the individual is motivated to comply will approve or disapprove of the behavior. According to Ajzen (1991), control beliefs are the antecedents of perceived behavioral control, and are concerned with the perceived power of specific factors to facilitate or inhibit performance of the behavior. Like the other beliefs, the equation takes account of the relevance of the belief to the individual, in this case by taking a measure of the frequency of occurrence of the promoting factor. Perceived behavioral control will therefore be increased by salient beliefs concerning adequate resources and opportunities and fewer anticipated obstacles or impediments.

The TPB was an attempt to extend the TRA to accommodate behaviors that are not entirely under an individual's volitional control. Condom use would seem to fall into this category. Using condoms will depend on the availability of a condom at the time of the sexual encounter and on cooperation between the two partners. Other potential barriers to condom use include the difficulty of putting on a suitable condom and the difficulty of raising the subject, particularly with a new sexual partner (Sutton, McVey, & Glanz, 1999). In this study, the theory of Planned Behavior provides a conceptual framework within which to consider condom use. The theory grew out of efforts to strengthen the relation between attitudes and behavior. It emphasizes highly specific attitudes, subjective norms, perceived control, intention and behaviors. According to the theory, behavior is the result of a specific intention. Thus, adolescents' use of condoms whenever they have sexual intercourse is a function of their intention to use condoms on all occasions of sexual intercourse. A behavioral

intention is seen as determined by the attitude toward the specific behavior and the subjective norm regarding that behavior. Thus, adolescents' intention to use condoms is a function of their attitude, positive or negative toward using condoms and their perception of what significant others think they should do.

Attitudes toward behavior are seen as reflecting salient beliefs about the consequences of performing the act and evaluations of these consequences. Thus, in this study, to the extent that adolescents believe that using condoms will protect them from pregnancy, STDs, HIV/AIDS and that protection from these negative consequences are desirable; their attitudes toward using condoms should be positive. Subjective norms are a function of perceptions of what specific referents think should be done regarding the behavior and motivation to comply with these referents. To the extent that adolescents believe that their partners or friends would approve of their use of condoms and their opinion is important to them, they should have a stronger intention to use condoms. Finally, perceived behavioral control deals with the ease or difficulty of performing the behavior and relates to the past experiences, resources, opportunities, and barriers regarding condom use. Perceived behavioral control is assumed to influence an adolescent's intention to use condoms. That is, persons with higher perceived control are more likely to form intentions to perform a particular action than those who perceive that they have little or no control.

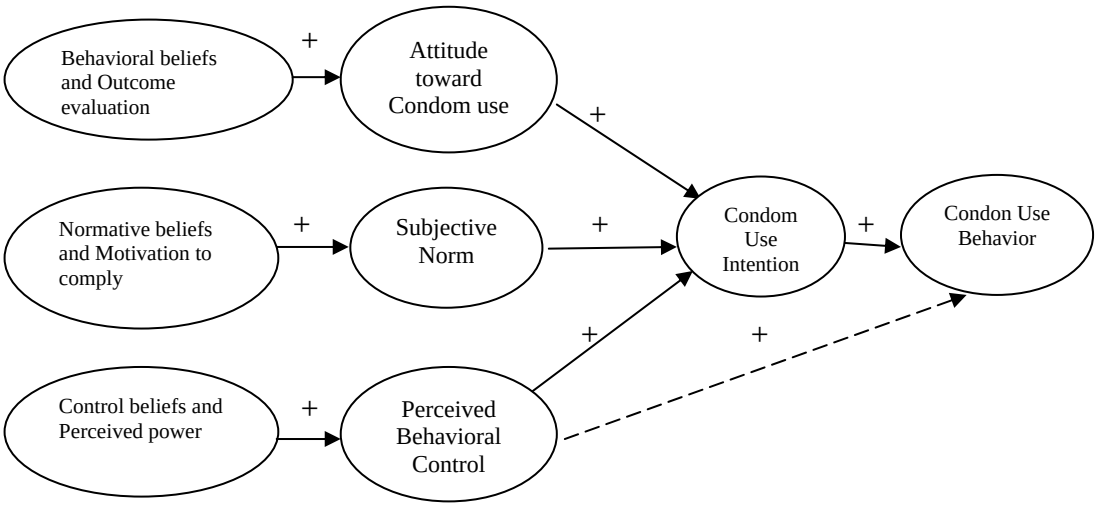


Figure 2: A Model of Condom Use Behavior: Hypothesized relationships among variables adapted from Ajzen, Icek (2002).

Therefore, in accordance with the TPB, it is hypothesized that intentions to use condoms can be predicted from attitudes, subjective norms, and perceived behavioral control with respect to the behavior. Conceptually, the theoretical framework of this study is shown in Figure 2.

According to the above mentioned theoretical framework, people are more likely to use condoms if they have previously formed the corresponding intentions. These intentions to use condoms appear to derive from attitudes, subjective norms, and perceived behavioral control. These attitudes and norms, in turn, appear to derive from outcome beliefs and normative beliefs. The general predictions are that the TPB would be a plausible model of condom use. Thus, condom use is expected to be associated with attitudes, norms, and perceived behavioral control; and norms and attitudes are expected to correlate with the indirect, belief-based components.

Research Objectives

The purpose of this study was to examine the efficacy of the Theory of Planned Behavior (TPB) in predicting condom-use behavior among Thai adolescents including both indirect and direct measures to test the strengths of all predictive variables. The specific objectives of this study include the following.

1. Identify the relationships among the TPB constructs including behavioral beliefs, normative beliefs, control beliefs, attitudes, subjective norms, perceived behavioral control, intention, and condom-use behavior among Thai adolescents.
2. Determine the predictive ability of the TPB construct, both indirect and direct measurements.

Research Questions

The research questions for this study are as follows:

1. What are the relationships among the TPB constructs including behavioral beliefs, normative beliefs, control beliefs, attitudes, subjective norms, perceived behavioral control, intention, and condom-use behavior?

2. How effective are the indirect and direct measurements of the TPB constructs in predicting condom-use behavior among Thai adolescents?

Research Hypotheses

Using the proposed conceptual model of the TPB as a framework, there were five hypotheses as follows:

1. Behavioral beliefs has a positive **direct** influence on attitude, normative beliefs has a direct influence on subjective norms, and control beliefs have a positive direct influence on perceived behavioral control.
2. Behavioral beliefs, normative beliefs, and control beliefs have a positive **indirect** influence on condom-use behavior via intention
3. Attitudes, subjective norms, and perceived behavioral control have a positive **direct** influence on intention.
4. Attitudes, subjective norms, and perceived behavioral control have a positive **indirect** influence on condom-use behavior via intention.
5. Perceived behavioral control and intention have a positive **direct** influence on condom-use behavior.

Definition of Terms

The conceptual definitions for the constructs of the TPB as applied to this study are described below.

Behavioral Beliefs

A salient set of beliefs that performing the behavior will lead to a positive or negative outcome. Behavioral beliefs are antecedent to attitude. Belief evaluation leads to the formation of attitude that is the indication of attitude toward the behavior (Ajzen & Fishbein, 1980).

Operationally, behavioral beliefs were constructed from beliefs and evaluation items about condom use that arose from an elicitation interview. Content analysis was done by the researcher, using 5-point Likert rating scales (*1= strongly disagree* to *5= strongly agree*) of the behavioral beliefs, and higher scores indicated more positive beliefs on using condoms.

Outcome Evaluations

An individual's positive or negative evaluation of the outcome of the behavior (Ajzen & Fishbein, 1980).

The corresponding outcome evaluations were measured by the participants' evaluation of consequences of condom use behavior, rating on 5-point scales (*1= very bad* to *5= very good*) of the outcome evaluation. These items are developed by the researcher, and higher scores indicate more positive outcome evaluations in consequences of using condom.

Normative Beliefs

The belief that important others approve or disapprove of an individual's performance of a particular behavior and the motivation to comply with the referents. These normative beliefs are the antecedent to subjective norm (Ajzen & Fishbein, 1980).

Normative beliefs are operationally assessed by the strength of important others belief about whether the adolescents should use condoms. These beliefs ratings for each source of influence were measured on 5-point Likert rating scales (*1= definitely do not* to *5= definitely do*) of the 7 normative beliefs. These items were developed by the researcher and higher scores reflect greater influence by individuals who are important to the participants.

Motivation to Comply

The individual's motivation to do "what the referent wants" him/her to do related to the behavior (Ajzen & Fishbein, 1980). Referents were identified from the elicitation interviews.

The motivation to comply was measured by the corresponding motivation to comply with what the referents want the participants to do, regarding condom use behavior and using 5-point scales (*1= very little* to *5= very much*) of the 7 motivation to comply. These items were developed by the researcher and higher scores reflect greater influence by individuals who are important to the participants.

Control Beliefs

The beliefs of the ease or difficulty to perform a behavior and the perceived power of a specific control factor to facilitate or impede behavior performance. The beliefs are based on past experiences, availability of required resources and

opportunities, and anticipated barriers to perform the behavior. Control beliefs represent the external factors perceived to facilitate or obstruct behavior performance and are antecedent to perceived behavioral control (Ajzen, 1989).

Operationally, control beliefs were measured by responses on 5-point Likert-type scales (*1= very difficult* to *5= very easy*), relating to the ease or difficulty of condom use of the 20 control beliefs. Content analysis of elicitation interviews identified circumstances and conditions that facilitated or impeded condom use. These items were developed by the researcher and higher scores represent greater control beliefs of condom use behavior.

Perceived Powers

The specific control factors that facilitate or impede, make difficult or easy of individual's behavioral performance (Ajzen & Fishbein, 1980).

The perceived powers were measured by responses on 5-point Likert-type scales (*1= very unlikely* to *5= very likely*), relating to the likelihood of condom use when the facilitating or inhibiting factors identified are presented of 20 perceived powers. These items were developed by the researcher and high scores represent greater perceived powers of condom use behavior.

Attitude

The degree to which an individual has a favorable or unfavorable evaluation of the behavior in question, and it is a direct determinant of intention at the personal level (Ajzen & Fishbein, 1980). The attitude variable is defined as the degree of positive or negative value placed on condom use as an individual's specific attitude toward using condoms during sexual activity.

Operationally, attitude toward condom use was measured by items on a 5-point semantic differential scale that taps the aspects of attitude and is similar to previous condom use studies, with endpoints "very negative" to "very positive". Corresponding ratings are on the scale from 1 to 5. The scales consist of adjective pairs assessing the instrumental aspect and the affective aspect of attitude. The 14 attitude items were developed by the researcher based on Ajzen and Fishbein (1980). The higher scores represented more positive attitudes toward condom use behavior.

Subjective Norms

A perception of social pressure to perform or not to perform a behavior, representing the individual's perception that salient referent individuals think that the individual should or should not perform the behavior (Ajzen & Fishbein, 1980). A person's perception of social pressure being influenced to perform or not to perform the condom-use behavior. Subjective norm was defined as the degree of influence that social referents have on the adolescents in forming their intentions to use condoms.

Subjective norm was measured by two items which were modified by the researcher based on Ajzen (1991). The participants rate on 5-point Likert-type scales (*1= strongly disapprove* to *5= strongly approve*) and (*1= not at all important* to *5= extremely important*). The higher scores represent greater influence of others on condom use behavior.

Perceived behavioral control

Reflect personal beliefs as to ease or difficulty of performing a behavior (Ajzen, 1988). Perceived behavioral control was defined as the degree of anticipated ease or difficulty of condom use and confidence in the ability to carry out condom-use behaviors.

The measure of perceived behavioral control was modified from Ua-Kit (2004) including four items. All items were assessed using 5-point scales with opposing responses on each end: (1) participants rated the ease or difficulty (*1= very difficult* to *5= very easy*) of condom use, (2) participants rated the level of control (*1= no control* to *5= completely control*) that participant had over condom use, (3) participants rated the level of individual's agreement (*1= strongly agree* to *5= strongly disagree*) of condom use, and (4) participants rated the level of sexual partner's agreement (*1= strongly agree* to *5= strongly disagree*) of condom use

Intention

The likelihood of a person engaging in a behavior influenced by attitude, subjective norms, and perceived behavioral control (Ajzen & Fishbein, 1980). The individual's intention to use condoms for males, and insistence on partners using condoms for females, the next time they encounter a sexual situation.

Condom use intention is measured by four items that were modified from Ua-Kit (2004) and developed by the researcher. The items assess level of intention using 5-point scales. The higher scores indicate greater intention to use condom.

Condom Use Behavior

A specific action regarding condom use behavior that is performed by an individual is influenced by the strength of the intention to perform the behavior (Ajzen & Fishbein, 1980). For this study, condom use behavior in Thai adolescents was defined as Bangkok adolescents, both female and male in college who use a specific action performed by an individual that is influenced by the strength of the intention to perform the behavior, regarding condom use. Condom use behavior is an individual's reported frequencies of actual condom use the last few times in his/her sexual relationships.

Condom use behavior is measured by three-items (during the past 6 months, the next 6 months, and the latest time). The higher scores indicated greater safe sex behavior.

Scope of the Study

Adolescents are perceived as a group of people being highly vulnerable to HIV through their changing sexual behavior. Among Thai adolescents, vocational students are considered a high-risk group of having risky behaviors. This study was conducted with Thai vocational students whose schools were in Bangkok. There were students who had sex activity and no sex experience in their lifetime. This study was based on self-report data. The target population was not representative of the whole population of adolescents in Thailand since the study sample was drawn only from vocational students in Bangkok and variation of the social environment around adolescents across the nation was not taken into account in this study.

Summary

This study examined factors influencing condom use behavior among Thai adolescents in Bangkok using Ajzen and Fishbein's Theory of Planned Behavior (TPB). The findings from this study identified influential factors related to condom use that provided significant information for further development of intervention research to enhance condom use and promote safe sex behavior among sexually active adolescents in Thailand. The availability of the TPB constructs' instruments would facilitate conducting further studies regarding sexual risk and condom use behaviors among Thai adolescents. The findings also provided fruitful information and a valuable contribution to strengthen HIV/AIDS policy in Thailand.

CHAPTER II
LITERATURE REVIEW

This chapter contained a discussion of the literature related to adolescent development and sexuality, prevalence of sexual behavior among adolescents in Thailand, the negative consequences of unprotected sexual behaviors including condom use behavior, and the overall review of the theory of planned behavior (TPB). Finally, the empirical studies of the theory of planned behavior which links between TPB components and condom use behaviors among adolescents were discussed.

Adolescent Development and Sexuality

Adolescence can be summed up in one word: change. Adolescence is defined as the second decade of life, which is a time of transitions and experimentations (Rew, 2005). It is a time when children undergo multiple physical, social, psychological and cognitive changes that propel them toward physical maturity and adult lifestyle. Adolescence is a period of multiple, and often rapid and profound changes in transitions from childhood to adulthood. The onset of adolescence is considered as a crucial developmental transition due to the confluence of changes across adolescence. Entry into adolescence is marked by the physical changes of puberty, social changes, and shift in cognitive and socio-emotional functioning. The interaction between biological, physiological, and social components of development makes adolescence an excellent period to study developmental transitions (Thato, 2002).

Rew (2005) stated that “it is important to consider basic information about physical development and sexual maturation in adolescents because they are directly related to health-risk behaviors of adolescents” (p. 54). The author concluded that “the physiological changes of adolescence are referred to as puberty, in which dramatic changes occur in several areas; changes in the brain and endocrine system especially in weight and height rapidly, including development of primary and secondary sexual

characteristics, body composition changes, and the changing of circulation and respiratory systems" (Rew, 2005, p. 54). The ages which are considered to be part of adolescence vary by culture. In the United States, adolescence is generally considered to begin around age 13, and end around 24 years. By contrast, the World Health Organization (WHO) defines adolescence as the period of life between 10 and 20 years of age.

Adolescence can be categorized into three stages of development: early, middle, and late. Although an individual adolescent will develop at her or his own unique pace, there are recognizable patterns of change in behavior and sexuality that occur from one stage of development to the next (Haffner, 1995).

Early adolescence (ages 9-13 for girls and 11-15 for boys), experimenting with sexual behavior is common, although sexual intercourse — vaginal, anal, or oral — is usually limited. During this stage, young adolescents begin the process of separating from the family and become increasingly influenced by their peers. Although young adolescents primarily engage in concrete thinking, and it is difficult for them to imagine future consequences, they continue to value their parents' guidance, especially on important life issues (Haffner, 1995).

Middle adolescence (ages 13-16 for girls and young women and ages 14-17 for boys and young men) the ability to think abstractly begins to develop. Separation from the family increases, and the desire to be accepted by one's peers can exert a strong influence on behavior. Sexual experimentation is common, and many adolescents have first intercourse during this stage of life (Haffner, 1995).

Late adolescence (young women aged 16 and older and young men aged 17 and older) the process of physical maturation is completed. The ability to understand abstract concepts is achieved by many adolescents at this stage, and many of them understand what the results and consequences of their actions and behaviors may be. There is an increased ability to empathize with others, give and receive intimacy, and define adult roles. There also is greater autonomy from the family as well as from the peer group, and sexuality may become more associated with commitment and planning for the future (Haffner, 1995).

Early adolescents express their newly developing sexuality in a manner that may appear humorous to adults, but is very serious to them. They think about the

opposite sex as a great deal and imagine the ideal partner (Thato, 2002). Early adolescents, however, do not engage in romantic relationships frequently with other adolescents. If they do, they will encounter problems of self-consciousness and self-efficacy (Brown, 2000). The ideal partner and the real partner do not match, and, therefore, the relationship tends to be short. When adolescents enter into the middle adolescent period, romantic relationships are more frequent but still brief owing to the partner's failure to match up to an ideal image. The adolescent may have several romantic partners in a short period of time. By late adolescence, the young person usually has developed a more mature approach to develop relationships. He or she cares more about his or her partner's feeling and welfare. Consequently, long-term romantic relationships and true intimacy may be developed in this period (Thato, 2002). The stages of these developmental tasks should be recognized when health care providers develop sex education programs and early intervention for adolescents.

At first glance, youth appears to be a relatively healthy, although not hazard free period of life. Young people account for 15 percent of the disease and injury burden worldwide, and over one million die each year, mainly from preventable causes. Unfortunately, roughly 70 percent of premature deaths among adults world wide can be linked to behavior initiated during adolescence, such as tobacco use, poor eating habits, and risky sex. Furthermore, the majority of American teenagers reported having sex during their high school years (The Alan Guttmacher Institute, 1999; Manning, Longmore, & Giordano, 2005).

Evidently, young people face serious health challenges: (a) about half of all HIV infections are in people of age under 25 with girls disproportionately affected; (b) on an average, one-third of women in developing countries give birth before age 20 where a large proportion of these pregnancies is unplanned; (c) each year, approximately 2 to 4 million adolescents undergo unsafe abortion; (d) teen mothers die due to pregnancy-related causes at the rate twice as high as older women and their own children are at higher risk of illness and death; and (e) millions of youth die tragically or suffer because of other preventable health hazards such as road accidents, substance abuse, suicide, and infectious diseases (Singh, et al., 2000).

Despite adolescence being a time of experimentation as young people strive to develop their identity in preparation for adulthood, it is also a time of sexual

experimentation for many young people (Villarruel, Moore, & Sochalski, 2002). Adolescent sexual experiences are extremely complex and involve numerous motivational factors, such as sexual identity, orientation, opportunity, experimentation, relationships, characteristics, and desire (Manning, et al., 2005). Experimenting with relationships and intimate behavior has increasingly become a normal pattern of adolescent development (Gebhardt, Kuyper, & Greunsven, 2003). Sexual encounters of a young person are often unplanned, sporadic, and sometimes they are the results of social pressure or coercion (Lear, 1995). Unfortunately, the consequences frequently include sexually transmitted diseases (STDs) such as a human immunodeficiency virus (HIV) infection, which causes acquired immune deficiency syndrome (AIDS), and often unintended pregnancy.

Composition of Adolescent Population in Thailand

More than a quarter of the world's population is between the ages of 10 and 24 years. Most adolescents (85 percent) of the world's 1.7 billion young people live in developing countries, where they are often 30 percent or more of the population (WHO, 2002). The population of Thailand reached almost 62 million in 1999, with a natural growth of 1.0 percent per year (Institute for Population and Social Research, 1999). Declining fertility continues to change the age structure of the population of Thailand, with higher numbers and proportions of people entering older age groups, and declining numbers and proportions of the younger age groups including the years of adolescence (Indralal De Silva, 1998). By convention in Thailand, "adolescence" refers to the ages 10-19 years and "youth" to the ages 15-24 years. In mid-1999, there were approximately 10.5 million adolescents and 11.5 million youth in this country. The Planned Parenthood Association of Thailand (PPAT) estimated the population of adolescents and youth to be 13 million in 1999 (UNESCO Bangkok, 2004).

Prevalence of Premarital Sexual Behavior

According to a study of 20 provinces in Thailand based on questionnaires filled out by students in grade 11 (Mathayom 5), 2.7 percent of girl and 11.1 percent of boy respondents said they already had had a sexual experience. The average age at which

female and male high school students have their sexual experience is approximately the same, 15 years old. Sixty percent of the girls who said they had had premarital sex had it with their boyfriends. Considering, half of the boys (54 percent) said they had had sex with their girlfriends (Ekacha, 2002).

Premarital Sexual Behavior among Thai Adolescents

In Thailand, having sexual intercourse before marriage is considered to be culturally wrong (Thato, 2002). Data for young people's sexual behaviors from the recent nationally representative surveys of reproductive behaviors in 14 countries reported that in Thailand, one-third of teenage women have had sexual intercourse (Singh et al., 2000). Young people themselves appear to excuse, or even encourage, premarital sexual relationships for males, but not for females (Thi Lan Anh, 2002). Young men have much more social freedom, including becoming sexually experienced and having fewer responsibilities than young women (Tantiwiramanond, Yoddumnern-Attig, & Pandey, 1996). Premarital sexual intercourse is accepted and expected for young men. On the other hand, women have been taught to remain virgins until marriage.

A survey of more than 100 factory workers in Thailand, ages 15 to 24 years, found that the majority of men said premarital intercourse was accepted and expected for them, that their first sexual intercourse was with a prostitute, and that boys who had not yet had intercourse were ridiculed by their peers. Young women said premarital intercourse was unacceptable for "respectable" women and could damage the family's reputation. Young men viewed contraception as a woman's responsibility, but young women said they would not consider seeking or requesting contraception because of the fear of being thought of as sexually active (Tantiwiramanond, et al., 1996).

In 1990, Sakondhavat, Kanato, Leungtongkum and Kuchaisit explored sexual behavior of 502 vocational students in KhonKaen province, Thailand. The study revealed that 52 percent of vocational students (aged 16-21) had premarital sex, 74 percent for males and 31 percent for females, and 24 percent of this sample had contracted sexually transmitted disease (STD).

In 1991, Wuttprasit studied the knowledge of attitude towards, and experience in sex information of high school students (658 randomly selected students) aged 15-18 years in Bangkok, Thailand. The researcher found that 21.4 percent of male students and 11.3 percent of female students reported having had premarital intercourse of these sexually active students, only 13.3 percent of them reported ever using condoms.

In 1995, Podhidita and Pattaravanich conducted a nationwide survey of sexual behaviors among young Thai people aged 15-24 years (1092 females and 1087 males). The results revealed that 47.0 percent and 17.2 percent of female participants who resided in urban and rural areas respectively had their first sexual intercourse before marriage. For males, approximately 45 percent of both urban and rural participants had experienced sexual intercourse, and more than 90 percent of these had sex before marriage. Most importantly, 35 percent and 13.2 percent of female participants who resided in urban and rural areas respectively indicated that their first sex before marriage was unprotected.

In 1997, Sankarat surveyed the knowledge of, attitude towards, and practice of sexual behavior and birth control of 10^{th} to 12^{th} grade high school students in Supanburi province, Thailand. The investigator found that 23 percent of male students and 15.2 percent of female students reported having had premarital sex. Almost half of them, 45.5 percent of male and 41.7 percent of females, reported never using contraceptives. Thirty percent of all students had a low level of positive attitude toward sex and contraception, 34 percent had a moderate level, and 36 percent had a high level.

In 1999, Piya-Anant, Kositanon, Leckyim, Patrasupapong and Watchara-prapapong explored premarital sex in 350 Thai males aged 18-20 years in commercial vocational school located in Bangkok. The study revealed that 43 percent of the students engaged in premarital sexual intercourse. Regarding their sexual partners, 78 percent had sex with their girlfriends, and 18.5 percent had sex with sex workers. Of these sexually active students, 50 percent reported never using condoms, 26 percent reported using condoms sometimes, and 24 percent reported using condoms every time when having sex (Piya-Anant et al., 1999).

Other research by MOPH, Thailand (2002) proposed a big shift in male adolescent behaviors. In the past, male adolescents mainly went to sex workers for their first experiences. Recently in fact, many of them reported having their first sexual experience with their girlfriends. Also most adolescents engaged in unprotected sex, 70 percent did not use any protection during their first experience. In addition, 44 percent of male adolescents used a condom only when they had sex with sex workers, and did not use any protection when they had sex with their girlfriends (MOPH, 2002).

Another study addressed sexual behaviors of vocational students aged 15-21 years in Chiangrai (Jenkins et al., 2002). The results showed that 43.1 percent of females reported having had sexual intercourse. Only 25.6 percent of women reported condom use at their first sexual intercourse. Interestingly, 32.7 percent of women reported consistent condom use with their casual partner, but only 5.4 percent did so with their steady partner. A recent study conducted in Thai vocational students aged 18-22 years in Bangkok indicated that 49.9 percent of participants were sexually active, 64.8 percent of male and 32.0 percent of female (Thato et al., 2003). Of the sexually active participants, only 6.3 percent reported using condoms every time they had sex in the beginning of a sexual relationship. And only 10.2 percent reported using condoms during the last few times they had sexual intercourse.

Consequently, these studies suggested relatively high percentages of sexual intercourse and unsafe sexual practice among Thai adolescents. Furthermore, consistent condom use was not practiced, especially when sexual intercourse took place within a committed relationship with steady partners.

Factors Influencing Risky Sexual Behaviors

Risky sexual behavior is a major threat to adolescent health. Encouraging using condom is basically employed as a method to reduce adolescent risky sexual behavior worldwide. The identified condom use behavior, however, differs across cultures. To better understanding the constructs important for the study of Thai adolescents' condom use behaviors, relevant concepts were reviewed.

1. Gender and Cultural Norms

In Asian cultures, male and female gender roles typically create an imbalance in negotiating positions between partners, and the imbalances are exacerbated for younger people because they are more vulnerable. To understand the contraceptive behaviors of adolescents, it is important to understand how biologically and culturally constructed gender roles relate to sexual behaviors. However, issues related to sexuality have been largely ignored in the design of policies and programs because sexuality is a politically and culturally sensitive issue.

The traditional norms, especially for Thai women, have been gradually changing with the new generation. Lifestyles and social norms changed and continue to change rapidly in most sectors of Thai society. Among young Thai women, there has been a dramatic drop in the age of first intercourse and concurrent rise in HIV infections. In all likelihood, these changes have been accompanied by significant conflicts over appropriate ways to behave. On the one hand, there is growing pressure on young Thai women to engage in early sexual behaviors. On the other hand, there are still many conservative, cultural messages about the ideal and responsible woman. In this environment, young women may experience significant conflicts and distress. In an analysis of a sexual history reported that 38% of participants had experienced sexual intercourse, with an average age of debut of 18.7 years (Ekacha, 2002). Moreover, another study in sexual health risks among young Thai women found that 43.1 % of them reported a history of sexual activities, with an average age at first sex of 17.6 years, and a 2.6 mean number of lifetime sex partners (Allen et al., 2003).

The interdictions in Thai society reflect a *double standard* that condemns female premarital sex while allowing or ignoring male promiscuity. Although, people condemn premarital sex, they leave the youth desperate in ambiguity because talking about sex is a cultural taboo. Adolescents seek information about sex from the mass media, which mostly focuses on stories which arouse or induce the gratification of sexual urges. The media messages also perpetuate cultural values that treat women as sex objects while endorsing male promiscuity. According to research by MOPH Thailand (2002), girls who have premarital sex said that they did it out of love, natural curiosity, feeling arousal by media images, loneliness, and a desire to hurt parents.

Thai society in fact, continues to condemn girls who have premarital sex as morally loose (Ekacha, 2002).

In addition, evidence suggested that Thai adolescent women have premarital sex and early initiation into sexual activities. The first sexual experience is often unprotected, which can lead to sexually transmitted diseases (STDs), HIV/AIDS, unwanted pregnancies, and an illegal abortion.

Despite the growing pressure on young Thai women to engage in early sexual behaviors, there are still many conservative, cultural messages about the ideal and responsibility. These contexts have been accompanied by significant conflicts over appropriate ways to behave. An underlying double standard to the sexual behaviors of women and men was brought out in many reports published in Thailand. Sexual desire, silence about sex and sexual health, and unequal power relations between males and females have provided fertile ground for unprotected sex among young people (Ekacha, 2002).

Males have more experience in sex-related behavior long term before they are married. Males experience their first intercourse at a younger age than females do, and also they are ahead of females. By the age of 15, 28 percent of young Thai males had already engaged in sex. According to a study of sexual experiences among rural Thai youth, by the end of their teenage years, almost all rural youth were sexually experienced (Isarabhakdi, 2000). The difference between the age at first intercourse and marriage was 2.8 years for males but only 1.0 year for females. Interestingly, the report explained that premarital sex among Thai females often ended in marriage soon afterwards as a cultural mechanism to protect their reputation or chastity (UNESCO, 2000). Young men and women engage in premarital sex for different reasons. It emerged that young men see prostitutes to gain pleasure and sexual experiences. They viewed sex as an end in itself, but women viewed it along with commitment and emotional intimacy. The survey among Thai youth in Bangkok by Poonsanasuwansri in 1997 showed that the premarital sex was related to predisposing factors such as attitudes toward love, values about premarital sex and perception of the result of premarital sex and enabling factors such as dating and touching (UNESCO Bangkok, 2004).

2. Sexual Attitudes

Permissive attitudes are held for premarital sexual behaviors of Thai males. Almost 40% of youth held the double standard that premarital sex is legitimate for males but not for females. Thai female youth held more conservative attitudes toward premarital sex; about 60 percent believed in abstinence before marriage compared with only 27 percent of males (Isarabhakdi, 2000). Thai youth also perceived their parents to be more accepting of premarital sexual behavior among males than among females. In sexual relations among young people in developing countries, evidences from WHO case studies (2001) showed that gender power imbalances influenced risky sexual behaviors. Since childhood, boys and girls have been conditioned to follow different codes of conduct in gender relations. Adolescent males are taught to display masculinity and sexual prowess, in order to establish their status among peers. A study on rural Thai youth found that peer influence was one of the main motivations for engaging in the first premarital sexual experience (Isarabhakdi, 2000). Adolescent girls however, are molded by society to have a passive and submissive disposition in their social relations with boys.

Gender inequality is reinforced by the prevalent traditional expectation such that females should remain silent and obedient, even on matters that affect them. Many girls find it difficult to raise issues of abstinence or use of condoms with their partners, and yielding to sexual demands is the only way to gain affection, love and commitment. Social and economic changes including urbanization, industrialization, and education not only have eliminated many of the traditional restraints on early premarital sex, but also have exposed many adolescents and young people, especially adolescent girls, to the risks of unwanted pregnancies and abortion which increase the risks to their reproductive health and well-being (Indralal De Silva, 1998).

3. Developmental Factors and Media Influences

The psychological need for building self-identity often draws adolescents and young people toward new trends, to keep up with the times. The media, the internet, and peers each have a place in shaping a young person’s self image, along with the perception of parents. Young people find it easier to talk to friends or someone closer to their age group about sexuality. In 1997, the international survey by International

Planned Parenthood Federation (IPPF) revealed that one in three youth found it difficult and impossible to discuss sexual matters with adults.

Magazines, television programs and pop songs all underscore the message that the expression of physical love with a romantic, non-marital partner is normal and desirable in adult life. In fact, within most groups of adolescents, one is expected to have a certain amount of sexual experiences before marriage. During an age where the transfer of information is rapid and often uncontrolled, the most common source was the media. Governments and societies should have a policy to control and screen the appropriateness of the media. In addition, the control has to be balanced so that adolescents are not completely sheltered from the realities of life (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005).

4. Parent-Child Relationship

Close relationships with parents are important in the adolescent's development (Thato, 2003). In order to be accepted by a group, adolescents may go along with risky behaviors such as engaging in premarital sexual activities. On the other hand, if adolescents have connectedness with their parents, they may consult them about whether or not engaging in premarital sexual activities is appropriate. They are less likely to engage in this behavior if their parents disapprove of the initiation of premarital sexual activities (Jaccard, Dittus, & Gordon, 1996). Furthermore, a study by Taylor-Seehafer and Rew (2000) found that family and school connectedness, and the presence of caring adults are protective factors against early initiation of sexual intercourse. Characteristics of the childhood family and relationships with parents have some effects on the probability of early initiation of premarital sex. Studies have found that the quality of parent-adolescent relationship influences adolescent sexual health (Ellis et al., 2003, Jaccard and Dittus, 2000).

Unfortunately, parent-adolescent sexual communication is rarely found in East Asian families as they inhibit premarital sex (Liu and Chan, 2003). Adolescents perceive that tacit parental disapproval premarital sex and good children should not humiliate their parents expected according to cultural norms.

For Thai youth who grew up with both parents, males and females both have a low probability of initiation in premarital sex during adolescence. Choe, Hatmadji,

Podhisita, Raymundo, and Thapa (2004) found that close relationships among family members had strong influences on premarital sex in Thai youth. Furthermore, they found that parent/child connectedness was associated with an older age of first intercourse and a lower frequency of sex during adolescence (Choe, et al., 2004). Dysfunctional families play a crucial factor in increasing risk behaviors because adolescents in these families lack affection from their parent. Parents play a crucial role in shaping health behaviors because their roles include being the nurturer, teacher, and supervisor of their child. A survey of youth risk behavior in Bangkok, Thailand found that promotion of family planning, parenting, and proper child rearing are useful strategies to prevent adolescents from risk behaviors (Ruangkanchanasetr, et al., 2005).

5. Environment Factors

For young people, growing up in a rapidly changing environment is a challenge. Technological advancements (e.g. televisions and computers) that pave the way for global information sharing to offer them new ways of thinking and living. These new ways are often in conflict with the values passed on by parents and family.

In addition, adverse environmental factors such as poverty also make young people vulnerable. Young men and women migrate from villages to cities or other countries to look for better economic opportunities. Many of them begin to have casual sex, try drugs, and drink along with their peers (Isarabhakdi, 2000). Thus, experimenting with relationships and intimate behaviors has increasingly become a normal pattern of adolescent development. Consequently, adolescents are in danger of contracting sexually transmitted infections and unwanted pregnancies, which can have serious consequences because of their young age (WHO, 2002).

Socially, there is a recognition process during adolescence as more time is spent with peers. Parental guidance is reduced and becoming more indirect while participation in a large social group becomes more important (Ruangkanchanasetr, et al., 2005). Adolescence is the peak time in the life cycle to value peer relationships and to be influenced by peers. Peer pressure, conflicts with parents, failure in love relationships, anxiety about the future, and the overpowering influence of

disadvantaged social and economic conditions are factors that contribute to push young people onto the dangerous path of high-risk behaviors.

The Negative Consequences of Unprotected Sexual Behaviors

Although all sexually active individuals are at some risks for negative sexual outcomes or "sexual risks", adolescents are a group at great risk (Hutchinson & Thompson, 2001). Contemporary adolescents face growing threats to their health, such as HIV/AIDS and unwanted pregnancy. Young people are extremely vulnerable to STDs and HIV for various reasons, including a lack of information, an imbalance in power of sexual relations between women and men, and the greater biological vulnerability of girls. Every year, one in every 20 young people worldwide contracts STDs, and currently, 50 percent of all new HIV infections occur in young people with ages between 15 and 24 years. Up to 60 percent of HIV infections in young women occur by the age 20, and at least one fourth (20 million cases) of all unsafe abortions are to girls with ages between 15 and 19 years (International Women's Health Coalition [IWHC], 2000).

In Thailand, increasing rates of unintended pregnancies and STDs, including HIV/AIDS infections, among adolescents are becoming major health concerns. Contracting STDs, including HIV/AIDS, and having an unwanted teenage pregnancy are problems that affect not only the adolescents themselves but also their families and their society as a whole (Thato, 2002). Furthermore, HIV/AIDS is a serious threat to this group due to maternal to fetal transmission of the virus.

Sexual Transmitted Diseases

Thai adolescents had high rates of unprotected intercourse and were at risk for STDs. In the study of risk factors for sexually transmitted diseases in Northern Thai adolescents, 2.8% had C trachomatis infection, and there were 0.3% each who had infection with gonorrhea and HIV. Among those who reported sexual intercourse, the prevalence of Chlamydia infection was 6.1% among women, and 3.7% among men. Chlamydia and gonorrhea, two bacterial STDs, are among the most common diseases found in adolescent females (Hutchinson & Thompson, 2001). The majority of young women infected with Chlamydia or gonorrhea is asymptomatic and may not know

they are infected. Left untreated or treated inadequately, these infections can progress to pelvic inflammatory disease, infertility, and ectopic pregnancy (Institution of Medicine, 1997). Viral STDs also pose a serious threat to sexually active adolescents. Human papillomavirus (HPV) in some strains are associated with the development of cervical cancer. Herpes simplex virus-2 (HSV-2) causes genital herpes and places the individual at increased risk for HIV if exposed.

HIV/AIDS

Although the overall world population living with HIV/AIDS appears to be declining, evidences show that new HIV infections among adolescents are increasing (International Clinical Epidemiology Network: INCLEN research, 2001). Young people with ages between 15 and 24 years are the fastest rising group of new HIV cases in the world, approximately 6,000 new cases every day. In Sub-Saharan Africa, two-thirds of HIV-positive young adults are young women, and in other developing regions the proportion of females ranges from one third to one half (IWHC, WHO, 2004). HIV/AIDS is a serious threat to this age group. Not only does HIV/AIDS appear to be an incurable, inevitably fatal disease at this time, but also it affects people in the early years of their reproductive period. Recent data have suggested that adolescents have a significantly higher risk of acquiring HIV infections than any other age groups (Thato, 2002). The prevalence of AIDS among Thai and U.S. teenagers and young adults is very similar (Thato, 2002).

In the United States, more than half (54%) of 13 to 19 years olds diagnosed with AIDS in the year 2000 were girls (CDC, 2004). The incidence of HIV/AIDS is rising among women, who are more likely than men to become infected through heterosexual contact. Research shows that during unprotected sex, the risk of HIV infection is two to four times higher for women than men (Royce et al., 1997). Of the young people living with HIV/AIDS, 62 percent are young women (UNICEF / UNAID, 2002). Heterosexual exposure appears to be the primary mode of HIV transmission among adolescent and young women (Hutchinson & Thompson, 2001).

In Thailand, 14 percent of HIV infections are reported occurring among teenagers and young adults (MOPH, 2000). Several researchers found that an increased risk for STDs and HIV in adolescent females stems largely from initiating

sexual intercourse at earlier ages, and having unprotected sexual intercourse with multiple partners (Hutchinson & Thompson, 2001, Tangmunkongvorakul, Sombatmai, Ruangyutjikarn, & Bopodhi 2000). Young people may know how AIDS is transmitted and prevented, but many believe their risk of infection is minimal (INCLEN, 2001).

Unplanned Teenage Pregnancy and Abortion

Pregnancy at a young age is dangerous. Young women aged 15 to 19 years are twice as likely as those in their twenties to die from childbirth (United Nations, 2001). Pregnancy is the leading cause of death for 15 to 19-year-old girls worldwide (UNICEF, 2001). Forty-nine percent of pregnancies among American women were unintended, which half of them were terminated by abortion. Fifty-two percent of American women obtaining abortions were younger than 25 years old, women aged 20-24 years obtain 33 percent of all abortions, and teenagers obtain 19 percent (The Alan Guttmacher Institute, 1999). Pregnancy rates among young people are high in many developing and developed countries. In Thailand, the overall fertility rate is low, but approximately 27 percent of reproductive–age Thai women had their first child before they were 20 years old (Family Planning and Population; MOPH, 1996).

Pregnancy and abortion among Thai adolescents are high when compared to Western countries. According to the Public Health Ministry Statistics, the teen abortion rate in Thailand was 16.2 per 1,000 births as compared to 3.1 per 1,000 in Germany, 4.2 in the Netherlands, and 8.9 in France (Ekacha, 2002). Although teen pregnancy rates have declined among American teens, they remain high compared to other nations as does the incidence of STDs. Every year, an estimated one in four sexually active adolescents in the U.S. acquires an STD- approximately 3 million (Hales, 2003). In the United States, 17 percent of teenage girls report that they used a contraceptive the most recent time they engaged in intercourse (CDC, 2004).

Unplanned pregnancy among young people can lead to adverse social psychological, and health outcomes, particularly when it results in abortion. Manopaiboon et al. (1999) examined the prevalence of and factors associated with pregnancy and abortion among 1725 vocational school students in northern Thailand. Results showed that 48 percent of male students and 43 percent of female students interviewed have reported of having sexual intercourse. Among those who reported of

having had intercourse, 17 percent of the male and 27 percent of the female responded that such intercourse resulted in pregnancy. Moreover, 95 percent of reported pregnancies which either resulted in delivery or abortion were aborted (Manopaiboon et al., 1999). Therefore, the high rates of pregnancy and abortion in young population indicate the need for better sexual health education and access to effective contraceptive methods.

Thai traditional sexual sanctions limit young women's power to practice or negotiate protected sexual intercourse. Thai female adolescents and young never-married women should have access to sex education from an early age onwards. Educational opportunities may reduce the numbers of women who discontinue contraceptive methods or experience contraceptive failure because of inaccurate knowledge. Consequently, it will encourage female adolescents to consider contraceptive usage from the onset of sexual activities, which in turn may help to eliminate complications like HIV/AIDS transmission and self-induced abortions (Meesook, Attig, & Phijaisanit, 1995).

Condom Use for Safe Sex Behavior

Adolescents are generally biologically capable of procreation, but they are not psychologically, socially, and emotionally mature enough to assume the reproductive process (Mendoza, Pons, & Sánchez, 1998). They begin early sexual activities in casual relationships that contributed to unwanted pregnancy, STDs, and HIV/AIDS. Practicing safe sex behavior is the best way to protect oneself from the negative consequences of premarital sex (Thato, 2002).

Condoms have dual benefits: they provide a barrier against an infection from sexually transmitted diseases (STDs), including HIV, and they protect against unwanted pregnancy in those who are not using other reliable contraceptive methods. Recent national surveys of sexual behaviors have shown that the majority of young English people use condoms infrequently or inconsistently (Sutton, McVey, & Glanz, 1999). Although, in general, youths are aware of the effectiveness of condoms to prevent transmission of HIV, only a small proportion reported using condoms during sexual intercourse (Jemmott, Jemmott, & Villarruel, 2002). Also inconsistent condom use and high-risk social environments increase the probability of developing sexually

transmitted diseases (Rew, 2005). In addition, efforts to increase the consistency of condom use rely on limited understanding of its determinants. Adolescents' decisions to use condoms may be influenced by the type of sexual relationships and the qualities of the relationship (Ellen, Cahn, Eyre, & Boyer, 1996).

Condom use among youth is reported to be infrequent in Thailand (Piya-Anant et al., 1999). Evidently, condom use is much more frequent in sexual encounters with sex workers than in cases of intercourse between girlfriends and their boyfriends (Mahuttano, 1996). Although adolescent males know more about using condoms than adolescent females do, Thiramanus (1994) found that male students in the northeast university of Thailand had a low level of condom use (39%). Similarly, youth risk behavior survey in Bangkok, Thailand, found that among the 10 percent of surveyed 2311 adolescents who had sexual intercourse, 7 percent of them had never used a condom, and 2.1 percent had resulted in a pregnancy (UNESCO Bangkok, 2004). Adolescent females feel that condom used were the partner's responsibility. Moreover, they believed that they lack the skills to negotiate safer sex practices, and fear for termination of the relationship or coercion if they do not agree to have unprotected sex (Abraham & Sheeran, 1994).

As a result, practicing safe sexual behaviors have become increasingly important for adolescents (Grady, 2003). Several studies support the notion that the meaning of sexual behaviors can be an important determinant of condom use (Gebhardt, et al., 2003). The use of latex condoms is effective in reducing the risk of sexually transmitted infection, including HIV infection (Center for Disease Control and Prevention, 1993; Jemmott, Jemmott; III, Villarruel, 2002). The importance attached to having sexual intercourse was a significant determinant for condom use among adolescents (Abraham et al., 1999)

Therefore, it is important to attempt to identify the use-or non-use of condoms. As well as increasing understanding of decision making in the domain of sexual behaviors, such information could be used to guide the development and evaluation of future health education campaigns and materials on the subject of safer sex, HIV risk reduction, and contraceptive use.

Theoretical Framework Explaining Condom Use

Over the past decade, considerable research attention has been directed toward the prediction and explanation of precautionary sexual behavior. The health belief model (HBM) is probably the most frequently applied model to describe and explain health behavior. This model focuses on two aspects: threat perception (perceived vulnerability and severity of the illness or health breakdown) and behavioral evaluation (benefits of preventive action and costs of enacting that behavior). This model has also been applied to contraceptive use. A number of studies have used the HBM to study HIV preventive sexual behavior among young heterosexuals. For instance, Hingson, Strunin, Berlin, and Heeren (1990) found that adolescents who believed that condoms were effective in preventing HIV transmission and who felt susceptible to HIV infection were more likely to report condom use (cited in Richard, K.de Vries, & Van der Pligt, 1998).

However, the predictive power of the HBM seems limited (Abraham, Sheeran, Abrams, & Spears, 1996; Rosenthal, Hall, & Moore, 1992; Sheeran & Abraham, 1996). This is underlined by the outcomes of a meta-analysis by Gerrard, Gibbons and Bushman (1996), who found only modest relationships between perceived vulnerability to HIV (a key factor in the HBM) and the precautionary sexual behavior.

Other research points to the importance of factors not included in the HBM. For instance, Fisher, Misovich, & Fisher (1992) suggested that social norms constitute an important determinant of safer sexual practices, and that a normative component should be incorporated into the study of contraceptive behavior. Others have also argued that models that take social norms into account may offer a better explanation of HIV precautionary behavior than the HBM (Richard, K.de Vries, & Van der Pligt, 1998). Furthermore, recent research also confirms the importance of perceived behavioral control, self-efficacy, or both in safer sex practices (Villarruel, Jemmott; III, Jemmott & Ronis, 2004).

In conclusion, consistent with several theories that have been used in intervention research, beliefs or outcome expectancies have been among the chief targets of HIV interventions. For example, social cognitive theory (Bandura, 1986, 1989), the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), the health belief model (Montgomery et al., 1989), and theory of planned

behavior (Ajzen, 1985, 1991) all highlight the importance of various kinds of beliefs as determinant of behavior. Beliefs are of special importance to intervention research because they are often adaptable and open to influence (Jemmott, Jemmott;III & Villarruel, 2002).

A number of studies have applied the theory of planned behavior to condom use (Boldero, Moore, & Rosenthal, 1992; Conner & Graham, 1994; Nucifora, Gallois, & Kashima, 1993; Richard & van der Pligt, 1991; Richard, van der Pligt, & de Vries, 1995; Terry, Galligan, & Conway, 1993; Villarruel, Jemmott; III, Jemmott & Ronis, 2004; Wilson, Zenda, McMaster, & Lavelle, 1992). Results of these studies provide considerable support for Ajzen's model (Richard, K.de Vries, & Van der Pligt, 1998; Villarruel, Jemmott; III, Jemmott & Ronis, 2004). Thus, this brings the researcher to Ajzen's theory of planned behavior (Ajzen, 1985, 1991), which includes (a) attitude toward the behavior (i.e., one's evaluation of the behavior), (b) subjective norms (i.e., perceived social pressure to perform a behavior), and (c) perceived behavioral control (i.e., the individual's perception of control over performing the precautionary behavior).

Theory of Planned Behavior

The theory of planned behavior (Ajzen, 1985, 1991) is an extension of the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), which is limited to the prediction of behaviors under full volitional control. The TRA and the TPB provide important frameworks for predicting and understanding social behavior. Both models propose that a person's intention to perform a behavior is the key predictor of behavioral performance. The TRA has gained attention from a number of researchers due to its simplicity, its straightforward operationalization, and its general applicability (Ajzen, 1991). Various aspects of the theory have been investigated and several limitations of the TRA have been identified. It appears that the TRA is limited to behavior that is completely under volitional control. To overcome some limitations of the TRA and improve the power in predicting and explaining goal-directed behavior, Ajzen (1985) includes the notion of perceived behavioral control, as an antecedent of behavioral intention and behavior in the TPB to explain behaviors under partial volitional control.

The TPB postulates an additional determinant of intentions, perceived behavioral control, which refers to people's appraisals of their ability to perform a behavior. The more positive people's attitudes and subjective norms are regarding the behavior and the greater their perceived behavioral control, the more likely it is that people will intend to perform the behavior. Intentions to perform a behavior are conceptualized as the most immediate and important predictors of behavioral performance, and mediate the effects of attitudes, subjective norms, and, in certain circumstances (Ajzen, 1991; Ajzen & Madden, 1986). Behavioral intentions are believed to summarize people's motivation to perform a behavior. Intentions indicate to what extent people want to perform the behavior and how much effort they are prepared to exert in order to perform it.

The theory of planned behavior is based on the assumption that people make rational decisions based on a systematic use of information available to them. The major proposition of the TPB is that individuals intend to perform a certain behavior if they: have a positive attitude toward that behavior; perceive that significant others expect they should do it; and believe that they can control it (Ajzen, 1985).

According to the theory of planned behavior, human action is guided by three kinds of considerations: beliefs about the likely outcomes of the behavior and an evaluation of these outcomes (behavioral beliefs), beliefs about the normative expectations of others and motivation to comply with these expectations (normative beliefs), and beliefs about the presence of factors that may facilitate or impede performance of the behavior and the perceived power of these factors (control beliefs). In their respective aggregates, behavioral beliefs produce a favorable or unfavorable *attitude toward the behavior*; normative beliefs result in perceived social pressure or *subjective norm*; and control beliefs give rise to *perceived behavioral control.* In combination, attitude toward the behavior, subjective norm, and perception of behavioral control lead to the formation of a behavioral *intention*. As a general rule, the more favorable the attitude and subjective norm, and the greater the perceived control, the stronger should be the person's intention to perform the behavior in question. Finally, given a sufficient degree of *actual* control over the behavior, people are expected to carry out their intentions when the opportunity arises. Intention is thus assumed to be the immediate antecedent of behavior. However, because many

behaviors pose difficulties of execution that may limit volitional control, it is useful to consider perceived behavioral control in addition to intention. To the extent that perceived behavioral control is veridical, it can serve as a proxy for actual control and contribute to the prediction of the behavior in question (Ajzen, 2002).

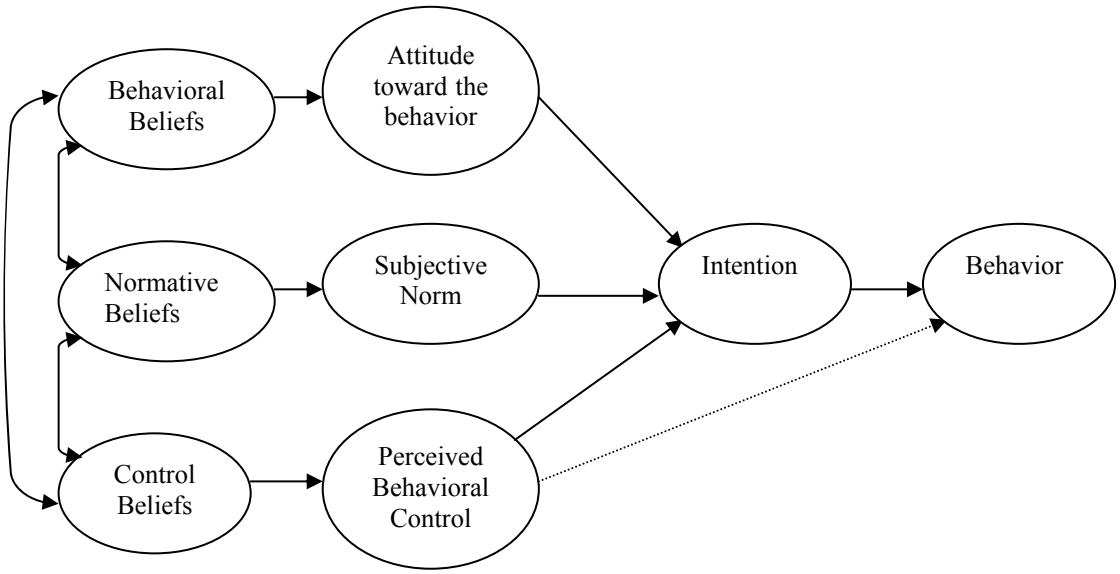


Figure 3: The Schematic Representation of Ajzen's Theory of Planned Behavior
Source: Ajzen, I. (2002).

The TPB also suggests that attitude, subjective norm, and perceived behavioral control are determined by underlying accessible beliefs (Ajzen, 1991). Attitude is a function of behavioral beliefs. These are beliefs about the likely outcomes of the behavior and the evaluations of these outcomes. Subjective norm is determined by normative beliefs, which reflect the individual's perception that specific individuals or groups perceived to be important to the individual think he/she should perform the behavior and the motivation to comply with these individuals/groups. Finally, perceived behavioral control is thought to be a function of control beliefs. These are beliefs about the presence of factors that facilitate or impede performance of the behavior and the perceived power of these factors (Ajzen, 2002).

In summary, the theory of planned behavior postulates that even though individuals' attitudes and/or subjective norms are positive, if individuals perceive that

the resources or capabilities are limited, their intentions to perform certain behaviors may be weak (Ajzen & Madden, 1986). In other words, despite positive attitudes and/or subjective norms, individuals may have low intentions to execute behaviors due to their perception of having little control over performing the behavior. While attitudinal and normative components indirectly affect behavior through intention, perceived behavioral control may influence behavior either directly or indirectly. The following figure is a schematic representation of the theory of planned behavior.

1. Attitude toward Behavior

An attitude is "a predisposition to react negatively or positively, in some degree, toward a class of objects, ideas, institutions, or people" (Nunnally, 1964, p. 334). Ajzen and Fishbein (1980) define attitude as "a person's general feeling of favorableness or unfavorableness for that concept" (p.55). They also describe an attitude toward behavior as "a person's judgment that performing the behavior is good or bad, that he is in favor of or against performing the behavior" (Ajzen & Fishbein, 1980, p.56). Attitude can be measured directly by a standard or global measure, or indirectly by a belief-based measure (Ajzen, 1991). The direct measure is usually obtained by means of an evaluative semantic differential. The indirect measure is evaluated by the expectancy-value model, which proposes that the strength of each salient belief is combined in a multiplicative fashion with the subjective evaluation of the belief's attribute, and the resulting products are summed over the *n* salient beliefs. A person's attitude is directly proportional to this summative belief index (Ajzen, 1991, p.191).

2. Subjective Norms

Subjective or social norms refer to "the person's perception that important others desire the performance or nonperformance of a specific behavior" (Ajzen & Fishbein, 1980, p.57). They are similar to social influence- the means by which members of a social network attain a normative direction for health related behaviors (Berkman & Glass, 2000). Subjective norms are developed from an individual's beliefs about the anticipations of significant others or referent groups regarding such behavior and her/his tendency to agree with those normative beliefs (Ajzen &

Fishbein, 1980). This concept is more limited than the sociological perception of norm, and that may or may not reflect the significant others' actual beliefs.

The subjective norm is also influenced by a set of salient beliefs about the normative prescriptions of specific referents, weighted by the motivation to comply with each of those referents. For example, a man may perceive social pressure to use condoms if he believes that his partner thinks that he should use condoms and he is motivated to comply with him or her. Multiplying each normative belief by the corresponding motivation to comply and summing the products over the five referents to compute an indirect measure of subjective norm. This yields a score representing the extent of perceived normative pressure to use condoms.

Several authors have argued that the normative component is the weakest component of the theory. For example, Sheppard et al. (1988) and Van den Putte's (1991) meta-analyses of the TRA found that the subjective norm component was the weakest predictor of intentions. As a result, several authors have deliberately removed subjective norms from their analysis (Sparks, Shepherd, Wieringa, & Zimmermanns, 1995). These findings could merely reflect the lesser importance of normative factors as determinants of intention in the behaviors studied. Trafimow and Finley (1996) found evidence to suggest a distinction between individuals whose actions are driven primarily by attitudes, and those whose actions are driven primarily by subjective norms. In addition, across several different types of behavior, variables thought to tap different facets of normative conduct have been found to be independently predictive of intention (Armitage & Conner, 2001). The most likely explanation for poor performance of the subjective norm component lies in its measurement: many authors use single item measures, as opposed to more reliable multi-item scales.

3. Perceived Behavioral Control

Perceived behavioral control is defined as "people's perception of ease or difficulty of performing the behavior of interest" (Ajzen, 1991, p.183). Although perceived behavioral control is similar to self-efficacy, the construct in the social cognitive theory (Ajzen, 1985; Ajzen & Madden, 1986), these two constructs are not entirely synonymous (Dzewaltowski et al., 1990; Litt, 1988; Terry & O'Leary, 1995).

Perceived behavioral control is the estimation of the possibility (ease or difficulty) of accomplishing a target outcome and the judgment of one's ability to overcome barriers (Ajzen, 1988). Self-efficacy refers to the person's appraisal of the extent to which one is able to execute a certain behavior (Bandura, 1986). Furthermore, perceived behavioral control reflects both internal (e.g., ability, skill, information, injuries) and external factors (e.g., availability of time or money, cooperation of other people, weather conditions), whereas self-efficacy centers only on internal factors. For safe sex behaviors, White, Terry, and Hogg (1994) reported that perceived behavioral control only had an effect on a behavioral measure of discussing the use of condoms with any new partner, while self-efficacy had a strong effect on intentions to discuss and intentions to use condoms.

As with attitude and subjective norm, the contribution that perceived control makes to the prediction of intention varies with the behavior. Ajzen (1991) represented the relationship between perceived control and behavior with a broken arrow. Perceived control has a direct effect on behavior when the behavior is not completely under the person's control and the person's perception of control is accurate. As with attitude and subjective norm, the individual's beliefs about control influence the perception of behavior control. Thus, control beliefs are based on the factors that may help or hinder performing the behavior and the evaluation of the power of those factors.

Perceived behavioral control is included as an exogenous variable that has both a direct effect on behavior and an indirect effect on behavior through intentions. The indirect effect is based on the assumption that perceived behavioral control has motivational implications for behavioral intentions. When people believe that they have little control over performing the behavior because of lack of requisite resources, then their intentions to perform the behavior may be low even if they have favorable attitudes and/or subjective norms concerning performance of the behavior. The structural link from perceived behavioral control to intentions reflects the motivational influence of control on behavior through intentions. The direct path from perceived behavioral control to behavior is assumed to reflect the actual control an individual has over performing the behavior. The direct effect of perceived behavioral control on actual behavior should be significant when (a) the behavior in question is likely to

have some aspect not under volitional control and (b) perceptions of control over the behavior are accurate (Ajzen, 1991).

4. Intention

Intention is defined as an individual's subjective likelihood of engaging in a given behavior, and is composed of **action, target, context,** and **time** elements (Ajzen & Fishbein, 1980). Intention has three primary antecedents: personal attitudes (the value of performing a behavior), subjective norms (perceived social pressure), and perceived behavioral control (perception of ease or difficulty in accomplishing a value outcome and the perception of one's capability to overcome barriers) (Ajzen, 1988).

The intention construct is central to the TPB. Intentions are assumed to capture the motivational factors that influence a behavior and to indicate how hard people are willing to try or how much effort they would exert to perform the behavior (Ajzen, 1991). In applications of the TPB, researchers have not always employed measures that clearly tap the intention construct. Sheppard et al.'s meta-analysis (1988) supported this view. Measures of self-predictions were found to have stronger relationships with behavior (mean r = .57) than did behavioral intentions (mean r = .49), although attitude and subjective norm accounted for more of the variance in intentions (mean r = .73) than self-predictions (mean r = .61).

The magnitude of the relationship between intention and behavior may be influenced by the congruence of the measurement of intention and behavior, and the stability of intention at the time of behavior measurement (Fishbein & Ajzen, 1975). Ajzen and Fishbein (1980) suggest that a measure of behavior should include four elements: action, target, context, and time. For an accurate prediction, it is important that a measure of behavioral intention incorporate the identical elements of that behavior (Ajzen, 1991). Furthermore, intention can change overtime, and a measure of intention taken some time prior to observation of the behavior may differ from the intention at the time the behavior is observed. The longer the time interval between the measurement of intention and behavior, the less accurate the prediction of the behavior should be (Ajzen & Fishbein, 1980). Therefore, to obtain an accurate prediction it is important to measure intention as close as possible to the behavioral observation. As a general rule, the more favorable the attitude and subjective norm and the greater the

perceived control, the stronger should be the individual's intentions to perform the behavior in question (Blanchard et al., 2003).

Empirical Studies of the Theory of Planned Behavior

Beyond the circumscribed context of condom use, the theories of reasoned action and planned behavior are comprehensive theories of many behaviors that specify a limited number of psychological variables that can influence a behavior, namely (a) intention; (b) attitude toward the behavior; (c) subjective norm; (d) perceived behavioral control; and (e) behavioral, normative and control beliefs (Fishbein et al., 1992). The theory has been applied mainly to predict and explain a wide range of behaviors, including health-relevant behaviors such as sexual behavior, smoking, exercise and food choice (Godin, 1993; Sparks, 1994; Blue, 1995; Manstead and Parker, 1995; Conner and Sparks, 1996; Godin and Kok, 1996; Conner and Armitage, 1998).

Albarracin, Johnson, Fishbein and Muellerleile (2001) conducted a meta-analysis based on the TRA and TPB as models of condom use. The review indicated that the TRA and TPB are highly successful predictors of condom use. It complements the conclusion that chronic perceptions of HIV risk are minimally linked to preventive behavior by pointing to other factors that do predict condom use. Thus, people are more likely to use condoms if they have previously formed the corresponding intentions. These intentions to use condoms appear to derive from attitude, subjective norms, and perceived behavioral control. These attitudes and norms, in turn, appear to derive from outcome and normative beliefs.

People may know how the HIV/AIDS virus is transmitted and have the skills to negotiate condom use but still engage in unprotected sexual intercourse. The TPB seems particularly useful in this regard. Application of the TPB model to understand a particular behavior will identify underlying beliefs that determine one's attitude, subjective norm, and perceived behavioral control, and thereby affect the likelihood of performing the behavior.

The Theory of Planned Behavior (TPB) can be used as a framework to advance a study of the role of attitudes, norms, and perceived control in condom use. In this

model, behavior is believed to be direct preceded by the intention to perform the behavior in question (behavioral intentions). Behavioral intentions are determined by three factors: *attitudes*, *subjective norms*, and *perceived behavioral control*. Attitude refers to the degree to which the person has a favorable or unfavorable evaluation of the behavior in question. Attitude is derived from one's perception that performing the behavior will lead to the outcome being considered (outcome expectancy) and of the value of positive and negative consequences that may occur if the behavior is performed (outcome value). Subjective norms are derived from perceptions of likelihood that significant referent individuals or groups would approve or disapprove of performing the behavior (expectancy), and the individual's motivation to comply with the referent (value). Perceived behavioral control refers to the degree to which a person believes that he/she has the power or ability to perform the behavior in question.

The general predictions of the current study are that the TPB would be a plausible model of condom use. Therefore, condom use is expected to be associated with intentions and perceived behavioral control; intentions are expected to correlate with attitudes, subjective norms, and perceived behavioral control; also attitudes, subjective norms, and perceived behavioral control are expected to correlate with the indirect, belief-based components.

1. Attitude toward condom use

According to TPB, the relationship of sexual attitudes to behavior has been extensively researched, often with conflicting results. Some studies found negative sexual attitudes to be associated with embarrassment when purchasing contraceptives, difficulty communicating with a partner about condoms, and failure to use contraceptives (Fisher, 1984).

According to a study by Hingson (1990) attitude was more likely to have influence on behavior change. In the study, the significant median score of perception between intention of always use condom and never or sometime use condom was found, also it was revealed that the students who had intention of using condoms always had higher or equal median scores than the students who had intention of never or sometime using condoms. This result is similar to the finding in the study by

Oswald (1992), among German students that showed a significant relationship between the two variables. The students with high positive attitude also had a high intention to use condoms and vice versa.

The study of Sutton, McVey, and Glanz (1999), to develop health education campaigns and materials, including interventions aimed to change attitudes toward condom use and subjective norm, found that the best strategy for changing attitudes toward condom use is somehow to persuade young people that using condoms is less likely to reduce their (and their partner's) sexual pleasure than they thought. This is likely to be a difficult task; beliefs based on personal experience, in contrast to those acquired through information from outside sources such as television programs, are likely to be highly resistant to change.

Adolescents' attitudes toward condom use can predict behavior. The study conducted by Minoia and Rose (1996) among female college students found that students who reported condom use had significant higher scores on condom attitudes than those not using condoms. Similarly, those of studies surveyed male college students and found that students holding a positive attitude toward condoms scored higher on safer sex behaviors (Cole & Slocumb, 1995; Sheeran, Abraham & Orbell, 1999, cited in Thato, 2002). Sheeran, Abraham and Orbell (1999) used meta-analysis to quantify the relationship between psychosocial variables and self-reported condom use. They found that attitudes toward condoms were one of the most important predictors of condom use.

The studies in Thailand had similar findings to the study by Jutta Arenth (1999), which revealed that students with a moderate or high attitude to condom use were more likely to have safe sex intention than students with a low attitude to condom use. Furthermore, Kobkarn Mahuttano's (1996) study about factors influencing condom use among vocational-education male students in Bangkok had the same results. In her study, she found that factors associated with condom use among the students were attitude to condom use, perception of susceptibility to sexually transmitted disease (STD) and AIDS, perception of seriousness of STD/AIDS, availability of condoms, cost of condoms and other factors.

2. Subjective norms

Jemmott, Jemmott, and Villarruel (2002), found that favorable behavioral beliefs, normative beliefs, and control beliefs about condoms were related to stronger intentions to use condoms among Latino college students who resided in New Jersey. In this study, the regression coefficients for both of the behavioral beliefs were nonsignificant, whereas two of the regression coefficients regarding normative beliefs were significant, suggesting that Latino college students' perceptions of normative support were stronger determinants of intentions to use condoms than were their behavioral beliefs about the consequences of condom use. This contrasts with the findings of Jemmott and Jemmott (1991), who studied African American college women. In that study, norms were less predictive of condom use intentions than were attitudes. On the other hand, the findings of Jemmott, Jemmott, and Villarruel's (2002), are consistent with the notion that normative influences are particularly strong among Latinos.

Jemmott, Jemmott, and Villarruel (2002) found significant correlations between intentions to use condoms and several variables from the TPB. Results indicated that students who perceived greater partner approval of condom use, perceived greater peer approval of condom use, and expressed confidence in their ability to control themselves reported stronger intentions to use condoms (r = .597, .299, .237, p< .0001 respectively). Perceived partner approval and impulse control was related to self-reported condom use at most recent vaginal intercourse, impulse control was related to self-report condom use at most recent anal intercourse.

Personal norms that approved of sexual intercourse at younger ages were strongly associated with an increased likelihood of having had sex. Other researchers (Sather & Zinn, 2002) found that an adolescent's: (1) attitude about sex was a significant predictor of intention to abstain from sex, (2) attitude about condoms was a significant predictor on intention to use them, (3) level of sexual experience was significantly related to attitudes and norms about sex and susceptibility, (4) the lack of sexual experience led to increased conservative attitudes about sex and perceived norms were more positive than those with more sexual experience, and (5) intention to abstain from sexual intercourse or to use condoms was more positive among those youth with no or some experience. The results suggest that normative beliefs and

control beliefs regarding impulse control may be especially salient in both predicting and changing condom use behavior and should be incorporated into nursing assessments and tailored interventions.

3. Perceived behavioral control

A lack of perceived risk for HIV was identified as the most common reason female college students did not use condoms (Carter et al., 1999). However, personal risk assessment may influence a woman's decision to actively negotiate condom use with her partner. The males in Carter et al.'s (1999) study were more likely to use condoms if their partners took an active role in the condom use decision-making process. In the study by Eitel and Friend (1999) of 150 men and women, those whose perception of HIV/STD risk increased after a motivational intervention were more likely to immediately increase their intention to use condoms. They also reduced their sexual risk behaviors 2 months later, compared with participants with a lack of perceived risk.

Furthermore, in a meta-analysis of 84 TPB studies on a wide range of different behaviors, Corner and Armitage (1997), found that perceived behavioral control was a significant independent predictor of intention over and above attitude and subjective norm. Nevertheless, considering the wider literature on the TPB, one third of studies have not found a significant independent effect of perceived behavioral control (Sutton, Dominic, & Glanz, 1999).

4. Intention to use condoms

A large number of studies have used the TPB to investigate the predictors of condom use intentions in heterosexual young people (Sheeran & Taylor, 1998). Most studies have used student samples. The findings supported the basic predictions of the TPB: attitude or subjective norm significantly predicted intention, and when a behavioral follow-up was conducted intention significantly predicted subsequent self-reports of condom use. A subset of these studies included a measure of perceived behavioral control or the related concept of self-efficacy. Although in most cases this significantly improved the prediction of behavioral intention, in accordance with the

TPB, there have been several exceptions, and in a number of studies, the additional variance explained was very small (e.g., 3% or less in the studies).

Albarracin, Johnson, Fishbein, and Muellerleile conducted a meta-analysis of the TRA and TPB as models of condom use on the data reported in 96 published and unpublished articles. The study indicated that (a) condom use was related to intentions (weight mean *r*. = .45), (b) intentions were based on attitudes (*r* = .58) and subjective norms (*r* = .39), and (c) attitudes were associated with behavioral beliefs (*r* = .25), but in contrast to the theory, it did not contribute significantly to condom use (Albarracin et al., 2001).

Application of the TPB in behavior change interventions identified that reviews of the TPB have mainly focused on the predictive ability of the theory and possible extensions (Hardeman et al., 2002). The TPB explained 41% of variance in intention and 34% in health-related behavior. In addition, a more comprehensive description of TPB analyses to identify predictors of condom use intention among other subgroups and implications for intervention message development has been published in Psychology, Health & Medicine (von Haeften, Fishbein, Kasprzyk, & Montano, 2001; Fishbein, von Haeften, & Appleyard, 2001).

On the other hand, Hardeman et al. (2002) identified a diverse literature with few coherent studies that were explicit about how the theory had been applied. The TPB has rarely been applied to the development and/or evaluation of interventions. The taxonomy about use of the TPB was helpful in assessing more specifically that the theory was most frequently used to measure process and outcome variables and to predict intention or behavior (change), and less often to develop the interventions. To allow judgment of the effectiveness of using the TPB to develop interventions, as compared to other social cognition models, studies would need to apply the TPB more comprehensively and be more explicit about how it has been applied, specifying target components and measuring them.

In conclusion, the TPB was an attempt to extend the TRA to accommodate behaviors that were not entirely under an individual's volitional control. Condom use would seem to fall into this category. At the very least, condom use will depend on the availability of a condom at the time of the sexual encounter and on cooperation between the two partners. Other potential barriers to condom use include the difficulty

of putting on a condom and the difficulty of raising the subject, particularly with a new sexual partner.

The general predictions of the proposed study are that the TPB would be a plausible model of condom use. In addition, condom use is expected to be associated with intentions and perceived behavioral control. Intentions are expected to correlate with attitudes, subjective norms, and perceived behavioral control, as well as attitudes, subjective norms, and perceived behavioral control are expected to correlate with its indirect measure, the belief-based components.

Therefore, it is explicit that the prevalence of premarital sexual intercourse among Thai adolescents is increasing. Unfortunately, most of them practice unsafe sex or unprotected sex behaviors, in particular not using condoms every time when having sex. Moreover, understanding condom use behavior and promoting condom use in sexually active or high-risk populations is important for HIV/AIDS prevention and the prevention of other sexually transmitted diseases. No studies have applied a theoretical perspective to explore why Thai adolescents intend to use condoms and how intention related to their actual condom use behaviors. Psychosocial factors, including their attitudes toward condom use, subjective norms, perceived control, and intention to use condoms should be examined intensively.

Summary

The behavioral health research has shown strong links between psychosocial factors including attitude, subjective norms, perceived behavioral control, and intention to perform health behavior (Ua-Kit, 2004). This study draws on the theory of planned behavior (Ajzen, 1985, 1991). The theory makes distinction among three broad classes of beliefs: behavioral beliefs, normative beliefs, and control beliefs. Examining the relationships between the TPB variables and Thai adolescents' condom use behavior will allow researcher to better understand condom use behavior and add to the knowledge base for developing intervention program.

CHAPTER III
METHODOLOGY

This chapter provides a description of the research methodology used in this study including research design, population and sample size, sampling method, instrumentation, data collection, protection of human subjects and data analysis. Path analysis was used to examine the relationships among the antecedent factors of the Theory of Planned Behavior (TPB), including behavioral beliefs, normative beliefs, control beliefs, attitudes, subjective norms, and perceived behavioral control that have an influence on condom use behavior within which intention plays the mediating role.

Research Design

The TPB was used to guide the methods of the study and analysis. A cross-sectional descriptive study was planned to examine: 1) the causal relationships among the model constructs of attitudes, subjective norms, perceived behavioral control, and condom-use intention to condom-use behavior among Thai adolescents, and 2) the predictive ability of key variables in determining condom-use behavior. The study was conducted in two-phases as follows.

Phase 1: Elicitation Study and Pilot Testing

This phase was divided into two steps in order to develop the measurement items for Thai adolescent as follows:

Step 1: An elicitation study was a critical step in applying the TPB that involved conducting open-ended interviews to probe the relevant salient beliefs among specific population and behavior. Elicitation interviews were conducted with a sample of at least 15 to 20 individuals from the population under investigation (Montano & Kasprzyk., in Glanz, Rimer, & Lewis, Eds., 2002). The elicitation interview was performed based on criteria recommended by Ajzen and Fishbein (1980), and Ajzen

and Madden (1986). Focus groups were generally used within a research project to increase the range of beliefs and values that would be represented in the population under study, with the aim to have heterogeneity between the groups (Morse & Field, 1996). In this study, six focus groups were conducted by the researcher with 46 vocational students, randomly selected from three vocational schools in Bangkok. Each focus group was composed of 7 to 10 participants who were selected because they were known to be knowledgeable about the topic that was focalized to this research. Content analysis of responses was conducted to identify the relevant attributes or outcomes of condom use behavior, relevant social referents, and control power. The information then provided the questionnaire content and the TPB measure was developed (Glanz, Rimer, & Lewis, 2002)..

Step 2: A pilot testing based on the elicitation results was conducted. The questionnaire to measure the study variables were constructed and piloted with 95 randomly selected vocational students to measure the salient behavioral beliefs, normative beliefs, and control beliefs of the population studied. All of the items of the new instrument were simply written to tap into various aspects of each salient belief. In this phase, the Cronbach alpha coefficient was computed to indicate the internal consistency of each salient belief. The TPB questionnaire was designed to measure attitude, subjective norms and perceived behavioral control that relevant to adolescents and condom use behavior. The pilot testing was then to ensure that the constructs of the TPB were comprehensively identified and measured.

Phase 2: Model Testing

A model testing was applied to assess the relationships among the TPB's variables with 607 adolescents using the self-administered questionnaires constructed from phase 1: the elicitation and pilot result. In this phase, description of the study variables including frequency and measurement of central tendencies were employed to examine normality of the variables and to illustrate the demographic characteristics of the sample. Finally, path analysis was used to examine a causal model among the TPB constructs to predict intention and condom use behavior among Thai adolescents. Path analysis was used to test the fit of the correlation matrix against two or more causal models which were compared by the researcher (Garson, 2008). The main goal

of a path analysis was to account for the covariances of observed exogenous variables with a structural model of their presumed unanalyzed associations, spurious associations, and causal relations with each other (Kline, 1998).

Settings and Sampling

This study was conducted in Bangkok, Thailand. Bangkok is the capital and metropolitan areas of Thailand where most families are nuclear families. Most families did not have sufficient time to take care of their children which could lead to some kind of risk factors, namely, poor parental connectedness, loneliness, and financial problems. The Planned Parenthood Association of Thailand (PPAT) estimated the population of adolescents and youth in Thailand was approximately 13 million (UNESCO Bangkok, 2004).

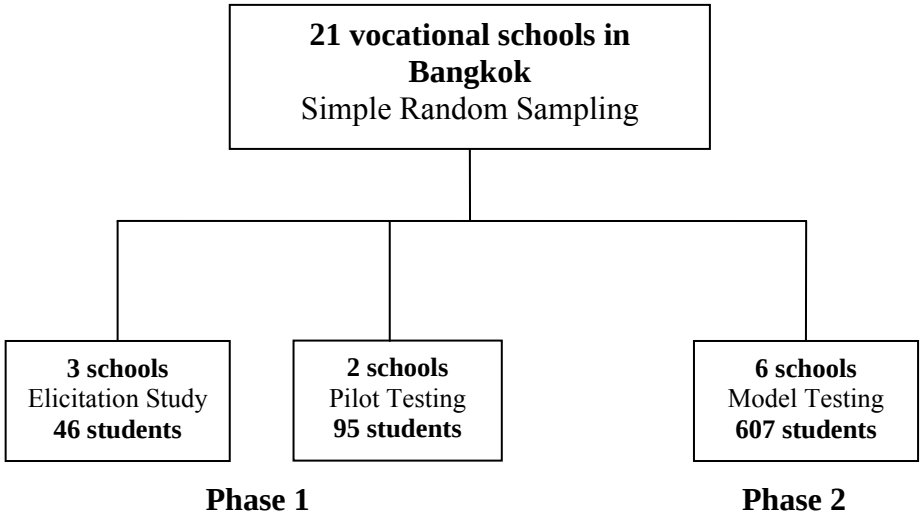


Figure 4: Sampling Scheme of the Study (Phase 1: Elicitation Study and Pilot Testing, and Phase 2: Model Testing)

The multi-stage random sampling technique was used to obtain the sample. Subjects for the study in phase 1 and 2 were recruited from students who took the vocational education. The Department of Vocational Education, Ministry of Education consists of three educational regions for vocational schools, located in Bangkok.

Overall there are 21 public vocational schools in Bangkok metropolitan area (Vocational Education Commission; Ministry of Education Thailand, 2007). Potential school samplers were randomly selected by a sampling method without replacement. These schools were selected as a sampling unit and were divided based on two phase of this study. Thus, students from the selected schools were the sample represented Thai adolescent population in Bangkok. The sampling configuration for the study was depicted in figure 4.

Sample of Phase 1

Step1: Elicitation study was conducted with a sample of 46 vocational students to identify the salient behavioral beliefs, normative beliefs, and control beliefs regarding condom use and sexual behavior. The researcher randomly selected three schools by sampling method. Three vocational schools were King Mongkut's Institute of Technology North Bangkok (College of Industrial Technology) (n=15), Rajamangala University of Technology Tawan-ok (Uthen-thawai campus) (n= 22), and Pathumwan Institute of Technology (n= 9). Two focus groups interview were conducted group process from each randomly-selected school.

A total of six focus groups, with 7-10 students in each group, were performed according to gender. There were two female-groups, two male-groups, and two groups of mixed both genders. The elicitation study was conducted in the afternoon after class at each school. These elicitation interviews were then gather for content analysis to identify the relevant attributes or outcomes of condom use and sexual behavior, the relevant of social referents, and a person's control beliefs and perceived power regarding each factor of using condom. This information provided for the questionnaire content, and the TPB measures were developed accordingly.

Step 2: Pilot testing was performed using two classrooms from two schools randomly selected by sampling method. These two schools were chosen from the remaining initially selected for the elicitation interviews. As a result, Rajdamnern Commercial College and University of Technology Tawan-ok were selected to tryout the questionnaires by the researcher, however the second school was chosen as a convenient setting. The entire students in each classroom were invited to participate in this study. There were 45-50 students in each classroom, with five missing data, the

total of students were 95 in pilot testing phase. This sample size was considered as appropriate for factor analysis. A ratio of at least 10 subjects for each variable was desirable to generalize from the sample to wider population (Munro, 2005).

Moreover, the minimum observation-to-variable ratio for the EFA was 10:1 (Nunnally & Bernstein, 1994). In this study, there were seven independent variables. Adequate sample size needed should be 70. Thus, the sample size of 95 students was feasible for the pilot testing of the TPB questionnaire.

Sample of Phase 2

Sample Size Estimation

Adequate sample size was set to assess significance of the hypotheses. Sample size played an important role in the estimation and interpretation of the Structural Equation Modeling (SEM) result (Hair, et al., 1998, 2006). SEM in general required a larger sample relative to other multivariate approach, and statistical algorithms were unreliable with small sample size (Hair, et al., 2006). To calculate sample size, two methods were employed to identify which one would give the greatest amount of sample size and generalizability of the result as the following.

1. The number of subjects should be 30 subjects per independent variables in a model to increase the likelihood that the findings could be replicated and were not mere artifact (Munro, 2005). For this option, there were seven independents variable as the TPB's construct in this study. Thus, the estimated sample size for the study was 7 x 30, resulting of 210 subjects were needed.

However, Kiline (1998) suggested that for descriptive purpose in path analysis, sample sizes less than 100 could be considered "small". Between 100 and 200 subjects, a "medium" sample size which was a better than minimum, but this was not an absolute solution because things like model complexity must also be considered. Sample sizes that exceed 200 cases could be considered as "large" (p.12). In many cases, a sample size of about 200 was adequate for small to medium models (Tabachnick & Fidell, 2001).

2. Based on the basis of using covariance for Structural Equation Modeling (SEM), the minimum sample size was a minimum ratio of at least 5 respondents per each estimated parameter or a ratio of 10 respondents per parameter most considered

as appropriateness (Kline, 1998; Hair, Anderson, Tatham & Black, 1998). Since the hypothesized model, for this study had 23 parameters, the estimated minimum sample size was at least 115-230 subjects.

In this study, a desirable goal was to have the ratio of the number of subjects to the number of model parameters be 20:1, however, a 10:1 ratio maybe more realistic target. Sample size estimated should be increased in the following circumstances: data exhibited non-normal characteristics and more than 10% missing data was expected (Hair et al., 2006).

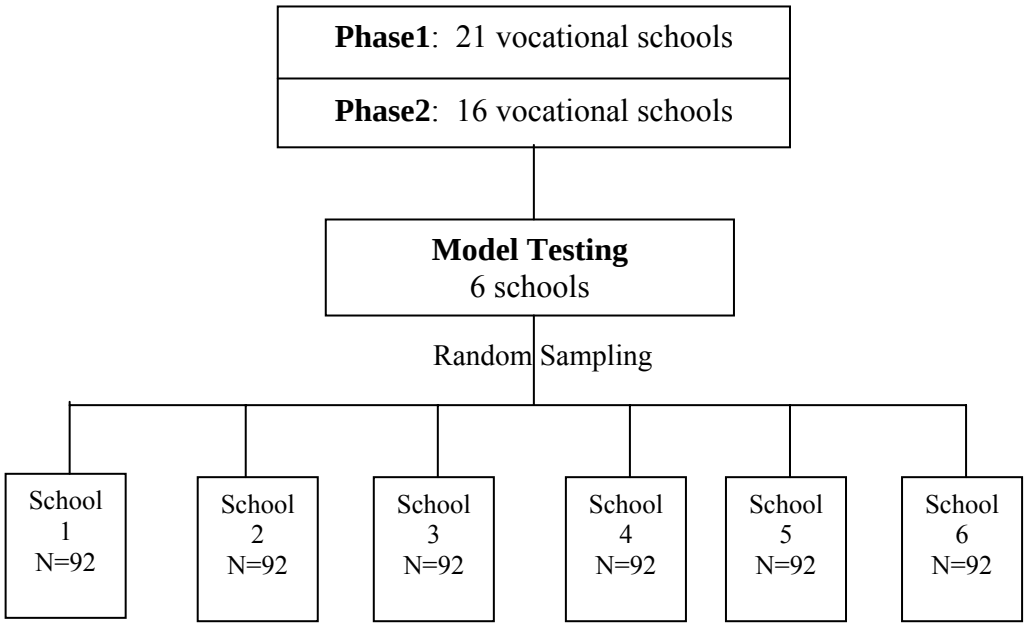


Figure 5: Sampling Scheme of Phase 2, Model Testing

Thus, the hypothesized model in this study had 23 parameters; a sample of at least 460 was required. Over sampling of approximately 20% was performed to assure an adequate sample size. As a result, the sample sizes of this study should be 552 cases for the model testing.

In phase 2, the sample was randomly selected from three educational regions of the remaining schools in phase 1. Six out of 16 vocational schools from three educational regions were selected, two schools in each educational region.

A total of six classrooms were recruited for representative of vocational schools in Bangkok. Random sampling method was randomly selected a classroom from each school, and a classroom size of 92 was expected. To achieve a large enough sample of 552, then six schools (92 x 6 = 552) were recruited to represent 17 to 21 year-old students. If sufficient numbers of students (92) in one class were not enough, a second class was randomly chosen from the same school and the same recruitment procedure as shown in Figure 5.

Thus, the minimum of students were 552 and expected as a potential subject. The sampling frame configuration for the model testing was depicted in Figure 5.

Participants included male and female vocational students who enrolled in the vocational schools in Bangkok, Thailand. The following characteristics were described for the subjects in this study.

1. Age between 17 and 21 years old (Vocational level 1-3)
2. Single marital status.

The participants were excluded from the study if they were married or currently pregnant, and did not complete the entire questionnaire. For the model testing phase, a random sample of 613 completed the questionnaire. Six participants were eliminated because of incomplete item responses (n = 4), and age limitations (n = 2). Consequently, the final sample consisted of 607 students studying in six vocational schools.

Protection of Human Rights

This study was submitted to and approved by the Institutional Review Board (IRB), of Mahidol University. The official letters from the Graduate Studies Office, Mahidol University introducing data collection of this study were sent to the director of each selected vocational school. According to the formal permissions, the investigator contacted directly to all setting of the selected vocational schools. Permission was obtained from the administrators of the selected vocational schools before the start of data collection.

At the schools, participants were recruited after class finishing or at the home-room period. Students who met the eligibility requirement were asked to participate and attended briefing the purpose of the study. The informed consent and information

sheet were written in Thai language (See Appendix D). All participants were fully informed and consented to participate in this study. Participants were assured of strict confidentiality throughout the study. Confidentiality of respondents' answers was assessed by using coding numbers on the questionnaires. Furthermore, subjects were adolescents who responded to sensitive questions regarding sexual activities and condom use behavior, in the questionnaires were anonymous, so no individually identifying information was available.

Instruments

Open-ended, semi-structured elicitation interviews were conducted to develop the measure that reflect the salient behavioral, normative, control beliefs, outcome evaluations, motivation to comply, and perceived power regarding condom use behavior in Thai adolescents.

In phase 1, the focus groups were conducted with 46 vocational students in Bangkok. Data were analyzed using content analysis, and were used to construct a set of TPB questionnaire. The developed questionnaire was employed for pilot testing. In phase 2, a well developed instrument was used to test the relationships among the variables of the TPB constructs accordingly. In this study, the TPB questionnaire composed of ten variables including behavioral beliefs, outcome evaluation, normative beliefs, motivation to comply with, control beliefs, perceived power, attitude, subjective norm, perceived behavioral control (PBC) and intention regarding condom use behavior. The process to construct the TPB questionnaire by the researcher was conducted as the following.

Elicitation study for development of the belief measures

The six focus groups of vocational students were interviewed. In elicitation study, independent variables are separated in two measurements, indirect and direct measurement. There were six indirect independent variables: (1) Behavioral beliefs were elicited by asking the respondents to identify the advantages and disadvantages of condom use in the next time; (2) Normative beliefs, respondents were asked that an important people in their lives think whether they should or should not use condom in

the next time; (3) Control beliefs were obtained by asking the respondents to identify factors that make it difficult or easy to use condom in the next time. Following the focus group in the elicitation interviews, Likert-scales were developed from the belief responses, and representing a discrete modal set. Corresponding Likert-scales were developed to measure (4) evaluations of the behavioral beliefs, (5) motivation to comply with the normative belief, and (6) perceived power of the control beliefs. Independent variables: attitude, subjective norms, and PBC were indirect measured. Intention was considered as the mediator, and condom use behavior was a dependent variable.

Validity and Reliability

The instrument was evaluated for content validity by a panel of seven experts in area of adolescents' sexual behavior or the TPB. Seven experts committee including: two nursing educators, two educators in the TPB, two physician (OB-GYN) specialties in reproductive and sexual health, and one physician in child-psychiatric assessed content validity of the questionnaire. The instrument was revised according to the comments of the experts. The TPB questionnaire was pilot tested for validity and reliability. The clarity of the wording, comprehension level of language, and the formatted appearance of the questionnaire were assessed. The questionnaire then was modified according to their comments, and unclear items were eliminated or reworded to improve clarity. All instruments were back-translated into English version by three individual who are bilingual in Thai and English.

Content Validity Index

The TPB Questionnaire consisted of 120 items, and seven experts rated for content validity index (CVI) in this study

Item-level content validity (I-CVI) equals content validity of individual items, proportion of content experts giving item a relevance rating of 3 or 4, index no lower than 0.78

Scale-level CVI (S-CVI) equals content validity of the overall scale.

S-CVI was the proportion of items given a rating of quite/ very (3 or 4) relevant by both raters involved. S-CVI of .80 or higher was acceptable, in terms of rating by *two* experts

S-CVI for multiple raters (three or more raters) equals the proportion of items on an instrument that achieved a rating of 3 or 4 by all the content experts.

S-CVI/UA = scale-level content validity index, universal agreement calculation method.

S-CVI/Ave = the average proportion of items rated as 3 or 4 across the various judges (the average of I-CVI for all items on the scale)

The content validity of individual items, item-level CVI (I-CVI) = 0.71- 1.00

1. Average the I-CVI = 112.21/ 120
   = 0.94
2. Proportion Relevant = (1+1+.94+.82+.95+.91+.93)/7
   = 6.55/7

Mean Expert Proportion = 0.94

$$\text{CVI for the entire scale} = \frac{\text{Number of items given a rating of 3 or 4}}{\text{Total items}}$$

S-CVI/UA = 74/120
= 0.62

Reliability

Table 3.1 was presented the reliability estimates of the TPB constructs, for newly developed instrument, a reliability of 0.70 is acceptable (Burns& Grove, 1997). In this study, the researcher analyzed the data to estimate the internal consistency, reliability using Cronbach's alpha coefficients. The analysis revealed that Cronbach's alpha coefficients were ranged from 0.61 to 0.89.

Table 3.1 Reliability Estimates: Cronbach alpha coefficients for the constructs of the TPB measure (Pilot testing phase, n = 98)

Scale	Number of items	Cronbach Alpha Coefficient
Indirect Measure		
Behavioral beliefs	18	.710
Outcome evaluations	18	.546
Behavioral beliefs x Outcome evaluations	*18*	*.723*
Normative beliefs	7	.797
Motivation to comply	7	.880
Normative beliefs x Motivation to comply	*7*	*.886*
Control beliefs	20	.671
Perceived powers	20	.709
Control beliefs x Perceived power	*20*	*.809*
Direct Measure		
Attitude	14	.865
Subjective Norms	2	.611
PBC	4	.663
Intention	4	.755

Measurement of the TPB variables

Each of the measurement was developed by the researcher to evaluate the construct of the TPB theory in the elicitation phase. The format has been selected based on simplicity of the questions and appropriateness for the students. The elicitation questionnaires: attitude toward condom use behavior, subjective norms and perceived behavioral control were measured both indirectly and directly as suggested by Ajzen & Fishbein (1980). Intention and condom use behavior scales were

developed by the researcher. Finally, The TPB measurement of Condom Use behavior consists of five major constructs as the following.

1. Attitude toward condom use behavior

Indirect measure: attitude toward condom use behavior was assessed in term of two scales: *behavioral beliefs and outcome evaluations*. Participants rate their behavioral beliefs and their evaluation of outcomes of condom use that were identified in the elicitation phase, using a 5-point scale (*1 to 5*).

Direct measure: attitude was measured using 5-point semantic differential bipolar scales (ranging from *1* to *5*). The scales consist of bipolar adjective pairs that were constructed from the results of an elicitation phase (e.g., risky-safe, bad-good, unhealthy-healthy, and anxiety-relaxing).

2. Subjective Norms

Indirect measure: subjective norms were assessed in terms of two scales: *normative beliefs and motivation to comply*. Participants rated their perceptions of the strength of important others' beliefs about whether adolescents should use condom, and their motivation to comply with these influential others using a 5-point scale (*1 to 5*).

Direct measure: subjective norms were determined by two items and rate on a 5-point scale (*1 to 5*). Participants rate **"**when it comes to getting start using condom, I want to do what most people who are important to me think I should do.

3. Perceived Behavioral Control

Indirect measure: PBC was assessed in terms of two scales: *control belief and perceived power*. To obtain a belief measure the participants rated on a 5-point scale (*1 to 5*), for the ease or difficulty and the likelihood of condom use when the facilitating or inhibiting factors identified in an elicitation study were presented.

Direct measure: four items were used to determine the PBC. Participants rate all items using 5-point scale with opposing response on each end. (1) The ease or difficulty of condom use (*1= very difficult* to *5= very easy*), (2) level of control over using condom (*1= no control* to *5= complete control*), (3) the level of individual's agreement of using condom (*1= strongly disagree* to *5= strongly agree*) and (4) the level of individual' partners' agreement of using condom (*1= strongly disagree* to *5= strongly agree*).

4. Intention

Four items were modified by the researcher. Each item was measured behavioral intention to use condom the next time when having sexual intercourse. The statements are (1) *In the future when condom use is impossible, will you abstain from intercourse? (1= not likely at all* to *5= extremely likely*), (2) *When your partner does not want to use condoms, will you insist on condom use (1= definitely do not* to *5= definitely do*), *(3) I plan to use condom the next time when having sexual intercourse (1= definitely do not* to *5= definitely do*) *, and (4) I intend to use condom the next time when having sexual intercourse (1= definitely do not* to *5= definitely do*). There is a 5-point Likert-type scale ranging from 1 to 5. All items were averaged to quantify an intention measure and the higher scores indicating greater intention to use condom.

5. Condom use Behavior

This behavior was measured by three items, these questions were asked: (1) *In the next 6 months, I and my partner will use condom when having sex.* The response was rated as 1= definitely not use, 2= rather not use, 3= Unsure, 4= rather use, 5= definitely use (2) *During the past 6 months, how often did you and your partner use a condom when having sex?* The participants were record as 1= never, 2= used 1-3 times, 3= occasionally but not regularly, 4= frequently but not regularly, 5= every time when having sex (3) *The latest time when you had sex with your current partner, did you or your partner use a condom?* The question was answered with two choices from "I never use condom" (score as 1) to "I use condom when having sex" (score as 2). The total composite scores of condom use behaviors range from 3 to 12, with higher scores indicating higher condom use behavior.

In conclusion, the questionnaire was constructed to ensure ease of survey completion and maximize the response rate. The questionnaire included all items in normal type 14-pt. font (Angsana New) and 1.5-line spacing for readability by the adolescent population. Closed-ended questions were primarily used in the TPB measurements. A few items were open ended in the demographic data and background information. Directions were included prior to each section. The TPB questions were constructed according to the criteria developed by Ajzen and Fishbein (1980) and Ajzen and Madden (1986). In data collection, adolescents completed a self-administered questionnaire in a classroom or during a makeup session after a class

under the supervision of the researcher. The questionnaire was planned to be able to be completed in 30-40 minutes.

Demographics and Background Information

The questions for demographic data and background information were presented at the beginning of the questionnaire packet. The first part requests information about the participants' demographic data such as age, gender, school year, grade point average (GPA), parental education, parental status, residential status, employment, and previous sexual experience. The second part requests information about participants' perceptions of their parents and their friends regarding adolescent sexual behavior, and condom use (Appendix C). The demographic questionnaire was developed by the researcher and was translated into an English version by three bilingual translators in Thai and English.

Data Collection

There were two phases in the methodology using the TPB measurement including: Phase 1, the elicitation study and pilot testing, and Phase 2, model testing.

Phase 1

1.1 Elicitation Study

This process was to develop the TPB measurement instruments to identify condom use behavior among Thai adolescents and to ensure its content validity. The following approaches were employed. Initially, elicitation interviews of vocational students were used to obtain information regarding (1) attitude toward condom use, (2) subjective norms, (3) perceived behavioral control, and (4) condom-use intention. Base on analysis of focus group data from the elicitation interviews, a list of items that could be used to measure the TPB independent variables related to condom use behavior in Thai adolescents were developed.

Open-ended, semi-structured elicitation interviews (see Appendix A) were conducted with 48 vocational students in six focus groups. Students were asked about the consequences of using or not using condoms with a sexual partner. They were asked to describe factors that make it easier or more difficult for them to use condoms

and to indicate the individuals or groups that would support or oppose their condom use. Content analyses of responses to these questions were conducted to develop the measures for attitude, subjective norm, and perceived behavioral control, respectively. The measures of TPB model constructs were developed for condom use behavior in both genders of adolescents. The results of content analysis of the elicitation interviews were used to construct a set of questionnaire that was then used to test the relationships among the constructs of the TPB in phase 2 (Model Testing).

1.2 Pilot Testing

Sets of instruments were evaluated for clarity and appropriateness. Seven experts, including one obstetric physician, two child-psychiatric physicians, two TPB-experts, and two nursing educators, assessed content validity. For the TPB measurement try-out, the full questionnaires were administered to 95 vocational students randomly selected as described above.

Analyzing the data to estimate the internal consistency and reliability by using Cronbach's alpha, and construct validity using the EFA.

Phase 2

Model Testing

The model testing phase was performed to test the relationships among the variables of the TPB model. Data collection took place during December 2007 and March 2008 in six vocational schools. Eventually, there were a total of 607 vocational students in this phase. Students in each randomly selected classroom were invited to participate in the study. The booklets of TPB questionnaire for the model testing were administered to the students who agreed to participate as described earlier. The investigator explained to each class selected including the scope of the study as a whole, the purposes, inclusion and exclusion requirements, benefits of the study, subject anonymity, and the assurance that whether or not they participated in the study, it did not affect their academic achievements. Teachers were not known which students participated in this study.

Students came at their appointed time to complete the questionnaires in a classroom under the supervision of the researcher. They were seated far apart to ensure individual privacy. Upon presenting the signed consent form, they were given a paper

and pencil self-administered questionnaires and asked to fill them out in a classroom with private environment.

Students were given a set of self-administered questionnaires consisting of (a) demographic data form developed by the researcher and (b) the TPB's questionnaires developed from an elicitation phase. The questions for demographic data were presented at the beginning of the questionnaire packet. These data consist of age, gender, educational level, residential status, parental status, family income, previous and recent sexual experiences and condom use experience.

Students then filled out the demographic questionnaires, followed by the TPB constructs instruments (regarding condom use). The questionnaires were being completed in random order to control for order effects. It took about 30-45 minutes to complete all questionnaires for each student. The investigator was available in the classroom at all times for further explanations about the questionnaires or answering any questions. Furthermore, Students were able to ask any questions or express concerns to the investigator before they made a decision. Finally, in keeping with Thai tradition and respect, all students coming for data collection received small gifts as a token of appreciation for their time.

Data Analyses

Structural Equation Model (SEM) was used to test theoretical model. SEM tests two models simultaneously as a full model, a measurement model and a theoretical model. The measurement model was a model of how theoretical constructs were measured, and the theoretical model was a model of hypothesized relationships between the theoretical constructs (Norris, 2007). In addition, SEM can be used to test a causal model like path analysis, but measurement error was estimated and removed from the relationships between theoretical constructs. Although measurement error was sometimes left out of SEM diagrams, it was always estimated in SEM analyses unless an indicator was assumed to have no measurement error.

The researcher followed the conventional terminology by which path analysis refers to modeling single-indicator variables. Estimating a path analysis model for directly observed variables with Linear Structural Relationship program (LISREL)

was entirely straightforward, rather than estimating each equation separately, LISREL considers a model as a system of equations and estimates all the structure coefficients directly (Jöreskog & Sörbom, 2001, p159). With the relationships and path diagram specified, researcher gather data in a format suitable for analysis in SEM, estimate the strength of the relationships, and assess how well the data fits the model (Hair et al., 2006).

Path Analysis

In this study, the researcher used causal structural model for path analysis and posited a causal structure with a set of measured variables. Measured variables were theoretical constructs and call observed variables, which were measured directly by the researcher. Path analysis under LISREL was performed to solve the structural equations for dependent variable in term of independent and the random disturbance terms. The purpose is to obtain the reduce form equations, to estimate the regression of the dependent variable on the independent variables and to solve for the structural parameters in term of regression coefficients and, then estimated structure effects through total effect (direct effect + indirect effect) (Samartkit, 2008).

For data analyses, the Statistic Package for Social Science (SPSS/PC) for window version 13.0 and Linear Structural Relationship program (LISREL) version 8.52 were used to perform preliminary analysis and principle analysis. The procedures for data analyses were as the following.

1. Data screening was performed by examining the frequencies, means, standard deviations, and ranges of scores on each of variable for accuracy of data entry.
2. Descriptive statistics including frequencies, percentage, means, standard deviation, skewness and kurtosis were used to describe the demographic characteristics of the samples and normality of the key research variables.
3. Correlation between variables was examined as a precursor to running the path model. The basic assumptions underlying multivariate analysis for path analysis and the relationships among variables were tested using normality, univariate outliers, linearity and homoscedasticity, multicollinearity, and multivariate outliers. The correlation matrix for the model variables was measured. All of them were analyzed by using SPSS version 13.

4. Testing hypothesized model was performed by LISREL program. Based on the TPB model, the causal relationship among major variables to predict condom use behavior was analyzed by LISREL. Path analysis result was proposed to explain relationship among variables in both path analysis and the Linear Structural Relationship Model.
5. Parameters of the hypothesized model were examined which path coefficients were estimated through multiple regression equations and structural effects through total effect.
6. The hypothesized model fit was tested and evaluated by modification for the best fitted model to answer the hypotheses. To evaluate the model, the overall model fit-index was examined to determine how well the model fits the empirical data (Hair et al., 1998). The Overall Model Fit Index was determined through four measures; that were, chi-square (χ^2), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), and root mean square error of approximation (RMSEA) (Jöreskog & Sörbom, 2001). Whether there was inadequate fit of data, the initial model was adjusted under the modification indices and substantive theoretical meaning until the model fitted to the data well.

Furthermore, this study specifically concerned if gender differences exist in condom use behavior among vocational students studying in Bangkok when comparing by gender exist in prediction of condom use behavior by the TPB model. To test the model between female and male adolescents, the statistical analytic technique was done each gender in two steps. First, the best fitted model was run independently for female and male to identify the best fitting model for that gender. Second, the initial comparisons were made on the best fitting models for each gender (male versus female). These comparisons emphasize the existence and strength of path coefficients within each model. These two steps were conducted to determine possible gender differences in Thai adolescents between male and female.

Summary

In summary, this chapter presented a research methodology including the design of a cross-sectional descriptive, population and sampling, measurements construction, data collection and analysis procedures. In addition, the discussion of human subject protection, and the instruments development and psychometric properties of this study were described.

CHAPTER IV
RESULTS

This study was conducted as a descriptive research through an elicitation study and a pilot testing (phase 1: the tool development), and the collection of data (phase 2: the model testing); utilizing the Theory of Planned Behavior (TPB) as a theoretical framework. The study was aimed to answer two research questions regarding condom-use behavior and to examine the efficacy of the TPB in predicting condom-use behavior among Thai adolescents. Research results were presented for each phase of the study as the following.

Sample Characteristics

The characteristics of the sample were illustrated into three groups.

1. Elicitation study phase

The sample (n= 46) for the elicitation study consisted of 29 males and 17 females. The average age in the study sample was 18.67 years (Min-Max = 15-22 years; *SD* = 1.62). For males, the average age was 18.55 years (Min-Max = 16-22 years; *SD* = 1.70) and for females, the average age was 18.88 years (Min-Max = 15-21 years; *SD* = 1.49).

2. Pilot testing phase

The sample (n= 95) for the pilot test of the instruments consisted of 67 males and 28 females. The average age in the study sample was 18.67 years (Min-Max = 17-21 years; *SD* = 0.84). For males, the average age was 18.69 years (Min-Max = 18-21 years; *SD* = 0.82) and for females, the average age was 18.64 years (Min-Max = 17-21 years; *SD* = 0.91).

Table 4.1 Min-Max, Standards Deviation (*SD*), Skewness and Kurtosis of the Sample for the Model Testing (n= 607)

Characteristic	n (607)	Percent	Min-Max	Mean age	SD	Skewness	Kurtosis
Gender							
Male	275	45.3	17-21	17.46	1.596	0.528	-0.527
Female	332	54.7	17-21	17.02	1.358	0.464	-0.284

3. Model testing phase

A total of 607 participants were participated in the model testing phase of this study. The finding revealed that the respondents were divided between males (45.3%) with a mean age of 17.46 years (*SD* = 1.60 years) and females (54.7%) with the mean age of 17.02 years (*SD* = 1.36 years).

Overall, age of respondents was ranging from 17 to 21 years. Distribution across the age range was similar between male and female subjects (17-21 years).

The majority of the participants was seventeen years old (28.3%) and sixteen years old (24.2%) respectively. The demographic characteristics of the sample in the model testing were presented in table 4.1 and 4.2.

As shown in table 4.2, most of the participants were Buddhism (90%). The largest group of all subjects (39.2%) had grade point average ranging from 3.01- 4.00. The female students (52.7%) had got better grades (GPA 3.01- 4.00) than male students (20%), and no female students got the lowest range of GPA in this study.

Table 4.2 Demographic Characteristics of the Adolescents (n= 607)

	Frequency **%** (*N*)		
	Male (n=275)	Female (n=332)	Total (n= 607)
Age (year)			
15	8.0 (22)	13.0 (43)	10.7 (65)
16	22.9 (63)	25.3 (84)	24.2 (147)
17	27.6 (76)	28.9 (96)	28.3 (172)
18	17.5 (48)	18.1 (60)	17.8 (108)
19	8.7 (24)	9.6 (32)	9.2 (56)
20	10.9 (30)	4.5 (15)	7.4 (45)
21	4.4 (12)	0.6 (2)	2.3 (14)
Religion			
Buddhism	92.0 (253)	88.6 (294)	90.1 (547)
Christianity	0.7 (2)	1.5 (5)	1.2 (7)
Muslim	7.3 (20)	9.6 (32)	8.6 (52)
Missing	–	0.3 (1)	0.2 (1)
GPA			
0.00-1.00	2.5 (7)	–	1.2 (7)
1.01-2.00	16.4 (45)	3.6 (12)	9.4 (57)
2.01-3.00	38.2 (105)	35.8 (119)	36.9 (224)
3.01-4.00	22.9 (63)	52.7 (175)	39.2 (238)
Missing	20.0 (55)	7.8 (26)	13.3 (81)

Based on the 607 participants, most of the subjects reported that their parents were married (73.5%). The findings revealed that most of the subjects' father and mother graduated primary school level (34.7% of fathers and 42.5% of mothers). Approximately, sixty five percent (64.7%) of subjects were living with parents. Half of the subjects (51.1%) had low family income, ranging 10,000-25,000 baht per month, and one-fourth of them (25.5%) had lowest family income of lower than 10,000 baht per month as shown in table 4.3.

Table 4.3 Parental Characteristics of the Adolescents (n= 607)

	Frequency (%)		
	Male (n=275)	Female (n=332)	Total (n= 607)
Parents' marital status			
Married	72.7	74.1	73.5
Separated/ Divorced/ Widowed	14.2	10.8	12.4
Living together not married	10.2	12.7	11.5
Father/Mother pass away	1.5	1.5	1.5
Don't know	1.5	0.9	1.2
Education of father			
Primary school or lower	25.9	41.9	34.7
Secondary school (grade 7-9)	16.3	18.5	17.5
High school (grade 10-12)	17.0	11.9	14.2
Vocational school	23.0	17.3	19.9
Bachelor degree or higher	15.6	8.8	11.9
Other/ Kor-sor-nor	0.4	0.6	0.5
Don't know	0.9	0.9	1.3
Education of mother			
Primary school or lower	34.1	49.4	42.5
Secondary school (grade 7-9)	20.4	19.1	17.5
High school (grade 10-12)	13.7	9.1	14.2
Vocational school	15.9	13.3	19.9
Bachelor degree or higher	15.2	7.6	11.9
Other/ Kor-sor-nor	0.7	0.9	0.5
Don't know	-	0.6	1.3
The person whom adolescents live with the most of time			
Mother and father	64.0	65.4	64.7
Mother or Father only	16.0	12.7	14.2
Relative persons	14.2	17.5	16.0
Friend(s)	3.3	1.8	2.4
Living alone	2.2	0.9	1.5
Sister/ brother	0.4	1.8	1.2
Family income (Bath/month)			
< 10,000	21.1	28.6	25.2
10,000- 25,000	50.5	51.5	51.1
25,001- 40,000	17.1	14.2	15.5
40,001- 60,000	8.7	2.4	5.3
> 60,001	2.5	3.3	3.0

The finding revealed that most of female subjects thought their parents strongly disagreed regarding having sex in adolescents (74.7% of father and 73.8% of mother). Male subjects' parents had attitude toward having sex in adolescents different from female subjects' parents. Among male subjects, one-fourth of their father (25.8%) and one-third of their mother (31.3%) strongly disagreed regarding adolescents' have sex. Conversely, attitude toward condom use of subjects' father and mother were quite equal (36.4%), and most of their parents agreed with adolescents to use condom when having sex. As for male subjects, most of their fathers (37.5%) agreed that adolescents use condom when having sex and most of their mothers (36.7%) strongly agreed. In addition, most of female subjects' father and mother similarly agreed with condom use when having sex (35.5% of father and 37.7% of mother, respectively) as shown in table 4.4.

Table 4.4 Adolescents' Perceptions of their Parents regarding Condom Use and Sexual Behavior among Adolescents (n= 607)

	Frequency (%)		
	Male (n= 275)	Female (n= 332)	Total (n= 607)
Father's attitude toward adolescent sex			
Strongly disagree	25.8	74.7	52.6
Disagree	27.3	14.8	20.4
Neither agree or disagree	44.0	9.9	25.4
Agree	2.5	0.3	1.3
Strongly agree	0.4	0.0	0.2
*missing	-	0.3	0.2
Mother's attitude toward adolescent sex			
Strongly disagree	31.3	73.8	54.5
Disagree	30.5	18.1	23.7
Neither agree or disagree	34.9	7.2	19.8
Agree	2.9	0.9	1.8
Strongly agree	0.4	0.0	0.2
Father's attitude toward condom use			
Strongly disagree	2.9	5.4	4.3
Disagree	4.0	4.2	4.1
Neither agree or disagree	22.5	23.2	22.9
Agree	37.5	35.5	36.4
Strongly agree	33.1	31.3	32.1
*missing	-	0.3	0.2
Mother's attitude toward condom use			
Strongly disagree	2.2	4.8	3.6
Disagree	4.4	3.9	4.1
Neither agree or disagree	21.8	22.9	22.4
Agree	34.9	37.7	36.4
Strongly agree	36.7	30.7	33.4

Table 4.5 Adolescents and their Parents having Talk about Sex in Adolescents (n= 607)

	Frequency (%)		
	Male (n= 275)	Female (n= 332)	Total (n= 607)
Father talks about safe sex			
Never	43.3	75.0	60.6
Occasionally	45.8	22.9	33.3
Often	10.5	1.8	5.8
*missing	0.4	0.3	0.3
Mother talks about safe sex			
Never	41.5	60.8	52.1
Occasionally	46.2	31.9	38.4
Often	12.4	7.2	9.6

As shown in table 4.5, most of female subjects reported that they never talked with their parents about safe sex in adolescents (75% of father and 60.8% of mother). When female students talked about safe sex behavior, they talked with their mothers more than their fathers (occasionally and often talked with mother = 39.1%, with father = 24.7%). For male students, most of their parents occasionally talked about safe sex (45.8% of father and 46.2% of mother).

Most of the participants thought that their friends were neither agree nor disagree about having sex in adolescents (52.7% of males and 58.4% of females), and approximately one-fourth of male subjects (24.7%) agreed with having sex in adolescents. Nearly half of subjects (47%) thought that their friends agreed to use condom when having sex (50% of females and 43.3% of males) as shown in table 4.6.

Table 4.6 Adolescents' Perceptions of their Friends regarding condom use and sexual behavior in adolescents (n= 607)

	Frequency (%)		
	Male (n= 275)	Female (n = 332)	Total (n= 607)
Friends' attitude toward sex			
Strongly disagree	3.6	14.2	9.4
Disagree	5.8	18.4	12.7
Neither agree or disagree	52.7	58.4	55.8
Agree	24.7	7.5	15.3
Strongly agree	13.1	1.5	6.8
Friends' attitude toward condom use			
Strongly disagree	1.8	1.8	1.8
Disagree	5.5	2.4	3.8
Neither agree or disagree	31.6	21.7	26.2
Agree	43.3	50.0	47.0
Strongly agree	17.8	24.1	21.3

As shown in table 4.7, three hundred seventy-two students (61.3%) had no sexual activity. When considered the sexual experience of overall sample, there were fewer subjects who ever had sex (*n* = 234, 38.7%). As far as a gender factor of the adolescence is concerned, the majority of the subjects who reported "*never had sex*" were female (72.3%). In contrast, among male subjects, half of them were reported "*ever had sex*" (52%) in their lifetime. Among subjects who ever had sex experiences, most of them reported low level of condom use behavior during the past 6 months and at the latest time (75.6% and 83.9%, respectively). In addition, it was not so different when compared between male and female adolescents regarding risky sexual behavior, most of participants claimed that they *never* used condom during the past six months (76% of male and 85% of female), and *not used* condom at the latest time (79% of male and 88% of female).

Table 4.7 Sexual experience and Condom Use Behavior in Adolescents (n= 607)

	Frequency (%)		
	Male (n= 275)	Female (n = 332)	Total (n= 607)
Sexual intercourse in lifetime			
Never	48.0	72.3	61.3
Ever having sex	52.0	27.7	38.7
Sexual intercourse during the past 6 months			
No sex	51.6	72.3	62.9
Ever having sex	48.4	27.7	37.1
Condom use during the past 6 months			
Never	75.6	84.5	75.6
Used 1-3 times	6.8	5.2	6.8
Sometime	8.9	3.9	8.9
Often	4.8	3.6	4.8
Every time	4.0	2.7	4.0
Condom use at the latest time			
Not use	79.3	87.9	83.9
Use	20.7	12.1	16.1
Condom use in the next time, 6 months			
Definitely not use	4.4	1.8	3.0
Rather not use	5.1	3.3	4.1
Unsure	36.0	31.9	33.8
Rather use	28.7	23.5	25.9
Definitely use	25.8	39.5	33.3

Factors Influencing Condom Use Behavior

Scores of the TPB's variables including attitude, subjective norms, perceived behavioral control, intention, and condom use behavior were constructed based on descriptive statistics in each variable. Descriptive statistics for each variable were shown in Tables 4.8 - 4.11.

Table 4.8 Descriptive Statistics for each Item of Indirect and Direct Attitude Measure (n= 607)

Variables (Independent Variables)	Possible Range	Actual Range	Mean	*SD*	Median	Skewness	Kurtosis
▪ **Indirect measure Attitude**	18-450	95-450	241.86	50.94	238.00	0.48	0.39
Behavioral beliefs x Outcome evaluations							
Prevention STD/HIV infection	1-25	1-25	20.18	5.04	20.00	-0.86	0.49
Protection unwanted pregnancy	1-25	1-25	18.73	5.26	20.00	-0.46	-0.22
Make me feel good or happy	1-25	1-25	10.81	5.20	9.00	0.84	0.66
Make me feel free from worry	1-25	1-25	14.97	5.61	16.00	0.05	-0.44
Make me confident that having sex is safe	1-25	1-25	16.29	5.64	9.00	-0.14	-0.53
Make me as having sexual experience	1-25	1-25	9.65	4.99	9.00	0.97	1.06
Makes my partner think I don't trust him/her	1-25	1-25	11.04	5.64	9.00	0.77	0.17
Makes my partner less sexual sensation	1-25	1-25	10.89	5.53	9.00	0.75	0.30
Make me break up with my partner	1-25	1-25	13.13	6.28	12.00	0.42	-0.58
Makes it difficult/inconvenient to have sex	1-25	1-25	11.96	5.77	12.00	0.46	-0.32
Is good and useful for me	1-25	1-25	16.02	6.00	16.00	-0.16	-0.49
does not impede my sexual sensation	1-25	1-25	11.17	5.35	9.00	0.70	0.29
Cost me money	1-25	1-25	12.50	6.21	12.00	0.27	-0.62
Have negative effect if it is used incorrectly	1-25	1-25	16.45	4.98	16.00	-0.15	-0.11
Makes no sexual arousal	1-25	1-25	11.02	5.72	9.00	0.56	0.04
Is unnatural and disrupt sexual mood	1-25	1-25	10.16	5.46	9.00	0.65	0.30
Shows that I have responsibility	1-25	1-25	14.73	5.55	16.00	0.17	-0.49
Make teenagers increase their sexual activity	1-25	1-25	12.47	5.39	12.00	0.38	-0.34
▪ **Direct Measure Attitude**	14-70	14-70	47.82	7.67	47.00	0.03	1.53
Risky - Safe	1-5	1-5	4.22	0.80	4.00	-1.04	1.55
Bad - Good	1-5	1-5	3.62	0.92	4.00	-0.13	-0.28
Not enjoyable - Enjoyable	1-5	1-5	2.95	0.78	3.00	-0.08	1.29
Unhappy - Happy	1-5	1-5	3.14	0.82	3.00	0.17	0.73
Costly – Not costly	1-5	1-5	3.39	1.10	3.00	-0.09	-0.83
Anxiety - Relaxing	1-5	1-5	3.65	0.90	4.00	-0.16	-0.23
Difficult – Easy	1-5	1-5	3.29	0.95	3.00	-0.05	-0.45
Embarrass - Pleasant	1-5	1-5	3.51	0.97	3.00	-0.09	-0.39
Not trust - Trust	1-5	1-5	3.59	0.99	4.00	-0.30	-0.27
Unhealthy – Healthy	1-5	1-5	3.77	0.95	4.00	-0.21	-0.52
Uncomfortable –Comfortable	1-5	1-5	3.18	0.93	3.00	0.08	-0.03
Unexcited - Excited	1-5	1-5	2.96	0.92	3.00	-0.25	0.36
Bored – Sensational	1-5	1-5	3.01	0.74	3.00	0.01	1.23
Unprepared - Prepared	1-5	1-5	3.54	0.88	3.00	0.03	-0.26

Table 4.9 Descriptive Statistics for each Item of Indirect and Direct Subjective Norms Measure (n = 607)

Variables	Possible Range	Actual Range	Mean	*SD*	Median	Skewness	Kurtosis
▪ **Indirect Measure SN**	7-175	7-175	116.75	38.28	116.00	-0.20	-0.75
Normative beliefs x Motivation to comply							
Father	1-25	1-25	16.71	6.49	16.00	-0.25	-0.86
Mother	1-25	1-25	16.94	6.59	16.00	-0.28	-0.95
Siblings/relatives	1-25	1-25	16.01	6.35	16.00	-0.06	-0.90
Friends	1-25	1-25	15.77	6.20	16.00	-0.02	-0.86
Partner	1-25	1-25	15.39	6.17	15.00	0.11	-0.84
Teachers	1-25	1-25	17.53	6.62	20.00	-0.43	-0.93
Physicians/Nurses	1-25	1-25	18.40	6.48	20.00	-0.68	-0.58
▪ **Direct Measure SN**							
Subjective Norms	2-10	2-10	8.03	1.71	8.00	-0.61	-0.12
Your agreement about important person beliefs that you should use condom	1-5	1-5	3.99	0.90	4.00	-0.50	-0.17
Your feeling about important person beliefs that you should use condom	1-5	1-5	4.04	0.99	4.00	-0.63	-0.41

Table 4.10 Descriptive Statistics for each Item of Indirect and Direct Perceived Behavioral Control Measure (n = 607)

Variables	Possible Range	Actual Range	Mean	*SD*	Median	Skewness	Kurtosis
▪ **Indirect measure PBC**	20-500	101-409	253.01	53.92	251.00	0.14	-0.64
Control beliefs x Perceived powers							
Getting information about condom use/safe sex from medias	1-25	1-25	14.89	5.27	16.00	0.03	-0.17
Concerning of getting pregnant, makes me use condom	1-25	1-25	16.79	6.21	16.00	-0.19	-0.93
Avoiding from HIV/STD infection, make me use condom	1-25	1-25	17.99	6.53	20.00	-0.50	-0.87
Knowing about safe sex behavior makes me use condom	1-25	1-25	16.82	5.70	16.00	-0.16	-0.72
Feeling embarrass when buying condom makes me use condom	1-25	1-25	8.11	4.96	8.00	1.48	4.57
Buying condoms at a hiding place /convenient make me use condom	1-25	1-25	6.59	3.80	6.00	1.14	2.68
Having unplanned/unprepared sex, makes me use condom	1-25	1-25	9.42	5.43	9.00	0.87	0.36
Always carrying condoms make me use condom	1-25	1-25	14.34	5.99	15.00	0.24	-0.69
Feeling of unnatural/decrease sexual sensation makes me use condom	1-25	1-25	8.02	4.18	9.00	0.87	1.76
Being afraid of unpleasant feeling of my partner makes me use condom	1-25	1-25	8.23	4.49	9.00	1.10	2.32
Preferring to feel sexual sensation without condom makes me use condom	1-25	1-25	8.24	5.06	8.00	1.33	2.14
Buying condom with spend my money makes me use condom	1-25	1-25	7.72	4.45	8.00	1.10	2.07
Drinking alcohol make me use condom	1-25	1-25	10.57	6.35	9.00	0.81	-.001
Thinking of my future and the family makes me use condom	1-25	1-25	16.35	6.74	16.00	-0.12	-0.14
Having consciences makes me use condom	1-25	1-25	11.97	5.54	12.00	0.52	-0.20
Suggestion of my friends makes me use condom	1-25	1-25	14.13	5.74	15.00	0.28	-0.45
Suggestion of physician and nurse makes me use condom	1-25	1-25	15.79	6.18	16.00	-.002	-0.87
Agreeing between my partner and I to use condom makes me use condom	1-25	1-25	16.76	6.35	16.00	-0.20	-0.98
Successful negotiation/motivation with my partner make me use condom	1-25	1-25	14.66	5.91	15.00	0.18	-0.71
Using condom correctly makes me use condom	1-25	1-25	15.62	5.95	16.00	0.05	-0.74

Table 4.10 Descriptive Statistics for each Item of Indirect and Direct Perceived Behavioral Control Measure (n = 607) (continued)

Variables	Possible Range	Actual Range	Mean	*SD*	Median	Skewness	Kurtosis
▪ **Direct Measure PBC**							
Perceived Behavioral Control	4-20	4-20	14.17	2.46	14.00	0.07	0.62
For me to use condom every time I have sex would be	1-5	1-5	3.57	0.96	3.00	-0.09	-0.36
I can control myself over condom use behavior every time I have sex	1-5	1-5	3.67	0.88	4.00	-0.01	-0.36
To use condom when having sex depend on my decision or my judgment	1-5	1-5	3.82	0.87	4.00	-0.26	-0.27
To use condom when having sex depend on my partner decision or judgment	1-5	1-5	3.11	1.02	3.00	-0.22	-0.30

Table 4.11 Descriptive statistics for each item of Intention and Condom use Behavior Measure (n= 607)

Variables	Possible range	Actual range	Mean	*SD*	Median	Skewness	Kurtosis
Intention	4-20	4-20	14.46	3.23	14.00	-0.03	-0.16
In case of unobtainable condom for you, how likely is it that you will deny to have sex?	1-5	1-5	3.37	1.04	3.00	-0.29	-0.18
I insist to use condom when I have sex although my partner do not want to use a condom	1-5	1-5	3.55	1.01	3.00	-0.21	-0.33
I plan to use condom when I have sex in the next time	1-5	1-5	3.77	0.89	4.00	-0.11	-0.41
I intend to use condom when I have sex in the next time.	1-5	1-5	3.77	0.91	4.00	-0.13	-0.46
Condom use Behavior							
In the next 6 months, I or my partner will use condom when having sex.	1-5	1-5	3.82	1.05	4.00	-0.56	-0.09
In the past 6 months, have you ever had sexual intercourse?	1-2	1-2	1.37	0.51	1.00	1.05	2.46
In the past 6 months, did you or your partner use condom when having sex?	1-5	1-5	1.55	1.09	1.00	1.93	2.58
Do you or your partner use a condom at the latest time when having sex?	1-2	1-2	1.16	0.37	1.00	1.85	1.41

The Theory of Planned Behavior Measurement

1. Attitude toward Condom use

Indirect Measure (Behavioral beliefs x Outcome evaluations)

Indirect attitude was measured by 18 items of behavioral beliefs multiply with 18 items of outcome evaluations. Among 18 items of behavioral beliefs x outcome evaluations, each item got 1-25 points. The results found that nine items had the scores higher than cut-off point of 12.50, with the means ranged from 12.50 to 20.18 (*SD* = 4.98-6.28). Nine items of the left had the scores lower than 12.50, with the means ranged from 9.65 to 12.47 (*SD* = 4.99-5.77). The item "Avoiding from HIV/STD infection, make me use condom" had the highest scores (Means = 20.18, *SD* = 5.04). The item of "Make me as having sexual experience" had the lowest score (Means = 9.65, *SD* = 4.99) (See Table 4.8).

Direct Measure

Direct attitude was measured by 14 items and each item got 1-5 points. The subjects had high scores on the direct attitude measure, ranging means from 2.95 to 4.22, *SD* = 0.74-1.10 (the possible range 1-5). The finding demonstrated that attitude toward condom use behavior was highest for the item of "risky–safe", and lowest for the item of "not enjoyable- enjoyable". This might imply that participants very concerned about safer sex as a positive attitude toward the condom use behavior more than their emotional outcomes (See Table 4.8).

2. Subjective Norms

Indirect Measure (Normative beliefs x Motivation to comply)

Indirect subjective norm was measured by 7 items of normative beliefs multiply with 7 items of motivation to comply. Among 7 items of normative beliefs x motivation to comply, calculating each item got 1-25 points. The findings showed that the subjects had high scores on the indirect subject norms measure of the influence of the important persons on condom use behavior. The means for seven items of indirect subjective norm measure ranged from 15.39 to 18.40 (*SD* = 6.17-6.59) (See Table 4.9). The score was highest for the subjective norms of physician/ nurse as peer pressure for the participants to use condom when they have sex (Means = 18.40, *SD* =

6.48). The item of partner's subjective norms had the lowest score (Means = 15.39, *SD* = 6.17).

Direct Measure

Direct subjective norm was measured by 2 items with each item got 1-5 points. The scores for the direct measure of subjective norms regarding condom use behavior of people who were important to the subjects approve of performing the behavior were high (Means = 3.99 and 4.04, *SD* = 0.90 and 0.99) (See Table 4.9).

Moreover, the scores of both indirect measure and direct subjective norms measures were high. The findings demonstrated that the participants hold a positive subjective norms belief that referents think they should use condom and is motivated to meet the expectations of those referents.

3. Perceived Behavioral Control

Indirect Measure (Control beliefs x Perceived powers)

Indirect perceived behavioral control was measured by 20 items of control beliefs multiply with 20 items of perceived power. Among 20 items of control beliefs x perceived power, each item got 1-25 points. As shown in Table 4.10, the scores for 20 items of control beliefs ranged from 6.59 to 17.99, *SD* = 4.45 – 6.53), and 11 items had the scores higher than 12.50. The item of "Avoiding from HIV/STD infection, make me use condom" had the highest score (Mean = 17.99, *SD* = 6.53). The item of "Buying condoms at a hidden or convenient place make me use condom" had the lowest score (Mean = 6.59, *SD* = 3.80) (See Table 4.10).

Direct Measure

Direct perceived behavioral control was measured by 4 items with each item got 1-5 points. The results of the direct PBC measure showed quite high level of perceived control for all four items (Range 3.11 to 3.82, *SD* = 0.88–1.02) (See Table 4.10). The highest score was the item of control belief about using condom depends on my decision or my judgment that facilitate the behavior (Mean = 3.82, *SD* = 0.87).

The findings demonstrated that the subjects who hold strong control beliefs about the factors that facilitate the behavior were had high perceived control over condom use behavior. Conversely, subjects who may hold strong control beliefs about the barrier or impede factors were had low perceived control over condom use.

4. Intention

Intention in this study was measured by 4 items with each item got 1-5 points. As shown in Table 4.11, subjects reported their intention to use condom when having sex in the next time or next six months at a high level, with means ranging from 3.37 to 3.77 (*SD* = 0.89-1.04). Two items of condom use intention were both the same highest score (Means = 3.77) that being rate for plan to use, and intend to use condom in the next time. However, the left of intention measure had lower score (Mean = 3.37) for the item asking about the sample will deny to have sex if unobtainable condom, and the item asking about the sample insist to use condom when have sex although their partner do not want to use condom (Mean = 3.55).

5. Condom Use Behavior

In this study, group of adolescents who sexually active had low scores of condom use behavior during the past 6 months (Mean = 1.55, *SD* = 1.09) and at the latest time (Mean = 1.16, *SD* = 0.37). Although, more than half of subjects were never had sexual experience (61.3%) in this study. The findings indicated that, most of them who sexually active had a low level of using condom when having sex (See Table 4.11). However, all participants had high level possibility to use condom in the future, the score was high when asking that "in the next six months, I or my partner will use condom when having sex" (Mean = 3.82, *SD* = 1.05).

Establishing the Psychometric Properties by LISREL

When using the TPB (Ajzen, 1985, 1991), each major variable (attitude, subjective norms, and perceived behavioral control) could be measured directly and indirectly. Constructs were identified as either being exogenous or endogenous to set up the structural equation model for path analysis (Hair et al., 2006; p726). Path analysis was used to answer the questions regarding the relationships between a set of independent variables and a dependent variable as a causal modeling technique.

The basic procedures of the model for all variables were called "observed variables" and "recursive model". The variables of each model consisted of endogenous variables, which are mediating variables and pure dependent variables, associated with exogenous variables, which were independents with no prior causal

variable. The detail of the endogenous variables and exogenous variable were as follows:

Exogenous constructs	Endogenous constructs
Indirect measure	**Direct measure**
1. Behavioral beliefs x outcome evaluation	1. Attitude
2. Normative beliefs x motivation to comply	2. Subjective Norms
3. Control beliefs x perceived power	3. Perceived Behavioral Control
	4. Intention
	5. Condom-use Behavior

In this study, the TPB model consisted of eight key variables. There were a set of independent variables and dependent variable which indirect measures and direct measures of attitude, subjective norms and perceived behavioral control, to be selected factors affecting intention and condom use behavior.

Exogenous variables were indirect measures of attitude, subjective norms, and perceived behavioral control. There were behavioral beliefs multiply with outcome evaluation to be indirect measures of attitude, normative beliefs multiply with motivation to comply to be indirect measures of subjective norms, and control beliefs multiply with perceived power to be indirect measure of perceived behavioral control.

Endogenous variables were three direct measures of major variables including attitude, subjective norms and perceived behavioral control. In the causal model, the dependent variable was condom use behavior and intention as a mediating factor

Preliminary Analysis: Assumption Testing

The researcher followed the conventional terminology by which path analysis referred to modeling single-indicator variables. Testing the assumption underlying multivariate analysis for the structural equation model (SEM) was performed to approve that the assumptions were not violated (SEM packages were commonly used today for path analysis in lieu of stand-alone path analysis programs). There were

three assumptions of SEM that were required to achieve: normality, linearity, and multicollinearity. The results were as the following.

Normality

Testing for a normal distribution was an important procedure. Skewnesss values were between +1 to -1, and kurtosis values were not beyond +1.96 and -1.96 (Tabachnick & Fidell, 2001). The statistical test to assess normality, one was a rule of thumb based on the skewnesss value. The Z-score was calculated by dividing the measure of skewness or kurtosis by the standard error for skewness or kurtosis (Munro, 2005). If the calculated Z value exceeds a critical value, then the distribution was non-normal. The critical value was from a Z distribution, based on the significance level. Skewness and kurtosis coefficient values beyond ±1.96 or ±2.58 were significant at the level of .05 and .01 (Hair et al., 1998). Testing the normality of the data could be done by the test of univariate normality for variables as performed by PRELIS 2.30 program.

Table 4.12 Univariate Normality of the Study Variables (n= 607)

Variables	**Skewness**	**Kurtosis**	**Z-score**	
			Skewness	Kurtosis
bboe	0.479	0.391	4.629	1.787
nbmc	-0.200	-0.746	-2.014	-6.144
cbpp	0.140	-0.641	1.417	-4.789
Attitude	0.026	1.532	0.264	4.772
SN	-0.606	-0.119	-5.708	-0.551
PBC	0.069	0.620	0.698	2.563
Intention	-0.029	-0.158	-0.291	-0.784

bboe = Behavioral beliefs x Outcome evaluations, nbmc = Normative beliefs x Motivation to comply, cbpp = Control beliefs x Perceived powers

As shown in Table 4.12, Univariate normality statistics related to study variables for each major constructs were presented. All variables were normal distribution because the value of univariate skewness was less than 3.0 and univariate kurtosis was less than 20 (Kline, 1998). For Z-score, the results found that most of

variables in the instrument were within the normal ranged skewness (from -2.014 to 1.417). However, indirect attitude measure (bboe) and subjective norm were non-normality distribution, especially the subjective norm was found to be minimal skewness (-5.708). Overall, the data indicated low to high kurtosis, ranging from -6.144 to 4.772. Most of kurtosis coefficients of the variables (bboe, subjective norm, PBC, and intention) were within the normal ranged (-0.784 to 2.563), except nbmc, cbpp, and attitude were found non-normality kurtosis. However, normality was accepted at large sample size and a random sampling technique of this study.

Linearity

The common method to assess linearity was to graph the coordinate data points to examine scatter plots of the variables, including identify any nonlinear patterns in the data (Hair, et al., 1998). Based on this step the relationships among the study variables were investigated through a bivariate scatter plots procedure under the PRELIS. By examining the scatter plots between all independent variables and dependent variable (condom use behavior), there was no evidence of non-linearity between pairs of variables.

Homoscedasticity or variance homogeneity was an assumption related to normal distribution which exhibits equal variance across all data values. To test this assumption, the residuals from regression analysis were plotted the predicted values and against the dependent variables (Hair, et al., 1998). Among variables in this study, standardized predicted values were plotted against observed values and the data displayed a straight line from the lower left corner to the upper right corner, indicating that the model fit the data well.

Multicollinearity

Multicollinearity occured when intercorrelations among some variables were too high. If the data set showed multicollinearity, it would impact the results because multivariate procedures reduced any single independent variables predictive power by the extent to which it associated with the other independent variables (Hair, et al., 2006). Three indicators were used to assess multicollinearity: 1) correlation

coefficients between variables should not exceed 0.85; 2) tolerance values were greater than 0.19 and variance inflation factor (VIF) are less than 5.3; and 3) all condition index were above a threshold value of 30, and identifying variables with variance proportion were above or equal to 0.90, if there were two or more coefficients, indicating the evidence of multicollinearity (Hair, et al., 2006).

Table 4.13 Testing for Multicollinearity of the Study Variables (n= 607)

Variables	Tolerance	VIF
1. Behavioral beliefs × Outcome evaluation (bboe)	.573	1.746
2. Normative beliefs × Motivation to comply (nbmc)	.608	1.644
3. Control beliefs × Perceived power (cbpp)	.548	1.825
4. Attitude	.510	1.961
5. Subjective Norms (SN)	.462	2.163
6. Perceived Behavioral Control (PBC)	.595	1.682
7. Intention	.638	1.567

Model	Eigen	Condition	Constant	Variance Proportions						
Dimension	value	Index		bboe	nbmc	cbpp	Atti	SN	PBC	Inten
1	7.819	1.000	.00	.00	.00	.00	.00	.00	.00	.00
2	.061	11.287	.03	.00	.75	.00	.01	.00	.01	.01
3	.032	15.549	.00	.20	.03	.17	.00	.00	.01	.45
4	.024	17.966	.00	.46	.01	.08	.01	.16	.11	.17
5	.023	18.408	.15	.00	.16	.22	.04	.13	.10	.24
6	.018	20.727	.19	.17	.01	.37	.02	.34	.02	.08
7	.012	25.573	.41	.05	.03	.07	.01	.33	.66	.04
8	.010	27.965	.21	.12	.01	.10	.92	.04	.09	.02

The result indicated that no evidence of multicollinearity probably due to three reasons. First, the result demonstrated the strength of correlation coefficients between all combinations of variables were no more than 0.85 (See Table 4.14). The correlation matrix showed that the bivariate of variables were low to moderate and ranging from .319 to .567. Second, all tolerance values were more than 0.19. There were no VIF values higher than 5.3. As shown in Table 4.13, tolerance values and VIF of this study

ranged from 0.462 to 0.638 and 1.567 to 2.163, respectively. Lastly, overall condition indices were under the threshold values of 30, and all proportion of variance of coefficients were under 0.90. Thus, the assumption of no multicollinearity problem was accepted.

Table 4.14 Correlation Matrix of the Study Variables (n= 607)

Variable	1	2	3	4	5	6	7	8
1.bboe	1.000							
2.nbmc	.487**	1.000						
3.cbpp	.531**	.513**	1.000					
4.Attitude	.508**	.438**	.393**	1.000				
5.SN	.470**	.481**	.567**	.552**	1.000			
6.PBC	.330**	.376**	.393**	.544**	.564**	1.000		
7.Intention	.365**	.434**	.357**	.509**	.511**	.407**	1.000	
8.Condom	.344**	.374**	.319**	.396**	.416**	.378**	.523**	1.000
Mean	242.185	116.750	253.026	47.822	8.031	14.173	14.460	3.820
SD	52.222	38.284	53.923	7.665	1.707	2.462	3.226	1.036

**P< .01

In conclusion, the statistic assumption regarding the normality, linearity, and multicollinearity testing of the data in this study was not violated the criteria for Path analysis.

Preliminary Analysis: Regression Analysis

Regression was used to predict outcome and to explain the interrelationships among variables. Seven predictors were regressed on adolescent condom use behavior using the enter method. The least squares method was used to estimate parameter. The results indicated that seven predictors were significantly accounted for 33.3 percent of the variability in adolescent condom use behavior (R^2 = .333, F = 42.67, p = .000). The strongest predictor was intention, indicating significant positive effect of 0.354 on condom use behavior. The other significant predictors were perceived behavioral

control and normative beliefs (β = 0.115, β = 0.086), respectively. However, the remaining four predictors had no significant effects on condom use behavior as shown in Table 4.15. This tentative result would be confirmed later in the model testing phase by using LISREL.

Table 4.15 Regression Analysis of the Study Variables (n= 607)

Independent Variables	b	SE	β	t-value	p	R
Constant	0.245	0.255	-	0.926	.336	-
bboe	0.002	0.001	.082	1.883	.060	.029
nbmc	0.002	0.001	.086	2.020	.044	.073
cbpp	0.000	0.001	.009	0.198	.843	-.053
Attitude	0.004	0.006	.033	0.707	.480	.084
Subjective Norms	0.040	0.030	.066	1.343	.180	-.031
Perceived Behavioral Control	0.048	0.018	.115	2.662	.008	.218
Intention	0.114	0.013	.354	8.485	.000	.099
R	.577					
R^2	.333					
Adjust R^2	.325					
F	42.67					
df	7					
p	0.000					

Principle Analysis: Model Testing

The researcher conducted the path analysis by using LISREL 8.53 program to specify the causal relationships among the study variables, and to describe the causal effects including testing the hypothesized model of condom use behavior. The results for the hypothesized model of condom use behavior for the total sample in the model testing phase were illustrated as the following.

Analyses of Research Questions

Research Questions 1: What are the relationships among the TPB constructs including behavioral beliefs, normative beliefs, control beliefs, attitudes, subjective norms, perceived behavioral control, condom-use intention, and condom-use behavior?

By using Pearson's product moment correlation coefficient, the result showed moderate and significant positive relationship between attitude, subjective norms, perceived behavioral control, and intention (r = 0.509, p < .01; r = 0.511, p < .01, r = 0.407; p < .01) respectively. The moderate and significant positive relationship among intention and condom use behavior was found (r = 0.523, p < .01). Furthermore, the finding indicated that there was moderate and significant positive relationships between perceived behavioral control and condom use behavior (r =.378, p < .01).

For the association among indirect and direct measurements, the result showed moderate and significant positive relationship between behavioral beliefs and attitude (r = 0.508, p < .01), normative beliefs and subjective norms (r = 0.481, p < .01), and control beliefs and perceived behavioral control (r = 0.393; p < .01).

Research Questions 2: How effective are the indirect measurement (behavioral beliefs, normative beliefs, and control beliefs) and direct measurement (attitudes, subjective norms, and perceived behavioral control) of the TPB constructs in predicting intention and condom-use behavior among Thai adolescents?

The analysis procedure to answer this question was performed by using path analysis under LISREL program to explain relationship among variables of the study. By analyzing the paths under LISREL program, the TPB causal model was tested and

revised until a theoretical meaningful and statistical acceptable model was fitted. In the following section the results of model testing and modification were illustrated.

Hypothesized Model Assessment

The hypothesized model consisted of six exogenous variables: behavioral beliefs, normative beliefs, control beliefs, attitudes, subjective norms, perceived behavioral control, and two endogenous variables: intention and condom-use behavior. The four processes of model evaluation and assessment of fit were focused on the adequacy of: (1) parameter estimates; (2) measures of overall model fit; (3) standardized residual, and (4) the modification indices.

When examining parameter estimates in the hypothesized model of condom use behavior, all paths of the overall model had significant parameters and the same direction of their path as proposed in the TPB model (Table 4.16). The result showed that most of the path coefficients in the hypothesized model were significant at p-value of 0.001 (critical value = 4.00) and each of eight major paths had the same direction according to the theory (see Figure 6). The model accounted for and explained 26% ($R^2 = 0.26$) of variance in attitude, 23% ($R^2 = 0.23$) in subjective norms, 15% ($R^2 = 0.15$) in perceived behavioral control, 25% ($R^2 = 0.25$) in intention, and 25% ($R^2 = 0.25$) in condom use behavior.

The overall fit was a set of indices, including Chi-square (χ^2), Goodness-of-fit index (GFI), adjusted goodness-of -fit index (AGFI) and Root mean square error of approximation (RMSEA) to identify the overall model fit.

Chi-square (χ^2) is the statistically based measure of goodness-of-fit available in SEM. The result with the chi-square was a non-significant level with p-value >.05 and close to 1.00 was recommended. Low Chi-square values which resulted at the significance level greater than 0.05 or 0.01 indicated that the actual and predicted input matrices were not statistically different. A large value of χ^2 relative to the degrees of freedom signifies that observed and estimated matrices differ considerably. The important evaluation of Chi-square was that it is too sensitive to sample size, and especially where sample size exceeds 200 respondents. As sample size increases, χ^2 had a greater tendency to indicate significant difference for equivalent models. If the

sample size became large enough, significant difference would be found for any specified model. As sample size nears 100 or lower, the χ^2 test would show acceptable fit even when none of the model relationships are statistically significant. Thus, the χ^2 is sensitive in different ways to both small and large sample size (Hair et al., 1998).

The χ^2/df ratio was developed as the basis for goodness-of-fit indices that took more pragmatic approach to the evaluation process. The χ^2/df ratio should be less than two for a good fit criterion.

Goodness-of-fit index (GFI) is derived from a comparison of the squared residuals from prediction with the actual data, and represents the overall degree of fit. The higher values indicate better fit, ranging from 0 (poor fit) to 1.0 (perfect fit).

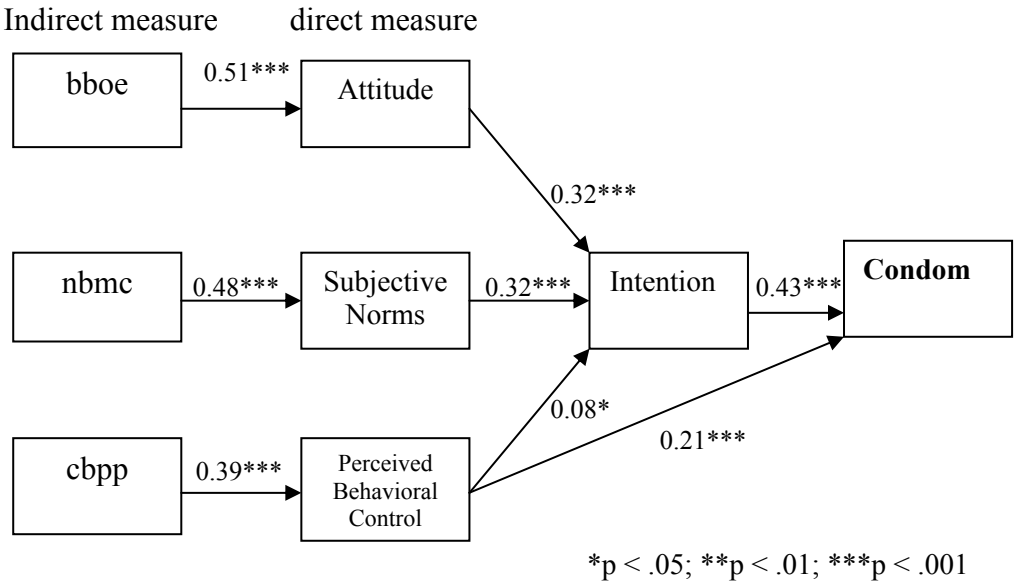
Adjusted goodness-of -fit index (AGFI) is the extension of the GFI, adjusted by the ratio of degrees of freedom for the proposed model to the degrees of freedom of the null model. A recommend acceptance level is a value greater than or equal to .90 (Hair et al., 1995).

Root mean square error of approximation is the discrepancy per degree of freedom. RMSEA represents the goodness-of-fit that could be expected if the model was estimated in the population, not just the sample drawn for the estimation. The values ranging from 0.05 to 0.08 were deemed acceptable (Hair et al., 1998). A value of RMSEA less than 0.05 indicate a good fit while a value greater than 0.08 indicates reasonable error of approximation in the population.

Evaluation of the Hypothesized Model (n = 607)

The result of model testing showed the hypothesized model which demonstrated the over all fit indices: χ^2 = 468.44, df= 17, p-value = 0.000, GFI = 0.84, AGFI = 0.66, RMSEA = 0.210, χ^2/df = 27.56 (see Figure 6). These results determined that the Fit Index Statistics of the hypothesized model were not in acceptable range. There was evidence of misspecified parameters, the smallest and largest standardized residual ranged from 0.00 to 19.55, which exceeded normal values (± 2.58). In the model testing phase, the initial model of condom use behavior did not fit the sample data, as reflected by the poor goodness of fit coefficients and the misspecification parameters.

In this analysis, specification search was employed to identify any areas of misfit in the model. This procedure is suggested the ways to modify the model fit the data, including adding or deleting the parameters which had real significance and substantive meanings in the model. In this regard, LISREL yielded two types of information bearing on model misspecification; the standardized residual and the modification indices. There was evidence if misspecification of parameters, especially large negative or positive standardized residuals (± 2.58) indicated the covariance was not well explained by the model. According to the value of the standardized residual, the value above 2.58 was considered to be large.



Chi-Square (χ^2) = 468.44, df = 17, p-value = 0.000, RMSEA = 0.210

Figure 6: A hypothesized Model of Condom Use Behavior (n=607)

Therefore, the initial model was modified by freeing some parameters. The modification indices were used in the process of a model evaluation and modification. They provided indications of misspecification in term of correlated measurement errors. The result output showed the largest modification index associated with whether the error should be correlated or be allowed to be free in the Theta-delta matrix which represented the expected drop in the chi-square value.

In conclusion, the hypothesized model did not fit the empirical data because of poor goodness of fit statistics and some misspecification parameter. The hypothesized model should be modified to achieve the best fitted in the next step.

Table 4.16 Effects Decomposition of Predictive Factors in the Hypothesized Model for the Overall Sample (n=607)

	Standardized Value		
Path	**DE**	**IE**	**TE**
bboe → attitude	0.51***	-	0.51***
nbmc → SN	0.48***	-	0.48***
cbpp → PBC	0.39***	-	0.39***
bboe → Intention	-	0.17***	0.17***
nbmc → Intention	-	0.16***	0.16***
cbpp → Intention	-	0.03*	0.03*
bboe → Condom use	-	0.07***	0.07***
nbmc → Condom use	-	0.07***	0.07***
cbpp → Condom use	-	0.09***	0.09***
Attitude → Intention	0.32***	-	0.32***
SN → Intention	0.32***	-	0.32***
PBC → Intention	0.08*	-	0.08*
Attitude → Condom use	-	0.14***	0.14***
SN → Condom use	-	0.14***	0.14***
PBC → Condom use	0.21***	0.03*	0.24***
Intention → Condom use	0.43***	-	0.43***

Note: $t > |1.96|$, *$p < .05$; $t > |2.58|$, **$p < .01$; $t > |4.00|$, ***$p < .001$
TE = Total effect, IE= Indirect effect, DE= Direct effect

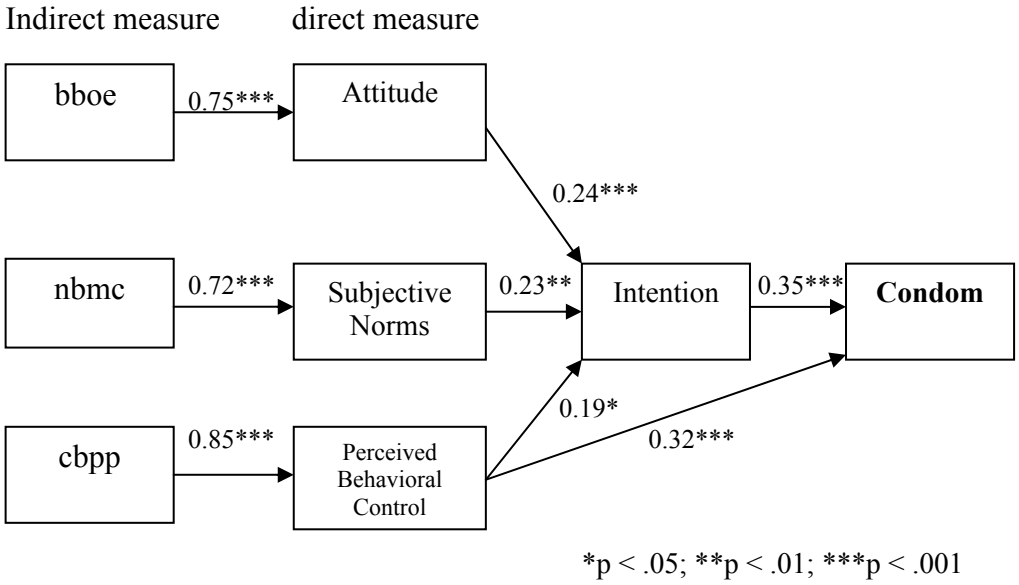
Modification of Condom Use Behavior Model (n=607)

This step was the modification of the initial model which was composed of two methods. The first step of modification model was adding paths or parameters with a large modification index that could interpret substantively. The last step was

eliminating parameters with small t-value or non-significant path from the model. The step of model modification was concerned not only the statistical values but also theoretical aspects. Two steps of modification of condom use behavior model were presented as the following.

The researcher added parameters according to standardized residuals and the modification indices, associated with a correlated error in the model. In this process, delta and epsilon should be correlated between set of sets of latent or exogenous variables (Jöreskog & Sörbom, 1996). The modifications were continued until the goodness of fit indices was within acceptable levels.

According to the model modification, there were decreased in the chi-square (χ^2 =2.27), the degree of freedom (df = 6), and RMSEA (0.00), together with increased in GFI (0.99), AGFI (0.99), and decreased in χ^2/df (0.38). Overall, the fit of the modified model to the data was adjusted and improved (See Table 4.18).



Chi-Square (χ^2) = 2.27, df = 6, p-value = 0.894, RMSEA = 0.000

Figure 7: A Modified Model of Condom Use Behavior (n=607)

As shown in Figure 7, the finding of the modified model indicated that eight path coefficients were significant. All three paths from the indirect measure to direct measure were positive significant parameters. There were the path from behavioral

beliefs to attitude (β= 0.75, p< .001), normative beliefs to subjective norms (β = 0.72, p < .001), and control beliefs to perceived behavioral control (β= 0.85, p < .001). For direct measure, attitude had a significant positive direct influence on condom-use intention (β = 0.24, p< .001), subjective norms had a significant positive direct influence on condom-use intention (β = 0.23, p< .001), and perceived behavioral control had a significant positive direct influence on condom-use intention (β = 0.19, p< .05). In addition, perceived behavioral control had a significant positive direct influence on the outcome variable, condom-use behavior (β = 0.32, p < .001).

Table 4.17 Effects Decomposition of Predictive Factors in the Modified Model for the Overall Sample (n= 607)

	Standardized Value		
Path	**DE**	**IE**	**TE**
bboe → attitude	0.75***	-	0.75***
nbmc → SN	0.72***	-	0.72***
cbpp → PBC	0.85***	-	0.85***
bboe → Intention	-	0.18***	0.18***
nbmc → Intention	-	0.17**	0.17**
cbpp → Intention	-	0.16*	0.16*
bboe → Condom use	-	0.06**	0.06**
nbmc → Condom use	-	0.06**	0.06**
cbpp → Condom use	-	0.33***	0.33***
Attitude → Intention	0.24***	-	0.24***
SN → Intention	0.23**	-	0.23**
PBC → Intention	0.19*	-	0.19*
Attitude → Condom use	-	0.08**	0.08**
SN → Condom use	-	0.08**	0.08**
PBC → Condom use	0.32***	0.07*	0.39***
Intention → Condom use	0.35***	-	0.35***

Note: $t > |1.96|$, *$p < .05$; $t > |2.58|$, **$p < .01$; $t > |4.00|$, ***$p < .001$
TE = Total effect, IE= Indirect effect, DE= Direct effect

Condom-use intention had a significant positive direct influence on condom use behavior ($\beta = 0.35$, $p < .001$).

The final model showed that all goodness-of-fit indices of adolescent condom-use behavior model were best fit to the empirical data. The $\chi^2 = 2.27$, df = 6, p = 0.89, RMSEA = 0.00, GFI = 0.99, AGFI = 0.99, $\chi^2/df = 0.38$, and the standardized residual were within an acceptable level (-0.89 to 1.17), which not exceed ±2.58. The results demonstrated that all paths were significantly and had the same direction which confirmed to the theory of this study. Six in eight path coefficients of the modified model were significant at p-value < .001, one path was significant at p-value < .01, and one significant at p-value <.05 (see Figure 7 and Table 4.17). For the square multiple correlations (R^2) for structural equation of each outcome variables, the modified model accounted for and explained 35% ($R^2 = 0.346$) of variance in intention, and 34% ($R^2 = 0.344$) of variance in condom use behavior.

In conclusion, a comparison between the hypothesized as initial model and the modified model revealed that the modified model had a better fit to the empirical data than the initial model. The schematic of the modified model of condom use behavior was presented in Figure 7.

Based on the theoretical constructs, the overall modified model of condom use behavior was interpreted to answer research questions and to test the research hypotheses. The discussion of the research finding was followed the results of the modified model.

Table 4.18 Statistic Fitted Index Values of Hypothesized Model and Modified Model for the Overall sample (n= 607)

Fitted Index	Hypothesized Model	Modified Model
Chi-square (χ^2)	468.44 (df = 17, p = .000)	2.27 (df = 6, p = 0.894)
χ^2/df	27.56	0.38
GFI	0.84	0.99
AGFI	0.66	0.99
RMSEA	0.210	0.000
Largest Standardized Residual	19.55	1.17

Hypotheses Testing Results

By analyzing the influence effects of variables in the model, four hypotheses of the research study were answered. The influence effects of all variables consisted of three components: direct, indirect and total effect. Path coefficient determination based on Kline's guideline (1998), that is the standardized path coefficient with absolute value less than 0.10 indicates a "small" effect, while values around 0.30 reflects a "medium" effect, and value 0.50 or more indicates "large" effect. The result of the influence effects on each variable were summarized in Table 4.17. In this study, four hypotheses were tested as the following.

Hypothesis 1: Behavioral beliefs has a positive direct influence on attitude, normative beliefs has a direct influence on subjective norms, and control beliefs have a positive direct influence on perceived behavioral control.

Based on the modified model of condom use behavior, the result revealed that three factors of the indirect measure had a positive direct effect on its direct measure. Three paths from indirect to direct measure were found to be significant which behavioral beliefs had a significant positive direct influence on attitude ($\beta = 0.75$, $p < .001$), normative beliefs had a significant positive direct influence on subjective norms ($\beta = 0.72$, $p < .001$), as well as control beliefs had a significant positive direct influence on perceived behavioral control ($\beta = 0.85$, $p < .001$).

Thus, hypothesis one was supported on the causal relationship between indirect measure and direct measure as proposed in the TPB model (see Figure 7 and Table 4.17).

Hypothesis 2: Behavioral beliefs, normative beliefs, and control beliefs have a positive indirect influence on condom-use behavior via intention

Among three variables of indirect measure (behavioral beliefs, normative beliefs, and control beliefs), three paths indicated indirect relationships between the causal variables and condom-use behavior via intention. The statistic analysis showed that behavioral belief had a significant positive indirect effect on condom-use behavior via intention ($\beta = 0.06$, $p < .01$), normative belief had a significant positive indirect effect on condom-use behavior via intention ($\beta = 0.06$, $p < .01$), whiles control belief

had a significant positive indirect effect on condom-use behavior via intention (β = 0.33, p < .001).

Additionally, there were indirect effects of the indirect measures to intention in this study. Behavioral beliefs was significantly indirect effect on intention through attitude (β= 0.18, p < .001), normative beliefs was significantly indirect effect on intention through subjective norms (β= 0.17, p < .01), and control beliefs was significantly indirect effect on intention through perceived behavioral control (β= 0.16, p < .05). Thus, the above illustration was confirmed hypothesis two in this study.

Hypothesis 3: Attitude, subjective norms, and perceived behavioral control have a positive direct influence on intention

The statistical analytic results found that all three factors of direct measure had direct effect on intention. The parameter estimates in Table 4.17 and Figure 7 indicated that attitude had a significant positive direct influence on condom-use intention (β =0.24, p< .001). Subjective norms had a significant positive direct influence on condom-use intention (β = 0.23, p < .01), and perceived behavioral control had a significant positive direct influence on condom use intention (β= 0.19, p < .05).

Therefore, research hypothesis three was supported on the causal relationship among the direct measure variables and intention as proposed in the TPB model.

Hypothesis 4: Attitude, subjective norms, and perceived behavioral control have an indirect influence on condom-use behavior via intention

The parameter estimates in Table 4.17 and Figure 7 revealed that attitude had a significant positive indirect influence on condom-use behavior via intention (β = 0.08, p < .01). Subjective norms had a significant positive indirect influence on condom-use behavior via intention (β = 0.08, p < .01). Perceived behavioral control had a significant positive indirect influence on condom use behavior via intention (β = 0.07, p < .05).

All three factors of direct measure including, attitude, subjective norms and perceived behavioral control were significantly positive indirect effect on condom-use behavior mediated through intention. Therefore, hypothesis four was supported.

Hypothesis 5: Perceived behavioral control and intention have a positive direct influence on condom-use behavior

The parameter estimates in Table 14.7 and Figure 7 indicated that perceived behavioral control had a significant positive direct influence on condom-use behavior ($\beta = 0.32$, $p < .001$). Comparing the total effect ($\beta = 0.39$, $p < .001$) that divided to direct effect ($\beta = 0.32$, $p < .001$) and indirect effect ($\beta = 0.07$, $p < .05$). This result indicated that the direct path from perceived behavioral control to condom-use behavior was found to be significant. In addition, the statistic analysis found that the direct path from intention to condom-use behavior was statistically significant. The result indicated that intention had a significant positive direct influence on condom-use behavior ($\beta = 0.35$, $p < .001$).

Therefore, hypothesis five was supported on the causal relationships which condom use behavior was direct affected by perceived behavioral control and intention.

According to the theoretical-based reason, the modified model was selected as a proposed model to answer research questions and test the research hypotheses in this study. Summary of the path coefficients for the modified model of the overall sample was presented in table 4.17.

Consequently, path analysis using LISREL 8.52 program was performed to test the hypothesized model by gender. The evaluation of path model to estimate causal relationship among observed variables was conducted by gender for female and male model.

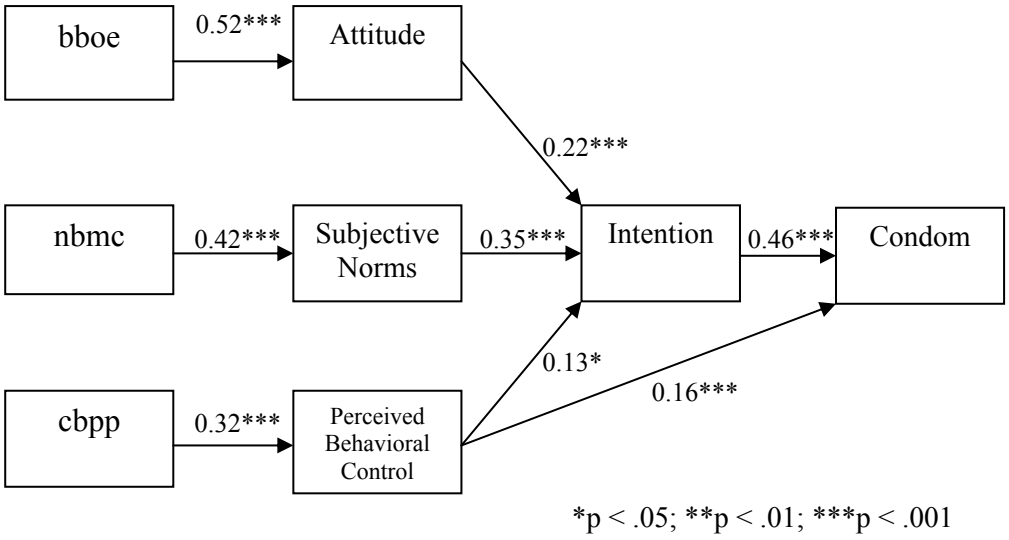
Finally, the researcher proposed a hypothesized model and a modified model of condom use behavior among gender which were demonstrated in Figure 8 – 9 for female adolescents, and Figure 10 - 11 for male adolescents as follows:

The Hypothesized Model of Female Adolescents (n= 332)

When testing the hypothesized model of condom use behavior among female adolescents, the result indicated that parameter estimates of observed variables were similar to the over all model (n = 607). Most of the path coefficients in the hypothesized model of female were significant at p-value of .001 and had the same

directional path according to the theory (see Figure 8). The model accounted for and explained 27% (R^2 = .265) of variance in attitude, 18% (R^2 = .178) in subjective norms, 10% (R^2 = .101) in perceived behavioral control, 21% (R^2 = .209) in intention, and 26% (R^2 = .257) in condom use behavior.

The result of the hypothesized model of female adolescents showed the measure of overall fit indices which χ^2 = 226.77, df = 17, p = 0.000, RMSEA = 0.194, GFI = .854, AGFI = .690, χ^2/df = 13.34.



Chi-Square (χ^2) = 226.77, df = 17, p-value = 0.000, RMSEA = 0.194

Figure 8: A Hypothesized Model of Condom Use in Female Adolescents (n= 332)

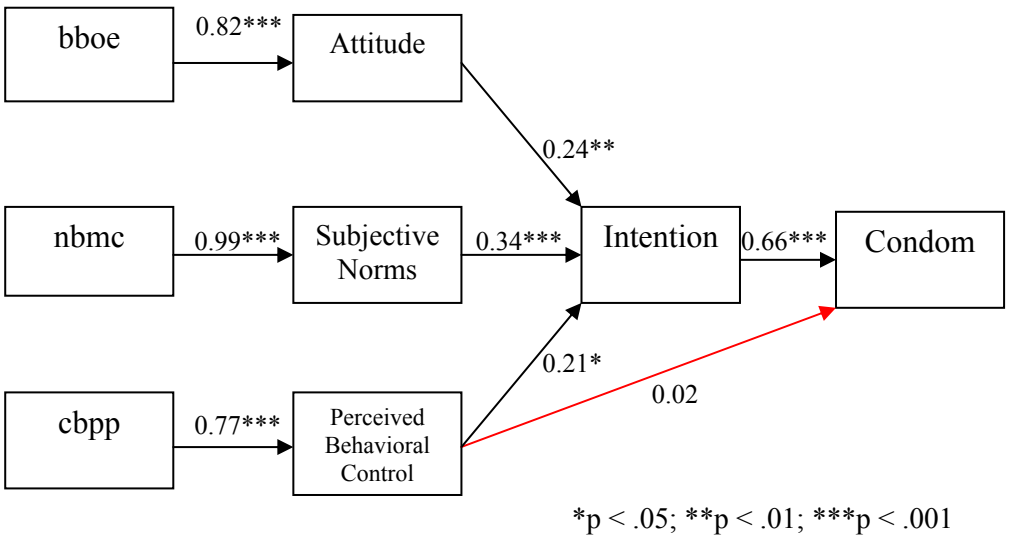
The fit index statistics of the hypothesized model were not in the acceptable ranges which indicated poor fit. There was indicator of model misspecification, the smallest and largest standardized residual range from 0.000 to 13.173 which exceed normal values (±2.58). Thus, the hypothesized model of female adolescents did not fit the empirical data because of poor goodness of fit statistics and some misspecified parameters. This means that the hypothesized model should be modified to achieve the best fitted with the empirical data.

Modification indices were used in the process of the model evaluation and modification. The result showed the largest modification index that was associated

with whether error are correlated or allowed to be free in the Theta-Delta matrix and represented the expected drop in overall chi-square value. The researcher then modified the initial model and improved the model fit.

Model modification of Female Adolescents (n= 332)

To modify the initial condom use behavior model of female adolescents, the researcher added parameters by setting the correlation between error terms of observed variables in this study, corresponding with the modification indices and the standardized residuals. After adding all paths, there was evidence that the overall fit of the model was improved.



Chi-Square (χ^2) = 10.32, df = 6, p-value = 0.112, RMSEA = 0.047

Figure 9: A Modified Model of Condom Use in Females Adolescents (n= 332)

As shown in Figure 9, the chi-square value ($\chi 2$ = 10.32, p = 0.112), degree of freedom (df = 6), and the RMSEA (0.05) were decreased, while GFI (1.00) and AGFI (0.99) were increased. The statistical results of the final model for female adolescents indicated that behavioral beliefs had a significant positive direct effect on attitude (β = 0.82, p < .001), normative beliefs had a significant positive direct effect on subjective norms (β = 0.99, p < .001), and control beliefs had a significant positive direct effect

on perceived behavioral control (β = 0.77, p < .001). Related to the direct measures, attitude, subjective norms and perceived behavioral control had a significant positive direct effect on intention (β = 0.24, p < .01; β = 0.34, p < .001; and β = 0.21, p < .05, respectively). In addition, intention had a significant positive direct influence on condom use behavior (β = 0.66, p < .001), while perceived behavioral control had a non significant positive direct influence on condom use behavior (β = 0.02, p > .05). The modified model accounted for 34% (R^2 = 0.34) of the explained variance in intention, and 34% (R^2 = 0.34) of the explained variance in condom use behavior. The largest standardized residual was 2.31 which considered in acceptable value.

In conclusion, a comparison between the hypothesized model and the modified model for female adolescents indicated that the final model was a best fit index to the empirical data. The schematic of the modified model of condom use behavior for female adolescent was presented in Figure 9.

Table 4.19 Statistic Fitted Index Values of Hypothesized Model and Modified Model by Gender (Female = 332, Male = 275)

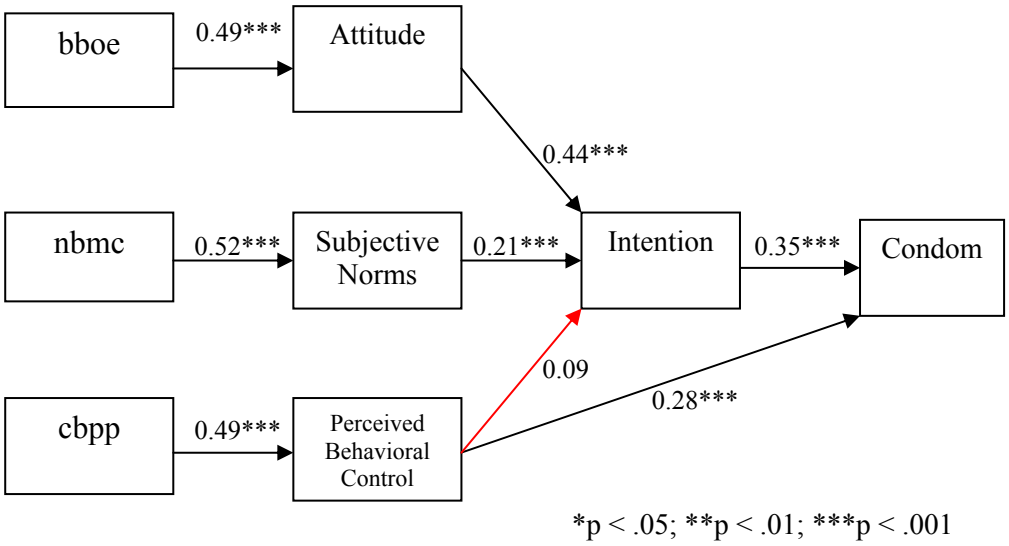
Fitted Index	**Hypothesized Model**		**Modified Model**	
	Female	Male	Female	Male
Chi-square (χ^2)	226.77, df = 17	253.05, df = 17	10.32, df = 6	7.42, df = 4
χ^2/df	13.34	14.89	1.72	1.86
GFI	0.854	0.812	1.00	0.99
AGFI	0.690	0.603	0.99	0.94
RMSEA	0.194	0.226	0.047	0.056
Largest Standardized Residual	13.17	13.49	2.31	2.44

The Hypothesized Model of Male Adolescents (n= 275)

When testing the hypothesized model of condom use behavior for male adolescents, the results indicated that parameter estimates of observed variables were similar to the model of overall samples. Most of parameters in initial model were statistically significant and same directional path way as proposed in the theory.

According to a causal relationship which the path coefficients, there were non significant paths including the direct path from perceived behavioral control to intention (β = 0.09, p > .05), and the indirect path from PBC to condom use behavior via intention (β= 0.03, p > .05). Whereas, the direct path between PBC and condom use behavior had a significant parameter (β = 0.28, p < .001), and the indirect path from control beliefs to condom use behavior via intention was statistically significant (β = 0.15, p < .001). When examined the square multiple correlation (R^2) for each observed variables, most of the R^2 values were good (.234 to .291) and each variable had linear relationships to the observed variables.

The measure of overall fit of the initial model for male adolescents was examined and the result indicated a poor fit to the sample data (Figure 10). There was a large significant chi-square (χ^2 = 253.05, p = 0.00) relative to degree of freedom (df= 17). The goodness of fit index (GFI = 0.81), and adjusted goodness of fit index (AGFI= 0.60), the RMSEA (0.23) and χ^2 /df (14.89) were not in the acceptable ranges.



Chi-Square (χ^2) = 253.05, df = 17, p-value = 0.000, RMSEA = 0.226

Figure 10: A Hypothesized Model of Condom Use in Male Adolescents (n= 275)

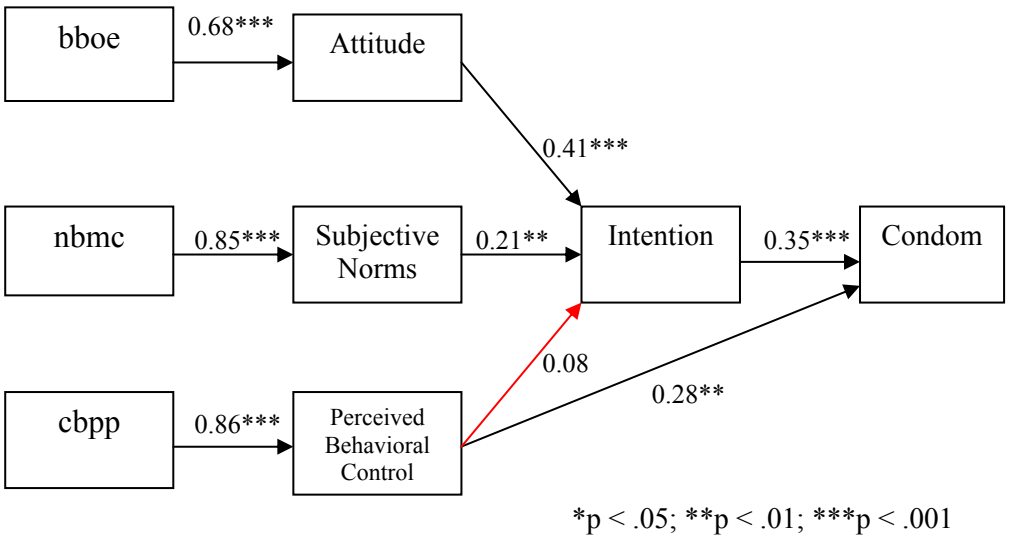
In addition, the evidence of misspecified parameters for the male model was found, particularly a large positive standardized residual (13.49). This meant that estimation of the hypothesized model should be modified by freeing some parameters.

Modification indices were used in the process of the model evaluation and modification as same as the previous step of the female model. The result showed that the largest modification indices was associated with whether error should be correlated or allowed to be free in the Theta-Delta matrix, and its represented the expected drop off the overall chi-square value.

Consequently, the initial model of condom use behavior for male adolescents was modified in the next step to improve the overall fit of the model.

Model modification of Male Adolescents (n= 275)

To modify the initial model of condom use behavior for male adolescents, the researcher added parameters by setting the correlation between error terms of observed variables, corresponding to the standardized residuals and the modification indices. After adding all paths for reasonable, the model was found a good fit.



Chi-Square (χ^2) =7.42, df = 4, p-value = 0.115, RMSEA = 0.056

Figure 11: A Modified Model of Condom Use in Male Adolescents (n= 275)

The final modified model showed that the male model fitted the data well. Chi-square value (χ^2 = 7.42, p = 0.12) relative to degree of freedom (df = 4) and RMSEA (0.06) were diminished from 0.226 to 0.056, while the goodness of fit index (GFI =

0.99), and adjusted goodness of fit index (AGFI = 0.94) were increased (see Figure 11).

The modified model for male adolescents showed that three factors of indirect measure had a significant positive direct influence on its direct measure. There were significant paths from behavioral beliefs to attitude ($\beta = 0.68$, $p < .001$), normative beliefs to subjective norms ($\beta = 0.85$, $p < .001$), and control beliefs to perceived behavioral control ($\beta = 0.86$, $p < .001$). Although, the direct path from PBC to intention was not a significant parameter, two paths from direct measure variables to intention were remained statistical significant which were the path from attitude to intention ($\beta = 0.41$, $p < .001$), and subjective norms to intention ($\beta = 0.21$, $p < .01$).

Comparing with the hypothesized model, the modified model had more statistically significant paths and causal relationships than those in the initial model. Most paths from the causal variables to predict outcome variables were statistically significant path and had causal relationships among those variables, except the direct path from PBC to intention was not statistically significant ($\beta = 0.08$, $p > .05$).

The modified model accounted for 38% ($R^2 = 0.38$) of the explained variance in intention, and 30% ($R^2 = 0.30$) of the explained variance in condom use behavior. In addition, the final model was a good fit for the goodness of fit statistics.

In conclusion, a comparison between the hypothesized model and the modified model for male adolescents indicated that the final model was a best fit index to the empirical data. The schematic of the modified model of condom use behavior for male adolescent was presented in Figure 11.

The Result of Path Coefficients in the Model by Gender

The result of hypothesized model testing indicated that the fit index statistics were not in the acceptable range both in female and male model (see Table 4.20). For theoretical based reason, the statistically results of the modified model by gender (see Table 4.21) were presented as follow:

1. Direct effect of the indirect measures on the direct measures

For female model, the result found that three indirect measures had direct effect on the direct measures at the 0.001 level of significant. Behavioral beliefs had positive direct influence on attitudes, normative beliefs had positive direct influence on subjective norms, as well as control beliefs had positive direct influence on perceived behavioral control.

The result of the male model was similar, in which indirect measures had direct effect on the direct measures at the 0.001 level of significant. Behavioral beliefs had positive direct influence on attitudes, normative beliefs had direct influence on subjective norms, as well as control beliefs had positive direct influence on perceived behavioral control. Thus, there were direct effects of the indirect measures to the direct measures regarding simple relationships between the predictive factors, both in female and male model.

2. Indirect effect of behavioral beliefs, normative beliefs, and control beliefs on condom use behavior via intention

For female model, all three indirect measures including behavioral beliefs, normative beliefs, and control beliefs had significant indirect effects on condom use behavior via intention ($\beta = 0.13$, $p < .01$; $\beta = 0.22$, $p < .001$; $\beta = 0.12$, $p < .05$, respectively).

For male model, all indirect measures including behavioral belief ($\beta = 0.10$) and control beliefs ($\beta = 0.27$) had significant indirect effects on condom use behavior via intention at the 0.001 level of significant, and normative beliefs ($\beta = 0.06$) had a significant indirect effect on condom use behavior via intention at the 0.01 level of significant.

Table 4.20 Effects Decomposition of Predictive Factors in the Hypothesized Model by Gender (Female = 332, Male = 275)

Path	Standardized Value					
	DE		**IE**		**TE**	
	Female	Male	Female	Male	Female	Male
bboe → attitude	0.52***	0.49***	-	-	0.52***	0.49***
nbmc → SN	0.42***	0.52***	-	-	0.42***	0.52***
cbpp → PBC	0.32***	0.49***	-	-	0.32***	0.49***
bboe → Intention	-	-	0.11***	0.22***	0.11***	0.22***
nbmc → Intention	-	-	0.15***	0.11**	0.15***	0.11**
cbpp → Intention	-	-	0.04*	0.05	0.04*	0.05
bboe → Condom use	-	-	0.05**	0.08***	0.05**	0.08***
nboe → Condom use	-	-	0.07***	0.04**	0.07***	0.04**
cbpp → Condom use	-	-	0.07**	0.15***	0.07**	0.15***
Attitude → Intention	0.22***	0.44***	-	-	0.22***	0.44***
SN → Intention	0.35***	0.21***	-	-	0.35***	0.21***
PBC → Intention	0.13*	0.09	-	-	0.13*	0.09
Attitude → Condom	-	-	0.10***	0.15***	0.10***	0.15***
SN → Condom use	-	-	0.16***	0.08**	0.16***	0.08**
PBC → Condom use	0.16***	0.28***	0.05*	0.03	0.21***	0.31***
Intention → Condom use	0.46***	0.35***	-	-	0.46***	0.35***

Note: $t > |1.96|$, *$p < .05$; $t > |2.58|$, **$p < .01$; $t > |4.00|$, ***$p < .001$
TE = Total effect, IE= Indirect effect, DE= Direct effect

3. Direct effect of attitude, subjective norms and perceived behavioral control on intention

For female model, the result found that all direct measures including attitudes, subjective norms and perceived behavioral control had significant direct effects on intentions ($\beta = 0.24$, $p < .01$; $\beta = 0.34$, $p < .001$; and $\beta = 0.21$, $p < .05$, respectively).

For male model, attitude and subjective norms had a significant direct effect on intention ($\beta = 0.41$, $p < .001$; and $\beta = 0.21$, $p < .01$), but perceived behavioral control

had a non-significant direct effect on intention (β = 0.08, p > .05). Considering, the quantity of direct effect of the predictive factors on intention between female and male model, the finding indicated that all three direct measures had direct effect as the predictive factors on intention among female adolescents. Whereas two direct measures (attitude and subjective norms) had direct effect on intention to use condom of the male model.

Table 4.21 Effects Decomposition of Predictive Factors in the Modified Model by Gender (Female = 332, Male = 275)

Path	Standardized Value					
	DE		**IE**		**TE**	
	Female	Male	Female	Male	Female	Male
bboe → attitude	0.82***	0.68***	-	-	0.82***	0.68***
nbmc → SN	0.99***	0.85***	-	-	0.99***	0.85***
cbpp → PBC	0.77***	0.86***	-	-	0.77***	0.86***
bboe → Intention	-	-	0.20**	0.28***	0.20**	0.28***
nbmc → Intention	-	-	0.34***	0.18**	0.34***	0.18**
cbpp → Intention	-	-	0.16*	0.07	0.16*	0.07
bboe → Condom use	-	-	0.13**	0.10***	0.13**	0.10***
nboe → Condom use	-	-	0.22***	0.06**	0.22***	0.06**
cbpp → Condom use	-	-	0.12*	0.27***	0.12*	0.27***
Attitude → Intention	0.24**	0.41***	-	-	0.24**	0.41***
SN → Intention	0.34***	0.21**	-	-	0.34***	0.21**
PBC → Intention	0.21*	0.08	-	-	0.21*	0.08
Attitude → Condom use	-	-	0.16**	0.14***	0.16**	0.14***
SN → Condom use	-	-	0.23***	0.07**	0.23***	0.07**
PBC → Condom use	0.02	0.28**	0.13*	0.03	0.15*	0.31***
Intention → Condom use	0.66***	0.35***	-	-	0.66***	0.35***

Note: $t > |1.96|$, *$p < .05$; $t > |2.58|$, **$p < .01$; $t > |4.00|$, ***$p < .001$
TE = Total effect, IE= Indirect effect, DE= Direct effect

4. Indirect effect of attitude, subjective norms, and perceived behavioral control on Condom use behavior via Intention

For female model, all path coefficients were statistically significant. Attitude and subjective norms had significant indirect effects on condom use behavior via intention ($\beta = 0.16$, $p < .01$; $\beta = 0.23$, $p < .001$), and perceived behavioral control ($\beta = 0.13$) had a significant indirect effect on condom use behavior via intention at the 0.05 level of significant.

For male model, the results indicated that attitude and subjective norms had significant indirect effect on condom use behavior via intention ($\beta = 0.14$, $p < .001$; $\beta= 0.07$, $p < .01$), while perceived behavioral control had a non-significant indirect effect on condom use behavior via intention ($\beta = 0.03$, $p > .05$).

5. Direct effect of perceived behavioral control and intention on condom use behavior

For female model, the result found that intention had a positive direct effect on condom use behavior at the 0.001 level of significant, but perceived behavioral control had a non-significant direct effect on condom use behavior.

For male model, the result found that perceived behavioral control and intention had positive direct effect on condom use behavior at the 0.01 and 0.001 level of significant, respectively.

Thus, female and male model had the same results for intention which positive direct effect on condom use behavior, but different results in female and male participants for the direct influenced of perceived behavioral control on condom use behavior.

In conclusion, the path coefficient of total effect and indirect effect among variables indicated that quantity of effect as the predictive factors of condom use behavior were found significantly in female model more than male model in this study.

Summary

This chapter illustrated the demographic characteristics of Thai adolescents. Based on the theory of planned behavior (TPB) model, descriptive statistics of the study variables were proposed. The statistic program SPSS 13 and PRELIS were used to analyze preliminary results. The LISREL 8.52 was employed to test the hypothesized and modified the model. The modified model of condom use behavior among Thai adolescents was a good fit to the sample data all three models including female sample model, male sample model and the overall sample model. Regarding the overall samples, the causal relationship by path analysis indicated that perceived behavioral control and intention had significantly positive direct effects on condom use behavior. In addition, the indirect measures and the direct measures of attitudes, subjective norms, and perceived behavioral control also predicted condom use behavior via intention in this study. The results of the study supported the theory of planned behavior regarding the strong effects of perceived behavioral control and intention on condom use behavior among Thai adolescents.

CHAPTER V
DISCUSSION

A discussion of the research findings was provided in this chapter. Firstly, the demographic characteristics of the sample in the model testing phase were discussed. Secondly, the overall model of the TPB's constructs including behavioral beliefs, normative beliefs, control beliefs, attitude, subjective norms, perceived behavioral control, and intention to use a condom and the hypotheses testing were discussed. Finally, the discussion of methodologies and contributions to nursing science and knowledge development was delineated.

Demographic Characteristics of the Sample

In this study, the subjects were both male and female adolescences aged between 17 and 21 years old and studying in a public vocational school, at levels 1-5 (por-wor-cho 1-3, por-wor-sor 1-2) in the Bangkok Metropolitan. There were 332 female students and 275 male students who participated in the model testing phase. Most of the subjects (61.3%) reported that they never had sexual experiences. Among female subjects, most of them (72.3%) reported that they never had sexual intercourse at all, whereas only nearly half of the male subjects (48%) claimed that they never had a sexual experience in their lifetime. The findings showed that gender difference between male and female adolescents should be of concern. Approximately thirty nine percent (235 students, 38.7%) of overall subjects (607 students) claimed that they had experienced sexual activity (52% of males and 27.7% of females). In addition, the majority of those subjects who were sexually active reported that their age at first experiencing sexual intercourse was 15 years old (10.2%).

This finding was congruent with the previous reports in other studies that the gender factor is of concern. Arpaporn and Pantip (2008) studied differences in sexual behavior predictors between sexually active and non-active female adolescents in

Bangkok and found that 54.8 percent of female adolescents were sexually active (Mean age 19.7). In a survey evaluating the 100 percent condom promotion program in Thailand, it was found that one-third of young men living in a provincial area had no sexual experience (Chamratrithirong, et al., 1999). Young people seem to have sexual intercourse earlier in life and there are a greater percentage of adolescents who are sexually experienced at every age level, a greater number of acts of premarital intercourse, and a greater number of sexual partners before marriage (AGI, 1994; Kirby, 1997 from http://www.plannedparenthood.org). The likelihood of having sexual intercourse increases steadily with age. In fact, few very young adolescents are sexually experienced in this way, and nearly 20 percent of adolescents do not have intercourse before they turn 20 years old. Similarly, the case studies in Africa and Asia were found that the typical age at sexual debut was 18-20 years among females, and 15-20 years among males (Lan Anh, 2002).

In this study, the findings showed that fathers and mothers (74.7% and 73.8%) strongly disagree with adolescents' premarital sexual behavior and more strongly disagree of behavior by female adolescents than by males. This reflects the idea that Thai parents are more influenced in preventing girls having early engagement in sexual activity. As for male participants, they mainly thought that their parents had no opinion about adolescent sexual activity. In total, 44 percent of fathers and 34.9 percent of mothers were believed to neither agree nor disagree with adolescent sexual activity. However, if adolescents encountered sex, most participants perceived that their parents generally agreed that adolescents should use a condom (36.4% for both father and mother). In addition, some participants thought that their parents strongly agreed and emphasized condom use by adolescents same as presence sentence (32.1% of fathers and 33.4% of mothers).

At the time of study, more than half of the subjects had both parents living with them (64% of males and 65.4% of females). In most circumstances, discussions of sexuality seem to be forbidden. The findings showed that for most both father and mother never talked about sex with their children (60.6%, and 52.1%, respectively). This reflects that most of the parents, families and communities in Thailand still hold some common misconceptions about sex education. They believed that adolescents

were too young to learn about sexuality and talking about sex could induce the youth to have sex too early as a result.

Condom use Behavior

Condom use behavior was measured by a three item questionnaire, with each item rated 1-5 points. The first item asked all subjects about condom use behavior in the past i.e., *during the past 6 months, how often did you or your partner use a condom when having sex*? The responses were coded as 1 = never, 2 = used 1-3 times, 3 = occasionally but not regularly, 4 = frequently but not regularly, and 5 = every time. The second item was concerned with condom use in the future i.e., *in the next 6 months, I or my partner will use a condom when having sex*, the responses were coded as 1 = definitely not use, 2 = rather not use, 3 = unsure, 4 = rather use, and 5 = definitely use. The last item asked about *the latest time when you had sex with your current partner, did you or your partner use a condom*? The responses were coded as 1 = not used and 2 = used a condom. Corresponding to the scores on condom use behaviors for those three items, it was found that the actual scores ranged from 3.00 to 12.00 (Mean = 6.53, *SD* = 1.86). This result revealed that condom use behavior of those subjects who were sexually active was at a middle level. Approximately sixty-one percent of the subjects had never had a sexual experience (61.3%) in their lifetime (48% of males and 72.3% of females).

The items measuring condom use behavior asked participants about previous behaviors, the future and current events. They were measured through self-administered questionnaires. The majority of subjects (75.6%) who were sexually active reported that they had never used a condom when having sex during the past 6 months (75.6% of males and 84.5% of females). At the present time, a very high number of participants (83.9%) *never* used a condom when having sex and had not used one the last time they had had sex. Unfortunately, almost thirty four percent (33.8%) of the subjects reported that they were *not sure* if they were going to use a condom when having sex in the next 6 months. Similarly, when asking of safe sex behavior, the study found that only one third of the subjects (33.3%) will *definitely use* a condom when having sex in the next 6 months.

Moreover, the purpose of this study was to predict the intention of condom use behavior. Although it is true that previous behavior should be a predictor of future behavior, self-reports have limited explanatory value and is a less reliable method to predict behavior in the future. Thus, self-report cannot meaningfully establish that a person has performed a certain behavior because they said they did so (Ajzen, 1988, Ua-Kit, 2004).

Discussion of the Causal Model of Condom use Behavior

The purpose of this study was to examine the relationships among the TPB's constructs, including attitude, subjective norms, perceived behavioral control, intention, and condom use behavior. According to theory of planned behavior (Ajzen, 1985, 1991), the predictive factors can be measured both directly and indirectly for the major constructs in this study. There were three variables of indirect measure (behavioral beliefs, normative beliefs, and control beliefs) associated with three variables of direct measure (attitude, subjective norms and perceived behavioral control). Thus, three indirect measures were exogenous variables and three direct measures were endogenous variables in the causal model of condom use behavior and act through intention, which is the mediating factor. The discussion of the causal model for the modified model of condom use behavior is comprised of model fit; discussion of the causal relationships of the condom use behavior model, and gender difference was discussed in aspects related to the causal relationships.

Model Fit

Hypothesized model testing was one of the objectives in this study. Model fit was done to determine the goodness-of-fit between the hypothesized model and the sample data, thus determining whether the theoretical model was consistent with the model tested. This section was discussed the model fit of condom use behavior for three models including the overall model, female model, and male model.

First, for the overall model, the final model of condom use behavior fitted well according to the goodness-of-fit index (Chi-square = 2.27, df = 6, p = 0.89, GFI = 0.99, AGFI = 0.99, RMSEA = 0.00). Second, for the female model, the final model of condom use behavior was a good fit to the empirical data (Chi-square= 10.32, df = 6, p = 0.112, GFI = 1.00, AGFI = 0.99, RMSEA = 0.05). Third, for the male model, the

final model of condom use behavior was a good fit to the data (Chi-square = 7.42, *df* = 4, *p*= 0.115, GFI = 0.99, AGFI = 0.94, RMSEA = 0.06). In conclusion, the results from the modified model indicated that all three final models had a good fit to the sample data.

Discussion of the Causal Variables

This section mainly discussed the model fit of the overall model (n = 607) for the model testing of condom use behavior.

The modified model adequately fitted with the data for the overall model in this study. The dependent variable of interest, condom use behavior, was represented by one observed variable in which participants were asked about condom use behavior in the past 6 months, in the next 6 months, and most recently. Of the total subjects (n=607), nearly seventy six percent (75.6%) indicated that they had never used a condom when having sex in the past 6 months. The findings were similar to the findings of the male model and female model (75.6% of males and 84.5% of females) which separated genders in this study. As for the most recent time when they had had sex, eighty four percent of participants (83.9%) indicated that they never used a condom. However, the finding was different when asking about condom use behavior in the future, which only three percent indicated that they will definitely not use a condom when next having sex (4.4% of males and 1.8% of females).

Attitude toward Condom Use

According to the TPB, attitude toward condom use was represented by indirect measure as exogenous variable and direct measure as endogenous variable. The indirect measure of attitude was composed of behavioral beliefs regarding 18 items corresponding with a single outcome evaluation. The direct attitude was measured by 14 items, each with a scoring of 1 -5 points. In this study, subjects reported both positive and negative attitudes toward condom use behavior. For the indirect measure, the attitude toward condom use was at a moderate level (Mean = 241.86, SD = 50.94) with a score ranging from 95 to 450, while the subjects had an attitude toward condom use rated at a high level by the direct measure (Mean = 47.82, SD = 7.67) with a score ranging from 14 to 70. Considering the indirect measure, the result showed that adolescents rated preventing STD/HIV infection highest (Mean = 20.18, SD = 5.04),

and protection against unintended pregnancy was also important (Mean = 18.73, SD = 5.26). The finding indicated that adolescents in this study had a positive attitude toward condom use based on perceived STD/HIV and unwanted pregnancy prevention. Compared with the direct measure, the feelings of adolescents regarding condom use behavior were at a high level for the item scales risky-safe (Mean = 4.22, SD = 0.80), and healthy-unhealthy (Mean =3.77, SD = 0.95). This result identified adolescents' belief regarding condom use, and illustrated that they regard safe sex practice and health as more important than an un-enjoyable and unexcited feeling. This could indicated adolescents were low sensation seekers and more likely to engage in safer sex behavior. This finding was congruent with a previous study in western literature which revealed that impulsive decision making and sensation-seeking were negatively related to condom use, while healthy beliefs were a promotion factor of condom use (Broaddus & Bryan, 2008).

Subjective Norms

Subjective norms as the major variable inherent within the TPB were measured by two observed variables: one indirect measure as exogenous variable and one direct measure as endogenous variable. Regarding the indirect subjective norm, the mean total score of 7 items was 116.75 (SD = 38.28) with a score ranging from 7 to 175. The mean total score of the 2 items for direct measure was 8.03 (SD = 1.71) ranging from 2 to 10. The result of direct subjective norms revealed that adolescents had a higher level of agreement to use condom if it matched the beliefs of an important person in their life.

The results of the indirect measure identified that a physician or nurse often had a higher level of normative beliefs as the important person for adolescents in this study. This might reflect that heath care providers play an important role for adolescents regarding safe sex information and health promoting programs. The finding indicated that three people who influence an adolescent's beliefs were the mother, father and teacher, respectively. It should be noted that the people who influenced condom use behavior among adolescents were their parents and school teachers. This finding was congruent with a study of the family and youth via survey in Thailand by Podhista and Pattaravanich (1995) in which the feeling of close relationships to both father and mother is of a greater proportion among youth in rural

areas than those from the cities. The study pointed out that the mother was the center of the Thai family in terms of love and special affection. This relates to the subjects' perceptions that those who were important to them thought that they should use a condom. In general, adolescents get information about human reproduction and sex education in the school curriculum. On the other hand, parents and teachers are major sources of information on sexuality for adolescents. Young females were more likely to obtain information from the family and particularly their mothers, than were young males (Lan Anh, 2002).

In addition, siblings or relatives, friends and partner were also found to be important persons affecting condom use behavior in adolescents. Similar to Ua-Kit's finding (2004), the first important person who influences adolescents' belief were friends and siblings in the same age group. Friends and peers play an important part in the process of personality and behavior formation among the youth. Studies of risk behaviors, such as unsafe sex, among youth in Thailand indicate that friends and peers have a strong influence in this respect (Podhista & Pattaravanich, 1995). The finding demonstrated that the sexual partner seems to have a less significant influence on condom use behavior in adolescents. Although most people want to believe and trust their partners, talking about specific sexual behaviors did not come automatically or easily for most. Negotiating sexual behavior or demanding safer sex with a partner could be a complicated thing. Condom use was associated with one night stands or a casual partner. Hutchinson and Thompson (2001) studied the sexual protective strategies of late adolescent females, and found that young women only used a condom with different or other partners or in the early stage in their relationships. However, condom use may be largely under the control of the male partner. Thus, condom use should be discussed and agreed upon before any sexual activity of young couples (Hutchinson & Thompson, 2001).

Perceived Behavioral Control

The third pair of observed variables was measured by an indirect PBC measure as exogenous and a direct PBC measure as endogenous variables. The indirect measure of PBC consisted of control beliefs regarding 20 items corresponding with a single perceived power (20 items). The direct PBC was measured by 4 items, with a scoring of 1 -5 points. Indirect measure result showed that perceived power to use

condom of adolescents was at the moderate level (Mean = 253.01, SD = 53.92). Adolescents rated three items higher than other items, including avoiding HIV/STD infection (Mean = 17.99, SD = 6.53), knowing about safe sex behavior (Mean = 16.82, SD = 5.70) and avoiding getting pregnant (Mean = 16.79, SD = 6.21). This result indicated that adolescents perceived control over condom use behavior as a supportive factor rather than an inhibiting factor. For the direct measure, the mean of total score was 14.17 (SD = 2.46) with a score ranging from 4 to 20. Adolescents perceived that the decision to use a condom depended on their judgment rather than other perceived controls. The result showed that adolescents had higher mean of perceived power over condom use behavior.

Intention

Intention as the endogenous variable of the TPB causal model was measured by four items, with scoring from 4 to 20 points. The mean total score of intention in adolescents was 14.46 (SD = 3.23). The result showed that adolescents had higher mean for intention to use condom and were more likely to deny sex if condoms were unobtainable. In this study, adolescents' intended (Mean = 3.77, SD = 0.89) and planned (Mean = 3.77, SD = 0.91) to use a condom when next having sex.

According to the modified model of the overall sample, the greatest influence on condom use behavior in the model was intention. Among the remaining six exogenous variables, including behavioral beliefs, normative beliefs, control beliefs, attitude, subjective norms, and perceived behavioral control, PBC was the significant predictor influencing condom use behavior in the model of this study.

Ajzen and Fishbein (1988, p.47) stated that intention can change over time and a measure of intention taken some time prior to observation of the behavior may differ from the intention at the time that behavior is observed. In the current study, intention to use condom had a significant direct influence on condom use behavior in the overall model. Consequently, successful condom use behavior depends not only on a favorable intention but also on a sufficient level of perceived behavioral control (Ajzen, 2002).

Factors Effecting Condom Use Behavior

1. The Direct Influence of Intention on Condom use Behavior

The finding revealed that intention had a significant positive direct influence on condom use behavior in the overall model ($\beta = 0.35$, $p < .001$). Theoretically, adolescents with higher levels of condom use intention had higher levels of condom use behavior. This finding of the overall model supported the theoretical preposition. The finding of this study was congruent with those of a prior study concerning intention to use condoms. This finding supports subsequent work by Griffin, Lesser, and Nyamathi (2004) which revealed that behavioral intention had a significant and positive direct influence on condom use behavior ($\beta = 0.24$, $p < .05$). This was similar to the study by Sheeran and colleagues (1999) which the finding indicated that intention had a significant influence on condom use behavior. This is also consistent with the study done by Phillips (2005) which showed strongly significant correlation between intention and actual use of condom for vaginal intercourse ($r = .92$, $p < .001$). This signifies important information regarding the linkage between intentions and actual condom use (Thato, 2002).

From the result of this study, it could be assumed that intention might be related or unrelated to condom use behavior, as reflected in an individual's intention to perform behavior, and not the actual behavior performance at that time. For example, if an individual intended to use a condom, especially the adolescents sexually active in this study, they might use a condom, or in contrast, they may not use a condom. It is possible that control is important in determining whether the intention is translated into action through influences such as knowledge, ability, resources, opportunity, availability, past experience, and unexpected situations. These factors determine the amount of control and could moderate the intention-behavior relationship (Sheeran, 2002). This is supported by Sheeran's argument (2002) that behavior may be controlled either by intentions or by automatic processes. Regarding the assumption, most human behavior is controlled by automatic processes rather than by intention, especially in the case of condom use behavior for male adolescents who are taking control.

This study was conducted with both male and females adolescents, and investigated the results for gender separately. The result was similar in both the female

model which intention had a significant positive direct influence on condom use behavior ($\beta = 0.46$, $p < .001$), and in the male model ($\beta = 0.35$, $p < .001$). There were the possible reasons for male and female adolescents to use a condom.

First, the personality characteristic: aspects of one's personality could influence decisions made with regard to sexual behavior, and could also contribute to sexual risk taking and a lack of condom use. Adolescents who were high sensation seekers or impulsive decision-makers were more likely to engage in sexual risk taking practices such as casual sex, having multiple sexual partners, or unprotected sex, as compared with low sensation seekers and rational decision makers (Donohew et al., 2000). Likely to be male, they have higher self-esteem, higher optimism about the future, and lower sensation seeking and impulsive decision making (Bryan & Broaddus, 2008). Premarital sexual activity is more prevalent among male than among female adolescents. This study was found that male participants (26%) were less likely to use a condom than females (40%) as reflected in the item *definitely use a condom next time*.

Generally, it can be noted that the issue of gender permissiveness has differences related to condom use in eastern culture, which views condom use as being inappropriate for females. Female adolescents in developing countries are usually shy to talk about sex, and especially to ask their partners about condom use during sexual intercourse. In the study of condom use intention among college students in Vietnam by Thi lan Anh (2002), the results demonstrated that female students always had higher intention to use a condom than male students. This is consistent with the study of Thato (2002), which found that of adolescents who were not sexually active, only females had higher levels of intention to use a condom.

Second, the situation or context may have a major impact on safer sex behavior. In fact, the most commonly cited sexual protective strategy among adolescence was condom use. Female adolescents might use a condom because of different reasons. As mention above, in the study of sexual protective strategies of late adolescent females by Hutchinson and Thompson (2001), half of young women reported that they only used condoms with different or other partners or early in their relationships. That is, female adolescents were more likely to use condoms with a new

partner or in the early stages of a new relationship and less likely to use them later when the relationship duration increased.

Although increases in intention were correlated with increases in self-efficacy (Jemmott & Jemmott, 1992), alcohol use is commonly cited as a reason for lack of condom use among adolescents. Bryan and colleagues (2005) studied condom use among high-risk adolescents and tested whether alcohol exerts an influence on risky sexual behavior that is distal to the behavior itself, when individuals are forming intentions regarding condom use and sexual behavior. For example, a heavy alcohol user might, from prior experience, come to believe that condom use is difficult and too much trouble to deal with if he or she is drinking (i.e., decreased self-efficacy) or is simply not a behavior worth planning for (i.e., weak or nonexistent relationships among attitudes, self-efficacy, and intentions). It could also be that the best of intentions to use a condom are compromised in sexual situations because of frequent alcohol use, so it might be that the relationship of intentions and behavior holds for nondrinkers but not for drinkers (Bryan et al., 2005).

Intention should be measured as close as possible to the time at which the behavior will be performed as a way to improve its predictive power (Sheeran & Orbell, 1999). When intention is strong, confounding factors are less likely to impact behavior directly and intention is a strong predictor of behavior. Ajzen (1988) emphasized that intention is an immediate antecedent of behavior. Intention plays a role as a predictor of present and future condom use. This is consistent with the study by Phillips (2005), the results of which indicated that if we can increase intentions, we could hope to increase actual condom use.

In conclusion, condom use intention plays an important role in determining condom use behavior in the current study. Intention is predicted by personality variables and situational context, and by self-efficacy as a measure of adolescents' confidence in being able to carry out the specific behavior.

2. The Direct Influence of Perceived Behavioral Control on Condom use Behavior

The finding revealed that perceived behavioral control had a significant and positive direct influence on condom use behavior in the overall model, female model, and male model ($\beta = 0.32$, $p < 001$; $\beta = 0.16$, $p < 001$; $\beta = 0.28$, $p < 001$, respectively).

This means that adolescents with higher level of PBC to use a condom had higher levels of condom use behavior. This finding was consistent with the study by Montano and Kasprzyk (2002) and the study by Villarruel and colleagues (2004), the results found that PBC was a significant predictor of condom use behavior ($\beta = 0.14$, $p < .05$; $\beta = .0.34$, $p < .001$, respectively). It should be noted that the sign of β value of this study was the same as β value of the two previously cited studies, and the results were consistent across all studies. The result from this study is consistent with the finding of the previous study conducted with Latino males by Carvajal, Estrada, and Estrada (2007), in which self-efficacy and intention directly predicted sex behavior. In contrast, the study of condom use in adolescent mothers by Griffin, Lesser, and Nyamathi (2003), found that PBC did not account for a significant amount of variance in condom use behavior.

The indirect and direct PBC measures were both used in the current study, similar to the instruments used in previous studies where both PBC measures were used. This is congruent with the study by Bosompra (1998) the indirect and direct PBC measures were used to study condom use intention among university students in Ghana. For indirect PBC measures of the constructs, the results showed that PBC was not a significant predictor of intention, while the direct PBC measure provided full support for the TPB model. The different results may emerge from how the items were asked and scored. The different results across these studies may be accounted for by the three following reasons (1) different population, (2) different PBC measures, and (3) different ways of scoring the measures in each study.

According to the TPB, Ajzen (1998) stated that PBC can be used to predict the behavior directly because it may be considered a partial substitute for a measure of actual control. In some situations, PBC is not particularly realistic. This is likely to be the case when the individual has little information about the behavior, when requirements or available resources have changed, or new and unfamiliar elements have entered into the situations. Under those conditions the measure of PBC may add little to the accuracy of behavioral prediction. Theoretically, the broken arrow indicates direct path, the link between PBC and behavior is expected to emerge only when there is some agreement between perceptions of control and the person's actual control over the behavior (Ajzen, 1998, p.134).

Male and female adolescents in Bangkok are similar in reflecting the individual's judgment of how well they can use a condom under various conditions when they encounter sexual activity. The results of the female model and male model confirmed that PBC had a significant and positive direct influence on condom use behavior. These control beliefs are based on the past experience with condom use behavior. They are influenced by individual information about the behavior. The more resources and opportunities an individual thinks he/she possesses, and the fewer obstacles or impediments participated in, the greater the perceived control over the behavior should be (Ajzen, 1998). This is possible for the extraneous factors that partially underlying in the control beliefs as proposed in the TPB model.

There are several factors that may influence the subjects to use a condom consistently. First, the low rates of condom use among Thai adolescents may be because they did not perceive themselves to be at risk from sexual behavior. Similarly, in this study the participants reported that only one-sixth (16.1%) of them used a condom the last time they had had sex. The results of this study showed high percentage of the participants' perception in their parents *agree* and *strongly agree* with condom use in adolescent (36.4% and 32.1% of fathers, 36.4% and 33.4% of mothers). The subjects also reported that most of their friends (43.3% of males and 50% of females) agreed to use a condom if they have sex. Thus, these people's ideas might help adolescents control themselves and use a condom when they have sex.

Second, gender differences in condom use behavior varied. For example, males and female adolescents perceived different challenges to the practice of safe sex and condom use (Norris, Phillips & Grady, 2007). According to the survey of family and youth in Thailand (1995), adolescents' sexual behavior was largely unprotected and most first sex acts were either at risk of unwanted pregnancy or of disease transmission (Podhisita & Pattaravanich, 1995). Although half of the subjects reported never using condoms either in the beginning of their sexual relationship or the last time they had had sex, males students were more likely than females students to use condoms at both occasions (Thato, 2002). This was congruent with the study of the success of the 100% condom promotion program in Thailand by Chamratrithirong and colleagues (1999), which found that condoms were largely used outside marriage by males.

Cultural beliefs regarding condom use are a major concern and sensitive issue among Thai adolescents. Especially among female adolescents, communication with their partners on condom use is difficult because this protective strategy may imply a history of being sexually active and plan to have sex. Seeking safe sex behavior or requesting condom use is not appropriate behavior for respectable Thai women (Thato, 2002). Interestingly, most female subjects (72.3%) reported that they had never had sexual intercourse in their lifetime. Condoms were more likely to not be used by female than male adolescents during both the past 6 months (84.5% in females and 75.6% in males) and at the most recent time (87.9% in females and 79.3% in males). Female who had never had intercourse were found to be more likely than sexually active females to intend to use a condom during the next year if they had intercourse (Phillips, 2005).

Finally, adolescent sexual decision-making in the social and psychological context in which sexual experiences occur proved to be less than rational and different from adults. The middle adolescents (age 15 to 17) development reflects an increasing capability in decision-making with reference to an extended time perspective, rather than being tied to the here and now. Adolescents who have better decision-making will engage in fewer risks taking behavior (Ua-Kit, 2004). This was supported by the elicitation study where participants had outcome expectations about their personal life in the future. They perceived the benefit of condom use as protecting them from negative outcomes, such as unintended pregnancy, and STDs including HIV. On the other hand, they recognized the disadvantages of condom use in that it decreases sexual sensation or arousal (Fishbein & Ajzen, 1975).

Ajzen (1991) developed the theory of planned behavior by adding the PBC component to the TRA in an attempt to extend it's applicability to behaviors that are not completely under volitional control, such as adolescent condom use behavior.

The direct path from PBC to the behavior is assumed to reflect the actual control an individual has over performing the behavior. The direct effect of PBC on actual behavior should be significant when (a) the behavior is likely to have some aspect not under volitional control and (b) perceptions of control over the behavior are accurate (Madden, Ellen, & Ajzen, 1992). Similar to this result, Montano and Kasprzyk (2002) stated that, if PBC is an important determinant of behavior or

intention, knowledge of effects of control beliefs concerning each facilitator or constraint would be useful in the development of interventions. In other words, it can provide a focus in specific environment factors in which control beliefs are most strongly associated with condom use behavior.

The current study measured control beliefs (indirect PBC measure) and found them to be the important predictors of behavior. Thus, PBC had a significant direct influence on condom use behavior, which supported the causal relationships as propose in the TPB model.

3. The Indirect Influence of Attitude on Condom use Behavior via Intention

The finding showed that attitude toward condom use had a significant and positive indirect influence on condom use behavior via intention in the overall model, female model, and male model ($\beta = 0.08$, $p < .01$; $\beta = 0.16$, $p < .01$; $\beta = 0.14$, $p < .001$, respectively). The overall result means that intention might be a good mediating factor of attitude to predict condom use behavior in the current study.

The result was consistent with the study by Villarruel and colleagues (2004) which found that attitude had a significant indirect influence on condom use behavior via intention. Adolescents who had a positive attitude toward condom use, who perceived that significant others in their lives approved of condom use, and who expressed greater confidence in their ability to use condom, reported stronger intentions to use condoms. According to the theory of reasoned action (TRA) (Ajzen& Fishbein, 1980), it posits that attitudes are important in forming intentions and people generally wish to behave in accordance with intentions. While *generalized* attitudes are not good predictors of subsequent behavior, behavioral intentions (i.e. a set of predispositions to actually perform a certain behavior) are better ones.

In contrast, the study by Griffin, Lesser, and Nyamathi (2003) examined how condom use among pregnant and parenting adolescents is influenced by theoretical variables. The findings showed that constructs from TPB have limited usefulness in predicting condom use of pregnant or parenting adolescents. Attitude was dropped as not influencing a significant amount of variance in condom use (Griffin, Lesser, & Nyamathi, 2003). In the study to find any discrepancy in attitude among students in Bangkok by Sethaput (2003), results reflected a double-standard in traditional sexual

customs, female students need peer support to approve of something, in contrast, the males in Thailand are more free in sexual relations, which results in less need of peer support for their attitudes.

Attitude toward condom use is a person's general feeling of favorableness or unfavorableness for condom use behavior. In this study, attitude is a person's judgment that using a condom is a good or bad behavior and they are in favor of or against performing the behavior. Evidently, the more favorable a person's attitude toward condom use, the more she/he would intend to use a condom; the more unfavorable an attitude is, the more she/he would intend to not use a condom (Ajzen & Fishbein, 1980; p.56).

The problem of the nature of the relationship between attitudes and behavior has been a major focus of study in attitude research. As Ajzen (1989) pointed out, the relationship is not between two distinct variables, but between two observed variables of the major constructs: one verbal (attitude questionnaire), the other non-verbal (condom use behavior). There are a number of plausible reasons for the poor predictive power of the TPB model.

First, there may be a mismatch between the measures of attitude and behavior in several aspects of this problem. In order to be a strong link between attitude and behavior the two must be measured with the same level of specificity. Ajzen and Fishbein (1977) noted the need to match the specificity of measurement of attitude and behavior with respect to the target, action, time frame, and situation. For instance, adolescents' general attitude toward condom use (who not sexually active) is likely to be a poorer predictor of their adherence to using a condom than the general attitude expressed by those who are sexually active. A large gap in time between the measurement of attitude and behavior is also likely to weaken the attitude-behavior link because of the possibility of attitude change during this time period, and differences in the situation may further weaken the relationship (Ajzen & Fishbein, 1977).

A second reason for poor performance of the model is that health related behavior typically ignores the influence of past behavior, if its role is acknowledged it is usually through its effect on individuals' cognitions, which are still seen to be the primary determinants of behavior. Ajzen (1988) suggests that any influence of

previous behavior in the TPB will act via the perceived control component. To the extent that many health related behaviors can be seen to be habitual in nature, past behavior may have a direct influence on current and future behavior.

A final reason why the model continues to account for a small amount of variance in health related behavior or condom use is that collected data may not always be analyzed in accordance with the model's predictions. Within the TPB, this means the way in which multiplicative composites interact (behavioral beliefs x outcome evaluation). It may be that assessing non-salient beliefs produces distortions in the patterns of relationships among beliefs within the individual. Collecting ratings of individually generated influences upon behavior may be particularly important (Conner & Norman, 1994).

Assuming that appropriate measures were obtained in this study, the attitudinal component should always predict the intention; their ability to predict the behavior will depend on the strength of the intention-behavior relation. The effect of attitude on behavior is thus mediated by the condom use intention (Ajzen & Fishbein, 1980; p.59). For example, male adolescents' intentions to use condom are not very accurate predictors of actual behavior. If this was the case, attitude toward "using condoms" should still predict the intention, but they would not be expected to predict the behavior. Thus, the failure of attitude to predict whether or not a man actually uses a condom cannot be taken as evidence against the theory.

Although, other studies have suggested that attitude explained the majority of the variance to perform condom use behavior (Albarracin, Johnson, Fishbein, & Muellerleile, 2001; Jemmott, Jemmott, & Fong, 1992; Montano, Kasprzyk, Haeften, & Fishbein, 2001), the vulnerable nature of this sample may have precluded this finding. Because no other research in Thailand has been published to date using the TPB to predict condom use behavior with vocational students, geographical and cognitive co-behavior may provide the strongest prediction of condom use intention, leading to perceived behavioral control and thus accounting for a large portion of the variance (Steele & Porche, 2005). Moreover, Orbell, Hodgkins, and Sheeran (1997, p. 946) argued that intention is a summary of the cognitive and affective mechanism through which attitude directly influences future behavior.

In conclusion, the results of the overall subjects, female and male adolescents were demonstrated that the data was supported a causal relationship of indirect influence of attitude toward condom use on condom use behavior via intention. This demonstrated that the causal relationship among those variables for female and male subjects was driving the overall model in this study. Attitude influenced condom use behavior directly and via intention for female and male adolescents and a combination of the overall sample. Therefore, intention was the function, as a cognitive mediator, linking attitude and condom use behavior among participants in this study.

4. The Indirect Influence of Subjective Norms on Condom use Behavior via Intention

The result showed that subjective norms had a significant and positive indirect influence on condom use behavior via intention in the overall model, female model and male model (β= 0.08, $p < .01$; β= 0.23, $p < .001$; β= 0.07, $p < .01$, respectively). In this study, the overall result means that intention might be a good mediating factor of subjective norm to influence condom use behavior.

The finding indicated the importance of parents and family, even in adolescents' sexual decision not to have sex or consistently use a condom if they do have sex, the result confirmed the idea that subjective norms were significant predictors of condom use behavior among adolescents. This finding is congruent with the study of Jemmott and colleagues (2002) conducted among Latino college students in the United States, they found that normative beliefs were a positive link and significant predictors of condom use intention. Villarruel, Jemmott, Jemmott, and Ronis (2004) found a similar result in which subjective norms were seen as reflecting normative beliefs concerning significant referents and their approval or disapproval of particular behaviors. This included participants' normative beliefs regarding their mother, father, friends, and sexual partner, and suggested the beliefs were related positively to intentions to have sexual intercourse. The finding for the female model was congruent and indicated that intention to use a condom would be a mediating factor linking between subjective norms to condom use behavior. In contrast, the study of Armitage and Conner (2001) which found that subjective norm was the weakest predictor of intention, as a non significant predictor of condom use behavior through condom use intention.

In case of adolescence, if significant others such as one's partner, parents, or peers disapprove of their using a condom or engaging in sexual intercourse, they may be less likely to use a condom than if others approved. The study reviewed by Godin & Kok (1995), reported that there were variables not included in the TPB model which contributed to explain significant portions of variance in intention and behavior. However, moral norm or personal normative belief was found to be an important for condom use behavior.

Subjective norm refers to the perceived social pressure to perform or not to perform the behavior. The concept of social influence has been assessed by social norm and normative belief in the TPB. Individuals' elaborative thoughts on subjective norms are perceptions on whether they are expected by their friends, family and the society to perform the recommended behavior. The salient referents for condom use behavior in adolescents elicited in this study were mother, father, teacher, siblings, partner, friends, and physicians/nurses.

Related to the parental approval, the study of condom use in African adolescents by Giles, Liddell, and Bydawell (2005) found that family play an important role in regulating sex practice, imply that parents could be encouraged to talk more to their children about sex related issues. Although, mass media campaigns are currently promoting more obvious discussion of sexual behavior within Thai families, these run counter to strong and established cultural constraints (Giles, Liddell, & Bydawell, 2005). However, this study found that family influences are more important and adds weight to the suggestion that a normative component will have more relevance over which individual decisions are more responsive to the group norm than in cultures where the decision-making process is more individualistic (Bosompra, 2001).

This study and others (Rew, et al., 2005) suggested that the family influences adolescent sexual behavior as adolescents with close bonds to parents (connectedness) have greater opportunities to develop social skills and to acquire a sense of competence and worth that serves them to delay early sexual debut. However, the effect of family structure may be attenuated by the quality of family relationships. For example if adolescents do not live with their mothers, but have strong and secure

relationships with their mothers, the effect of mothers absence on that adolescents are likely to be weaker (Broaddus & Bryan, 2008).

From a practical perspective, sexual behavior is governed by family or social influence, the analyses of data revealed that subjective norm influenced on condom use behavior via intention in this study. In conclusion, subjective norms had significant influence on condom use behavior via intention to use a condom among adolescents in the current study. Therefore, the finding was supported the causal relationship as proposed in the TPB (Ajzen, 1988, 1991), subjective norms regarding condom use directly influence intention to use a condom, and also indirectly influence condom use behavior via behavioral intention.

5. The Indirect Influence of Perceived Behavioral Control on Behavior via Intention

The finding revealed that perceived behavioral control had a significant and positive indirect influence on condom use behavior via intention in the overall model and female model ($\beta = 0.07$, $p < .05$ and $\beta = 0.13$, $p < .05$). In contrast, PBC had a non significant indirect influence on condom use behavior via intention in the male adolescents ($\beta = 0.03$, $p > .05$). The result from this study was consistent with the finding of some studies that applied the TPB model to explain health behavior were generally found to support PBC as a direct predictor of both intention and behavior (Ajzen, 1991; Albarracin, Johnson, Fishbein, and Muellerleile, 2001; Montaño, Phillip, and Kasprzyk, 2000). This means that intention might be a good mediating factor of PBC to predict condom use behavior in the current study.

Ajzen's construct of PBC is concerned with an individual's judgments of how well he or she can perform a behavior under various inhibiting conditions. The concept of PBC is similar to Triandis's concept (1980) of "facilitating conditions" which is concerned with characteristics of an individual (e.g. knowledge or ability) or the environment that make it easier or more difficult to perform the behavior, independent of an individual's behavioral intention (Montaño & Kasprzyk, 2002). PBC or facilitating conditions are considered to moderate the effect of intention on behavior. Intention will have a greater effect on behavioral performance if PBC is high, and PBC will have a greater effect on performance if intention is high (Ajzen, 1991). Clearly, PBC is an important determinant of intention or behavior, knowledge

of the effects of control beliefs concerning each facilitator or constraint would be useful to promote healthy behavior. This can provide a focus in targeting the specific environment factors in which control beliefs are most strongly associated with intention or behavior (Montaño & Kasprzyk, 2002).

In contrary, a previous study conducted in Thai adolescents by Ua-Kit (2004), which found that PBC had a non significant indirect influence on cigarette smoking behavior via intention for all three models ($\beta = 0.00$, $p > .05$; $\beta = 0.01$; $p > .05$; and $\beta = -0.01$, $p > .05$). This study finding was similar to the study of condom use among high-risk American adolescents by Bryan and colleagues (2005), in which PBC was not the significant predictor of condom use, only attitude and intention were significant predictors of condom use in the model ($\beta = 0.19$, $p < .05$; and $\beta = 0.24$, $p < .01$). This is congruent with the study of predicting condom use among Indonesian young adults by Paxton (2004), in which the result showed low PBC and found that PBC did not significantly predict actual behavior of condom use.

It is assumed that PBC is determined by the total set of accessible control beliefs. Some studies have identified these control beliefs, such as availability, technical skill, impulse control, and negotiation that are relevant to predict condom use behavior among adolescents (Jemmott et al., 2002). Perceived behavioral control is assumed to reflect external factors (e.g., availability of time or money, social support) as well as internal factors (e.g., ability, skill, information). However, it would be important to determine whether the theoretical mediators identified as a predictor of intention and past behavior are similarly to or different from those that predicts actual behavior (Villarruel, et al., 2004).

Comparison of the direct influence of PBC and the indirect influence of PBC on condom use behavior revealed that the direct influence of the PBC had a significant influence on condom use behavior, as opposed to the indirect influence of PBC on condom use behavior via intention. This difference in results was reported by Steele and Porche (2005), which found indirect influence of PBC to obtain a mammogram via mammography intention, and direct PBC both had a statistically significant effect on intention to obtain mammogram ($\beta = .288$, $p < .001$).

Although the empirical study of Bandura, Adams, Hardy and Howells (1980) provided evidence that people's behavior is strongly influenced by the confidence they

have in their ability to perform the behavior. The structure link from PBC to intentions reflects the motivational influence of control on behavior through intentions. However, Madden, Ellen, and Ajzen (1992, p.9) argued that level of PBC varies inversely with the amount of control over the behavior. When behavior is perceived to be low in control, the path from PBC to the behavior is significant and not mediated by intention. Conversely, when the behavior is perceived to be high in control, there is no significant relationship between PBC and the behavior. According to the TPB model, PBC can provide information for the prediction of condom use behavior both directly and indirectly. Based on the TPB assumption, perceived behavioral control is included as an exogenous and endogenous variable that has indirect effect on behavior through intention and direct effect on behavior. The result found that the indirect path from PBC to condom use behavior was significant, and mediated by intention.

In conclusion, regarding the causal relationship of the indirect influence of PBC on condom use behavior via intention, the data supported PBC as a predictor of behavior after controlling for intention in the current study.

6. The Direct Influence of Attitude on Intention

The result showed that attitude toward condom use had a significant and positive direct influence on intention in three models: the overall model, female model, and male model ($\beta = .24$, $p < .001$; $\beta = .24$, $p < .01$; $\beta = .41$, $p < .001$, respectively). This means that the adolescents with more favorable attitudes toward condom use had higher levels level of intention to use a condom. The finding of all three models supported the theoretical preposition. These adolescents believe condom use is a good behave and view using a condom as a human responsibility for healthy sexual practice and safer sex. The result was the same in the total subjects, female and male subjects which showed attitude had a significant direct influence on intention. The opportunity to use or not use condoms was not associated with their attitude. This is similar to Broaddus and Bryan's study (2008) which illustrated that the variables negatively related to condom use were impulsive decision making and sensation seeking, and that these were the risk factors for inconsistent condom use.

Similarly, some studies found that attitude played a vital role in predicting condom use intention, that is, a positive attitude toward condoms was associated with stronger intention to use them (Craig et al., 2000; Jemmott & Jemmott, 1992; Phillips,

2005). This congruent with the study by Villarruel, Jemmott, Jemmott and Ronis (2004), which Pearson product moment correlation coefficients showed that attitudes toward condom use (r =.63, p< .001) were related positively to intention to use a condom.

According to the TPB constructs, attitude toward behavior is seen to reflect an individual's belief about performing the behavior, and positive and negative consequences associated with engaging in the behavior. Hedonistic beliefs or belief about the consequences of condom use for sexual enjoyment are viewed as negative consequences of condom use (Villarruel, Jemmotte, Jemmotte, & Ronis, 2004). Partner reaction is another type of behavioral belief associated with condom use whether individuals believe their partner would react favorably to their effort to use condoms. The positive consequence of condom use is to avoid pregnancy, sexually transmitted diseases, and HIV infection (Jemmott, Jemmott, & Fong, 1998).

In the current study, attitudes were positively related to condom use intention. The results for male and female adolescents may be the same because of the following.

The first reason is that all participants in the study were the students of vocational schools located in Bangkok, so they possibly have the same perspective regarding condom use due to their sex educational backgrounds and information. Because Bangkok is the capital of Thailand and an urban area, a modern life style is typical concern in Bangkok, just as in any big city. Mass media such as the internet, television, and radio function effectively and are connected worldwide. The information regarding safe sex behaviors were provided to this target group population through several means, such as the government channels and various public media. Adolescents can share similar behavioral beliefs and information regarding condom use among peer groups. This is an important observation not only in Thailand but also among other countries, despite a difference in culture and environment.

The second reason is the equal age range of the subjects of both gender (17 to 21 years for females and males), this may influence the same attitude toward condom use. During this adolescent period, male and female youth are more interested in peer relationships, other self comparisons, and the opposite sex (Millstein, 1993). Adolescence is a transition period to adulthood. This causes them to become more

independent in their decision-making and lifestyle activity. Sethaput (2003) conducted a study of attitude toward condom preparedness among female students in Bangkok, and found no significant difference between male and female students regarding attitudes towards condom preparedness. Approximately 50 percent of students thought that it was acceptable for female students to buy and carry condoms and about 50 percent thought it was unacceptable.

The third reason is that adolescents' intention to use a condom can be predicted from their behavioral beliefs about the consequences of condom use and their values on attaining these consequences (Ua-Kit, 2004). The findings from the elicitation study demonstrated that adolescents viewed condom use as having advantageous and disadvantageous outcomes. As mentioned earlier, condoms are known to be highly effective in the prevention of STDs and HIV, and in avoiding unintended pregnancy. Fear and perception of sexual risk taking often prompt adolescents to use a condom if they have sex.

Ajzen and Fishbein (1980) proposed that attitude toward a behavior is the degree to which the person has a favorable or unfavorable evaluation of the behavior in question and is a direct determinant of intention at the personal level. Regarding condom use, attitude is the perception of the unfavorable and favorable aspects of use. Attitude can be a complex concept involving three dimensions: cognitive experience (belief), affective experience (emotions), and behavioral intention (choices, action) (Weber, 1992 in Piko, 2001). Thus, a measure of intention as a dimension of attitude may be closer to the performance of the behavior when compared to other dimensions. Based on the indirect measure in this study, the results demonstrated that the two items of behavioral beliefs regarding condom use, that they prevent STD/HIV infection (Mean = 20.18, SD = 5.04) and prevent unwanted pregnancy (Mean = 18.73, SD = 5.26), were at the higher level of attitude. For the direct measure, the items of attitude toward condom use; i.e. a condom is more safe (Mean = 4.22, SD = 0.80) and more healthy (Mean = 3.77, SD = 0.95) were at a higher level in this study.

However, models of behavior such as the TRA or TPB grew out of work that sought to explain why it was that attitude was not a better predictor of behavior. Decades of work finding inconsistent or absent attitude–behavior relationships led to the development of more complex models of the role of attitudes in the prediction of

behavior. The differences in predictors of condom use intentions among youth was summed in the premise by Fishbein and Middlestadt (1987) which stated that the most important determinants of behavioral intention depend on the particular behavior and the particular population studied (Villarruel, Jemmott, Jemmott, & Ronis, 2004).

Thus, attitude toward condom use had a positive direct influence on condom use intention in the TPB model because attitude toward condom use behavior was an important predictor of intention to use condoms among the participants in the current study.

7. The Direct Influence of Subjective Norms on Intention

The finding revealed that subjective norms had a significant and positive direct influence on intention to use condom in all three models: the overall model, female model, and male model ($\beta = 0.23$, $p < .01$; $\beta = 0.34$, $p < .001$; $\beta = 0.21$, $p < .05$). This means that adolescents with a greater sense of normative support for condom use had high levels of condom use intention, and the relationship was statistically significant. This research finding was consistent with the finding of a previous study by White, Terry and Hogg (1994), which assessed the utility of the TPB in the context of practicing safer sex behaviors among heterosexual undergraduates. The data revealed some support for the distinction among the different measures of control. The results of the study suggested that the normative component of the TPB should be revised to incorporate more subtle influences of the referent group and that theory testing should be distinguished among the different aspects of behavioral control.

This study was congruent with Bosompra's study (1998) which found that subjective norm played a key role in the condom use intentions among university students in Ghana. The result was similar to Villarruel, Jemmott, Jemmott, and Ronis's study (2004) which was conducted among Spanish-Latino youth to predict factors of sexual intercourse and condom use intention, they found that subjective norm regarding condom use was a significant predictor of intention to use condoms ($\beta = 0.36$, $p < .001$). Similarly, Boer and Mashamba's study (2005), to predict intended condom use among 201 adolescents from South Africa, reported that subjective norms significantly predicted condom use intention. The results indicated that the TPB could significantly predict intended condom use, although the level of explained variance was limited.

In contrast, the study of predictors of intention to use a condom among Korean college students by Cha, Kim, and Patrick (2008), to examine the efficacy of the TPB, found that only condom attitude and condom-efficacy significantly predicted intention of condom use for young women, but subjective norm was non-significant predictor. It can be seen that subjective norms failed to predict behavioral intention among participants in the studies.

Ajzen and Fishbein (1980) stated that the ability of normative components to predict condom use behavior depended on the strength of intention-behavior relation. The effects of subjective norms on behavior were thus mediated by intention to use condom. For example, if an adolescent's intentions to use condoms are not accurate predictors of actual condom use, attitude toward condom and appropriate subjective norms should still predict the intention, but they would not be expected to predict condom use behavior. According to the current finding, subjective norms were not the powerful predictor of condom use intention. This may be because adolescents in this study were not persuaded by powerful referents that were their important person or influential figure. However, the failure of attitude and subjective norms to predict whether or not adolescents use condoms cannot be taken as evidence against the theory (Ajzen & Fishbein, 1980, p.59).

As the theoretical assumption, a normative component of the TPB deals with the influence of the social environment on intentions and behavior. This refers to the person's subjective norm, that is, adolescents' perception of which most people who are important to them think they should or should not use a condom (Ajzen & Fishbein, 1980; p.57). Subjective norm, however, refers to the person's perception that important others desire the performance and nonperformance of using a condom; this perception may or may not reflect what the important others actually think adolescent should do.

In general, social influence on intention appears to be less important than attitude or perceived behavioral control. Godin and Kok (1996) stated that social norm reached significant level less often. In situations where it does contribute to prediction its weight is lower than the other two constructs (attitude and PBC).

As mentioned earlier, subjective norm has a complicated meaning. Confounding factors such as contextual factors and personal factors of each gender

may be affecting different subjective norms (Phuphaibul, 2004). In Thai culture, the relation of adolescent to adult society is changing rapidly because of globalization and the developing and cross-cultural changes in society. Schools are seen as a place for creating adolescents' beliefs. Therefore, the importance of family is decreasing (Ua-Kit, 2004). Support from friends in the same age group is associated with adolescent's self-identity. Thus, peers might cause frustration which affects their adaptation in the transition period to adulthood.

The current data confirmed the importance of family even in sexual decision-making by showing that many adolescents had behavioral beliefs about their parents' pride about their decision not to have sex. In addition, all participants reported that their parents would *strongly disagree* with adolescents having premarital sex (52.6% of fathers and 54.5% of mothers). Moreover, the participants of this study believed that their parents have a more positive attitude toward condom use, they *strongly agree* with condom use behavior if adolescents have sex (32.1% of fathers and 33.4% of mothers). It can be seen that mothers were more likely to influence adolescents' condom use behavior than fathers, as an important person in the adolescents' lives.

In Thai society, as in most developing countries in Asia, child rearing is traditionally the duty of the mother; father plays his part only when other sources of child care are not available usually only as a single parent. Living with the family, particularly with parents or those close to them, means more than just love and affection, as it also means necessary supervision in times of need. This was supported by the youth in a contemporary Thailand survey (Podhisita, 1995) in which the result found that adolescents get along better with their mother than their father. The finding points to the fact that the mother is the center of the Thai family, and has significant status. This special feeling in favor of the mother simply reflects different roles a mother and father play in child rearing.

For partner norm, condom use may be largely under the control of the male partner. Moreover, many couples appear to use condoms early in a relationship, until a certain point when they decide that condoms are no longer necessary (http://www.accessmylibrary.com). Montaño and Kasprzyk's study (2002) found that the main partner was the important person who influences condom use behavior (β = 0.56, $p < .001$). They noted that a belief such as the importance of partner approval for

using a condom if they have sex is a normative belief, but a belief about if a partner thinks they should use a condom is not a normative belief. Although, choosing a low-risk partner was a common sexual protective strategy among heterosexual youth. In fact, limiting the number of sexual partners limits exposure to HIV/STDs, but this strategy does not reduce the substantial risk from any given partner if that one partner is infected (Hutchinson, Sosa, & Thompson, 2001).

In addition, this study highlights the finding that adolescents who reported having sexual experiences tend to have friends with sexual experience and knowledge of condom use. All participants reported that most of their friends had a positive attitude toward condom use behavior; the majority of them *agreed* with condom use behavior in adolescents (43.3% of males, and 50% of females). While some beliefs about performing a behavior may involve a referent, only the person's belief about if the referent thinks she/he should (or should not) perform the behavior is a normative belief. Normative beliefs are similar to subjective norms, except that they involve specific individuals or groups rather than a generalized important other (Ajzen & Fishbein, 1980).

Overall, the finding indicated that subjective norms were a significant predictor of intention to use a condom. A possible reason for significance of subjective norms is the broadened category of referent persons that are evident in the current study (7 persons). The researcher did not specifically consider and select the most important referent person in the model testing, but using a summing score of all seven items to represent the subjective norm. When adding over estimated paths (7 observed variables) to subjective norms, the other parameter coefficients in the model may have been affected.

8. The Direct Influence of Perceived Behavioral Control on Intention

It was found that perceived behavioral control had a positive significant direct influence on condom use intention in the overall model and female model ($\beta = 0.19$, $p < .05$; $\beta = 0.21$, $p < .05$). In contrast, perceived behavioral control had a non-significant and positive direct influence on intention in male adolescents ($\beta = 0.08$, $p > .05$). The overall finding indicated that adolescents with higher PBC for condom use had higher level of condom use intention, and statistically significant. Therefore, the finding of the model was supported the direct influence of PBC on intention to use a condom as

proposed in TPB theory (Ajzen, 1991). Similarly, many studies found that PBC was a strong and positive predictor of condom use intention (Jemmott, 2002; Villarruel et al., 2004). The different findings might be from the effect of extraneous factors related to PBC, such as condom availability and self-efficacy to use a condom. The finding was in opposition to the study of factors influencing cigarette smoking behavior in Thailand by Ua-kit (2004) which PBC was not a strong and positive predictor significantly related to intention.

Condom use may not be under or perceived to be under an individual's control (Villarruel et al., 2004). Control beliefs have been identified as salient in relation to condom use behavior. Jemmott and colleagues (1998) stated that confidence in one's ability to negotiate condom use or refusal to have sex if a condom is not used have been identified as predictive of condom use among adolescents.

As mentioned earlier, the difference in findings might be the result of the different measurements of the construct. Understanding the indirect and direct PBC relationship to intention allows us to have a clear and more accurate understanding of actual condom use behavior. Some studies have used a direct measure of PBC in analysis, but it is not the method in other studies. In this study, the indirect and direct PBC and its relation to condom use intention may give more reliable and thorough understanding about condom use behavior in particular.

Perceived Behavioral Control reflects the perception that a person has sufficient resources and skill to perform the behavior and confidence to do so adequately (Ajzen, 1991). The possible reasons for the non significance of PBC in predicting condom use intention in this study are below.

First, self-awareness is a key factor in the development of a healthy sexual self-concept. Adolescents may have higher rates of negative health behaviors than adults not because adolescents view the consequences of the behaviors as more or less likely or view their risk as small compared to adults, but because adolescents and adults place such a different value on the outcome of health-relevant behaviors (Ua-Kit, 2004). Sexual health begins with one's sexual self-concept, a multidimensional construct that reflects an individual's beliefs about the ability to deal with oneself and others as a sexual person and to feel in control of the sexual aspects of one's life (Snell, 1998). Elicited from the study findings in Phase 1, for example, condom use

might produce both positive health consequences (e.g. protecting against unintended pregnancy) and negative consequences (e.g. decreasing partners' sexual sensation). In addition, adolescents who were high sensation seekers were more likely to engage in sexual risk taking practices such as casual sex, multiple sexual partners, or unprotected sex when compared with adults who are low sensational seekers.

Second, condom use is the ultimate behavioral outcome if the goal is to stop the spread of STDs and avoid unwanted pregnancies. Although condom use can effectively reduce HIV infection, youth are at risk for STD/HIV infection, partly because of failure to use condoms (Villarruel, et al., 20004). Adolescents might have intention to use condom but lack the perceived control over that behavior. This means that the environment or contextual factors might affect condom use behavior among adolescents. All these reasons and a number of factors including internal and external factors may have an independent influence on intention, the possibility remains that the findings simply reflect inadequacies in the measurement of PBC to intention.

Young people tend to distance themselves from perceiving personal risk, and are reluctant to accept that their behaviors might be risky for a range of reasons. Being energetic and enthusiastic, young people are generally ready to explore and learn things by various possible means. With more freedom and independence than previously, many young people often engage in some behavior risky to the youth themselves.

According to the theory of planned behavior, perceived behavioral control is perceived difficulty or ease of controlling condom use, while intention is the degree of intention to use condoms. Degree of intention refers to the extent to which adolescents have thought through the consequences of their decision to act regarding condom use. Because adolescents who have not carefully considered consequences possess poorly-formed condom use intention, they will be more likely to encounter unforeseen disadvantages or difficulties with condom use and may change their intention (Ua-Kit, 2004).

Ajzen (1988) stated that persons who believe that they have neither the resources nor the opportunities to perform a certain behavior are unlikely to form strong behavioral intentions to engage in the actual behavior even if they hold

favorable attitudes toward the behavior and believe that important others would approve of their performing the behavior.

Therefore, the association between perceived behavioral control and intention is not mediated by attitude and subjective norms. In this study, PBC partially predicted to significantly influence condom use intention among Thai adolescents studying in vocational schools in Bangkok.

Instrument Aspect

According to the TPB, behavioral intention is normally well predicted by the three components with a meta-analysis reporting a multiple correlation of around 0.70 (Corner& Norman, 1994; Sheppard et al., 1988). Human behavior is guided by three kinds of consideration, behavioral beliefs, normative beliefs, and control beliefs (http://en.wikipedia.org). Based on total subjects, among the three major components of the TPB including attitude, subjective norms, and perceived behavioral control, the findings indicated that attitude and subjective norm were direct influences on intention as the significant predictors regarding condom use behavior in adolescents. Moreover, the statistically significant predictors of condom use behavior were all three major variables (attitude, subjective norms, and perceived behavioral control) which all had indirect influence and mediated through the intention. The modified model significantly explained the causal relationships among the TPB's constructs as well as identified the predictive factors of condom use behavior in adolescents. The indirect measure and direct measure of attitude and subjective norms were statistically significant predictors of condom use behavior through intention. Interesting, indirect and direct measure of perceived behavioral control were significant predictive factors of intention, and indirect and direct PBC were significant predictors of condom use behavior of the overall model. This means that both indirect measure and direct measure of the three major variables were similar in predicting behavior. It is different to a study of Ua-Kit (2004) which the finding revealed that all direct measurements were not statistically significant predictors.

The preliminary finding did not provide support for the view that the elicitation and content analysis were successful in identifying behavioral outcomes, normative referents, and control beliefs that were potentially most relevant to

explaining condom use behavior among Thai adolescents. To apply the TPB model, an elicitation phase is a crucial step to ensure that the behavioral, normative, and control beliefs relevant to the target population and their behavior are comprehensively identified and measured (Montaño and Kasprzyk (2004 p.83). In fact, if this process in this study was not done well, then it is unlikely that a good prediction of condom use behavior would be obtained accordingly.

In this study, a direct measure of perceived behavioral control did not significantly explain the relationships among the TPB's constructs on condom use behavior of female and male models. The finding was consistent with Edwards' argument (1957). He stated that it is logically accepted that if we want to know how an individual feels regarding some psychological factors such as attitude, then the best procedure should be to ask people via indirect questions. It is congruent with a study by Ua-Kit (2004), which the finding revealed that a direct measurement model was not statistical significant. However, Corner and Norman argued (1994) that the TPB does not include aspects such as mass media messages and sociodemographic factors. It was assumed in this study that the variables listed are outside the model and only influence behavior via their effects on behavior beliefs and normative beliefs. In addition, a cross-sectional study may provide poor prediction and understanding of previous behavior if participants motivation's change subsequent to the behavior. Montaño and Kasprzyk (2002 p.72) stated that a prospective study design is recommend to distinguish the relationships between the TPB constructs, with attitude, subjective norms and intention measured at one time point and then behavior measure following a time interval.

Contribution to Nursing Science

The theory of planned behavior (TPB) can be classified as a middle range theory because it is testable (Walker & Avant, 1995, p.11). The TPB has been successfully applied to the prediction of a variety of health behaviors and enhanced understanding of psychological determinants of specific behavior. The TPB also provides the specificity needed for usefulness in research and practice (Ua-Kit, 2004).

There was no prior study that examined support for the TPB's proposed relationships in adolescent condom use behavior in Thailand. This study provided a

description of the phases involved in the application of the model, including the vital elicitation study, descriptions of model component measurement with the pilot testing, and descriptions of analyses to explain condom use behavior. Thus, the current study contributed new knowledge for explaining and better understanding condom use behavior among Thai adolescents, as described by the following.

First, the research finding provided knowledge about the influences of the whole model and the significance of each variable construct. The result also provided direction for the development of interventions and to promote a healthy youth sexual prevention program. The differences in predictors of condom use intentions among adolescents supported the assumption that most important determinants of behavioral intention depend on the particular behavior and the particular population studied (Villarruel, Jemmott, Jemmott, & Ronis, 2004). Further studies are needed to determine similarities and differences among Thai adolescents and between genders.

Second, the TPB model was developed widely in Western culture, and it does not take any cultural differences into the consideration directly, but they are employed through the development of measurements. The current study was developed on the assumption that action, target, context, and time were significant elements of an initiation of behavior as proposed in the TPB (Ajzen, 1985, 1991). The finding supports the underlying assumptions which provide guidance to health care providers and others concerned about the influence of time, context, target, and action on behavior (Ua-Kit, 2004). To develop any program such as an educational program, school-based program, or family-based program, one should take these assumptions into consideration.

Third, this study was consistent with the study by Bryan, Rocheleau, Robbins, and Hutchison (2005) which assessed the predictive validity of model constructs of intentions to use a condom and subsequent condom use behavior among sexually active high-risk adolescents. The finding similarly provided support for a theoretical conceptualization of the correlates of condom use intentions and behavior based on *model tailoring*, for development and testing of theoretical models that include both established predictors of health behavior and constructs relevant to target populations. The current study provided evidence for the validity of this high-risk-adolescent model of condom use intentions and shows that model constructs assessed at baseline,

particularly the affect of perceived control about using condoms and intentions to predict condom use behavior during the next 6 months, in a manner consistent with the TPB hypotheses. Thus, the result supported the use of such a model in the design of interventions to increase safer sexual behavior among high-risk adolescents. One could assume from the result of this study that if we can increase intention, we could hope to increase actual condom use.

Finally, the strength of the TPB was conducting in-depth, open-ended elicitation interviews to identify behavioral beliefs, normative, and control beliefs that were relevant to the particular behavior and target population under investigation to be examined. This crucial process allowed grounding of the empirical measures and identified information that can be used further in the process of designing specific interventions.

Summary

This chapter illustrated the discussion of the current study findings. The discussion focused on interpreting characteristics of the participants, major variables of the theory of planned behavior (TPB) regarding condom use behavior, research hypotheses and the causal models of condom use behavior among Thai adolescents. The contribution to nursing science was also presented in this section.

CHAPTER VI
CONCLUSION

This chapter includes two sections. First, a summary of the study which included two phases of sampling and data collection, instruments, and research findings. The implications and recommendations of the research findings, as well as the study limitations, were discussed in the last section.

Summary of the Study

This cross-sectional descriptive study was to test the causal relationship among major variables including attitude, subjective norms, perceived behavioral control, and intention to explain and predict the influencing factors of condom use behavior among Thai adolescents. The hypothesized model was developed on the theory of planned behavior (TPB) and taken into account to explain the phenomenon of condom use behavior in adolescents' premarital sex.

Sample and Data Collection

The sample of model testing phase consisted of 607 students studying in a technical or vocational program from a list of 21 public vocational schools in Bangkok under the Department of Vocational Education, Ministry of Education. The multistage random sampling was conducted to identify the samples of Thai adolescents. The data collection was performed in two phases; phase 1 was conducted two steps: the focus groups to develop the measurements; and pilot testing during August 2006 to April 2007, and Phase 2 were data analysis and model testing during December 2007 to March 2008.

Instruments

Nine instruments were used to collect data including the following.

1. Indirect attitude measure, consisting of behavioral beliefs (18 items) and outcome evaluations (18 items)
2. Direct attitude measure (14 items)
3. Indirect subjective norms measure, consisting of normative beliefs (7 items) and motivation to comply with referent others (7 items)
4. Direct subjective norms measure (2 items)
5. Indirect perceived behavioral control measure consisting of control beliefs (20 items) and perceived powers (20 items)
6. Direct perceived behavioral control measure (4 items)
7. Intention measure (4 items)
8. Condom use behavior (4 items)
9. Demographic characteristics and background information, consisting of information on the subjects, information about adolescents' perceptions of their parents regarding condom use and sexual behavior, and information about adolescents' perceptions of their friends regarding condom use and sexual behavior.

All of the instruments were developed by the researcher based on the theory of planned behavior (TPB) constructs, and Ajzen and Madden's guidelines (1986) including the direct attitude measure, the indirect attitude measure, the indirect subjective norms measure, and the indirect perceived behavioral control measure. The direct subjective norms measure was modified from Ajzen's (1991). The direct PBC measure was modified from Gretebeck's (2000). The instrument for intention measure was developed by the researcher and modified from Ua-Kit's (2004).

The demographic and background information were collected by using measurements developed by the researcher and modified from Phuphaiboon's and colleagues (2002). The validity and reliability of the measurements were tested. Finally, LISREL was used to examine path analysis of the casual model among the TPB's constructs and to explain relationships among these constructs in Thai Adolescents, in order to test and modify the model.

Research Findings

1. Sample Characteristics

The prevalence of premarital sex among Thai adolescents in this study supported previous findings in the literature (Podhisita & Pattaravanich, 1995; Thato, 2002). The sample consisted of 607 adolescents, with 275 males (45.3%), and 332 females (54.7%). The age of subjects ranged from 15 to 21 years, the mean age of males was 17.46 years, and the mean age of females was 17.02 years. The educational level ranged from por-wor-chor 1-3 to por-wor-sor 1-2 and most participants (36.7%) were in por-wor-chor 2. The reported grade level in school ranged from 1.00 to 4.00, the majority of them (39.2%) were in grade 3.00 to 4.00. More than half of subjects lived with their parents (64.7%), while a small number of respondents (14.2 %) had a single parent family (father or mother only). The majority of subjects reported never engaging in sexual intercourse, and more girls than boys abstained from sex (72.3% vs. 48%). More boys than girls reported having had sexual intercourse in their lifetime (59.1% vs. 27.7%), and during the past 6 months (52% vs. 27.7%), but the difference was not statistically significant in either time frame. A large number of the respondents who were sexually active (459 students, 75.6%) reported having never used a condom in the past 6 months (75.6% in males and 84.5% in females). A small percentage (16.1%) reported condom use during the latest sexual experience. Approximately seventy-six percent of the subjects reported having never used a condom the last 6 months (75.6% in males and 84.5% in females). However, the female adolescents reported higher intention (39.5%) to use a condom in the preceding 6 months.

2. Casual Model of Condom use Behavior

The result of this study revealed that the model of condom use behavior among adolescents fitted the empirical data, which the overall goodness-of-fit indices (Chi-square = 2.27, $df = 6$, $p = 0.89$, GFI= 0.99, AGFI= 0.99, RMSEA = 0.00, χ^2/ df = 0.38). The findings of causal relationships testing of the overall model were summarized as the following.

1. Behavioral beliefs had a significant positive direct influence on attitude ($\beta = 0.75$, $p < .001$), normative beliefs had a significant positive direct influence on

subjective norms (β = 0.72, p < .001), and control beliefs had a significant positive direct influence on PBC (β = 0.85, p < .001).

2. Attitude had a significant and positive direct influence on condom use intention (β = 0.24, *p* < .001). Subjective norms had a significant and positive direct influence on condom use intention (β = 0.23, *p* < .01). Perceived behavioral control had a non-significant and positive direct influence on condom use intention (β = 0.19, *p* > .05).
3. Behavioral belief had a significant positive indirect effect on intention via attitude (β = 0.18, p < .001), normative belief had a significant positive indirect effect on intention via subjective norms (β = 0.17, p < .01), and control belief had a significant positive indirect effect on intention via perceived behavioral control (β = 0.16, p < .05).
4. Attitude had a significant and positive indirect influence on condom use behavior via condom use intention (β = 0.08, *p* < .01). Subjective norms had a significant and positive indirect influence on condom use behavior via condom use intention (β = 0.08, *p* < .01). Perceived behavioral control had a significant and positive indirect influence on condom use behavior via condom use intention (β = 0.07, *p* > .05).
5. Perceived behavioral control had a significant and positive direct influence on condom use behavior (β = 0.32, *p* < .001).
6. Condom use intention had a significant and positive direct influence on condom use behavior (β = 0.35, *p* < .001).

In this study, an unexpected finding was the direct relationship between PBC and actual condom use behavior.

Implications and Recommendations

The result indicated that the constructs from TPB have limited usefulness in predicting unprotected sex of Thai adolescents, thus, additional factors need to be considered. The data support the urgent need for broad-based educational efforts for adolescents that build upon theoretical concepts but also address the realities of their

lives as an approach to reduce risky sexual behavior (Griffin, Lesser,& Nyamathi, 2005). The implications and recommendations are focused on the implications for nursing practice, nursing education, future studies, and the recommendation for health policy.

Implications of Research Findings

1. Implication for Nursing Practice

The findings of the current study suggest a number of practice innovations that would help adolescents not to initiate sexual risk behavior and use a condom consistently if they engage in sexual activity.

First, according to the study findings, most adolescents had a positive and negative attitude toward condom use at the moderate to high level. It could be seen that adolescents had unfavorable attitudes toward condom use behavior and using a condom held a negative value for them. To motivate and assist adolescents to protect themselves from risky sexual behavior with negative consequences such as HIV/ STDs, nurses should begin by assessing the adolescent's values regarding condom use and evaluate consequences important to adolescents who use condoms. This should include favorable, unfavorable, beneficial, and disadvantageous beliefs about condom use. The message of a positive attitude toward condom use behavior should be intensively promoted among adolescents. Nurses should examine their skills and performance regarding sexual risk assessment and counseling to address these issues effectively with adolescents (Hutchinson, Sosa, & Thompson, 2001).

Second, nurses should encourage and reinforce these significant persons to the adolescents as these people influence condom use behavior. These significant persons include parents, teachers, siblings, partners, and friends, for both male and female adolescents. They can provide basic information about sexual risk protective strategies, and safer sex behavior, especially regarding the importance of condom use by adolescents. This program should be conducted both in schools and in community settings as well.

Third, nurses should provide accurate and balanced information to influence the perceived control, including about the supportive and inhibiting factors regarding

condom use. For instance, adolescents can be encouraged to think about their future life and family, avoiding STD/HIV infections, and feelings related to unnatural or decreased sexual sensation. Talking about these issues directly openly and in a nonjudgmental manner would promote and develop perceived control over condom use behavior; nurses should provide accurate information to adolescents who are sexually active and those who have never engaged in sexual practice. Encouraging them to send clear direct messages to partners or negotiate to attain condom use and confirming the importance of family and parental approval regarding early sexual relationships should also be emphasized.

Fourth, nurses should motivate organizations (e.g. family, schools, religious centers, and the community) to collaborate in shaping strategies for helping adolescents to abstain from early sex, limit the number of partners be monogamous, and consistently use a condom. Seeking and identifying methods available in the target settings, communities and country is equally important.

Finally, the interventions for promoting consistent condom use behavior among adolescents should consider taking the past experiences or sexual history into account since with condom use, past experience plays an important role. Past experience was influenced condom use behavior in this study.

2. Implication for Education

From the results of this study, there were some interesting aspects which influence promoting sexual health and safe sex behaviors among adolescent groups. Nursing curricula on adolescent sexual health and health promotion programs should be included in undergraduate and graduate levels as a subject or selected courses. A health educational program would advance nursing knowledge of adolescent health promotion, and would also support the policy for Healthy Youth 2010, a national initiative program for improving adolescent health in the country.

At undergraduate level, adolescent sexual health should be unique, not just included as one part of a pediatric course or psychiatric course in adolescent growth development.

At graduate level, the course should be offered as an area specialty, such as adolescent sexual development and sexual health, community health nursing, or training and counseling program for adolescent mothers. These practical educational programs would help heath personnel better understand adolescents' sexual risk behavior. As for the health promotion class, the individual influencing factors on condom use and safe sex behavior, based on the TPB, should be addressed.

In a school setting, the findings of this study provided a guideline based on new knowledge to improve sex education courses in schools that are appropriate for the students and their learning. Although most sexuality education program for youth encourage delaying sexual debut, young people still need to be fully informed about safe sex behavior and condom use so that knowledge is available when they need it. Furthermore, sexual education courses may be the only time during a lifetime that youth receive accurate information and education on the subject.

3. Implication for Future Studies

The results may not be generalizable to other Thai adolescent subgroups. The study represents initial efforts to address the needs of vocational students that have not been extensively targeted in sexual health promotion efforts. The findings of this study suggest several areas for future research.

First, to increase generalizability of the study and expand the theory of planned behavior, replication of studies should focus on diverse settings, and diverse populations. A condom use preventive program should be conducted among subgroup populations, such as sexually active and non-sexually active youth, and the heterosexual and homosexual oriented, due to the different characteristics. Further research is needed to develop and expand the model of predictors of adolescents' condom use, in order to obtain more detail. Models should be compared to those of subgroup populations. A sexual preventive program should then be specifically developed for higher risk populations to increase efficacy of the program.

Second, the findings showed that adolescents had strong adherence to perceived control over condom use behavior. The result showed that behavior was strongly influenced by their confidence in their ability to perform the behavior.

Further study should include perceived control as a key concept in a condom use program. Factors facilitating or impeding performance of condom use should be considered in sexual protective strategies, to enhance condom use self-efficacy.

Third, a cross-cultural study to compare Western and Eastern culture with respect to the different behavioral beliefs in condom use would be useful and essential to develop prevention programs. The TPB (Ajzen, 1985, 1991), was designed to predict health behavior and better understanding of psychological determinants that provide the structure for identification of beliefs (behavioral, normative, and control beliefs) regarding condom use behavior. A set of the salient beliefs in each culture could affect the study findings. This will help nurses gain more understanding of condom use behavior in each target population. Thus, nurses should be actively involved in health preventive programs by promoting beliefs that reinforce consistent condom use. Nurses should assist adolescents who are sexually active by encouraging safe sex and normal sexual health by promoting condom use.

Fourth, gender was a significant factor associated with condom use in this study for some aspects. Gender differences in condom use should be examined in the populations. Thato (2002) suggested that gender specific predictive models may yield some additional outcome and help the development of sex education program or effective interventions that are sensitive to gender. As found in the study, premarital sexual experience of non-sexually active and sexually active adolescents interacted differently with other variables and may explain a large portion of the variation in condom use. Further studies are needed to determine similarities and differences among Thai adolescents and particularly between genders.

Finally, controlling for various democharacteristic of subjects which may have had an impact on predictive factors of dependent variables is recommended. This should separate them as modifying factors for condom use before performing structural equation modeling (SEM) analyses. Additionally, adding personality variables of subjects into the model as important factors, alongside the TPB constructs, may increase the ability to explain the variation in condom use. Well-designed longitudinal studies are needed to prospectively evaluate adolescents' consistent condom use and the subsequence development of safe sex behavior.

4. Implication for Health Policy

The existing policies and services are unable to meet the diverse needs of adolescent health and development. The Child and Adolescent Health strategies of World Health Organization (WHO) called for supporting national capacity, building and development of norms and standards for adolescent health services. The position statement provided by www.unaids.org/en/ (Geneva, 18 March 2009), proposed the basis for condom promotion, documenting why condoms are a critical element in comprehensive and sustainable approaches to HIV prevention. As mentioned earlier, in Thailand, it is necessary to continue the activities implemented by the government to maintain the high level of condom use among sexually active persons (Chamratrithirong, et al., 1999), and call attention from the policy maker.

As part of the health policy, nurses should actively involve in health policy making, by emphasizing ideas of course requirements at vocational schools and high schools concerning protective strategies for adolescent sexual health. Protective sexual health programs should be integrated into the school curriculum. Education programs should address attitude, family and friend participation, and self-control in practicing condom use as the important factors that influence on condom use. To delay initiation of sexual activity for these non-sexually active, education programs must emphasize the benefits from sexual abstinence. Also, social value, parental approval and pride of abstaining from sex should be addressed. These programs will help health care providers to design and provide effective intervention.

Second, nurses as primary health care persons could launch intervention programs for health promotion and sexual protective strategies in diverse settings. Intervention settings should contribute to serve as the priority among adolescences, family, peers, and communities, as well as create nurse-client relationships that foster honesty and disclosure.

Finally, funding and scholarship support from government organizations or non-government organizations to develop intervention program and further research study especially in adolescent health areas should be allocated continuously in order to support the nursing profession.

Limitations of the Study

The limitations of the study were related to the study design, data collection, and data analyses and should be considered when interpreting the findings of this study. First, the sample was limited to students studying in public vocational schools of the Ministry of Education, in Bangkok. The sample was not representative of other geographic locations (inside and outside Bangkok), including those facing poverty, outside-school, and out of the reach of youth health care services. Consequently, the results could not be generalized to other vulnerable adolescent groups.

Second, the measurement of this study was constructed and developed by the researcher based on the TPB as a conceptual framework. A limitation of the research was that a conclusion based on self-report of specific behaviors may obtain possible errors. Especially, since condom use and sexual activity are not generally discussed and disclosed in Thai culture. Respondents may exaggerate the extent to which they frequently use a condom, give an image of to safer sex. Self-report data of risk behaviors may not accurately reflect actual behavior.

Third, the constructs assessed were limited in both pilot testing and model testing. Participants complained of multiple measures and several repetitious questions that were employed in the study. Overall, the measurements contained 149 items, which were divided in two parts (31 items for demographic information, and 118 items for the TPB constructs) and required approximately 30 minute to complete. Although the researcher formatted the questionnaires with Angsana New 16-point font text, to make them easier for reading, the tool appeared to be a set of lengthy questionnaires. Some participants did not concentrate on answering the entire set of questions completely. This might have affected the subjects' responses, then giving inaccurate data.

Finally, a distinct strength of this study was the theoretical model that guided the research. The current study sought to ascertain the beliefs of condom use from the participants themselves, rather than relying on previously developed (original) instruments or subscales. The other strength of the study was the manner in which the researcher was embraced in the vocational schools where she was relatively unknown,

and due to the powerful issue involved, sexual risk behavior among youth, the data collection was swiftly completed within a 3 week period for each school.

Summary

This chapter briefly discussed the sample and data collection, including the instruments of this study. The significance of the research findings and the casual model of condom use behavior were summated. The implications and recommendations for practice, education, further studies, and health policy were presented. Finally, limitations of the study were noted.

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APPENDICES

APPENDICES A

Elicitation Study Interview Guide

คู่มือการสนทนากลุ่ม (Focus Group)
เรื่อง ความคิดเห็นเกี่ยวกับเพศสัมพันธ์ในวัยรุ่นไทย และการใช้ถุงยางอนามัย

<u>คำแนะนำสำหรับนักวิจัย</u>

1. ผู้ถูกสัมภาษณ์ ได้แก่นักเรียนอาชีวศึกษา จำนวน 6 -8 คนต่อกลุ่ม แบ่งกลุ่ม แยกตามเพศ และรวมเพศชายหญิง
2. สถานที่สัมภาษณ์กลุ่มมิดชิด ไม่มีเสียงรบกวน โดยขอให้อาจารย์และเจ้าหน้าที่ในโรงเรียนไม่อยู่ในบริเวณการสนทนาและสัมภาษณ์
3. ผู้เก็บข้อมูล 2 คน ได้แก่ ผู้สัมภาษณ์และผู้ช่วยในการบันทึกข้อมูล
4. อุปกรณ์ได้แก่ เครื่องบันทึกเสียง และเทปบันทึกเสียง
5. เวลาการสนทนากลุ่มประมาณ 1 ชั่วโมงต่อกลุ่ม
6. ข้อมูลที่ได้จากการสนทนากลุ่มผู้วิจัยจะเก็บเป็นความลับและทำลายทิ้งเมื่อสิ้นสุดการวิจัย โดยนักเรียนมีสิทธิที่จะไม่ให้ข้อมูลหรือออกจากการสนทนากลุ่มได้

<u>ขั้นตอนการสนทนากลุ่ม</u>

1. ผู้สัมภาษณ์และผู้ช่วยในการบันทึกข้อมูล แนะนำตนเอง
2. แนะนำวัตถุประสงค์ของการสัมภาษณ์สนทนากลุ่ม เพื่อใช้เป็นแนวทางในการออกแบบสอบถามเกี่ยวกับ เพศสัมพันธ์ในวัยรุ่นไทย และการใช้ถุงยางอนามัย ระยะเวลาที่ใช้ในการทำกลุ่มประมาณ 1 ชั่วโมง โดยขออนุญาตนักเรียนในการอัดเสียง และจดบันทึกข้อมูลระหว่างการสนทนากลุ่ม ผู้วิจัยยืนยันว่าข้อมูลที่ได้ไม่มีการเปิดเผยเป็นรายบุคคล ซึ่งนักเรียนมีสิทธิที่จะไม่ตอบ หรือออกจากการสนทนากลุ่มได้ (5 นาที)
3. นักเรียนแนะนำตนเองกับกลุ่ม ได้แก่ชื่อเล่นหรือชื่อสมมุติ ชั้นปี แผนกที่ศึกษาอยู่ (15 นาที)
4. เริ่มการสัมภาษณ์ และสนทนา ความคิดเห็นเกี่ยวกับเพศสัมพันธ์ในวัยรุ่นไทย และการใช้ถุงยางอนามัย ตามแนวคำถามเอกสาร1 (45 นาที)
5. สิ้นสุดการสนทนากลุ่ม ผู้สัมภาษณ์กล่าวขอบคุณนักเรียน ที่ให้ความร่วมมือและมอบของที่ระลึกให้

เอกสาร 1

ความคิดเห็นเกี่ยวกับเพศสัมพันธ์ในวัยรุ่นไทย และการใช้ถุงยางอนามัย

(ใช้เวลาประมาณ 1 ชั่วโมง)

เจตคติ (Attitude)

1. คุณคิดว่าการมีเพศสัมพันธ์ในวัยเรียนมี **ข้อดี** อย่างไร
2. คุณคิดว่าการมีเพศสัมพันธ์ในวัยเรียนมี **ข้อเสีย** อย่างไร
3. คุณคิดว่าการใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์มี **ข้อดี /ประโยชน์** อย่างไร
4. คุณคิดว่าการใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์มี **ข้อเสีย /โทษ** อย่างไร
5. คุณจะ**รู้สึก**อย่างไรบ้าง หากคุณหรือคู่นอนใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์

การคล้อยตามกลุ่มอ้างอิง (Subjective Norms)

1. **บุคคล**ใดที่คุณจะปรึกษาหรือขอความคิดเห็น หากคุณต้องตัดสินใจกระทำสิ่งใดบางอย่าง (เรียงตามลำดับความสำคัญ)
2. คุณคิดว่า**บุคคล**ใดที่มีส่วนสำคัญในการ**สนับสนุน**/ ยอมรับ/ เห็นด้วย กับการมีเพศสัมพันธ์ในวัยเรียน
3. คุณคิดว่า**บุคคล**ใดที่มีส่วนสำคัญในการ**คัดค้าน**/ ไม่ยอมรับ/ ต่อต้าน กับการมีเพศสัมพันธ์ในวัยเรียน
4. บุคคลใดที่มีอิทธิพลสำคัญต่อวัยรุ่น ใน**การใช้**ถุงยางอนามัยขณะมีเพศสัมพันธ์ในวัยเรียน
5. บุคคลใดที่มีอิทธิพลสำคัญต่อวัยรุ่น ในการ**ไม่ใช้**ถุงยางอนามัยขณะมีเพศสัมพันธ์ในวัยเรียน

การรับรู้การควบคุมพฤติกรรม (Perceived Behavioral Control)

1. ปัจจัยใดบ้างที่ **สนับสนุน**/ ส่งเสริม ให้วัยรุ่นมีเพศสัมพันธ์ในวัยเรียน
2. ปัจจัยใดบ้างที่ **ขัดขวาง** / ไม่เห็นด้วย กับวัยรุ่นที่มีเพศสัมพันธ์ในวัยเรียน
3. ปัจจัยใดบ้างที่ **สนับสนุน**/ ส่งเสริม ให้วัยรุ่นใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์
4. ปัจจัยใดบ้างที่ **ขัดขวาง**/ เป็นอุปสรรค ต่อวัยรุ่นในการใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์
5. การใช้ถุงยางอนามัยเป็นเรื่อง ง่ายหรือยุ่งยาก สำหรับคุณ

เอกสาร 2

ความคิดเห็นเกี่ยวกับเพศสัมพันธ์ในวัยรุ่นไทย และการใช้ถุงยางอนามัย

1. คุณคิดว่าการมีเพศสัมพันธ์ในวัยเรียนมี **ข้อดี** อย่างไร

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2. คุณคิดว่าการมีเพศสัมพันธ์ในวัยเรียนมี **ข้อเสีย** อย่างไร

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3. คุณคิดว่าการใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์มี **ข้อดี/ประโยชน์** อย่างไร

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4. คุณคิดว่าการใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์มี **ข้อเสีย/โทษ** อย่างไร

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5. คุณจะ**รู้สึก**อย่างไรบ้าง หากคุณ/คู่นอนใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์

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6. ข้อคิดเห็นอื่นๆ

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1. **บุคคลใด**ที่คุณจะปรึกษาหรือขอความคิดเห็น หากคุณต้องตัดสินใจกระทำสิ่งใดบางอย่าง (เรียงตามลำดับความสำคัญ)

   1) 5)

   2) 6)

   3) 7)

   4) 8)

2. คุณคิดว่าบุคคลใดที่มีส่วนสำคัญในการ**สนับสนุน/ยอมรับ/เห็นด้วย** กับการมีเพศสัมพันธ์ในวัยเรียน

   1) 5)

   2) 6)

   3) 7)

   4) 8)

3. คุณคิดว่าบุคคลใดที่มีส่วนสำคัญในการ**คัดค้าน/ไม่ยอมรับ/ต่อต้าน** กับการมีเพศสัมพันธ์ในวัยเรียน

   1) 5)

   2) 6)

   3) 7)

   4) 8)

4. บุคคลใดที่มีอิทธิพลสำคัญต่อวัยรุ่น**ในการใช้**ถุงยางอนามัยขณะมีเพศสัมพันธ์ในวัยเรียน

   1) 5)

   2) 6)

   3) 7)

   4) 8)

5. บุคคลใดที่มีอิทธิพลสำคัญต่อวัยรุ่น**ในการไม่ใช้**ถุงยางอนามัยขณะมีเพศสัมพันธ์ในวัยเรียน

   1) 5)

   2) 6)

   3) 7)

   4) 8)

6. ข้อคิดเห็นอื่นๆ

   .....

1. ปัจจัยใดบ้างที่ **สนับสนุน/ส่งเสริม** ให้วัยรุ่นมีเพศสัมพันธ์ในวัยเรียน

   1) 5)

   2) 6)

   3) 7)

   4) 8)

2. ปัจจัยใดบ้างที่ **ขัดขวาง/ไม่เห็นด้วย** กับวัยรุ่นที่มีเพศสัมพันธ์ในวัยเรียน

   1) 5)

   2) 6)

   3) 7)

   4) 8)

3. ปัจจัยใดบ้างที่ **สนับสนุน/ส่งเสริม** ให้วัยรุ่นใช้ถุงยางยางอนามัยเมื่อมีเพศสัมพันธ์

   1) 5)

   2) 6)

   3) 7)

   4) 8)

4. ปัจจัยใดบ้างที่ **ขัดขวาง/เป็นอุปสรรค** ต่อวัยรุ่นในการใช้ถุงยางยางอนามัยเมื่อมีเพศสัมพันธ์

   1) 5)

   2) 6)

   3) 7)

   4) 8)

5. คุณคิดว่าการใช้ถุงยางอนามัยเป็นเรื่อง**ง่ายหรือยุ่งยาก** สำหรับคุณ

   1) 5)

   2) 6)

   3) 7)

   4) 8)

6. ข้อคิดเห็นอื่นๆ

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☺ ขอขอบคุณ**ที่ให้ความร่วมมือ** ☺

APPENDICES B

The Questionnaire of the TPB variables: Condom use behavior

Indirect Measurement

1. Behavioral beliefs

The following questions refer to things that may happen if you use a condom when having sex. Please mark X for the answer that best describes how you belief, or would feel about using condom.

Do you agree that condom use …	Strongly disagree	Disagree	Unsure	Agree	Strongly agree
1. would prevent STD/HIV infection					
2. would protect unintended pregnancy					
3. would makes me feel good or happy					
4. would makes me feel free from worry					
. . . .					
18. would make teenagers increase their sexual activity					

2. Outcome evaluation

The following questions are a list of outcomes that may happen if you use a condom when having sex. Please mark X for the answer that best describes how important each outcome is it, or it would be for you.

Behavioral outcomes from using condom	Not important at all	Not important	Unsure	Important	Very important
19. Prevention STD/HIV infection is…					
20. Protection unintended pregnancy is…					
21. Being good or happy is…					

Behavioral outcomes from using condom	Not important at all	Not important	Unsure	Important	Very important
22. Being free from worry is…					
. . . .					
36. Teenagers increase their sexual activity is…					

3. Normative beliefs

What do you think about the responses of the following persons if you use condom when having sex? Please mark the X for the answer that best describes what do you believe each of seven people mentioned below approve or disapprove of the behavior?

The following persons think that…	Definitely should not	Should not	Unsure	Should	Definitely should
1. What my father thinks if I will use condom when have sex.					
2. What my mother thinks if I will use condom when have sex.					
3. What my siblings/relatives think if I will use condom when have sex					
4. What my friends think if I will use condom when have sex.					
. . . .					
7. What physicians/nurses think if I will use condom when have sex					

4. Motivation to comply

Motivation to do what each referent thinks you should or should not use condom when having sex. Please mark the X for the answer that comes closest to you how likely do you want to do whether each referent thinks about the possibility of you to use condom?

Your agreement with the statements	Very little	Little	Unsure	Quite a bit	Very much
8. How likely you want to do if your father wants you to use condom.					
9. How likely you want to do if your mother wants you to use condom.					
10. How likely you want to do if your siblings/relatives want you to use condom.					
11. How likely you want to do if your friends want you to use condom.					
. . . .					
14. How likely you want to do if physicians/nurses want you to use condom.					

5. Control beliefs

Adolescents' control beliefs regarding each factor that effect their behavioral performance. Please mark the X for the answer that best describes how easy or difficult is it, or would it be for you to use condom when having sex in the forthcoming month or the next 6 months.

Conditions that facilitate or impede condom use	Very difficult	Somewhat difficult	Unsure	Somewhat easy	Very easy
1. Getting information about condom use and safe sex behavior from medias, make me use condom…					
2. Concerning get pregnancy, make me use condom…					
3. Avoiding from HIV/STD infection, make me use condom…					
4. Getting educations about safe sex behavior makes me use condom…					
. . . .					
20. Using condom correctly, make me use condom…					

6. Perceived powers

Please mark the X for the answer that best describes how likely or unlikely is it, or would it be for you to use condom when having sex in the forthcoming month or the next 6 months.

Likelihood of occurrences	Very unlikely	Unlikely	Unsure	Likely	Very Likely
21. Getting information about condom use as safe sex behavior from medias, make me use condom…					
22. Concern getting pregnant, make me use condom…					
23. Avoiding from HIV/STD infection, make me use condom…					
24. Getting educations about safe sex and condom use make me use condom…					
. . . .					
40. Using condom correctly, make me use condom…					

Direct Measurement

7. Attitude

The following questions refer to condom use when having sex. Look at each pair of words list below and mark X at the number that reflects your feeling about using condom.

1. For me, to use condom when having sex I feel

	1	2	3	4	5	
Risky	Extremely	Slightly	Unsure	slightly	Extremely	**Safe**

2. For me, to use condom when having sex I feel

	1	2	3	4	5	
Bad	Extremely	Slightly	Unsure	slightly	Extremely	**Good**

3. For me, to use condom when having sex I feel

	1	2	3	4		
Not Enjoyable	Extremely	Slightly	Unsure	slightly	Extremely	**Enjoyable**

4. For me, to use condom when having sex I feel

	1	2	3	4	5	
Unhappy	Extremely	Slightly	Unsure	slightly	Extremely	**Happy**

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14. For me, to use condom when having sex I feel

	1	2	3	4	5	
Unprepared	Extremely	Slightly	Unsure	slightly	Extremely	**Prepared**

8. Subjective Norms

Please mark X at the number that reflects your important person beliefs about using condom (the question 15 to 24).

15. I want to do what most people who are important to me think I should do, then I should use condom when having sex.

1	2	3	4	5
Strongly disagree	Somewhat do not agree	Unsure	Somewhat agree	Strongly agree

16. When it comes to engaging in sex activity, how do you feel about whether most people important to you think that you should use condom when having sex?

1	2	3	4	5
Not important at all	Not important	Unsure	Important	Very important

9. Perceived Behavioral Control

Please mark X at the number that best describes your response to the statements measure of perceived control over the behavior.

17. For me to use condom every time I have sex would be

1	2	3	4	5
Very difficult	Somewhat difficult	Unsure	Somewhat easy	Very easy

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20. To use condom when having sex depend on my partner decision/my partner judgment.

1	2	3	4	5
Strongly disagree	Somewhat do not agree	Unsure	Somewhat agree	Strongly agree

10. Intention

21. In case of unobtainable condom for you, how likely is it that you will deny to have sex?

1	2	3	4	5
Definitely unlikely	Unlikely	Unsure	Likely	Definitely likely

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.
.
.

24. I intend to use condom when I have sex in the next time.

1	2	3	4	5
Strongly disagree	Somewhat do not agree	Unsure	Somewhat agree	Strongly agree

(Thai Version)

แบบสอบถามเกี่ยวกับปัจจัยที่มีผลต่อพฤติกรรมการใช้ถุงยางอนามัยชายของวัยรุ่น

1. คำชี้แจง ข้อความที่ 1-18 แสดงถึงสิ่งที่อาจเกิดขึ้นจากการใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์ของวัยรุ่น ทางด้านขวามือของข้อความเป็นตัวเลือกเกี่ยวกับความเชื่อของท่านต่อพฤติกรรมการใช้ถุงยางอนามัย ขอให้ท่าน**โปรดกาเครื่องหมาย X ลงในช่องตัวเลือกของข้อความ** ที่ตรงกับความเชื่อและความคิดเห็นตามความเป็นจริงของท่านมากที่สุด

ท่านเห็นด้วยหรือไม่ว่า การใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์....	**ไม่เห็นด้วยอย่างยิ่ง**	**ไม่เห็นด้วย**	**ไม่แน่ใจ**	**เห็นด้วย**	**เห็นด้วยอย่างยิ่ง**
1. ทำให้ป้องกันโรคเอดส์และโรคติดต่อทางเพศสัมพันธ์					
2. สามารถป้องกันการตั้งครรภ์ไม่พึงประสงค์ได้					
3. ทำให้ฉันรู้สึกดีและมีความสุข					
4. ทำให้ฉันมีความสบายใจไม่กังวล					
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.					
.					
17. แสดงว่าฉันเป็นคนมีความรับผิดชอบ					
18. ทำให้วัยรุ่นมีเพศสัมพันธ์กันได้เพิ่มขึ้น					

2. คำชี้แจง ข้อความที่ 19-36 แสดงถึงสิ่งที่อาจเกิดขึ้นจากการใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์ของวัยรุ่น ทางด้านขวามือของข้อความเป็นตัวเลือกเกี่ยวกับ การประเมินผลลัพธ์ของการใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์ ขอให้ท่านโปรดกาเครื่องหมาย **X ลงในช่องตัวเลือกของข้อความ** ที่ตรงกับความเชื่อและความคิดเห็นตามความเป็นจริงของท่านมากที่สุด

ผลลัพธ์ของการใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์	ไม่สำคัญอย่างยิ่ง	ไม่สำคัญ	ไม่แน่ใจ	สำคัญ	สำคัญมาก
19. การป้องกันโรคเอดส์และโรคติดต่อทางเพศสัมพันธ์ จากการใช้ถุงยางอนามัยเป็นสิ่งที่					
20. การป้องกันการตั้งครรภ์ไม่พึงประสงค์จากการใช้ถุงยางอนามัยเป็นสิ่งที่					
21. การที่ฉันรู้สึกดีและมีความสุข จากการใช้ถุงยางอนามัยเป็นสิ่งที่					
22. การที่ฉันมีความสบายใจไม่กังวล จากการใช้ถุงยางอนามัย เป็นสิ่งที่					
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36. การที่ทำให้วัยรุ่นมีเพศสัมพันธ์กันได้เพิ่มขึ้น จากการใช้ถุงยางอนามัย เป็นสิ่งที่					

3. คำชี้แจง ข้อความที่ 1-7 เป็น**ความคิดเห็นของบุคคลสำคัญ**ที่มีอิทธิพลต่อวัยรุ่นในพฤติกรรมการใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์ ทางด้านขวามือของข้อความเป็นตัวเลือกเกี่ยวกับ<u>ความเชื่อของท่านต่อบุคคลสำคัญ</u>ใน 7 ข้อ ที่คิดว่าท่านควรใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์
โปรดกาเครื่องหมาย X ลงในช่องตัวเลือกของข้อความที่ตรงกับความเชื่อและความคิดเห็นตามความเป็นจริงของท่านมากที่สุด

บุคคลเหล่านี้คิดว่า	ไม่ควรทำอย่างยิ่ง	ไม่ควรทำ	ไม่แน่ใจ	ควรทำ	ควรทำอย่างยิ่ง
1. ถ้าฉันจะใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ <u>พ่อ</u>ของฉันคิดว่า					

2. ถ้าฉันจะใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ แม่ของฉันคิดว่า					
3. ถ้าฉันจะใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ พี่/น้องหรือญาติ ของฉันคิดว่า					
4. ถ้าฉันจะใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ เพื่อน ของฉันคิดว่า					
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.					
7. ถ้าฉันจะใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ แพทย์/พยาบาล คิดว่า					

4. คำชี้แจง ข้อความที่ 8-14 เป็น**ความคิดเห็นของบุคคลสำคัญ**ที่มีอิทธิพลต่อวัยรุ่นในพฤติกรรมการใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์ ทางด้านขวามือของข้อความเป็นตัวเลือกของโอกาสที่ท่านจะทำตามความเชื่อของบุคคลสำคัญ ขอให้ท่าน**โปรดกาเครื่องหมาย X ลงในช่องตัวเลือกของข้อความ**ที่ตรงกับความเชื่อและความคิดเห็นตามความเป็นจริงของท่านมากที่สุด

ท่านจะทำตามความคิดเห็นของบุคคลเหล่านี้	**น้อยที่สุด**	**น้อย**	**ไม่แน่ใจ**	**มาก**	**มากที่สุด**
8. ถ้าพ่อ แนะนำให้ฉันใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์ ฉันจะทำตาม					
9. ถ้าแม่ แนะนำให้ฉันใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์ ฉันจะทำตาม					
10. ถ้าพี่/น้องหรือญาติ แนะนำให้ฉันใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์ ฉันจะทำตาม					
11. ถ้า เพื่อน แนะนำให้ฉันใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์ ฉันจะทำตาม					
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14. ถ้าแพทย์/พยาบาล แนะนำให้ฉันใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์ ฉันจะทำตาม					

5. คำชี้แจง ข้อความที่ 1-20 เป็น**สถานการณ์ที่ส่งผลด้านสนับสนุนหรือขัดขวาง**ต่อการใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ของวัยรุ่น ด้านขวามือของข้อความเป็นตัวเลือกเกี่ยวกับความเชื่อของท่านต่อการควบคุมตนเองในการใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์ ในอนาคตหรือช่วง 6 เดือนข้างหน้านี้ ขอให้ท่าน**โปรดกาเครื่องหมาย X ลงในช่องตัวเลือกของข้อความ**ที่ตรงกับความเชื่อและความคิดเห็นตามความเป็นจริงของท่านมากที่สุด

สถานการณ์สนับสนุน/ขัดขวาง	**ยากที่สุด**	**ค่อนข้างยาก**	**ไม่แน่ใจ**	**ค่อนข้างง่าย**	**ง่ายที่สุด**
1. การที่ฉันได้รับฟังเรื่อง “การใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์”จากสื่อหรือองค์กรต่างๆ จะทำให้ฉันใช้ถุงยางอนามัยได้					
2. การที่ฉันกลัวการตั้งครรภ์ จะทำให้ฉันใช้ถุงยางอนามัยได้					
3. การที่ฉันกลัวติดโรคเอดส์หรือโรคติดต่อทางเพศสัมพันธ์ จะทำให้ฉันใช้ถุงยางอนามัยได้					
4. การที่ฉันมีความรู้เรื่องเพศสัมพันธ์ที่ปลอดภัย จะทำให้ฉันใช้ถุงยางอนามัยได้					
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20. การที่ฉันสามารถใช้ถุงยางอนามัยได้อย่างถูกต้อง เชื่อว่าจะทำให้ฉันใช้ถุงยางอนามัยได้					

6. คำชี้แจง ข้อความที่ 21-40 เป็น**สถานการณ์ที่ส่งผลด้านสนับสนุนหรือขัดขวาง**ต่อการใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ของวัยรุ่น ด้านขวามือของข้อความเป็นตัวเลือกของ ความเป็นไปได้ในการใช้ถุงยางอนามัยของท่านขณะมีเพศสัมพันธ์ในอนาคตหรือช่วง 6 เดือนข้างหน้า

โปรดกาเครื่องหมาย X ลงในช่องตัวเลือกของข้อความที่ตรงกับความเชื่อและความคิดเห็นตามความเป็นจริงของท่านมากที่สุด

สถานการณ์ ในระยะ 6 เดือนข้างหน้า	**ไม่น่าเป็นไปได้อย่างยิ่ง**	**ไม่น่าเป็นไปได้**	**ไม่แน่ใจ**	**เป็นไปได้**	**เป็นไปได้มากที่สุด**
21. โอกาสที่ฉันได้รับข้อมูลรณรงค์การใช้ถุงยางอนามัยจากสื่อ/องค์กรต่างๆ ฉันจะใช้ถุงยางอนามัย…..					
22. โอกาสที่ฉันกลัวการ(ทำให้)ตั้งครรภ์ ฉันจะใช้ถุงยางอนามัย…					
23. โอกาสที่ฉันกลัวติดโรคเอดส์หรือโรคติดต่อทางเพศสัมพันธ์ ฉันจะใช้ถุงยางอนามัย…..					
24. โอกาสที่ฉันมีความรู้เรื่องเพศสัมพันธ์ที่ปลอดภัย ฉันจะใช้ถุงยางอนามัย …..					
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40. โอกาสที่ฉันสามารถใช้ถุงยางอนามัย ได้อย่างถูกต้อง ฉันจะใช้ถุงยางอนามัย					

แบบสอบถามเกี่ยวกับปัจจัยที่มีผลต่อการใช้ถุงยางอนามัยชายขณะมีเพศสัมพันธ์ของวัยรุ่น

(7) คำชี้แจง ข้อความที่1-14 เป็นการถามความคิดเห็นของท่านต่อพฤติกรรมการใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ **โปรดกาเครื่องหมาย X ลงบนตัวเลข** ที่ตรงกับความเชื่อหรือความคิดเห็นตามความเป็นจริงของท่านมากที่สุด

1. ถ้าฉันใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ ฉันจะรู้สึก

	1	2	3	4	5	
เสี่ยง	เสี่ยงมาก	ค่อนข้างเสี่ยง	ไม่แน่ใจ	ค่อนข้างปลอดภัย	ปลอดภัยมาก	**ปลอดภัย**

2. ถ้าฉันใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ ฉันจะรู้สึก

	1	2	3	4	5	
แย่ (ไม่ดี)	แย่มาก	ค่อนข้างแย่	ไม่แน่ใจ	ค่อนข้างดี	ดีมาก	**ดี**

3. ถ้าฉันใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ ฉันจะรู้สึก

	1	2	3	4	5	
ไม่สนุก	ไม่สนุกเลย	ไม่ค่อยสนุก	ไม่แน่ใจ	ค่อนข้างสนุก	สนุกมาก	**สนุก**

4. ถ้าฉันใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ ฉันจะรู้สึก

	1	2	3	4	5	
ไม่มีความสุข	ไม่มีความสุขเลย	ไม่ค่อยมีความสุข	ไม่แน่ใจ	ค่อนข้างมีความสุข	มีความสุขมาก	**มีความสุข**

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14. ถ้าฉันใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ ฉันจะรู้สึก

	1	2	3	4	5	
ขาดความพร้อม	ขาดความพร้อมมาก	ขาดความพร้อมเล็กน้อย	ไม่แน่ใจ	มีความพร้อมเล็กน้อย	มีความพร้อมมาก	**มีความพร้อม**

(8) คำชี้แจง ข้อความที่ 15-16 เป็นการถามความคิดเห็นของท่านต่อแนวความคิดของบุคคลสำคัญที่มีอิทธิพลกับท่านในหัวข้อ “การใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ของวัยรุ่น”

โปรดกาเครื่องหมาย X ลงบนตัวเลขที่ตรงกับความเชื่อหรือความคิดเห็นตามความเป็นจริงของท่านมากที่สุด

15. เนื่องจากเป็นความคิดของบุคคลที่มีความสำคัญต่อฉัน เห็นหรือคิดว่าฉันควรกระทำ ดังนั้น**ฉันควรใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์**

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

16. **โปรดระบุความรู้สึกของท่าน**เกี่ยวกับการให้ความสำคัญต่อความคิดเห็นของบุคคลที่มีความสำคัญกับท่าน (เช่น บิดา-มารดา) ที่ว่า “ควรใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์” นั้นจะมีส่วนผลักดันให้ท่านใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์

1	2	3	4	5
ไม่สำคัญเลย	ค่อนข้างไม่สำคัญ	ไม่แน่ใจ	สำคัญเล็กน้อย	สำคัญอย่างยิ่ง

(9) คำชี้แจง ข้อความที่ 17-20 เป็นการถามความคิดเห็นของท่านเกี่ยวกับการรับรู้ความสามารถ และข้อความที่ 21-24 เป็นการถามความคิดเห็นของท่านเกี่ยวกับความตั้งใจในการใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์

โปรดกาเครื่องหมาย X ลงบนตัวเลขที่ตรงกับความเชื่อหรือความคิดเห็นตามความเป็นจริงของท่านมากที่สุด

17. สำหรับฉันการที่จะใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ในระยะ 6 เดือนข้างหน้านี้ เป็นสิ่งที่

1	2	3	4	5
ยากมาก	ยากเล็กน้อย	ไม่แน่ใจ	ค่อนข้างง่าย	ง่ายมาก

18. ฉันสามารถควบคุมตนเอง ให้ใช้ถุงยางอนามัยได้ เมื่อจะมีเพศสัมพันธ์ในระยะ 6 เดือนข้างหน้านี้

1	2	3	4	5
ทำไม่ได้แน่นอน	ทำไม่ค่อยได้	ไม่แน่ใจ	ทำได้บางครั้ง	ทำได้ทุกครั้ง

19. การใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ ขึ้นอยู่กับการยอมรับหรือการตัดสินใจของ**ตัวฉันเอง**

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

20. การใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ ขึ้นอยู่กับการยอมรับหรือการตัดสินใจของ**<u>แฟนฉัน</u>**

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

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24. ฉัน**<u>ตั้งใจ</u>**ไว้ว่าจะใช้ถุงยางอนามัย หากมีเพศสัมพันธ์เกิดขึ้น ในระยะ 6 เดือนข้างหน้าหรือในอนาคต

1	2	3	4	5
ไม่ใช้ถุงยางแน่นอน	ไม่ใช้ถุงยาง	ไม่แน่ใจ	ใช้ถุงยาง	ใช้ถุงยางแน่นอน

(10) คำชี้แจง ข้อความที่ 25-28 เป็นการถามความคิดเห็นของท่านเกี่ยวกับพฤติกรรมการใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ **โปรดกาเครื่องหมาย X ลงบนตัวเลข**หน้าข้อความที่ตรงกับความเป็นจริงหรือความรู้สึกของท่านมากที่สุด

25. **ในระยะ 6 เดือนข้างหน้านี้** ฉันกับคู่นอนของฉัน<u>จะใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์</u>

1 = ไม่ใช้แน่นอน

2 = ค่อนข้างจะไม่ใช้

3 = ไม่แน่ใจ

4 = อาจจะใช้

5 = ใช้แน่นอน

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28. **เมื่อมีเพศสัมพันธ์ในช่วงครั้งล่าสุดนี้** ฉันกับคู่นอนของฉัน<u>มีการใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์</u>

0 = ไม่ได้ใช้

1 = ใช้

APPENDICES C

Demographic and Background Information

Section A

This survey wants to ask you some questions about you and your family. Please answer the questions by PICK ONLY ONE ANSWER and mark √ down for your best response and fill in the information of those statements. There are no rights or wrong answers for these questions.

1. How old are you? .....Years
2. You are a () Male () Female
3. Your education level is
   () Por-wor-chor1 () Por-wor-chor2 () Por-wor-chor3
   () Por-wor-sor1 () Por-wor-sor2
4. Your religion is
   () Buddhism () Christianity () Muslim
   () Other (please specify)……...

5. What is your latest cumulative GPA ……..

6. What is the highest level of education that your father completed?
   () Primary school or lower () Secondary school
   () High school () Vocational school
   () Bachelor degree or higher () others ……

7. What is the highest level of education that your mother completed?
   () Primary school or lower () Secondary school
   () High school () Vocational school
   () Bachelor degree or higher () others ……

8. Your parent's marital status
   () Married/ Living together () Separated
   () Divorced/ Widowed () I do not know

9. How many brother and sister do you have? (From same parents) …….
10. What is your number order? ……
11. How much of your family income per month?
……..Baht/month
12. How much of your expenditure from your parent?
…….Baht/month
13. How many persons in your family? Including you …….person(s)
(Specify 1 person in case of only you live in a dormitory/apartment or room)

14. What kind of the residence do you live? (Current time)
    () living with parents
    () living with father or mother
    () living with relatives or others
    () living in a dormitory with friend (same gender)
    () living in a dormitory with friend (different gender)
    () living with someone (please specify)
15. Have you ever had sexual intercourse?
    () Never **If answer "never" skip to Section B (question 22)**
    () Ever had sex _you were …….years old at the first sexual debut

16. What were your reasons for the first sex? (can answer more than one choice)
    () curious/eager () intimate relationship () forced/unwilling
    () drinking/alcohol () environment/place
    () others (please specify)……...

17. Who is your partner? (can answer more than one choice)
    () Lover/steady partner () friend () casual partner
    () sex worker () someone else (please specify)

18. How many persons of your sexual partner in your lifetime?
    () 1 person
    () 2 persons
    () 3 persons
    () 4 persons
    () More than 4 persons, and please specify……..persons

19. How often have you had sexual intercourse during past 6 months?
    () every day
    () 2-3 times/week
    () once a week
    () once a month
    () others, please specify a frequency …….times

20. How often have you ever used condom when you having sex?
    () Never
    () rarely
    () Sometimes
    () Every time

21. Who have been used or you use condom with when you have sex?
    () not used at all
    () friend/ known person
    () lover/ intimate partner
    () casual partner/strange person
    () sex worker
    () others, please specify……

Section B

For the next questions, we would like you to think about your "parents" and "your friends". What the information do they think regarding sexual experiences and condom use behavior in Thai adolescents?

Please answer the questions by PICK ONLY ONE ANSWER and mark √ down at the answer choices that best response your idea.

22. What do you think for your father's idea about sexual experience in adolescent?
() Strongly disagree
() Somewhat disagree
() Unsure
() Somewhat agree
() Strongly agree

23. What do you think for your mother's idea about sexual experience in adolescent?
() Strongly disagree
() Somewhat disagree
() Unsure
() Somewhat agree
() Strongly agree

24. What does your father think if adolescence use condom when they having sex?
() Strongly disagree
() Somewhat disagree
() Unsure
() Somewhat agree
() Strongly agree

25. What does your mother think if adolescence use condom when they having sex?
() Strongly disagree
() Somewhat disagree
() Unsure
() Somewhat agree
() Strongly agree

26. Have your father ever talked to you about safe sex behavior such as condom use?
() Never
() Sometimes
() Often

27. Have your mother ever talked to you about safe sex behavior such as condom use?
() Never
() Sometimes
() Often

28. What do your friends think about sexual experience in adolescence?
() Strongly disagree
() Somewhat disagree
() Unsure
() Somewhat agree
() Strongly agree

29. What do your friends think about adolescence use condom if they have sex?
() Strongly disagree
() Somewhat disagree
() Unsure
() Somewhat agree
() Strongly agree

30. Do your friends have sexual experiences?
() No
() Yes,

31. Who are **significant persons** for adolescence (friends, lover, and senior friends) to support or suggest that adolescents should use condom if they have sex? Please run in the rank of that important level.
31.1 ……
31.2 ……
31.3 ……

(Thai Version)

ข้อมูลทั่วไปของนักเรียน

<u>แบบสอบถามเกี่ยวกับตัวนักเรียน</u>

คำชี้แจง แบบสอบถามนี้ต้องการทราบเกี่ยวกับข้อมูลส่วนตัวของท่าน

โปรดกรอกข้อความและกาเครื่องหมาย √ ลงในช่อง () หน้าข้อความที่ตรงกับความเป็นจริงของตัวท่านมากที่สุด

1. อายุ .....ปี

2. เพศ () ชาย () หญิง

3. ศึกษาในระดับ () ปวช.1 () ปวช.2 () ปวช.3
() ปี1 () ปี2 () ปี3 () ปี4

4. นับถือศาสนา () พุทธ () คริสต์ () อิสลาม
() อื่นๆโปรดระบุ .....

5. คะแนนเฉลี่ย (GPA) ปีการศึกษาที่แล้ว.....

6. การศึกษาสูงสุดของบิดา () ประถมศึกษาหรือต่ำกว่า () มัธยมศึกษาตอนต้น
() มัธยมศึกษาตอนปลาย () ปวช/ปวส
() ปริญญาตรีหรือสูงกว่า () อื่นๆ โปรดระบุ.....

7. การศึกษาสูงสุดของมารดา () ประถมศึกษาหรือต่ำกว่า () มัธยมศึกษาตอนต้น
() มัธยมศึกษาตอนปลาย () ปวช/ปวส
() ปริญญาตรีหรือสูงกว่า () อื่นๆ โปรดระบุ.....

8. สถานภาพสมรสของบิดา-มารดา
() แต่งงาน/ อยู่ด้วยกัน () แยกกันอยู่
() หย่า/หม้าย () ไม่ทราบ/อื่นๆ.....

9. ท่านมีพี่น้อง..... คน (ร่วมบิดา-มารดาเดียวกัน)

10. ท่านเป็นบุตรคนที่.....

11. รายได้เฉลี่ยครอบครัวต่อเดือน..... บาท/เดือน

12. ท่านได้รับค่าใช้จ่ายจากบิดา-มารดา/ผู้ปกครอง ..... บาท/เดือน

13. จำนวนสมาชิกในครอบครัวที่อาศัยอยู่ในบ้านเดียวกันรวมตัวท่านด้วย..... คน

14. ลักษณะที่พักอาศัยของท่าน () อยู่ร่วมกับบิดาและมารดา () อยู่ร่วมกับบิดาหรือมารดา
() อยู่ร่วมกับญาติหรือผู้อื่น () หอพักกับเพื่อนเพศเดียวกัน
() หอพักกับเพื่อนต่างเพศ () อื่นๆโปรดระบุ ……

15. ท่านเคยมีเพศสัมพันธ์หรือไม่

() ไม่เคยมี .....**ให้ข้ามไปตอบ ข้อ 22**

() มีแล้ว.....มีครั้งแรกเมื่ออายุ..... ปี

16. การมีเพศสัมพันธ์ครั้งแรกของท่าน มีสาเหตุจาก (ตอบได้มากกว่า 1 ข้อ)

() อยากลอง () ความรัก () ถูกบังคับ/ไม่สมัครใจ

() ดื่มของมึนเมา/สุรา () อยู่กันเพียงลำพัง () อื่นๆโปรดระบุ.....

17. ท่านมีเพศสัมพันธ์ กับ.... (ตอบได้มากกว่า 1 ข้อ)

() คนรัก/แฟน () เพื่อน/คนรู้จัก () คนไม่รู้จัก/คนแปลกหน้า

() ผู้ขายบริการทางเพศ () อื่นๆ โปรดระบุ .....

18. จากการมีเพศสัมพันธ์ท่านมีคู่นอนมาแล้วกี่คน

() 1 คน () 2 คน

() 3 คน () 4 คน

() มากกว่า 4 คน โปรดระบุจำนวน..... คน

19. ในระยะ 6 เดือนที่ผ่านมา ท่านมี**เพศสัมพันธ์**บ่อยครั้งแค่ไหน

() ทุกวัน

() 2-3 ครั้ง/สัปดาห์

() 1 ครั้ง/สัปดาห์

() 1ครั้ง/เดือน

() อื่นๆ โปรดระบุจำนวน.....ครั้ง

20.ท่าน**ใช้ถุงยางอนามัย**เมื่อมีเพศสัมพันธ์บ่อยครั้งแค่ไหน

() ไม่เคยใช้เลย

() เคยใช้นานๆ ครั้ง

() เคยใช้บ่อยครั้ง

() ใช้ทุกครั้งสม่ำเสมอ

21. ท่าน**ใช้ถุงยางอนามัย**เมื่อมีเพศสัมพันธ์กับ**ใคร**

() ไม่เคยใช้กับใคร

() เพื่อน/ คนรู้จัก

() คนรัก/แฟน

() คนไม่รู้จัก/คนแปลกหน้า

() ผู้ขายบริการทางเพศ () คนอื่นๆ โปรดระบุ .....

<u>แบบสอบถามเกี่ยวกับบิดา-มารดาและเพื่อน</u>

คำชี้แจง แบบสอบถามนี้ต้องการทราบเกี่ยวกับการรับรู้ของท่านต่อความคิดเห็นของบิดา-มารดาและเพื่อนของท่านต่อ "การมีเพศสัมพันธ์และการใช้ถุงยางอนามัยในวัยรุ่น" โปรดกาเครื่องหมาย√ ลงในช่อง () หน้าข้อความหรือกรอกข้อความที่ตรงกับความเป็นจริงของตัวท่านเองมากที่สุด

22. ท่านคิดว่า<u>บิดา</u>ของท่านมีความคิดเห็นอย่างไรต่อการมีเพศสัมพันธ์ในวัยเรียน

() ไม่เห็นด้วยอย่างยิ่ง
() ไม่เห็นด้วย
() ไม่แน่ใจ
() เห็นด้วย
() เห็นด้วยอย่างยิ่ง

23. ท่านคิดว่า<u>มารดา</u>ของท่านมีความคิดเห็นอย่างไรต่อการมีเพศสัมพันธ์ในวัยเรียน

() ไม่เห็นด้วยอย่างยิ่ง
() ไม่เห็นด้วย
() ไม่แน่ใจ
() เห็นด้วย
() เห็นด้วยอย่างยิ่ง

24. <u>บิดา</u>ของท่านมีความคิดเห็นอย่างไรต่อการใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์หากวัยรุ่นต้องการมีเพศสัมพันธ์

() ไม่เห็นด้วยอย่างยิ่ง
() ไม่เห็นด้วย
() ไม่แน่ใจ
() เห็นด้วย
() เห็นด้วยอย่างยิ่ง

25. <u>มารดา</u>ของท่านมีความคิดเห็นอย่างไรต่อการใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์หากวัยรุ่นต้องการมีเพศสัมพันธ์

() ไม่เห็นด้วยอย่างยิ่ง
() ไม่เห็นด้วย
() ไม่แน่ใจ
() เห็นด้วย
() เห็นด้วยอย่างยิ่ง

26. บิดาของท่านเคยพูดคุยกับท่านในเรื่องการมีเพศสัมพันธ์ที่ปลอดภัย (เช่นการใช้ถุงยางอนามัย) หรือไม่

() ไม่เคยเลย

() เคยบางครั้ง

() เคยบ่อยครั้ง

27. มารดาของท่านเคยพูดคุยกับท่านในเรื่องการมีเพศสัมพันธ์ที่ปลอดภัย (เช่นการใช้ถุงยางอนามัย) บ้างหรือไม่

() ไม่เคยเลย

() เคยบางครั้ง

() เคยบ่อยครั้ง

28. ท่านคิดว่าเพื่อนของท่าน มีความคิดเห็นอย่างไรต่อการมีเพศสัมพันธ์ในวัยเรียน

() ไม่เห็นด้วยอย่างยิ่ง

() ไม่เห็นด้วย

() ไม่แน่ใจ

() เห็นด้วย

() เห็นด้วยอย่างยิ่ง

29. ท่านคิดว่าเพื่อนของท่านมีความคิดเห็นอย่างไรต่อการใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์ หากวัยรุ่นต้องการมีเพศสัมพันธ์

() ไม่เห็นด้วยอย่างยิ่ง

() ไม่เห็นด้วย

() ไม่แน่ใจ

() เห็นด้วย

() เห็นด้วยอย่างยิ่ง

30. เพื่อนในกลุ่มของท่านเคยมีเพศสัมพันธ์แล้วใช่หรือไม่

() ไม่ใช่

() ใช่ มีแล้วจำนวน .....คน จากจำนวนเพื่อนในกลุ่มทั้งหมด.....คน

31. ท่านคิดว่า**สำหรับวัยรุ่น ใครบ้าง** (เช่นเพื่อน, แฟน, รุ่นพี่) **ที่มีส่วนสำคัญในการสนับสนุน/ชี้แนะ**ให้มีการใช้ถุงยางอนามัยขณะมีเพศสัมพันธ์ โปรดระบุเรียงตามลำดับผู้ที่มีอิทธิพลมากที่สุดในมุมมองของท่าน

31.1.....31.2.....31.3.....31.4.....

APPENDICES D

เอกสารชี้แจงข้อมูลในการเข้าร่วมโครงการวิจัย
(Information Sheet)

1. ชื่อโครงการวิจัย ปัจจัยทำนายพฤติกรรมการใช้ถุงยางอนามัยของวัยรุ่นไทย

2. ผู้วิจัย นาวสาวศุภาวดี วายุเหือด

3. วัตถุประสงค์และวิธีการวิจัย เป็นการศึกษาวิจัยเชิงบรรยายโดยมีวัตถุประสงค์เพื่อประยุกต์ใช้ทฤษฎีการวางแผนพฤติกรรม ในการศึกษาปัจจัยทำนายพฤติกรรมการใช้ถุงยางอนามัยและการมีเพศสัมพันธ์ของวัยรุ่นไทย ในนักเรียนระดับอาชีวศึกษา เขตกรุงเทพมหานคร ในการศึกษาครั้งนี้ ผู้วิจัยขอให้ท่านตอบแบบสอบถาม 1ชุด ซึ่งใช้เวลาประมาณ 45-50 นาที เครื่องมือที่ใช้ในการวิจัยเป็นแบบสอบถามประกอบด้วย

3.1 แบบบันทึกข้อมูลทั่วไปของนักเรียน จำนวน 31 ข้อ

3.2 แบบสอบถามเกี่ยวกับปัจจัยที่มีผลต่อการใช้ถุงยางอนามัยชายขณะมีเพศสัมพันธ์ของวัยรุ่นจำนวน 118 ข้อ

4. เหตุผลในการศึกษาเรื่องนี้ วัยรุ่นเป็นวัยที่มีการเปลี่ยนแปลงของร่างกาย อารมณ์จิตใจและพฤติกรรมทางเพศ เป็นวัยที่มีแรงผลักดันทางเพศรุนแรง ปัจจุบันพบว่าในสังคมไทยมีอุบัติการณ์การมีเพศสัมพันธ์ในวัยเรียน และปัญหาจากการมีเพศสัมพันธ์ของวัยรุ่นเกิดขึ้นตามมากับตัววัยรุ่นเอง และครอบครัวหรือสังคมเพิ่มสูงขึ้นตามลำดับ ดังนั้นการศึกษาพฤติกรรมการใช้ถุงยางอนามัยและการมีเพศสัมพันธ์ของวัยรุ่น จะมีประโยชน์ทำให้ทราบถึงปัญหา หรือความต้องการ อีกทั้งแนวทางในการส่งเสริมสุขภาพทางเพศที่เหมาะสมกับวัยรุ่นในบริบทสังคมไทยต่อไป

5. ประโยชน์ของโครงการวิจัย ข้อมูลที่ได้จากท่านจะนำมาสรุปเป็นภาพรวมโดยจะมีประโยชน์ทำให้ทราบถึงปัจจัยที่มีผลกระทบต่อการใช้ถุงยางอนามัยและการมีเพศสัมพันธ์ของวัยรุ่นไทย ผลของการวิจัยครั้งนี้จะเป็นข้อมูลพื้นฐานเกี่ยวกับการมีเพศสัมพันธ์และอัตราการใช้ถุงยางอนามัยของวัยรุ่นไทย ที่จะนำไปสู่แนวทางในการวางแผนให้ข้อมูล และการบริการด้านสุขภาพสำหรับวัยรุ่นเพื่อการดูแลสนับสนุนส่งเสริม การมีพฤติกรรมทางเพศในทิศทางที่เหมาะสม รวมทั้งเป็นการลดหรือป้องกันพฤติกรรมเสี่ยงของวัยรุ่นไทย

6. ขอบเขตการดูแลรักษาความลับของข้อมูลต่างๆ จากการวิจัย แบบสอบถามไม่มีการระบุชื่อ-นามสกุลหรือรายละเอียดใดๆ ที่เกี่ยวกับตัวผู้เข้าร่วมโครงการวิจัย ผู้วิจัยจะเก็บข้อมูลทั้งหมดเป็นความลับ นอกจากนำระดับคะแนนที่ได้ จากการรวบรวมแบบสอบถามมาทำการวิเคราะห์และรายงานผลวิเคราะห์โดยภาพรวม และสรุปผลการวิจัยด้วยเหตุผลทางวิชาการเท่านั้น

7. ชื่อ ที่อยู่ และเบอร์โทรศัพท์ของผู้วิจัย ที่ผู้เข้าร่วมโครงการวิจัยสามารถติดต่อได้โดยตรง กรณีท่านมีข้อสงสัยเกี่ยวกับการเข้าร่วมโครงการวิจัยในครั้งนี้: ติดต่อผู้วิจัย นาวสาวศุภาวดี วายุเหือด 57 บางขุนนนท์ บางกอกน้อย กรุงเทพฯ 10700 โทรศัพท์ 02-4121365 ต่อ 1801, 02-4242909 หรือติดต่ออาจารย์ผู้ควบคุมวิทยานิพนธ์ คือ รศ. ดร. กอบกุล พันธ์เจริญวรกุล คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล โทรศัพท์ 02-4197466-80 ต่อ 1804

คำชี้แจงผู้ยินยอมตนทำวิจัย

เรียน ผู้ตอบแบบสอบถามทุกท่าน

ดิฉันชื่อ นางสาวศุภาวดี วายุเหือด นักศึกษาปริญญาเอก หลักสูตรพยาบาลศาสตร์ดุษฎีบัณฑิต สาขาการพยาบาล มหาวิทยาลัยมหิดล กำลังทำการศึกษาเรื่อง ปัจจัยทำนายพฤติกรรมการใช้ถุงยางอนามัยของวัยรุ่นไทย โดยมีวัตถุประสงค์เพื่อหารูปแบบความสัมพันธ์ระหว่างปัจจัยที่มีอิทธิพลในการทำนายพฤติกรรมการใช้ถุงยางอนามัยชายขณะมีเพศสัมพันธ์ของวัยรุ่นไทย รวมทั้งอธิบายความสัมพันธ์เชิงโครงสร้างของทฤษฎีการวางแผนพฤติกรรม (Theory of Planned Behavior) ซึ่งผลของการศึกษาครั้งนี้ จะเป็นประโยชน์ต่อบุคลากรทางด้านสุขภาพ และด้านการศึกษาในการพัฒนาวิธีการ วางแผนเพื่อสร้างเสริมพฤติกรรมสุขภาพ และหาแนวทางแก้ไขให้การช่วยเหลือที่เหมาะสมสอดคล้องกับความต้องการของกลุ่มวัยรุ่น รวมทั้งป้องกันผลกระทบจากการมีพฤติกรรมเสี่ยงทางเพศในกลุ่มวัยรุ่น ซึ่งถือว่าเป็นกลุ่มเสี่ยงต่อการเกิดปัญหาด้านสุขภาพทางเพศ ที่สูงมากกว่าประชากรกลุ่มอื่นๆ (เช่น การติดเชื้อเอดส์ การตั้งครรภ์อันไม่พึงประสงค์ และการทำแท้งผิดกฎหมาย เป็นต้น)

ถ้าท่านยินดีเข้าร่วมการวิจัยครั้งนี้ กรุณาตอบแบบสอบถามฉบับนี้หรือ ให้สัมภาษณ์แก่ผู้วิจัย โดยข้อมูลที่ได้จากท่านทั้งหมดจะเป็นความลับ และจะไม่เปิดเผยชื่อ-นามสกุล ใดๆทั้งสิ้น ท่านใช้เวลาตอบประมาณ 45 นาที แบบสอบถามนี้เป็นการสอบถามความคิดเห็นและความรู้สึกของท่านในรอบ 6 เดือนที่ผ่านมา จึงไม่ก่อให้เกิดความเสี่ยง หรืออันตรายต่อสุขภาพของท่านแต่อย่างไร ท่านอาจต้องเสียเวลาในการตอบคำถาม หรือไม่สบายใจที่จะต้องตอบคำถาม ซึ่งท่านสามารถถอนตัวจากการวิจัยได้ทุกเมื่อโดยไม่มีผลกระทบใดๆต่อท่านเลย

ดิฉันหวังว่าคงได้รับความอนุเคราะห์จากท่านในการร่วมมือตอบแบบสอบถามนี้ และขอขอบคุณมา ณ โอกาสนี้

นางสาวศุภาวดี วายุเหือด
เบอร์โทรติดต่อ 089-663-9871

แบบฟอร์มใบยินยอมให้ทำการวิจัยโดยได้รับการบอกกล่าวและเต็มใจ
(Informed Consent Form)

การวิจัยเรื่อง ปัจจัยทำนายพฤติกรรมการใช้ถุงยางอนามัยของวัยรุ่นไทย

วันให้คำยินยอม วันที่ ……..... เดือน …… พ.ศ. ……

ก่อนที่จะลงนามในใบยินยอมให้ทำการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยถึง วัตถุประสงค์ของการวิจัย วิธีการวิจัย อันตราย หรืออาการที่อาจเกิดขึ้นจากการวิจัยหรือจากยาที่ใช้ รวมทั้งประโยชน์ที่จะเกิดขึ้นจากการวิจัยอย่างละเอียด และมีความเข้าใจดีแล้ว

ผู้วิจัยรับรองว่าจะตอบคำถามต่างๆ ที่ข้าพเจ้าสงสัยด้วยความเต็มใจ ไม่ปิดบังซ่อนเร้น จนข้าพเจ้าพอใจ

ข้าพเจ้ามีสิทธิที่จะบอกเลิกการเข้าร่วมโครงการวิจัยนี้เมื่อใดก็ได้ และเข้าร่วมโครงการวิจัยนี้ โดยสมัครใจ และการบอกเลิกการเข้าร่วมการวิจัยนี้ จะไม่มีผลต่อการรักษาโรคที่ข้าพเจ้าจะพึงได้รับต่อไป

ผู้วิจัยรับรองว่าจะเก็บข้อมูลเฉพาะที่เกี่ยวกับตัวข้าพเจ้าเป็นความลับ และจะเปิดเผยได้เฉพาะในรูปที่สรุปผลการวิจัย การเปิดเผยข้อมูลเกี่ยวกับตัวข้าพเจ้าต่อหน่วยงานต่าง ๆ ที่เกี่ยวข้องกระทำได้เฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น

ผู้วิจัยรับรองว่าหากเกิดอันตรายใดๆ จากการวิจัยดังกล่าว ข้าพเจ้าจะได้รับการรักษาพยาบาลโดยไม่คิดมูลค่าตามมาตรฐานวิชาชีพ และจะได้รับการชดเชยรายได้ที่สูญเสียไประหว่างการรักษาพยาบาลดังกล่าว ตลอดจนเงินทดแทนความพิการที่อาจเกิดขึ้น

ผู้วิจัยรับรองว่าหากมีข้อมูลเพิ่มเติมที่ส่งผลกระทบต่อการวิจัย ข้าพเจ้าจะได้รับการแจ้ง ให้ทราบโดยไม่ปิดบังซ่อนเร้น

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้ว และมีความเข้าใจดีทุกประการ และได้ลงนามในใบยินยอมนี้ ด้วยความเต็มใจ

ลงนาม …… ผู้ยินยอม

ลงนาม …… พยาน

ลงนาม …… พยาน

ต่อหน้า 2 /

ในกรณีที่ผู้ยินยอมตนให้ทำการวิจัยไม่สามารถอ่านหนังสือได้จะต้องได้รับการยินยอมในขณะที่ยังมีสติสัมปชัญญะและระบุข้อความไว้ตามนี้ข้าพเจ้าไม่สามารถอ่านหนังสือได้ แต่ผู้วิจัยได้อ่านข้อความในใบยินยอมนี้ให้แก่ข้าพเจ้าฟังจนเข้าใจดีแล้วข้าพเจ้าจึงลงนามหรือประทับลายนิ้วแม่มือขวา ของข้าพเจ้าในใบยินยอมนี้ด้วยความเต็มใจ

ลงนาม ..... ผู้ยินยอม
ลงนาม ..... พยาน
ลงนาม ..... พยาน

ในกรณีทีผู้ถูกทดลองยังไม่บรรลุนิติภาวะจะต้องได้รับการยินยอมจากผู้ปกครองหรือผู้อุปการะโดยชอบด้วยกฎหมาย

ลงนาม.....ผู้ปกครอง/ผู้อุปการะ
โดยชอบด้วยกฎหมาย
ลงนาม ..... พยาน
ลงนาม ..... พยาน

ในกรณีที่ผู้ถูกทดลองไม่สามารถตัดสินใจเองได้ (เช่น กรณีที่ผู้ที่ยินยอมตนให้ทำการวิจัยอยู่ในภาวะหมดสติ)
ให้ผู้แทนโดยชอบด้วยกฎหมายหรือผู้ปกครองหรือญาติที่ใกล้ชิดที่สุดเป็นผู้ลงนาม ยินยอม

ลงนาม .....ผู้แทน/ผู้ปกครอง/ญาติ
ลงนาม ..... พยาน
ลงนาม ..... พยาน

APPENDICES E

Reliability Estimates

Cronbach alpha coefficients for the total constructs of theTPB in Model Testing (*N*= 607)

Scale	Number of items	Cronbach alpha coefficient
Behavioral beliefs	18	.72
Outcome evaluations	18	.74
Behavioral beliefs x	18	.82
Outcome evaluations		
Normative beliefs	7	.89
Motivation to comply	7	.95
Normative beliefs x	7	.93
Motivation to comply		
Control beliefs	20	.88
Perceived power	20	.89
Control beliefs x	20	.83
Perceived power		
Attitude	14	.87
Subjective Norms	2	.78
Perceived Behavioral Control	4	.57
Intention	4	.86
Condom Use Behavior	3	.46

APPENDICES F

List of Experts: Measurement of the TPB variables

รายนามผู้ทรงคุณวุฒิในการตรวจสอบความตรงตามเนื้อหาของแบบวัด (Content Validity)

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