A MODEL OF SEXUAL DECISION-MAKING IN COLLEGE STUDENTS

by

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(Under the Direction of Laura McCormick)

ABSTRACT

This project proposed and tested comprehensive models for sexual decision-making among college students using social cognitive theory as a framework. Ten sexual decision-making components (concern for risk, sense of future, obligation, relational concerns, developmental stage, physical gratification, level of sexual experience, self-efficacy regarding alcohol, self-efficacy regarding communication, and self-efficacy regarding decision-making) were included in the models. Existing scales were used to measure each sexual decision-making component, and three vignettes were developed to measure the decision to engage in sexual activity. Structural equation modeling was used to examine three different models based on three sexual decisions: the decisions to engage in oral sex, vaginal sex, and other sexual behaviors.

The investigation involved a cross-sectional survey of college students (n=496) at a large southeastern university. When examined for all participants, the proposed model yielded a nonproper solution. However, examining the models for females participants only yielded a proper solution for all three models. For the male-only models, only the decision to engage in oral sex was a proper solution. Regression analyses revealed different predictors for the decision to engage in oral sex, vaginal sex, and other sexual behaviors. The regression analyses also revealed different predictors for males and females.

Two sexual decision-making components, sense of future and physical gratification, were consistently predictors in the regression analyses for the decisions to engage in oral and vaginal sex. Notably, concern for (pregnancy and disease) risk was absent as a significant predictor for any of the three sexual decisions. College sexual health educators need to consider differences between males and females in developing messages targeted toward the sexes, how the perception of arousal and pleasure impact one's sexual decisions, as well as increasing students' awareness of their risk. Because physical gratification affects sexual decisions consistently, increasing students' awareness about alternate activities that provide pleasure could assist in students making lower risk decisions. Future research needs to further explore the sexual decision-making of males, examine sexual decision-making of sexually active and non-sexually active students separately, and use a prospective research design.

INDEX WORDS: Sexual decision-making, Sexual health, College Students, Social Cognitive Theory

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# CHAPTER 1

# INTRODUCTION

## Statement of the Problem

Sex and sexuality are natural parts of human life; however, negative consequences from unhealthy sexual decisions can occur. Educators, parents, and government officials try to "educate" individuals to engage in safer behaviors, such as using contraception, using condoms, or abstaining, to prevent unintended pregnancy or the transfer of sexually transmitted infections (STIs). The reach of these negative effects is extensive.

Fifteen million new STI cases occur each year in the United States (American Social Health Association [ASHA], 1998), and 65 million Americans currently live with an incurable STI (Division of STD Prevention, 2000). The actual cost of these infections is difficult even to estimate. In 1998, the direct medical costs (dollars actually spent within the health care system treating STIs and their complications) were estimated at $8.4 billion. This figure did not include nonmedical indirect costs (such as lost wages and productivity due to STI-related illness), out-of-pocket costs or the costs incurred when STIs are transmitted to infants, which can result in significant lifelong expense (ASHA, 1998). With respect to HIV, federal spending on research, prevention, care and assistance, and international work related to HIV/AIDS alone was almost $11 billion in the 2000 fiscal year (Foster & Niederhausen, 2000).

Unintended pregnancy is another undesirable outcome of sexual behavior. Significant changes in family planning in the 20th century have decreased the number of

children per woman from 3.7 to about 2 since the 1950s. However, even with the plethora of contraceptive options available to women, an estimated 49% of all pregnancies (excluding miscarriages) in the late 1990s were unintended (Henshaw, 1998). Similarly, teen pregnancy and birth rates in the U.S. have declined steadily in the recent years (Centers for Disease Control and Prevention [CDC], 1997a; CDC, 2000b); however, the U.S. continues to have the highest teen birth rate among all industrialized nations and a higher teen birth rate than over 50 developing nations (McDevitt, 1997).

The cost of unintended pregnancies has not been measured for all individuals, but estimates of teenage pregnancy and childbearing costs to the U.S. federal government are over $38 billion. This amount includes services and support for families that began with a birth to a teen, including families headed by adult females who had their first child as teenagers (Feijoo, 1999). The majority of these costs are related to Medicaid expenditures. The CDC (1999) has gathered insurance information about unintended pregnancies in four states. Higher rates of unplanned pregnancies were found in those individuals covered by Medicaid as compared with individuals covered by private insurance. Many women who had Medicaid coverage lacked comprehensive health care coverage and became eligible for Medicaid because of the pregnancy. The amount of federal funding required to cover many of these unplanned pregnancies highlights the importance of unplanned pregnancy as a public health issue. In contrast, the U.S. government spends about $138 million annually to prevent teenage pregnancy; this is 275 times less than the amount the federal government spends to support families that begin with a birth to a teen (Feijoo, 1999).

While researchers have examined and explored ways to prevent these and other negative outcomes of sexual decisions (such as guilt related to sex and other psychological ramifications), research studies often examine preventive behaviors without considering an important precursor -- the decision to engage in sexual activity. Little effort has been extended into understanding why and how individuals make sexual decisions, that is, what they are hoping to get from sex, and what thought process, if any, they have applied. While examining behavior is critical, examining the sexual decision-making process that leads to the behavior is also important. A greater understanding of the sexual decision-making process could assist in the development of programs to prevent negative health consequences.

## Purpose of the Study

The purpose of this study was to examine a comprehensive model of sexual decision-making among college students. Specifically, this study examines how sexual decision-making may be affected by self-efficacy regarding communication, self-efficacy regarding alcohol and sexual decisions, self-efficacy regarding decision-making, level of sexual experience, concern for risk, relational concerns, social norms/pressure, physical gratification, developmental stage, circumstantial components, and sense of future. Most of these components have been previously identified in the sexuality literature, but the impact and interrelation of the components have not been fully examined. This study examined the impact and those relations using a social cognitive theory framework.

## Significance of the Study

As discussed previously, the negative outcomes of sexual decisions (i.e., unintended pregnancy, STI) have been studied extensively, whereas little effort has been

expended in examining the decision to engage in sexual activity. This study fills that gap in the literature by providing a model of the sexual decision-making of college students. A review of the literature revealed no comprehensive models for sexual decision-making, only studies that examined variables in an atheoretical context and without consideration for their interrelations. Using social cognitive theory, this project tested a model of sexual decision-making in a theoretical framework.

Providing a model for sexual decisions can improve the public health strategies to prevent negative health consequences from sexual activity. Instead of focusing on protective behaviors (e.g., using a condom), understanding how sexual decisions are made can help create strategies to influence the decision-making process.

The decisions of young adults affect not only their current health status, but also the health of the adults they will become. This is true for sexual habits started during adolescence and young adulthood as well. Examining how adolescents and young adults make sexual decisions allows us to influence not only their current health, but potentially, their future sexual health as well.

## Definition of Terms

The following words or phrases are used throughout this project. I have defined these terms as follows:

1. Sexual decision-making – the process through which an individual either consciously or unconsciously decides whether to engage in a given sexual activity (including oral sex, anal sex, vaginal sex, or other sexual interaction such as fondling, or kissing).

2. Predictor variables – variables in the literature that have been associated with one or more sexual behaviors (e.g., abstinence, age at first intercourse), but whose direct or indirect influence on the sexual decision-making process is unknown.

3. Adolescent – individual between the ages of 12 and 17.

4. Young adult – individual between the ages of 18 and 24.

5. Component of sexual decision-making – a concept, usually identified in the literature, that has an impact on sexual decision-making.

6. Interpersonal component – a component of sexual decision-making that is an interactional influence on a person's decision to engage in sexual activity, including one's perceptions of relationships to others.

7. Intrapersonal component - a component of sexual decision that is a subjective personal variable within an individual related to sexual decision-making.

8. Exogenous variable - a variable in the model that is not influenced by other variables in the model.

9. Endogenous variable – a variable in the model that is influenced by other variables in the model; it might or might not influence other variables.

## Research Questions

This study investigated the following research questions:

Research Question 1: *What are the relationships between the components of sexual decision-making and their impact on sexual decision-making?*

Research Question 2: *Does biological sex impact the relationships between the components of sexual decision-making and the components' impact on sexual decision-making?*

## Delimitations

The following delimitations existed in this study:

1. Individuals under 18 years of age were not included in the study.

## Limitations

The limitations of the study are as follows:

1. This study used a convenience sample of undergraduates from a large, southeastern university and may not be generalizable to other individuals of about the same age who are not in college or who attend universities in other regions of the U.S.
2. Due to the sensitive nature of sexuality issues, social desirability may influence participants' responses, thus affecting the results of the study.

## Chapter Summary

Individual sexual decisions have an impact on the health of the American public. Examining the components that influence such decisions will help public health officials better develop educational efforts regarding subsequent sexual health decisions (condom use, contraceptive use, etc.). This study aims to increase the knowledge about how sexual decisions are made in a college population.

# CHAPTER 2

# REVIEW OF LITERATURE

This chapter will present a thorough review of the sexual decision-making literature. A summary of theoretical frameworks used in sexual decision-making research and a detailed discussion of sexual decision-making components are included.

## Theoretical Frameworks Addressing Sexual Decision-Making

Abraham and Sheeran (1993) advocate for a theory that addresses the complex nature of sexual decisions; however, most of the sexual decision-making literature does not use any theoretical framework. The result is a lack of standard concepts and predictors employed by various studies and researchers (Jadack & Keller, 1998). The practical application of this atheoretical approach is demonstrated for the sexual decision-making components discussed later in this chapter.

Juhasz (1975) developed a model that is purported to be a theory for sexual decision-making; however, the model encompasses a much broader context than simply engaging in sexual activity. Juhasz's model of sexual decision-making includes the desire to have intercourse, to have children, to use birth control, to have an abortion or seek adoption (if pregnant), and to be married. She further refines this model in subsequent studies (Juhasz & Sonnenshein-Schneider, 1979; Maskay & Juhasz, 1983). None of these studies examines the process of how an individual decides to engage in sexual behavior with another individual.

Other theoretical perspectives have also been applied to sexual decision-making research. Some studies have used cognitive theory, but because individuals differ in how they process information and determine what is rational, the resulting decision may differ depending on the individual and the circumstances. For example, an individual may engage in a behavior perceived as risky by an observer. To the individual, the decision is rational as that behavior provides benefits, such as physical pleasure, emotional intimacy, or security, that outweigh the risks (Hedgepeth & Helmich, 1996; Pinkerton & Abramson, 1992). Similarly, Kirkendall (1967) concluded from his interviews with males that many sexual decisions were not as rational as the participants perceived. Some theorists also argue that applying cognitive theories to sexual decision-making assumes that both individuals have equal input into the decisions of the dyad. In reality, the wishes of one individual within the dyad may be overtly or covertly discounted (Tolman, 1999).

Social cognitive theory (SCT) assumes continuous interaction between people and their environments; this interaction then affects individuals' health behaviors. SCT has been used specifically as a framework for interventions and evaluations related to safer sex (e.g., Bandura, 1994; DiIorio, Dudley, Kelly, Soet, Mbwara, & Potter, 2001; DiIorio, Dudley, Soet, Watkins, & Maibach, 2000; O'Leary, 2001; Raj & Pollack, 1995) and as a framework for sexual decisions (e.g., Robinson & Telljohann, 1999). However, to this author's knowledge, there are no studies that develop a model (using structural equation modeling) about sexual decision-making using SCT.

Feminist perspectives have also been used as theoretical frameworks in sexual decision-making research. Usually qualitative, these studies examine female sexuality as an interaction of identity, body, psyche, relationships, and the surrounding environment

(Hammonds, 1994; Morris & Fuller, 1999; Tolman & Szalacha, 1999; Wingood & DiClemente, 2000). Tolman (1999) sees this literature as (1) examining how females make choices about sexual activities and their relationships, how they define and identify pleasure, and how they seek pleasure in relationships and within their own body, as well as (2) developing a critical analysis of power differences that often underlie gendered relationships. Researchers in this area are often responding to a perceived male bias in both research and society, with males being the norm. Some feminist researchers want to focus solely on women, while others advocate expansion to include men (Tavris, 1992). Feminist research also tends to be more inclusive of ethnicities and how ethnicities might influence outcomes and decision-making (e.g. Hammonds, 1994; Quadagno, Sly, Harrison, Eberstein, & Soler, 1998). While feminist perspectives provide a much-needed framework for investigating women's sexuality and can be applied to sexual decision-making in general, the qualitative nature and lack of male inclusion in much feminist research are limitations.

## Components of Sexual Decision-Making

There are many components of sexual decision-making; however, most have been operationalized differently in different studies. The following components have been identified in the literature or through my own research. As theoretical frameworks do not guide many of the studies, I shall provide possible theoretical origins. The literature does not categorize the components, but to increase understanding, I have divided the sexual decision-making components into two primary categories: interpersonal and intrapersonal. Interpersonal components are outside influences on the decision to engage in sexual activity, including one's perceptions of relationships to others. Intrapersonal

components are defined as subjective personal variables within an individual that relate to an individual's decision to engage in sexual activity. In addition, circumstantial components and demographics have been related to differences in these categories and should be considered when designing research surrounding sexual decisions. The research containing each component and possible theoretical backgrounds will be discussed.

*Family influence*

Many studies have examined how parents and families affect the sexual decisions of adolescents. The presence of two responsible adults in the home has been related to sexual abstinence (Wyatt, 1997). Some studies suggest that the sexual decisions of males and females adolescents are equally affected by close ties with the family (Paul, Fitzjohn, Eberhart-Phillips, et al., 2000; Paul, Fitzjohn, Herbison, & Dickson, 2000). Other studies have found that females are more influenced than males by family-related variables (Werner-Wilson, 1998). This connection is primarily related to sexual abstinence. Also, adolescent girls have identified the lack of an authority figure with whom to discuss sexual issues and from whom to get information as having an impact on their sexual decisions (Pete & DeSantis, 1990). Depending on the operational definition, this component could be related to the environmental component of SCT. This theoretical framework emphasizes the interaction between the environment and the individual and shows how this interaction impacts health behaviors. Scripting theory could also be used to explain the impact of family. Scripting theory states that sexual conduct is derived from the social and cultural contexts that contain scripts or messages. Within these contexts, three different types of sexual scripts -- cultural (from society), interpersonal

(from expectations of and interactions with others), and intrapsychic (from the internal processing of the other script messages) -- are constantly interacting with each other and may be modified over time (Laumann, Gagnon, Michael, & Michaels, 1994).

*Relational concerns (including positive affect, intimacy, & love)*

The context of a relationship and feeling close to a partner influence sexual decisions of women more than men (Browning, Hatfield, Kessler, & Levine, 2000; Carroll, Volk, & Hyde, 1985; Christopher & Cate, 1984; Hill, 1997; Hill & Preston, 1996; Randolph & Winstead, 1988). One study found that women sometimes engage in sexual activity in hopes that a relationship will develop (Regan & Dreyer, 1999). Love is also a significant predictor for women to engage in sexual activity (Browning, Hatfield, Kessler, & Levine, 2000; Paradise, Cote, Minsky, Lourenco, & Howland, 2001; Taris & Semin, 1997), though other studies have identified love as a strong predictor for initial and subsequent sexual activity among both male and female adolescents (Traeen & Kvalem, 1996).

Hoffman and Bolton (1997) identified positive affect and relational concerns as reasons for sexual decisions of males; these included “to please my partner,” “to express love,” “to feel emotionally close,” and “to feel loved” (Hoffman & Bolton, 1997). Because these participants were clients at an STI clinic, there are some limitations regarding the generalizability of the findings. In looking at love and/or relationship as a perceived benefit, the health belief model may serve as a theoretical background. The health belief model (HBM) originally contained four constructs:  perceived benefits, perceived susceptibility, perceived severity, and perceived barriers. The HBM assumed that individuals feared diseases and health problems, and would consider these concepts

and determine a cost-benefit analysis for themselves that would guide their behavior. For sexual decision-making, the potential for love and relationship would most likely be considered a perceived benefit. Similarly, the SCT construct of expectations can explain the relational issues component of sexual decision-making. Expectations refers to an individual's anticipated result from a behavior (i.e. outcome); care for a partner and a relationship may impact the sexual decisions.

*Social norms & pressure or obligation*

The perception of peers and the pressure of others are components that influence sexual decision-making. Inner-city youth were more likely to engage in sexual activity if they thought their peers were sexually active and more likely to use condoms if they thought their peers were using condoms (Romer et al., 1994). College males have also reported peer group behavior as a reason for casual sex encounters (Regan & Dreyer, 1999). Participating in sexual activity to be accepted by others is not uncommon (Rosenthal, Lewis, & Cohen, 1996) and may extend through the college years (Cameron, Koob, & Oswalt, in progress). Some adolescents keep "scorecards" to compete with others about who has had the most sexual partners (Kelly, 1998).

Males acknowledge obligation and a sense of pressure to have sex more often than females (Christopher & Cate, 1984) and sometimes experience more peer pressure to be sexually active than females (Erickson & Rapkin, 1991). While males and females report equal levels of partner pressure (Erickson & Rapkin, 1991), these findings are consistent with the societal expectations placed on men regarding sexual activity (Morris, 1997; Zilbergeld, 1992).

Many theories consider social norms an important component in health decisions. The theory of reasoned action and the theory of planned behavior both identify perceived norms as having a significant impact on individuals' choices about their health. SCT's situational construct may also be related to social norms as individuals' perceptions of social norms relate to their surroundings and personal situation.

*Concern for risk*

Many studies examine the decision to engage in "safer sex," but safer sex research focuses on the decision to use a condom and neglects the overarching decision to engage in sexual activity. Some studies have examined how negative physical consequences (infection and/or unintended pregnancy) influence sexual decisions. Levinson, Jaccard, and Beamer (1995) found that concern about disease did not have an impact on casual sex decisions of college students; however, pregnancy risk was a negative deterrent. Leigh (1989) also found that risk of STI, HIV, and pregnancy were components influencing sexual decisions of male and female heterosexuals, but gay males were only influenced by possible HIV contraction (as distinguished from other STI). None of these components influenced lesbians' sexual decisions.

Levinson, Jaccard, and Beamer's (1995) work measured the impact of risk on sexual decisions differently than Leigh's work (1989). Levinson, Jaccard, and Beamer examined casual sex behaviors and perceived risk of STI contraction and pregnancy. Leigh (1989) included contraction of STI or HIV and unintended pregnancy in a list of possible reasons to engage or not engage in sex. Because the studies had different overall purposes (focus on casual sex versus decisions to engage or not engage in sex), methodologies, and samples, consistency in future studies for comparison purposes may

be difficult. Concern for risk fits clearly into the HBM's perceived risk construct and is often the strongest predictor. For the theory of reasoned action, evaluation of behavioral outcomes may provide a framework for understanding this sexual decision-making.

*Developmental stage*

An individual's developmental stage affects almost all decisions. Adolescence and the early 20s are often exploratory times for many areas, including sexuality, whereas older individuals may be more concerned with forming intimate relationships (Mannino, 1999). Sanderson and Cantor's (1995) work supports this idea; their findings show that individuals with identity-focused goals were more likely to casually date and have more sexual partners than individuals who had intimacy-focused goals. Similarly, Randolph and Winstead (1988) found that individuals who had progressed to a level of defined self were more likely to make sexual decisions reflecting the capacity for investment and commitment to another person regardless of their own needs. The theoretical basis and measurement techniques used to examine developmental concerns vary by study. Sanderson and Cantor (1995) were concerned about self-identified goals and how those affected sexual decisions, whereas Randolph and Winstead (1988) used Freudian-based object relations theory of development.

*Level of sexual experience*

Several studies examined how sexual motivation differed among individuals with varying levels of sexual experience. Christopher and Cate (1984) used three categories of sexual experience (inexperienced -- one partner, moderately experienced -- two to five partners, and highly experienced -- six or more partners) and found that relational issues were significantly more salient for inexperienced and moderately experienced individuals

than for those who were highly experienced. Highly experienced individuals reported more influence from arousal than those in the inexperienced category. Other studies have documented that an increased number of sexual partners is correlated with the propensity to engage in casual sex (Levinson, Jaccard, & Beamer, 1995; Mikach & Bailey, 1999). While not conclusive, these findings support that relational issues may not greatly influence sexual decisions of highly experienced individuals. One cannot assume from these findings that highly experienced individuals are more driven by sexual urges; experienced individuals may be simply more aware of their sexual drives and desires. The theoretical background for this construct is not obvious. The construct of reciprocal determination from SCT is related but does not fit exactly. Self control (regulation of one's behavior) in SCT may also fit.

*Physical gratification (pleasure & stress relief)*

Stereotypes about men and traditional sexual scripts suggest that arousal and the desire for pleasure impact men's sexual decisions more than women's. Some studies support this idea (Browning, Hatfield, Kessler, & Levine, 2000; Carroll, Volk, & Hyde, 1985; Hill & Preston, 1996), while others have shown no differences in males and females overall (Randolph & Winstead, 1988; Traeen & Kvalem, 1996), during casual sex episodes (Levinson, Jaccard, & Beamer, 1995), or within a specific age range (26 to 39-year-olds) (Murstein & Tuerkheimer, 1998). Some feminist theorists believe that culture and the educational system deny female adolescents the right to express sexual desire (Fine, 1988). However, recent studies demonstrate that female adolescents sometimes seek sexual intercourse because of sexual arousal (Lear, 1997; Rosenthal, Lewis, & Cohen, 1996; Wyatt, 1997).

Akin to desire is having sex to reduce stress or tension. Hill and Preston (1996) consider this component critical in sexual decisions, especially for males. Leigh's (1989) research also supports "relief from tension or stress" as a motivating component in sexual decisions; her results found this motivation to be more salient for homosexuals than heterosexuals. Physical gratification is related to the HBM's perceived benefits; as some of the results fall along gender lines, one should consider script theory and the theory of gender and power as possible frameworks.

*Self-efficacy*

Self-efficacy is defined as a person's judgment of his or her "capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p. 391). In the case of sexual decisions, the perceived ability to discuss issues with a partner may affect an individual's decision. While self-efficacy has repeatedly been identified as a component in safer sex decisions across a variety of populations (Fisher & Fisher, 2000), it has not been studied extensively as a component in general sexual decision-making. Unpublished data by Cameron, Koob and Oswalt have shown two areas of self-efficacy related to general sexual decisions: ability to communicate with partner and ability to refuse sexual activity when alcohol is involved. While not found in the literature, examining a person's self-efficacy regarding the actual decision-making process would be a critical addition to the self-efficacy component for sexual decision-making. Self-efficacy is originally related to Bandura's (1986) work with SCT.

*Sense of future*

Several studies of adolescents and college students identified "sense of a future" as a critical component in sexual decision-making. For example, future educational goals have been cited as a reason for adolescents to abstain from sexual intercourse (Marchi & Guendelman, 1995; Paul, Fitzjohn, Herbison, et al., 2000; Wyatt, 1989; Young, Denny, & Spear, 1999). Postponing sexual intercourse is also considered a way to maintain the possibility of a "life that could hold the promise of love, marriage and children" for some adolescents (Monsen, Jackson, & Livingston, 1996). Similarly, high school and college women in the early 1980s reported abstaining from premarital intercourse because of personal growth or opportunity reasons (Herold & Goodwin, 1981). Some adolescents not engaging in sexual activity cited "timing" as a reason (Paradise, Cote, Minsky, Lourenco, & Howland, 2001). Similarly, Cameron, Koob, and Oswalt (in progress) have found that college students also make sexual decisions based on the component of the "right time." Theoretical frameworks that may support the idea of the right time include perceived costs and benefits from the HBM and behavioral outcome from the theory of reasoned action.

*Circumstantial Components*

Circumstances involve how specific details of a situation can influence sexual decisions. For example, some female adolescents have physically positioned themselves near a parent to prevent the possibility of sexual intercourse from occurring (e.g., being in the house at the time) (Rosenthal, Lewis, & Cohen, 1996). Other circumstantial components include alcohol or drug use. One-fourth of adolescents reported using alcohol or drugs before their last sexual activity (CDC, 2000c). This high rate of use is

cause for concern, because alcohol affects the internal conflict of being attracted to a male but also being aware that the individual or the situation may be sexually risky (Murphy, Monahan, & Miller, 1998). Individuals have reported that alcohol influences their sexual decisions and increases their sexual risk taking (Murstein & Tuerkheimer, 1998). A literature review of alcohol and its effects on sexual behavior supports alcohol as a causal component in sexual decision-making. George and Stoner (2000) review nonexperimental and experimental research to examine the impact of alcohol intoxication on sexual behaviors, concluding that alcohol has a powerful connection to sexual behaviors and outcomes. Christopher and Cate's (1984) work has also included special occasions and preplanning as circumstances that may influence such decisions. Circumstantial components may have arisen from the situation concept within SCT; socio-ecological models could also serve as a framework for this component.

*Demographic variables*

Demographic variables may influence how an individual considers the interpersonal, intrapersonal, and circumstantial components previously discussed. Differences between males and females (Browning, Hatfield, Kessler, & Levine, 2000; Carroll, Volk, & Hyde, 1985; Christopher & Cate, 1984; Hill, 1997; Hill & Preston, 1996; Randolph & Winstead, 1988; Paradise, Cote, Minsky, Lourenco, & Howland, 2001; Werner-Wilson, 1998), among ethnic groups (Quadagno, Sly, Harrison, Eberstein, & Soler, 1998; Soet, Dudley, & DiIorio, 1999; Wyatt, 1989), and among sexual orientations (Leigh, 1989) have been shown for each sexual decision-making component. These demographic variables should be considered when conducting any sexual decision-making research.

## A Model to Examine Sexual Decision-Making

A review of the literature has identified eleven key variables that affect sexual decisions. Because sexual decision-making is so complex, researchers often consider a subset of components (Werner-Wilson, 1998); however, this does not provide an accurate, comprehensive view. As stated earlier, much of the research examining sexual decision-making is atheoretical. I propose that the social cognitive theory (SCT) (Bandura, 1986) can be used as a framework to examine sexual decision-making, using a comprehensive approach.

SCT is a theoretical framework that considers the three-way reciprocal relationship between an individual, the environment, and the health behaviors of that individual. The SCT construct of self-efficacy, the confidence one has in his/her ability to perform a particular behavior, is one of the strongest predictors of a person's behavior (Bandura, 1986). A basic premise of SCT is that individuals learn not only through their own experiences, but also by observing the actions of others and the results of those actions. There are 11 key constructs within SCT; however, the theory does not provide a path model of how the constructs interact. SCT is often used as a framework for health behavior interventions; these interventions may include all or some of the constructs (Baranowski, Perry, & Parcel, 1997). Table 1 lists all the constructs of SCT with corresponding definitions.

Table 1. Social Cognitive Theory Constructs and Definitions

| **SCT Construct** | **Definition** |
|---|---|
| Environment | External factors |
| Situation | Person's perception of the environment |
| Behavioral capability | Ability and skill to perform given behavior |
| Expectations | Anticipatory outcomes of behavior |
| Expectancies | Value placed on given outcome |
| Self-control | Personal regulation of behavior |
| Observational learning | Learning by watching others |
| Reinforcements | Responses that either increase or decrease the likelihood of a behavior recurring |
| Self-efficacy | Self-perceived ability to perform a behavior |
| Emotional coping responses | Strategies used to deal with emotional stimuli |
| Reciprocal determinism | Dynamic interaction between the person, environment, and behavior |

Table 2 illustrates the proposed structure of how the 11 sexual decision-making components identified in the literature fit within SCT constructs. In addition, the component of self-efficacy related specifically to decision-making has been added. While this component was not specifically identified in the literature, including an individual's perceived ability to make sexual decisions is critical for a comprehensive model.

Table 2. Social Cognitive Theory Constructs and Sexual Decision-Making Components

| **SCT construct** | **Definition** | **Sexual decision-making components related to the SCT constructs** |
|---|---|---|
| Environment | Factors physically external to the person | Family influence |
| Situation | An individual's perception of the environment | Concern for risk<br>Circumstantial<br>Sense of future/right time<br>Social norms and pressure |
| Expectations | Anticipatory outcomes of behavior | Relational concerns<br>Developmental stage<br>Physical gratification |
| Self-control | Personal regulation of behavior | Level of sexual experience |
| Self-efficacy | Confidence to perform a behavior | Self-efficacy regarding alcohol<br>Self-efficacy regarding communication<br>Self-efficacy regarding decision-making |

Please note that not all SCT constructs are represented by the sexual decision-making components: behavioral capability, expectancies, observational learning, reinforcements, emotional coping responses, and reciprocal determinism are not included. While one could identify possible sexual decision-making components to utilize all SCT constructs, no other factors have been identified in the literature and any additional sexual decision-making components would be pure speculation and guesswork. Unlike other sexual decision-making research, this model includes all the components discussed in the literature. In addition, utilizing only a few of the SCT constructs is consistent with other research using SCT as a framework for model development (e.g., Anderson, Winett, & Wojcik, 2000; Bishop & Bieschke, 1998; DiIorio, Dudley, Soet, Watkins, & Maibach, 2000; Lopez, Lent, Brown, & Gore, 1997; Pajares & Miller, 1994; Rimal, 2001; Wulfert & Wan, 1993). Table 3 provides sexual health examples for each of the SCT constructs and sexual decision-making components.

Using SCT as a framework, Figure 1 contains a model that provides a complete explanation of how these twelve components interact and, consequently, influence an individual's sexual decisions.

Table 3. SCT Constructs with Sexual Decision-Making Examples

| **SCT construct** | **Definition related to sexual decision-making** | **Sexual decision-making components in SCT construct** | **Definition of sexual decision- making component** |
|---|---|---|---|
| Environment | Factors that impact the possibility of sexual situations occurring | 1. Family influence | 1. My parent or guardian is home with me after school, so I cannot have sex with my partner at that time. |
| Situation | How an individual's perceives a sexual circumstance | 2. Concern for risk<br>3. Circumstantial<br>4. Sense of future/right time<br>5. Social norms and pressure | 2. To what degree my perceive risk of pregnancy and disease impacts my sexual decision-making.<br>3.To what degree circumstances (such as special event, alcohol use) surrounding a situation impact my sexual decision-making.<br>4. My perceptions about the right time to engage in sexual activity and the impact of sexual activity on my future. 5.To what degree my perceived feelings of pressure, obligation, and norms impact my sexual decision-making and my perceived norms about sexual activity. I am more likely to have sex because of a special event (birthday, dance, anniversary). |
| Expectations | What an individual expects will happen as a result of a sexual decision | 6. Relational concerns<br>7. Developmental stage<br>8. Physical gratification | 6. To what degree aspects of my relationship impact my sexual decision-making.<br>7. The level of an individual as identity-focused or intimacy-focused in their romantic relationships.<br>8. To what degree does arousal and receptivity of myself and my partner impact my sexual decision-making |
| Self-control | An individual's feelings of control over his/her sexual experiences. | 9. Level of sexual experience | 9. Number of sexual partners. |
| Self-efficacy | An individual's confidence in his/her ability to communicate about sex, make sexual decisions regarding alcohol, and making healthy sexual decisions. | 10. Self-efficacy regarding alcohol<br>11. Self-efficacy regarding communication<br>12. Self-efficacy regarding decision-making | 9. Perceived ability to refuse sex in situations involving alcohol<br>10. Perceived ability to discuss sexual issues<br>11. Perceived ability to make healthy sexual decisions |

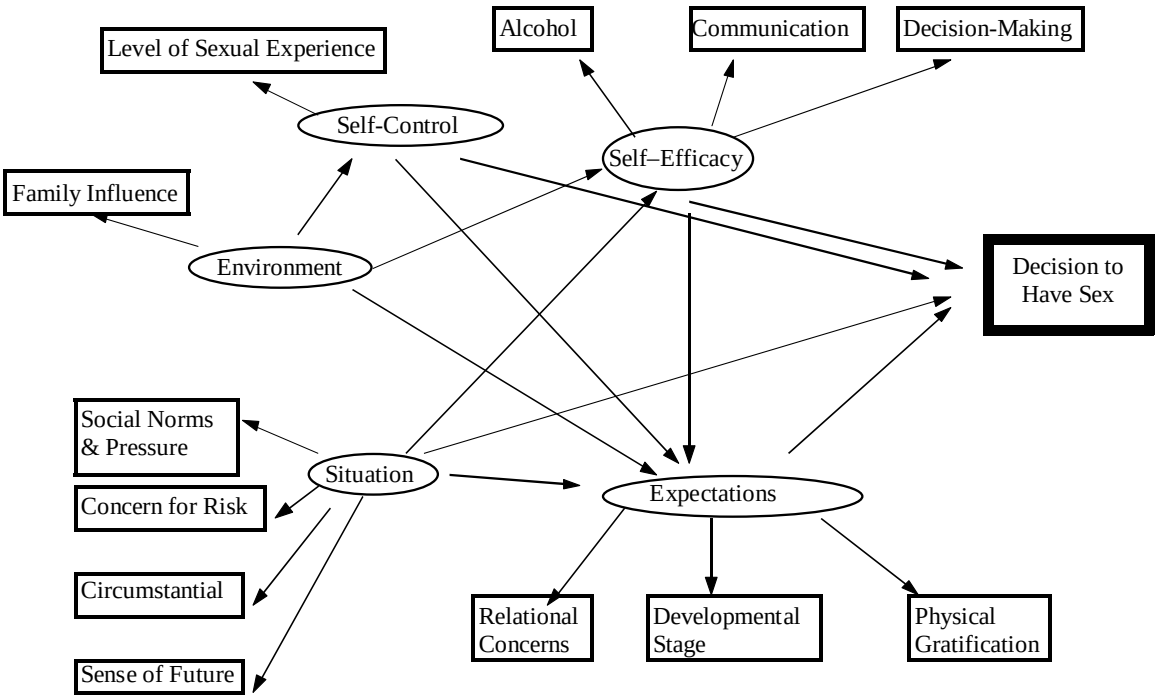


Figure 1. Complete Model to Explain Sexual Decision-Making Using SCT

This model is overly complex, and in order to simplify the model slightly, a revised model was examined. The model provided in Figure 2 does not include the environmental construct of SCT and, as a result, eliminates four paths. Justification for the proposed relations based on the literature and the SCT framework are described below. The research on family influence as a sexual decision-making component has been conducted primarily with adolescents. While family influence may still impact the sexual decisions of college students, the influence may not impact the decision as much.

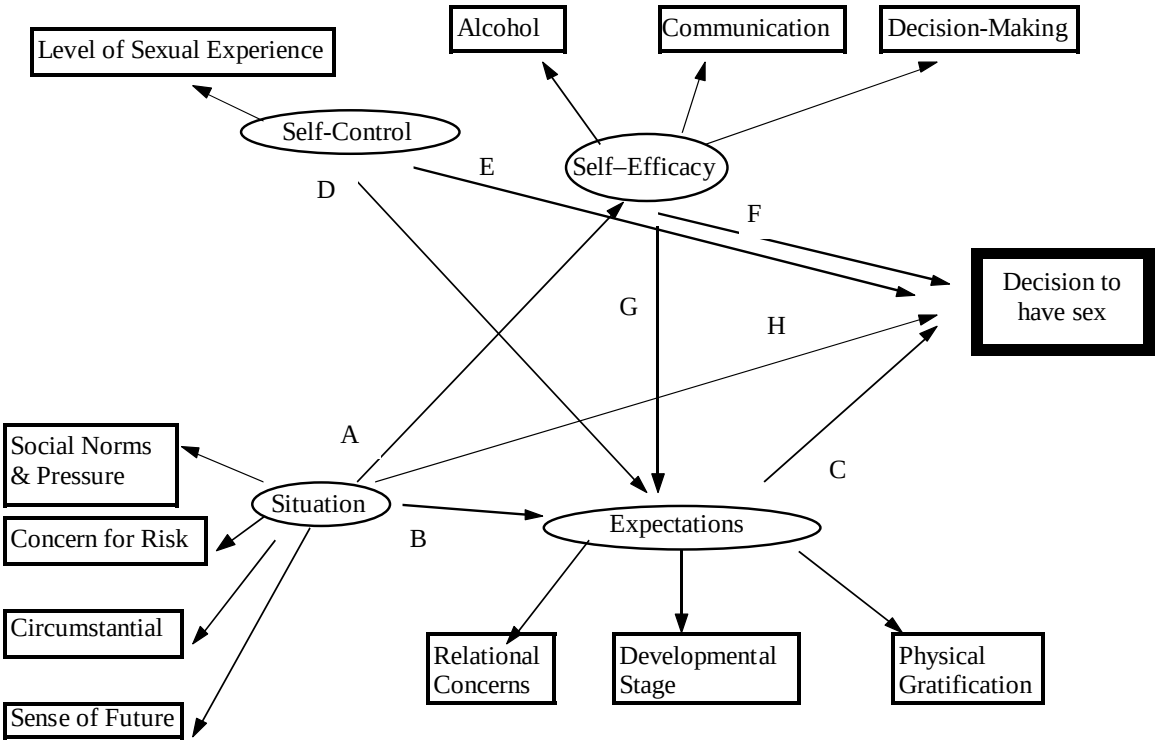


Figure 2. Proposed Sexual Decision-Making Model to Be Examined in this Study

The situational construct of SCT encompasses four components: social norms and pressure, concern for risk, circumstantial components, and sense of future. Most models that use SCT as a framework do not include the situation construct. Consequently, the proposed paths are based on the reviewed sexual decision-making literature. Inclusion of the situational factors is critical; context can influence the other cognitive constructs of SCT, specifically self-efficacy (arrow A) and expectation (arrow B), hence a path to those SCT constructs is proposed. With regard to sexual decision-making, individuals often model peer behavior and experience pressure from others to engage in sexual activity (Christopher & Cate, 1984; Erickson & Rapkin, 1991; Kelly, 1998; Regan & Dreyer, 1999; Romer et al., 1994; Rosenthal, Lewis, & Cohen, 1996). Likewise, concern for risk (Leigh, 1989; Levinson, Jaccard, & Beamer, 1995) and circumstantial

components, including the influence of alcohol and drugs (George & Stoner, 2000; Murphy, Monahan, & Miller, 1998; Murstein & Tuerkheimer, 1998) and preplanning (Christopher & Cate, 1984), suggest a direct path to sexual decisions (arrow H). Another situational variable is sense of future. Individuals who have a sense of future are less likely to engage in sexual activity (Herold & Goodwin, 1981; Marchi & Guendelman, 1995; Monsen, Jackson, & Livingston, 1996; Paul, Fitzjohn, Herbison, et al., 2000; Wyatt, 1989; Young, Denny, & Spear, 1999).

Using SCT as a framework to guide model development, several studies have postulated that expectations directly impact behaviors (arrow C) (Anderson, Winett, & Wojcik, 2000; Bishop & Bieschke, 1998; DiIorio, Dudley, Soet, Watkins, & Maibach, 2000). This path is consistent with the sexual decision-making literature; relational concerns have been demonstrated to influence sexual decisions (Browning, Hatfield, Kessler, & Levine, 2000; Carroll, Volk, & Hyde, 1985; Christopher & Cate, 1984; Hill, 1997; Hill & Preston, 1996; Hoffman & Bolton, 1997; Paradise, Cote, Minsky, Lourenco, & Howland, 2001; Randolph & Winstead, 1988; Taris & Semin, 1997; Traeen & Kvalem, 1996). Mannino's (1999) and Sanderson and Cantor's (1995) research has shown that developmental stage affects expected outcomes. Regarding physical gratification as an expected outcome, Hill and Preston's (1996) work as well as that of others (Browning, Hatfield, Kessler, & Levine, 2000; Carroll, Volk, & Hyde, 1985; Hill & Preston, 1996; Lear, 1997; Levinson, Jaccard, & Beamer, 1995; Murstein & Tuerkheimer, 1998; Randolph & Winstead, 1988; Rosenthal, Lewis, & Cohen, 1996; Traeen & Kvalem, 1996; Wyatt, 1997) has shown the importance of anticipated physical gratification on sexual decisions.

Level of sexual experience is a component of self-control. Previous research has demonstrated that level of sexual experience influences expected outcomes (arrow D), specifically in the areas of relational concerns and physical gratification (Christopher & Cate, 1984; Levinson, Jaccard, & Beamer, 1995; Mikach & Bailey, 1999). In addition, SCT posits that previous behavioral experiences can serve as powerful determinants of future behaviors (Rimal, 2001); hence the direct arrow (E) to the decision to have sex.

Self-efficacy is a critical construct of SCT and has been shown to be a strong predictor of behavior in many safer sex studies (Bandura, 1994); therefore, arrow F indicates a direct relation to the decision component. In addition, SCT posits that self-efficacy might influence the degree to which an outcome may occur (Bandura, 1986); the model accounts for this relation with arrow G. Both of these arrows (F and G) are consistent with other model development research that uses SCT (Anderson, Winett, & Wojcik, 2000; Bishop & Bieschke, 1998; DiIorio, Dudley, Soet, Watkins, & Maibach, 2000; Lopez, Lent, Brown, & Gore, 1997).

Three types of self-efficacy components related to sexual decision-making will be used for the self-efficacy construct in this model: self-efficacy regarding alcohol, self-efficacy regarding communication, and self-efficacy about decision-making. Many individuals engage in sexual activity under the influence of alcohol (George & Stoner, 2000), which makes self-efficacy regarding alcohol critical to include. Self-efficacy regarding communication with a partner has also been identified as a component on a sexual decision-making scale (Cameron, Koob, & Oswalt, in progress). Self-efficacy regarding safer sex communication (DiIorio, Dudley, Lehr, & Soet, 2000; Moore & Davidson, 2000) and self-efficacy regarding sexual coercion (Anderson & Reis, 1997)

affect communication, but they may also influence the sexual decision. While not specifically identified in the literature, self-efficacy regarding communication needs to be examined. Ironically, no studies to this author's knowledge have specifically examined self-efficacy regarding making sexual decisions even though self-efficacy seems to be a crucial component of the decision-making process. While this component was not identified in the literature, it is nonetheless a critical one for researchers to consider and is included in the model.

## Significance of the Study

This study fills a gap in the literature by providing a model for the sexual decision-making of college students. A review of the literature revealed no comprehensive model for sexual decision-making, only studies that examined individual variables or components. Using social cognitive theory as a theoretical framework, this project tested a model of sexual decision-making.

## Chapter Summary

Eleven main components have been identified as having an impact on sexual decision-making among college students: concern for risk, sense of future, social norms/pressure, circumstantial, relational concerns, developmental stage, physical gratification, level of sexual experience, self-efficacy regarding alcohol, self-efficacy regarding communication, and self-efficacy regarding decision-making. Limitations of the existing literature include inconsistent measurement techniques, lack of a theoretical framework, and inclusion of some but not all sexual decision-making components. A theoretically guided model that includes almost all identified sexual decision-making components was proposed to examine sexual decision-making in college students.

# CHAPTER 3

# METHODS

This chapter explains the research design, outlines the data collection process, identifies and describes the participants in the study, describes the scales used, and outlines the data collection and analysis protocols.

## Research Design

The study utilized a cross-sectional strategy to examine whether the proposed model (Figure 2) explained the relations of the sexual decision-making components. In this analysis there are eleven exogenous variables and five endogenous variables, with the decision to engage in sexual activity as the primary endogenous variable of interest.

## Participants

The participants in this study were male and female undergraduates attending the University of Georgia. This population was appropriate for a study designed to examine the sexual decision-making process of college students. The undergraduate population at the University of Georgia is largely composed of traditional college-aged students, with 94.5% of the undergraduate population between the ages of 18 and 24. The university enrolls more female than male undergraduates; 56.0% of undergraduates are female. The University undergraduate population is primarily Caucasian (87.1%) and most students are residents of Georgia (91.2%) (Office of Institutional Research and Planning, 2002).

A 2001 survey of University of Georgia students indicated that 74.4% had engaged in oral sex, 67.1% had engaged in vaginal intercourse, and 19.7% had engaged

in anal sex (University Health Center, 2001). These rates are similar to a 2000 national study of college students which found that 75% had engaged in oral sex, 71% had engaged in vaginal sex, and 22% had engaged in anal sex (American College Health Association [ACHA], 2001).

## Participant Recruitment

For the model development, a convenience sample of University of Georgia undergraduate students over 18 years old were selected. Participants were recruited from six different undergraduate courses: AESC 1010: Orientation and Environmental Sciences; HPRB 1710: Health and Wellness: CHFD 2100: Development within the Family; SPCM 4610: Health Communication; UNIV 1102: Learning to Learn; UNIV 1103: Strategies for Academic Success. Additional participants were recruited from an On Campus Talking about Alcohol (OCTAA) session conducted through the University Health Center. Instructors for five of the academic courses (AESC 1010, HPRB 1710, SPCM 4610, UNIV 1102, and UNIV 1103) and the OCTAA session provided class time for their students to complete the surveys. For CHFD 2100, student participation was solicited by distributing the survey in class and returning to the next class meeting to collect the completed surveys.

Table 4 indicates recruitment estimates. The maximum enrollment for each course is listed, as is the estimated percentage in attendance on that day. For most classes, 70% attendance was estimated. Two exceptions were CHFD 2100, which was an 8:00 a.m. large lecture class (therefore I estimated 60%) and OCTAA, which costs $40 to attend and assess a $15 no-show fee for individuals who miss a session (therefore I estimated 90%). A refusal rate for this study was not calculated; however, for a classroom-

administered health survey at another university, the refusal rate of those present was 0.6% (S. Winnail, personal communication, November 4, 2002). Because this survey dealt with sexual health issues, the refusal rate may be slightly increased. Because class time was not provided for individuals in the CHFD 2100 course, the estimated percentage of those individuals completing the survey was 50%. This estimate is slightly lower than the response rate for a comprehensive health survey mailed out to a national sample of college students (65%) (CDC, 1997b).

Table 4. Estimated Number of Participants for Model Testing

| **Course Number** | **Estimated enrollment** | **Estimated attendance (n)** | **Estimated refusals (n)** | **Estimated recruitment** |
|---|---|---|---|---|
| AESC 1010 | 60 | 70% (38) | 5% (2) | 36 |
| CHFD 2100 | 300 | 60% (180) | 50% (90) | 90 |
| HPRB 1710 | 300 | 70% (210) | 5% (11) | 199 |
| OCTAA (February) | 60 | 90% (54) | 5% (3) | 51 |
| SPCM 4610 | 25 | 70% (18) | 5% (1) | 17 |
| UNIV 1102 | 20 | 70% (14) | 5% (1) | 13 |
| UNIV 1103 | 60 | 70% (42) | 5% (2) | 40 |
| Total | 825 | 556 | | 446 |

Survey completion took about 30 minutes. A maximum number of 825 students can be surveyed through these courses; with an estimated 446 participants successfully recruited. This sample size is an adequate sample size for structural equation modeling. In the literature, sample sizes commonly utilize 200-400 responses for models with 10 – 15 indicators (Garson, 2002). There are varying guidelines for sample size. Bentler and Chou (1987) recommend at least 5 cases per parameter estimate (including error terms and path coefficients); for this model, which has 31 estimated parameters, 155 participants satisfy their guideline. Others have recommended no less than 200 (Loehlin,

1992). The estimated sample size of 446 should surpass most guidelines. Responses from individuals under 18 years of age were not used in the analysis.

## Data Collection

The cross-sectional design of this study allowed for one-time survey administration to each participant. Participants were University of Georgia undergraduate students. The instrument for this project included items from previously constructed sexual decision-making scales and relevant demographic variables.

The instrument was compiled and formatted by the researcher. Pilot testing was conducted. Pilot testing procedures are discussed in the instrumentation section. The researcher collected data by visiting six undergraduate courses and a non-credit alcohol education course offered through the University Health Center. The data for all class sections were collected between February 12, 2003 and February 27, 2003. In addition, if the course instructor wanted the researcher as a guest speaker for this course, all guest lectures were presented after the survey administration.

For each individual course, the researcher visited the class. She distributed an informed consent sheet, the survey instrument, and a bubble answer (NCS) sheet. The researcher explained the research and its purpose and reviewed the informed consent sheet. Because the Institutional Review Board (IRB) determined this survey was anonymous, implied consent was given by the participants, and no signatures were collected. For all courses except one, participants completed the survey in class. For those completing the survey in class, participants reviewed the consent sheets and then completed the survey by marking their responses on the bubble answer sheet (often referred to by the brand name Scan-tron). Number 2 pencils were provided to individuals

who did not have a pencil. Upon completion of the survey, each participant placed the survey and bubble answer sheet in a box at the front of the room. Participants kept the copy of the informed consent sheet for their records.

For the course in which participants did not complete the surveys in class, the researcher distributed 8.5”x11” envelopes containing the informed consent sheet, the survey instrument, and a bubble answer sheet. The researcher explained the research and its purpose. She also reviewed the informed consent sheet and explained what implied consent means. She solicited participation from the students and informed them that she would return during next class period to collect the surveys and completed bubble answer sheets in the envelopes. Participants would keep the informed consent sheets for their records.

The bubble answer sheets were reviewed visually for any pattern responses of an individual. The bubble answer sheets were then taken to Test Scoring and Reporting Services at Fairfax Hall for the marked responses to be scanned. This department provided the data in an ASCII file on disk for the researcher to complete the data analysis.

## Instrumentation

Abraham and Sheeran (1993) advocate for a theory that addresses the complex nature of sexual decisions; however, in reality, most of the sexual decision-making literature does not use any theoretical framework. This absence prevents the identification of standard concepts or predictors that would enable comparisons between studies. (Jadack & Keller, 1998). With different operational definitions and measurement scales

for components, there is no “gold standard” that can be used to measure sexual decision-making components.

*The Components and Corresponding Items*

For this study, scales from existing measures were used to measure the eleven components identified to influence sexual decision-making. Since there are different scales for many of these components, selection was based on operational definitions fitting the researcher’s definitions and reliability information. Each of the eleven components and corresponding scales are discussed below; the items for all scales are included in Appendix A.

The measurement scale for this study used a 5-point Likert scale for each item. Wording for some items was adjusted to fit into the agree-disagree Likert format (with “level of sexual experience” as an exception). Original scoring measures with Likert scales varied between the instruments. Participants responded on the Likert scale from strongly disagree to strongly agree about the item. Table 5 details a summary of the subscales.

*SCT Situation Construct*

*Concern for risk:* Items related to how a possible pregnancy or disease contraction influences sexual decisions were included. A scale fitting the desired format for this sexual decision-making component could not be found, so four items from Levinson, Jaccard, and Beamer’s (1995) “negative motivations to engage in sex” scale were modified to fit the strongly disagree-strongly agree Likert format.

Table 5. Summary of Subscales and Their Origins

| **Construct** | **Author, Date** | **Subscale title** | **Number of items**[1] | **Participants** | **Alpha coefficient** |
|---|---|---|---|---|---|
| Concern for Risk | Levinson, Jaccard, & Beamer, 1995 | Selected, revised items from "Negative Motivations to Engage in Sex" | 4 | College students | .91 for STI questions<br><br>.92 for pregnancy questions |
| Circumstantial | Christopher & Cate, 1984 | Circumstantial | 5 | College students | .67 - .86 [2] |
| Sense of Future | Cameron, Koob, & Oswalt, in progress<br>Plus 2 additional items derived from qualitative research | Right Time<br><br>N/A | 5<br><br>2 | College students<br><br>N/A | .92<br><br>N/A |
| Social Norms & Pressure | Christopher & Cate, 1984<br><br>Cameron, Koob, & Oswalt, in progress | Obligation and Pressure<br><br>Social Norms | 6<br><br>4 | College students<br><br>College students | .67 - .86<br><br>.80 |
| Relational Concerns | Christopher & Cate, 1984 | Positive Affect & Communication | 12 of 14 | College students | .67 - .86 |
| Developmental Stage | Sanderson & Cantor, 1995 | Social Dating Goals | 13 | Adolescents and college students | .65 to .84<br>Reliability test-retest at 12 weeks of *r*=.76 (for college sample) |
| Physical Gratification | Christopher & Cate, 1984 | Arousal & Receptivity | 9 | College students | .67 - .86 |
| Level of Sexual Experience | Consistent with Christopher & Cate, 1984 (lifetime)<br>Levinson, Jaccard, & Beamer, 1995 (last 12 & 6 months) | Number of sexual partners | 3 | College students<br><br>College students | N/A<br><br>.93 |
| Self-efficacy – Alcohol | Cameron, Koob, & Oswalt, in progress | Self-efficacy – Alcohol | 3 | College students | .91 |
| Self-efficacy – Communication | Cameron, Koob, & Oswalt, in progress | Self-efficacy – Communication | 6 | College students | .89. |
| Self-efficacy – Sexual Decision- Making | Morokoff, et al., 1997<br><br>Plus 4 additional items using self-efficacy language | Initiation subscale & refusal subscales (from Sexual Assertiveness Scale for women)<br><br>N/A | 9<br><br>4 | College and community women<br><br>N/A | .76 - .82 for initiation subscale.<br>.78 - .80 for refusal subscale<br><br>N/A |
| Sexual Decision-making | Developed by researcher | N/A | 12 based on 3 vignettes | N/A | N/A |

[1] All scales, except level of sexual experience, have been converted to a 5-point Likert response scale from "strongly agree" to "strongly disagree."
[2] For Christopher & Cate's (1984) instrument the alpha coefficient for the scores of the individual scale was not reported, only the range for individual subscales.

*Circumstantial:* Christopher and Cate's (1984) five-item circumstantial components scale was used. The items have each demonstrated factor loadings over .35. The reliability of the scores of the scale are between .67 and .86. One item was reworded to remove the word "date." Dating is no longer a common practice for young adults (Independent Women's Forum, 2001), and because the term may influence responses, it was changed from "The date was a special event" to "A special event or occasion impacts my sexual decisions."

*Sense of future:* This scale consisted of seven items; five of these items examined the perceived right time to have sex. Reliability scores for this five-item scale are .92 with college students (Cameron, Koob, & Oswalt, in progress). The concept "sense of future" has mainly been examined through qualitative analysis. Two items were created to capture this concept in a quantitative sense. These are: "There are many things I want to accomplish in the next few years," and "I worry that I won't get to do everything I want to in life." The inclusion of these two items was experimental and the researcher acknowledged that they may not factor with the right time scale. However, examining how these items may relate to sexual decision-making was important to most accurately assess the sense of future component.

*Social norms & pressure:* A combination of two scales was used for social norms and pressure. Christopher and Cate's (1984) six-item obligation and pressure scale was one of those used. This scale focuses on partner pressure and the scores for this scale have a reliability between .67 and .86. A four-item social norm measurement (Cameron, Koob, & Oswalt, in progress) was also used. This scale has a reliability of .80 for college students and examines perceived social norms of sexual experiences.

*SCT Expectations Construct*

*Relational concerns:* A modification of Christopher and Cate's (1984) positive affect and communication scale was used to examine relational concerns. Twelve of the fourteen items from the original scale were used. The two items addressing alcohol and drug use were not included. All items have at least a factor loading of .35 for this scale. The individual reliability measure for this scale was not provided, but Christopher and Cate (1984) identify the range of alpha coefficients for the scores to be between .67 and .86.

*Developmental stage:* The social dating goals scale was used to measure developmental stage (Sanderson & Cantor, 1995). This 13-item scale incorporates the meaning of identity and intimacy as functions of developmental tasks specifically in the context of adolescent relationships. Because of the traditional age of the undergraduates surveyed, the scale is also applicable to college students. The scale has strong validity with several other identity scales (revised ego identity status scale, attachment style scale and sociosexual orientation scale), and the scores have a high reliability test-retest rating at 12 weeks ($r$=.76). The scale is already in a 5-point strongly agree-strongly disagree Likert format. Dating is no longer a common practice for young adults (Independent Women's Forum, 2001), and because the term may influence responses, it was changed. The stem sentence was reworded so that "romantic" was used instead of "dating." For three items, "be with" replaced "date."

*Physical gratification:* A modification of Christopher and Cate's (1984) arousal and receptivity scale was used. The original scale contains nine items with respondents indicating on a seven-point Likert scale their level of agreement as a component in their most recent sexual experience. The reliability of the scores for this scale is between .67

and .86. In this scale, four items use the term "date." As with other scales, because the term may influence responses, it was changed. In two items, the phrase "time spent together that day" was inserted and in two other items, the phrase "seeing my partner" or "seeing me" was inserted. In addition, the word intercourse was supplanted with "sexual activity." There are many sexual activities in addition to intercourse, and considering decisions in those sexual contexts is also important. In addition, the term intercourse excludes same-sex sexual behavior and may offend some participants.

*SCT Self-Control Construct*

*Level of sexual experience:* The self-reported number of sexual partners of participants was used as the component measure, which is consistent with previous research (Levinson, Jaccard, & Beamer, 1995). Three items asked the number of sexual partners for oral, anal, and vaginal sex. As the self-reported frequency of anal sex for UGA is less than 20% (University Health Center, 2001), the information collected for anal sex was not included in the analysis. The information was still collected to be inclusive of individuals engaging solely in that behavior.

*SCT Self-efficacy Construct*

*Self-efficacy regarding alcohol:* Three items from Cameron, Koob, & Oswalt's sexual decision-making scale (in progress) were used to examine self-efficacy regarding alcohol use. The total scale consists of five items; however, two items focusing on safer sex issues were not used in this study. Using a college student sample, the scores for the total scale had an alpha coefficient of .91 (Cameron, Koob, & Oswalt, in progress).

*Self-efficacy regarding communication:* Self-efficacy regarding communication was measured using six items pulled from a 10-item scale. The other scale items specifically

address safer sex behavior. This scale has been tested previously with college students and the scores for this scale as a whole had an alpha coefficient of .89 (Cameron, Koob, & Oswalt, in progress).

*Self-efficacy regarding decision-making:* Self-efficacy regarding sexual decision-making was measured using a modified version of the Sexual Assertiveness Scale (SAS) for women (Morokoff et al., 1997). Items from two of the three subscales (Initiation and Refusal) were used; the third dimension addressed STI and pregnancy prevention. Two items were deleted because they specified the biological sex of the respondent. The alpha coefficients ranged from .76 and .82 for the initiation subscale and .78 and .80 for the refusal subscale. In addition, four items using typical self-efficacy wording (e.g., "able to…") were developed and included in the instrument.

The "decision to have sex" was assessed through responses to vignettes. (See Appendix B for the vignettes.) Each vignette described a different situation requiring a sexual decision. There were three vignettes, and each vignette had four associated items. Individuals were asked on a Likert scale about the likelihood they would engage in (1) oral sex, (2) vaginal sex, (3) anal sex or (4) other sexual activities in the situation presented. The use of vignettes has been shown to be an acceptable research method for measuring decision-making (Alexander & Becker, 1978). In order to avoid two common limitations associated with the use of vignettes, (1) having a large discrepancy between reality and the vignette, and (2) respondents marking socially desirable responses (Barter & Renold, 2000), these vignettes were incorporated into sexuality education programs at the University of Georgia. During the educational programs, individuals were asked about the believability of the scenarios and provided anonymous forced choice responses

as to their actions. Suggestions for making the scenarios more realistic were incorporated, and the anonymous forced choice responses of students indicated that a variety of responses would be provided. The responses to the vignettes were examined in three groupings: decision to engage in oral sex, decision to engage in vaginal sex and decision to engage in other sexual behaviors. Anal sex was not included because of the low rate of anal sex among the University of Georgia students.

For each of the sexual decision-making components in the model, the item scores were reversed if necessary, then summed and divided by the number of items for that component. This value represents the sexual decision-making component in the model analysis, which was then used to determine paths between the sexual decision-making components and the SCT constructs. A similar process for the decision to engage in sexual activity was used; the three items for each category of behavior (oral, vaginal, or other) were summed and divided by three. This number was used as the measurement for decision to engage in sexual activity.

*Demographics*

Seven demographic variables were also included in the survey. Participants were asked to identify their biological sex, classification, age, ethnicity, sex of sexual partners, self-identified sexual orientation, and relationship status. Classification was asked to ensure undergraduate status; sex of sexual partners and self-identified sexual orientation was asked to determine any differences between identity and behavior. Relationship status (committed partnership including marriage versus non-committed partnership) was asked, because individuals who are in a committed relationship may respond to these situations differently than a single individual. For tracking purposes, individuals were

asked to provide the last four digits of their student identification number. If these four digits were identical to a survey submitted during the pilot phase of the study (discussed below), then this survey was not used in the model analysis. This technique prevented individuals from participating in both the pilot and the model testing.

## Pilot Testing

Because this instrument was composed of subscales from different instruments, some pilot testing was necessary. Pilot testing was completed with undergraduate students from undergraduate courses at the University of Georgia and an OCTAA course. To ensure that these individuals did not also complete the instrument for the model analysis, the last four digits of each participant's student identification number was recorded for the pilot study. All instruments were used in the pilot study; however, if the same last four digits were provided by a participant in the model analysis, that instrument was not used in order to prevent any confounding. Table 6 lists the recruitment classes for the pilot participants; permission was received from all course instructors.

Table 6. Estimated Number of Participants for Pilot Testing

| **Course number** | **Estimated enrollment** | **Estimated attendance (n)** | **Estimated refusal (n)** | **Estimated recruitment** |
|---|---|---|---|---|
| PE courses | 100 | 70% (70) | 5% (4) | 66 |
| OCTAA (January) | 60 | 90% (54) | 5% (3) | 51 |
| PSYC 2101 | 60 | 70% (42) | 5% (2) | 40 |
| **Total** | **220** | **166** | | **157** |

Because the survey was developed from existing instruments, factor analysis was used to examine each sexual decision-making component as a unit, meaning that each sexual decision-making component's scale was factor analyzed separately. Using

Hutcheson and Sofroniou's (1999) rule of 150, 150 participants are acceptable for factor analysis among highly correlated variables.

In addition, ease of comprehension, reliability, and validity were also tested. For reliability, coefficient alpha was used. Content validity was examined by having three individuals working in sexual decision research review the instrument. These researchers were given the instrument and a brief questionnaire (see Appendix C) to assess their feedback about the instrument. The researchers were subsequently contacted to discuss their responses and to elicit any other suggestions for the survey. The frequencies of the researchers' responses from the questionnaire were tabulated. In addition, the comments from open-ended questions and notes from follow-up conversations were summarized and are provided in the results section. Based on the results of the pilot study, revisions were made as necessary.

## Data Analysis Techniques

Basic frequencies were run for the sample to examine skewness and kurtosis for responses through SPSS 11.0. Differences based on biological sex, self-identified sexual orientation, and ethnicity in participants' responses for the eleven sexual decision-making components and decision to engage in sexual activity were assessed using t tests and ANOVA procedures. Any missing items were deleted pairwise for all analyses.

The following conditions for causal models were met: (1) formal statement of theory in terms of a structural model, (2) theoretical rationale for causal hypotheses, (3) specification of a causal order, (4) specification of causal direction, (5) self-contained functional equations, (6) specification of boundaries, (7) stability of the structural model, and (8) operationalization of variables (James, Mulaik, & Brett, 1982). While these

conditions appear to be met, it is acknowledged that this analysis was exploratory and changes to the model may affect these conditions. The model is sufficiently identified, following Bollen's (1989) t-rule (re: the number of "nonredundant elements in the covariance matrix of the observed variables [is] greater than or equal to the number of unknown parameters in theta" (p. 93). The number of nonredundant elements in the model is 78 and the number of unknown parameters is 31.

The model was tested using structural equation modeling in LISREL 8.51 using maximum likelihood estimation (MLE). For large samples, when the Likert scales include four or more categories, and skewness and kurtosis are within normal limits, using MLE is justified (Garson, 2002). The path coefficients' significance levels and five specific goodness of fit indices [Chi-Square, Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMSR), Comparative Fit Index (CFI), and Tucker-Lewis Index (TLI)] were examined. The combination of these goodness of fit indices provided two stand-alone indices, a Type-2 incremental index, and a Type 3 incremental index based on Hu and Bentler's (1998) index classification. A significant Chi-Square test suggests that the hypothesized model does not adequately fit the observed data; a nonsignificant chi-square value suggests model adequacy. However, because this index is sensitive to sample size and violations of the assumption of multivariate normality, the additional fit indices were also used. Acceptable levels for each of the goodness of fit indices are shown in Table 7.

Table 7. Acceptable Levels for Goodness of Fit Indices

| **Goodness of Fit Indices** | **Chi-Square** | **SRMSR** | **RMSEA** | **TLI (NNFI)** | **CFI** |
|---|---|---|---|---|---|
| **Acceptable level** | p-value non significant | $\leq$ .08 | $\leq$ .05 | $\geq$ .95 | $\geq$ .95 |

In addition, the model was tested for invariance across biological sex. As much of the literature identified differences between males and females in the sexual decision-making components, examining how the model may differ between males and females is important. After the model was tested with all participants, constraints regarding biological sex were added to the model parameters and the model was tested for fit. The chi-square values on the constrained and pooled models were compared through the chi-square difference test to see whether or not the models were different. Difference in the chi-square values indicates a difference between the constrained-equal and unconstrained-unequal models, and one can conclude that the model does not apply across groups and holds measurement invariance.

If the analysis showed that the model did not provide a proper fit, exploration of other possible models was conducted. This continued analysis was conducted using LISREL 8.51 and comparison of chi-square values and goodness of fit indices. In addition, a multiple regression using least squares method with the eleven sexual decision-making components was conducted. Regression analysis provided information about the impact of these components directly on sexual decision-making.

## Chapter Summary

An instrument compiled from scales of previously conducted research was piloted. The instrument was then administered to undergraduate students at the University of Georgia. Eleven components of sexual decision-making were identified and operationalized; scales were identified and modified as necessary for each component. Selected demographic variables are also described.

# CHAPTER 4

# RESULTS

Chapter 4 presents the results of the statistical analyses for the pilot study and the primary study. First, the pilot study is presented including a review of the study, participant description, data collection processes, analysis, and summary. Next, the primary study is presented. This section includes participant description, data collection processes, changes to the model, data analyses for each research question, and summary of results.

## Pilot Study

Because the instrument for model testing was composed of subscales from different sources, some pilot testing was necessary. The instrument was piloted with 207 undergraduate students between January 9, 2003 and January 16, 2003. To ensure that these individuals did not also complete the instrument for the model analysis, the last four digits of the participants' student identification numbers were recorded for the pilot study. If a number provided by a participant in the model analysis was identical to a number in the pilot study, the instrument in the model analysis was not used to prevent any confounding. This four-digit code was also used to match the bubble answer sheet with four responses written directly on the survey. During the pilot analysis, there were two surveys that had the same four digits. Most likely, these were not the same individuals; however, the written responses could not be matched to their bubble answer sheet and, therefore, the responses for all questions of both individuals were eliminated

from the pilot analysis. The statistical analysis for the pilot was conducted with the remaining 205 surveys. Some individuals did not complete all questions, so the total number of responses for individual items may not equal 205.

## Pilot Study Participants

The participants for the pilot study ranged in age from 18 to 35 years, with a median of 19 (mean = 19.93, SD=1.936). A slightly greater number of females (54.9%, n=112) than males (45.1%, n=92) completed the survey. The majority of the sample was Caucasian (92.2%, n=188). There was a small representation from other ethnic categories; 4.9% (n=10) were Asian, 1.5% (n=3) were Black, 1.0% were Hispanic (n=2) and one individual identified as other (0.5%) and wrote in “American.”

Regarding classification, 30.9% (n=63) were first-year students, 36.8% (n=75) were second-year students, 18.6% (n=38) were third-year and 13.7% (n=28) were fourth-year or higher. Most individuals were single; 41.6% (n=84) were single, not dating anyone; 42.6% (n=86) were single, dating one person exclusively; 11.4% (n=23) were single, dating multiple individuals, and 4.5% (n=9) were in a committed relationship, living together.

Most of the students identified as heterosexual (96.6%, n=197), with 1.5% (n=3) identifying as gay or lesbian and 2% (n=4) identifying as bisexual. This was fairly consistent with biological sex of sex partner; 93.3% of the participants identified engaging in sexual activity with either men or women and 6.7% identified engaging in sexual activity with both men and women. Follow-up conversations with participants revealed that some participants did not answer this item as they had not engaged in sexual

activity. For the actual study, this question was revised to define sexual activity by adding "including kissing, hugging, etc." in parentheses.

## Pilot Study Data Collection

The pilot study was conducted with undergraduate students. Participants were solicited from undergraduate courses and an OCTAA course. Table 8 lists the estimated and actual recruitment numbers of participants for the pilot.

Table 8. Participants for Pilot Study

| Course Number | Estimated Enrollment | Estimated Attendance (n) | Estimated Refusals (n) | Estimated Recruitment | Actual Recruitment |
|---|---|---|---|---|---|
| PE courses | 100 | 70% (70) | 5% (4) | 66 | 91 |
| OCTAA (January) | 60 | 90% (54) | 5% (3) | 51 | 59 |
| PSYC 2101 | 60 | 70% (42) | 5% (2) | 40 | 57 |
| **Total** | **220** | **166** | | **157** | **207** |

For each course, the researcher visited the class. She distributed an informed consent sheet, the survey instrument, and a bubble answer (NCS) sheet. The researcher explained the research and its purpose and reviewed the informed consent sheet. Participants completed the survey in class and then returned the survey and bubble answer sheet to a box in the front of the room. Survey completion took no more than 30 minutes for all participants.

## Pilot Study Analysis

First, descriptive statistics (mean, standard deviation, skewness, and kurtosis) for each item were analyzed; these are listed in Appendix D. Unless otherwise discussed, the skewness and kurtosis were within normal limits for all items of the scales [skewness less than 2 (Lomax, 1998) and kurtosis of less than 8 (Kline, 1998)].

Because the survey was developed from existing scales, factor analysis was used to examine each sexual decision-making component scale separately. The factor loadings of each item in the scale were examined. Items which had factor loadings of <.30 and/or which loaded on multiple factors were eliminated. Principle component extraction with varimax rotation was used for the factor analysis. If factor loadings suggested instrument modification, it is noted in the text. For the factor analysis, missing cases were excluded pairwise to retain more subject responses. According to Hutcheson and Sofroniou's (1999) rule of 150, a minimum of 150 participants for factor analysis is acceptable for highly correlated variables; the sample size of 205 was more than adequate. Reliability, using coefficient alpha, was also tested for each scale. The analysis for each scale is presented.

*Concern for Risk*

All items for the scale were within the established limits for normality. The four-item concern for risk scale had an alpha coefficient of .83; exploratory factor analysis extracted only one factor that explained 66.4% of the variance. Factor loadings ranged from .75 to .85. Item and total score correlations for this scale ranged from .59 to .71. No changes were made to this scale.

*Circumstantial*

The scores for this five-item scale had an alpha coefficient of .68. Item and total score correlations for this scale ranged from .31 to .57. The factor analysis extracted two factors. The first factor explained 44.8% of the variance and the second factor explained 27.5%. Factor loadings are shown in Table 9. For all tables showing factor analysis, factor loadings less than .30 were not listed.

Table 9. Factor Loadings for Circumstantial Components Scale

| | **Factor 1** | **Factor 2** |
|---|---|---|
| My preplanning | | .906 |
| My partner's preplanning | | .865 |
| My drug/alcohol use | .886 | |
| My partner's drug/alcohol use | .832 | |
| Special event | .704 | |

Separation of the items into two scales was not an option, because one scale would consist of only two items. In addition, follow-up conversations with students revealed that the term "preplanning" (included in the two items in the second factor) was confusing. Because of these limitations and because the critical aspect of alcohol (included in two items) is measured through self-efficacy regarding alcohol, the items in this scale were deleted from the instrument and this sexual decision-making component (circumstantial) was omitted from the model.

*Sense of Future*

With regard to skewness and kurtosis, the sense of future scale had one item outside the limits of normality. The item "there are many things I want to accomplish in the next few years" had a skewness of 4.15 and a kurtosis of 19.27. Given that the "many things" item is a critical component of sense of future, examination of the scale continued with all items.

The scores for this seven-item scale had an alpha coefficient of .86. The factor analysis extracted two factors. Item and total score correlations for this scale ranged from .17 to .88, with two items, "there are many things I want to accomplish in the next few years" and "I worry I won't get to do to everything I want to in life," having item-total score correlations of .17 and .24. The first factor explained 61.4% of the variance and the

second factor explained only 14.5%. The factor loadings were distinct, as there was little cross loading, as shown in Table 10.

Table 10. Factor Loadings for Sense of Future Scale

| | **Factor 1** | **Factor 2** |
|---|---|---|
| I believe I should abstain from sex ….. | | |
| …until I am in a committed relationship. | .819 | |
| …on first date. | .931 | |
| …with someone I just met. | .952 | |
| …with someone I hardly know. | .936 | |
| …in the context of a one-night stand. | .920 | |
| There are many things I want to accomplish in the next few years. | .301 | .600 |
| I worry that I won't get to do everything I want to in life. | | .790 |

Coefficient alpha for the scores of the first five items was .94, and factor analysis extracted one factor which accounted for 83.9% of the variance with factor loadings ranging from .825 and .954.

The remaining two items ("there are many things I want to accomplish" and "I worry that I won't get to do everything I want to in life") had been created by the researcher in an attempt to quantify qualitative research findings about the "sense of future" component. The resulting factor did not explain enough variance to be included in the current form. There was an obvious inconsistency in the wording of these items. The first five items addressed abstinence, but the two created items did not. To make these items more consistent, the two items were revised to begin with the phrase "I believe I should abstain from sex because….." . This revised version was included in the final instrument.

*Social Norms and Pressure*

Descriptive statistics for the items in this scale revealed problems with skewness, as shown in Appendix D. Three items had skewness values over 2.0 ("if I'm not engaging

is sexual activity, then I'm not "cool," "I think my friends will think less of me if I don't engage in sexual activity," and "I think my friends will make fun of me if I don't engage in sexual activity").

The scores for this ten-item scale had an alpha coefficient of .82. Item and total score correlations for this scale ranged from .44 to .58. Scores less than .5 indicate problems with the scale. The factor analysis extracted two factors as shown in Table 11. The first factor accounted for 40.9% of the variance and the second explained 23.6%.

Table 11. Factor Loadings for Social Norms and Pressure Scale

| | **Factor 1** | **Factor 2** |
|---|---|---|
| My feelings of obligation to engage in sexual activity with my partner impact my sexual decisions.[3] | | .848 |
| My partner's feeling of obligation to engage in sexual activity with me… | | .874 |
| My pressure on my partner to engage in sexual activity… | | .744 |
| My partner's pressure on me to engage in sexual activity… | | .788 |
| The number of my friends engaging in sexual activity… | .645 | |
| The number of my partner's friends engaging in sexual activity… | .680 | |
| If I'm not engaging in sexual activity, then I'm not cool. | .802 | |
| I think my friends will ridicule me if I don't engage in sexual activity. | .867 | |
| I think friends will think less of me if I don't engage in sexual activity. | .850 | |
| I think my friends will make fun of me if I don't engage in sexual activity. | .760 | |

Originally, these items were two separate scales: obligation/pressure and social norms. The first six items in Table 11 were Christopher and Cate's (1984) obligation/pressure scale and the last four items were developed by Cameron, Koob, and Oswalt (in progress). Because these items were originally two scales, the item-total correlations are low, and the factor loadings are split, this scale was divided into two different scales: obligation/pressure (consisting of the first four items) and a social norms scale (consisting of the last four items, developed by Cameron, Koob, and Oswalt (in progress), plus the two items about the number of sexually active friends, originally from

[3] The next five items all end with the phrase "….impact(s) my sexual decisions." For space concerns, the phrase is not included in the table.

the Christopher and Cate (1984) scale). The scores for the four-item obligation/pressure scale had an alpha coefficient of .84 and factor analysis extracted one factor accounting for 68.2% of the variance with factor loadings between .779 and .882. The scores for the new six-item social norms scale had an alpha coefficient of .85, and factor analysis extracted one factor accounting for 60.6% of the variance with factor loadings between .692 and .851. This more acceptable solution was used in the model analysis.

*Relational Concerns*

The relational concerns scale consisted of 12 items. The scores of the scale had an alpha coefficient of .85. Item and total score correlations for this scale ranged from .41 to .73, for all items except "my religiosity" which had an item-total score correlation of -.08. This low score was unacceptable, and the item was removed from the scale. Three other items had low item-total correlation scores: "my discussion about the meaning of sexual activity…" (.53), "my partner's discussion about the meaning of sexual activity…" (.57), and "the number of dates" (.41). Subsequent factor analysis of the relational scale was conducted without the "religiosity" item and extracted three factors as listed in Table 12.

Table 12. Factor Loadings for Relational Concerns Scale

| | **Factor 1** | **Factor 2** | **Factor 3** |
|---|---|---|---|
| My liking for my partner impacts my sexual decisions[4] | .542 | .630 | |
| My partner's liking for me… | .475 | .687 | |
| My love for my partner… | .831 | .346 | |
| My partner's love for me… | .763 | .400 | |
| My discussion about the meaning of sexual activity… | | | .915 |
| My partner's discussion about the meaning of sexual activity… | | | .894 |
| The number of dates with my partner… | | .616 | |
| My awareness of my partner's feelings… | | .799 | .342 |
| My partner's awareness of my feelings… | | .719 | .317 |
| The possibility of eventual marriage or commitment… | .744 | | |
| The degree of commitment between my partner and I… | .710 | | .388 |

[4] Each item ends with the phrase "…impacts my sexual decisions."

Given the low item-total correlations for the additional three items (my discussion about the meaning of sexual activity, my partner's discussion about the meaning of sexual activity, and the number of dates), factor analysis with the remaining eight items extracted one factor accounting for 58.5% of the variance with factor loadings between .662 and .861. The alpha coefficient for the scores of the remaining eight items was .90. Item and total score correlations for these eight items ranged from .57 to .80. The item "possibility of marriage" had a .57 score for the item-total correlation. This item was retained, because the factor analysis extracted one component with high factor loadings. However, examination of this item was also conducted for the actual model analysis. The remaining eight items were retained and used to measure the relational scale.

*Developmental Stage*

Four items in this 13-item scale were reverse coded (sense of independence, keep my individual identity, determine what I want in future relationships, and maintain a focus on my other life goals). After reverse coding (indicated on tables by the symbol (R)), the scores for the 13-item scale had an alpha coefficient of .54. Item and total score correlations for this scale ranged from -.53 to .51. One item, "maintain a strong sense of independence," had an item-total correlation of .10. Four other scale items had item-total score correlations less than the absolute value of .40 ("consistently date someone," "keep my individual identity," "maintain focus on my other life goals," and "try to determine what I want in future relationships"). Because so many items had low item-total score correlations and previous research indicated a strong scale as a whole (Sanderson & Cantor, 1995), the factor analysis was performed on the entire 13-item scale. Factor analysis extracted three factors for this scale, as listed in Table 13.

Table 13. Factor Loadings for Developmental Scale

| | **Factor 1** | **Factor 2** | **Factor 3** |
|---|---|---|---|
| In my romantic relationships, I try to… | | | |
| …share my most intimate thoughts. | .545 | | |
| …take care of my partner. | .657 | | |
| …be with those who make life more comfortable & stable | .581 | | -.397 |
| …be with people with whom I might fall in love. | .594 | .360 | |
| …consider my partner my best friend. | .782 | | |
| …spend a substantial amount of time with my partner. | .647 | .329 | |
| …consistently date someone. | | .663 | |
| …focus on future plans with partner. | .345 | .754 | |
| …be with those I can count on. | .612 | .367 | |
| …maintain a strong sense of independence. (R) | | | .759 |
| …keep my individual identity. (R) | | | .785 |
| …maintain a focus on my other life goals. (R) | | -.785 | |
| …determine what I want in future relationships. (R) | | -.471 | .537 |

This finding contradicts previous research with this scale. The developers (Sanderson & Cantor, 1995) administered this scale to seven samples with over 900 participants. All samples showed unidimensionality for the scale, with factor loadings higher than .40 on one factor with alpha coefficient for the scores ranging from .65 to .84.

Because of these inconsistencies and the low item-total score correlations, additional analyses were performed. First, the reverse coded items were eliminated, one at a time, to examine the effect. The best factor solution extracted one factor that accounted for 43.2% of the variance, with factor loadings between .495 and .759, by eliminating all four reverse coded items. This level of explained variance is higher than the previous studies that accounted for 24% to 30% of the variance (Sanderson & Cantor, 1995). The alpha coefficient for the scores of these nine items was .82, with the item-total score correlations ranging between .39 and .63. “Consistently date someone” was the item with the .39 value for the item-total score correlation. While this score is low, this item was retained because of the high alpha coefficient and amount of variance explained

by the factor extracted during factor analysis. The four reverse coded items were omitted from the instrument, and the remaining nine-item scale was used to measure relational concerns.

*Physical Gratification*

The scores of this nine-item scale had an alpha coefficient of .92, with item-total score correlations ranging from .59 to .81. Factor analysis extracted one factor for this scale that accounts for 61.6% of the variance. The factor loadings for these items ranged from .668 to .865. All items from this scale were retained on the instrument.

*Level of Sexual Experience*

Three items were used to measure level of sexual experience – the number of partners for oral sex, for vaginal sex, and for anal sex. Table 14 provides descriptive statistics for the three items. Given the ranges of these items, the skewness of these scores were not within acceptable limits. However, because of the nature of the question, normality in responses was not expected.

Table 14. Descriptive Statistics for Level of Sexual Experience

| | N | Range | Mean | Median | Mode | SD | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|---|
| Number of Oral Sex Partners | 185 | 0-26 | 4.12 | 3 | 2 | 4.44 | 2.11 | 5.29 |
| Number of Vaginal Sex Partners | 187 | 0-18 | 2.65 | 1 | 0 | 3.29 | 2.21 | 6.30 |
| Number of Anal Sex Partners | 187 | 0-10 | .23 | 0 | 0 | .84 | 8.9 | 99.7 |

Because of the low frequency of anal sex partners, the number of anal sex partners was not included in the measurement of the “level of sexual experience” component. The question about number of anal sex partners was retained on the survey, however, so individuals engaging in anal sex would not feel excluded. Alpha coefficient for the scores of the two items remaining (number of oral sex partners and vaginal sex

partners) was .84. Because the scale contains only two items, factor loadings were not assessed.

*Self-Efficacy Regarding Alcohol*

The scores of the three-item scale had an alpha coefficient of .90 with item-total score correlations ranging from .69 to .89. Factor analysis extracted one factor that accounted for 83.4% of the variance. Factor loadings on the items ranged from .845 to .954. No changes were made to this scale.

*Self-Efficacy Regarding Communication*

The scores of the six-item scale had an alpha coefficient of .87 with item-total score correlations ranging from .63 to .69. Factor analysis extracted one factor that accounted for 60.7% of the variance. Factor loadings for the items ranged from .759 to .796. No changes were made to this scale.

*Self-Efficacy Regarding Decision-Making*

This scale consists of a nine-item Sexual Assertiveness Scale (SAS) with four additional items developed by the researcher. Four items from this scale were reverse scored, indicated on Table 15 by (R). These items deal with succumbing to pressure from a partner or not asserting oneself in sexual situations. After reverse coding, the alpha coefficient for the scores of this scale was .68, with the item-total score correlations ranging between .01 and .56. Elimination of all items below .40 left seven of the 13 items. The remaining items were “can refuse sex if partner insists,” “will kiss under pressure,” “will engage in sex under pressure,” and the four items developed by the researcher: “able to make decisions consistent with my values,” “able to make healthy sexual decisions,” “am confident in my sexual decision-making,” and “able to make good

sexual decisions." Factor analysis on these remaining seven items extracted two factors, as shown in Table 15. The factor loadings revealed two clear factors: one dealing with self-efficacy and one with refusal skills.

Table 15. Factor Loadings for Self-Efficacy in Sexual Decision-Making Scale

| | **Factor 1** | **Factor 2** |
|---|---|---|
| Can refuse sex even if partner insists | .387 | .514 |
| Able to make sexual decisions consistent with values | .781 | .323 |
| Able to make healthy sexual decisions | .855 | |
| Am confident in my sexual decision-making | .893 | |
| Able to make good sexual decisions | .925 | |
| Kiss under pressure (R) | | .811 |
| Sex under pressure (R) | | .737 |

This scale is supposed to measure sexual decision-making regarding self-efficacy. Because a sexual decision-making component already examines pressure from a partner, the four items developed by the researcher were used to measure self-efficacy regarding sexual decision- making. Analyses for these four items as a separate scale revealed an alpha coefficient of .91 for the scores and extraction of one factor accounting for 79.2% of the variance. These factor loadings ranged from .838 to .935. While these items could be used as a scale themselves, because these items were created by the researcher, additional items were developed to be tested with the scale. The two additional items were "It is difficult for me to follow through with healthy sexual decisions" (reverse coded) and "I am able to make sexual decisions that I won't regret later." In addition, one existing item was reworded to a negative statement to ensure participants were distinguishing the items.

The revised scale consisted of six items: four originally created by the researcher (one revised) and two additional items. All items from the SAS were eliminated from the instrument.

*Decision to Engage in Sex*

The decision to engage in sex was measured by nine items that asked participants to respond to the likelihood that they would engage in four sexual behaviors -- vaginal sex, oral sex, anal sex and other sexual activities -- in response to three different vignettes. Three additional questions about the likelihood of engaging in anal sex were asked, but they are not included in the analysis because of the low frequency of anal sex among the respondents. The scores for the nine items had an alpha coefficient of .91 with correlations for the item and total score ranging from .66 to .79. The analysis procedure for the decision to engage in sexual activity had been established a priori; there would be three decisions examined (oral sex, vaginal sex, and other sexual behaviors). Alpha coefficients for the score of the oral sex scale were .83, vaginal scale .85, and other sexual behaviors scale .86. All nine items remained on the instrument. For the model analysis, three models were tested: decision to engage in oral sex, decision to engage in vaginal sex, and decision to engage in other sexual behaviors.

*Content validity of instrument*

Content validity was examined by having local experts in the area of sexual decision-making research review the instrument. These researchers were given the instrument and a brief questionnaire about the instrument (Appendix C). The experts were contacted to discuss their responses and other comments about the survey. The frequencies of the experts' responses and related comments are included in Table 16.

Table 16. Summary of Expert Responses

| | **Items well matched to scale** | | |
|---|---|---|---|
| **Scale** | **Yes** | **No** | **Comments** |
| Concern for risk | 2 | 1 | • Is there a concern about connecting the component directly to the outcome you're measuring?<br>• May want to include an item about reputation or emotional risk<br>• Questions 1 and 2 seem very similar in nature<br>• Questions 3 and 4 seem to ask the same thing |
| Circumstantial | 2 | 1 | • Take out the "pre" in preplanning.<br>• Add "would" to verb.<br>• Items about preplanning are confusing; I think it needs rewording.<br>• I am not sure what you mean by "preplanning." The nature of the questions in this section seem to focus on situations; thus, 'preplanning" could mean something different for people |
| Sense of future | | 3 | • The last two items do not connect to decision as the other items do; this may affect analysis.<br>• Questions 1-5 seem centered on beliefs and values; the last two do not seem related to beliefs or values<br>• All of the questions seem to relate to the theme "sense of future" but the future for Questions 1-5 and Questions 6-7 seems different |
| Social norms and pressure | 1 | 2 | • Combining social norms and pressure may not work.<br>• Questions 8 and 10 seem to be the same (ridicule and make fun of me).<br>• Question 9 states "will think less of me"; is that the same thing as "will not respect me?"<br>• Might it be helpful to have a question related to those individuals who are not guided or influenced by social pressure? |
| Relational concerns | 2 | 1 | • Liking for partner …partner's liking for me is confusing wording<br>• Questions 5 and 6 talk about a discussion of the "meaning of sexual activity." I am not sure what that statement means. Is the issue more about what does engaging in sexual activity mean as it relates to the current relationship?<br>• The religiosity question (#8) doesn't seem to fit in this category. Might it be better placed in the social norms and pressure section? |
| Developmental stage | 1 | 2 | • I'm not sure what this section is measuring. It seems to be looking at multiple things. These items look like they can be incorporated into other variable sections.<br>• Questions 10 and 11 seem to get at the same information<br>• Questions 4 and 12 seem the same<br>• All of the statements in this section do not seem relevant to romantic relationships (e.g., consistently date someone) |

| | | | |
|---|---|---|---|
| Physical Gratification | 2 | 1 | • Good<br>• Might consider an additional statement: "My partner's physical attractiveness to me impacts my sexual decision-making." |
| Level of sexual experience | 3 | | |
| Self-efficacy-alcohol | 3 | | |
| Self-efficacy-communication | 2 | 1 | • Do you want to include condom use?<br>• Do you need an item about communicating about contraception?<br>• In Question 1 I am not sure what 'sexual issues' includes. That phrase is rather general.<br>• I might suggest an additional statement " I am able to talk with my partner about what pleases and displeases me sexually."<br>• It seems that a question about talking about not engaging in sexual activity might also be appropriate (don't know whether the intimacy question - #3 covers that or not) |
| Self-efficacy-decision-making | 1 | 2 | • Oral sex may be different decision-making process; nothing about anal sex<br>• There are no definitions of "healthy sexual decisions" and "good sexual decisions"<br>• This item is confusing:<br>a. I give in and kiss if my partner pressures me, even if I already said no.<br>b. I put my mouth on my partner's genitals if my partner wants me to, even if I don't want to.<br>• And I don't think these items fit with the variable very well:<br>a. I am unable to make healthy sexual decisions.<br>b. I am able to make good sexual decisions.<br>• Suggested rephrasing of Question 2 as follows: "I let my partner know if I want my genitals touched." |
| Decision to have sex | 2 | 1 | • In vignette #1, the student may respond differently if they had the option of not going.<br>• In all vignettes, may want to make clear what are "other sexual behaviors."<br>• In vignette #3, note that "other sexual behaviors" means besides the kiss that has already occurred.<br>• For vignette 1, I wonder if it would be helpful to add as a response, "I am likely to not engage in sexual activities with this person tonight."<br>• In vignette 2, it is unclear whether someone and partner are the same person.<br>• For vignette 2, again I wonder if it would be helpful to add as a response, "I am likely to not engage in sexual activities with this person tonight."<br>• In vignette 3, the phrase "and while you think they are attractive" does not seem clear or complete in the second sentence of the vignette.<br>• For vignette 3, I wonder if it would be useful to add as a response, "I am likely to not engage in any other sexual activities with this person tonight." |

In addition to the responses about the specific scales, there were several responses to the two open-ended questions: “Are there other items that you feel need to be included in any of these scales?” and “Please list below any other comments or suggestions about the instrument.” One expert asked about including a question in the vignettes about physical boundaries and how individuals feel about having someone in their physical space. Another re-emphasized removing redundant items and checking wording to ensure that items are understandable for the participants. Another reviewer suggested changing “gay” to “gay male.” This reviewer also felt that the instrument responses assumed heterosexual activity only and the assumption of sexual activity (vs. non-sexual activity) by the participants. A summary of changes to the instrument based on the factor loadings, descriptive statistics, and the experts’ comments are listed in Table 17. Appendix E contains the revised instrument.

## Pilot Study Summary

The pilot study process included exploration of descriptive statistics, exploratory factor analysis, and a content review by sexual decision-making researchers. This information guided revisions that strengthened the instrument and its scales by omitting and revising items. After the revisions, the instrument was reduced from 101 items and eleven sexual decision-making components to 64 items that measured eleven components of sexual decision-making, nine items that examined the decision to engage in sexual activity, and seven demographic items.

Table 17. Summary of Instrument Revisions Based on Pilot Study

| **Component** | **Changes made to scale** | **Alpha Coefficient** |
|---|---|---|
| Concern for risk | No changes | .83 |
| Circumstantial | Omitted | N/A |
| Sense of future | Used original scale by Cameron, Koob, & Oswalt; revised 2 items to include abstinence phrase | .86 |
| Social norms and pressure | Revised into 2 different new scales: obligation/pressure and social norms | Obligation/pressure .85<br>Social norms .85 |
| Relational concerns | Omitted 4 items | .90 |
| Developmental stage | Omitted 4 reverse coded items | .80 |
| Physical gratification | No changes | .92 |
| Level of sexual experience | No changes | .84 |
| Self-efficacy – alcohol | No changes | .90 |
| Self-efficacy – communication | No changes | .87 |
| Self-efficacy – decision-making | Omitted items from SAS<br>Reworded “good” sexual decisions to be a negative statement<br>Added two items:<br>"I am able to make sexual decisions that I won't regret later"<br>"It is difficult for me to follow through with healthy sexual decisions" | .91 for the original 4items<br>Alpha coefficient for new 6-item scale unknown. |
| Decision to have sex | All items kept.<br>The model analysis will examine 3 decisions:<br>Decision to engage in oral sex<br>Decision to engage in vaginal sex<br>Decision to engage in other sexual behaviors<br><br>For “other sexual behaviors” response, “(kissing, hugging, etc.)” has been added to clarify.<br><br>Vignette 3, sentence 2, word “while” has been removed.<br><br>Response on vignette 3 for “other sexual behaviors” was modified to add “in addition to the kiss that has already occurred.” | Oral sex .83<br><br>Vaginal sex .85<br><br>Other sexual behaviors .86 |
| Demographics | Gay changed to gay male<br>Added “(kissing, hugging, etc.)” to the item “I have engaged in sexual activity with…” in order to clarify sexual activity. | |

## Model Analysis Study

The revised instrument was used to obtain responses to analyze the proposed sexual decision-making model in Figure 2. The instrument was administered to University of Georgia undergraduate students. Structural equation modeling was used to examine model fit. Other analytic techniques were subsequently used to help better explain the model.

## Participants

The participants for this study were University of Georgia undergraduate male and female students. This population was appropriate for a study designed to examine the sexual decision-making process of college students.

The demographics for the respondents are shown in Table 18. The participants for the study ranged in age from 18 to 38 years, with a mean of (SD = 1.78). More females than males completed the survey. The majority of the sample was White; there was a small representation of other ethnic categories consistent with the University's enrollment.

There was roughly equivalent representation across classification levels, with slightly fewer first-year students and slightly more second-year students. As expected, most individuals were single and almost half reported dating one person exclusively.

Most of the students identified as heterosexual, with less than 1% identifying as gay, lesbian, or bisexual. This was fairly consistent with biological sex of sex partner; 95.1% of the participants identified engaging in sexual activity with either men or women and 4.9% identified engaging in sexual activity (including kissing, hugging, etc.) with both men and women.

Most respondents indicated having at least one oral sex partner, over half had at least one vaginal sex partner, and less than 15% indicated having at least one anal sex partner.

Table 18. Demographics of Participants (n=496)

| *Biological Sex* | *Percentage* | *(n)* |
|---|---|---|
| Male | 33.7% | (167) |
| Female | 66.3% | (328) |
| *Ethnicity* | | |
| White | 86.4% | (424) |
| Black | 8.4% | (41) |
| Asian | 3.3% | (16) |
| Hispanic | 1.0% | (5) |
| Other | 1.0% | (5) |
| *Classification* | | |
| First Year | 19.8% | (98) |
| Second year | 28.7% | (142) |
| Third year | 27.7% | (137) |
| Fourth or higher year | 23.8% | (204) |
| *Relationship Status* | | |
| Single, not dating | 41.5% | (204) |
| Single, dating one person exclusively | 45.2% | (222) |
| Single, dating multiple individuals | 9.4% | (46) |
| Committed relationship, living together | 3.9% | (19) |
| *Sexual Orientation* | | |
| Heterosexual | 98.6% | (487) |
| Gay male | 0.4% | (2) |
| Lesbian | 0.4% | (2) |
| Bisexual | 0.6% | (3) |
| *Sexual Experience* | | |
| Had at least 1 oral sex partner | 80.3% | (375) |
| Had at least 1 vaginal sex partner | 67.2% | (318) |
| Had at least 1 anal sex partner | 14.3% | (68) |

## Data Collection

Survey completion took about 20 minutes. A total of 524 surveys were collected from students; Table 19 details participant recruitment. Some classes returned a higher

number of surveys than anticipated due increased course enrollment not expected by the instructors.

Not all surveys were used in the final analysis. Eight surveys had less than 77% of the questions answered; 11 individuals indicated that they were graduate or professional students, and eight surveys had ID numbers that matched surveys collected during the pilot testing. All of these surveys were removed from the analysis. Two surveys had duplicate numbers in this data collection, and one was removed from the analysis. As a result, 496 usable surveys were collected. Some individuals did not complete all questions, so the total number of responses for individual items may not equal 496.

This is an adequate sample size for structural equation modeling. There are varying guidelines for sample size. Bentler and Chou (1987) recommend at least five cases per parameter estimate (including error terms and path coefficients); for this model, which has 31 estimated parameters, 155 participants would be the minimum needed. Others have recommended no less than 200 (Loehlin, 1992). In the literature, sample sizes commonly utilize 200-400 responses for models with 10 to15 indicators (Garson, 2002).

Table 19. Participant Recruitment

| **Course Number** | **Estimated enrollment** | **Estimated attendance (n)** | **Estimated refusals (n)** | **Estimated recruitment** | **Actual recruitment** |
|---|---|---|---|---|---|
| AESC 1010 | 60 | 70% (38) | 5% (2) | 36 | 74 |
| CHFD 2100 | 300 | 60% (180) | 50% (90) | 90 | 100 |
| HPRB 1710 | 300 | 70% (210) | 5% (11) | 199 | 226 |
| OCTAA (February) | 60 | 90% (54) | 5% (3) | 51 | 32 |
| SPCM 4610 | 25 | 70% (18) | 5% (1) | 17 | 30 |
| UNIV 1102 | 20 | 70% (14) | 5% (1) | 13 | 13 |
| UNIV 1103 | 60 | 70% (42) | 5% (2) | 40 | 49 |
| **Total** | **825** | **556** | | **446** | **524** |

# Data Analysis

## *Changes to the Model*

Descriptive statistics for all items of the 496 responses were reviewed for evidence of non-normality (skewness < 2, kurtosis < 8) through SPSS 11.0. These results are presented in Appendix F. When warranted, factor loadings and alpha coefficients were calculated for the 11 sexual decision-making component scales retained after the pilot data analysis (concern for risk, sense of future, obligation/pressure, social norms, level of sexual experience, relational concerns, developmental, physical gratification, self-efficacy regarding alcohol, self-efficacy regarding communication, self-efficacy regarding sexual decision-making). While the pilot data analyses were helpful in revising the instrument, additional factor analyses (using principle component method with varimax rotation) on the study data were conducted to ensure the items loaded as expected. From this analysis, four concerns emerged.

### *Sense of Future.*

The first concern involved the sense of future component. Descriptive statistics for all scale items were examined. Two items in the scale ("I believe I should abstain from sex with someone I just met" and "I believe I should abstain from sex with someone I hardly know") were moderately skewed. Because maximum likelihood estimated (MLE) requires assumptions of normality, these two items were not included in the model analysis. Item-total correlation for the scores ranged from .56 to .80 and the alpha coefficient for the scores was .89.

During the pilot data analysis, the two items for the sense of future scale that were created to capture qualitative data did not load on the primary factor. These items were

revised to include the phrase “I should abstain from sex” in order to be consistent with the other items in the scale. However, in the confirmation analysis, the two revised items did not load on one factor. In addition, these items had item-total correlations of .58 and .56. Combining the separate factor extraction and the low item-total correlations, they were eliminated from the instrument. The remaining scale consisted of three items, and the scores of this scale had an alpha coefficient of .88.

*Social Norms and Obligation.*

As a result of the pilot study analyses, the originally proposed obligation component was divided into “social norms” and “obligation.” The responses for several items in the social norms scale were moderately to highly skewed in the pilot study. In this data set, the trend continued; four of the six items had unacceptable levels of kurtosis (7.10 - 12.45) and skewness (2.60 - 3.28). These items were removed from the analysis. There were two remaining items of this scale (“number of friends….” and “number of partner’s friends engaging in sexual activity impacts my sexual decisions”); however, using only two items to measure a latent variable is considered problematic (Garson, 2002). Inclusion of these items with the obligation scale revealed low item-total correlations (.45 and .43) and subsequent factor analysis extracted two factors. As a result, they were also eliminated from the analysis. While the literature has shown social norms as an important sexual decision-making component in adolescents (Erickson & Rapkin, 1991; Rosenthal, Lewis, & Cohen, 1996), a decision was made to eliminate the scale based on the limitations of a two-item scale. The final result was one four-item scale that included partner pressure and obligation.

*Relational Concerns.*

The third concern was the relational scale. The descriptive statistics were all within normal limits. The reliability analysis revealed an alpha coefficient of .92 for the scores. Item-total correlations ranged from .51 to .84. In the pilot data analysis, after appropriate changes, this scale loaded onto one factor; however, for this confirmation analysis, two factors emerged for the relational scale. By eliminating item 28 (the possibility of marriage), which had the lowest item-total correlation at .51, the analysis extracted one factor that explained 71% of the variance. Alpha coefficient for the scores of the remaining seven items was .93. As a result, this seven-item scale was used to measure the relational component of sexual decision-making.

*Developmental Stage.*

The last concern in the confirmation of the pilot analysis was the developmental scale. For all items, the descriptive statistics were within normal limits. The alpha coefficient for the scores of the items was .83, and item-total correlations for the scales ranged from .39 to .67. Because of the importance of each item, all items were kept for the factor analysis. The pilot analysis had extracted one factor; however, confirmation analysis showed two factors. The rotated matrix showed no clear delineations among the items and items that had low item-total correlations were different from those with low item-total correlations. Perhaps the items omitted after the pilot analysis should not have been omitted and this is causing some of the concerns with this scale. No further revisions were made to the scale, and all nine items were kept. Table 20 summarizes all revisions to the instrument and individual scales.

Table 20. Summary of Instrument Revisions

| **Component** | **Originally Proposed Scales** | **Pilot Results, Alpha Coefficient** | **Final Results, Alpha Coefficient** |
|---|---|---|---|
| Concern for risk | 4 items | 4 items, .83 | 4 items, .83 |
| Circumstantial | 5 items | Omitted | Omitted |
| Future/Right time | 7 items | 7 items, .86 | 3 items, .93 |
| Social norms and pressure | 10 items | Obligation/pressure<br>4 items, .85<br><br>Social norms<br>6 items, .85 | Obligation/pressure<br>4 items, .88<br><br>Omitted |
| Relational concerns | 12 items | 8 items, .90 | 7 items, .93 |
| Developmental stage | 13 items | 9 items, .80 | 9 items, .83 |
| Physical gratification | 9 items | 9 items, .92 | 9 items, .94 |
| Level of sexual experience | 3 items | 2 items, .84 | 2 items, .80 |
| Self efficacy – alcohol | 3 items | 3 items, .90 | 3 items, .92 |
| Self efficacy – communication | 6 items | 6 items, .87 | 6 items, .90 |
| Self efficacy – decision-making | 13 items | 6 items, alpha for four original items .91 | 6 items, .86 |
| Decision to have sex | 9 items | Oral sex<br>3 items, .83<br><br>Vaginal sex<br>3 items, .85<br><br>Other sexual behaviors<br>3 items, .86 | Oral sex<br>3 items, .80<br><br>Vaginal sex<br>3 items, .82<br><br>Other sexual behaviors<br>3 items, .78 |
| Demographics | 7 items | 7 items | 7 items |
| **Total Items** | **101 items** | **80 items** | **69 items** |

To use these scales in the model analysis, a mean score was created for each of the scales. Level of sexual experience is an exception as the number of oral and vaginal sex partners were added, but not divided. The descriptive statistics for these sexual decision-making components (added and divided) were also examined and can be found in Appendix G.

## Results of Data Analysis

### *Research Question 1*

Research Question 1 was "What are the relationships between the components of sexual decision-making and their impact on sexual decision-making?" Because of response invariance, 10 sexual decision-making components were included in the final model. This question was assessed in several different ways. Initially, the proposed model was tested as a structural equation model in LISREL 8.51 using MLE. Next, regression analysis was conducted to examine the predictors of sexual decision-making. Finally, additional model analysis was conducted to further examine the relations.

#### *Structural Equation Modeling.*

The model consisted of 10 sexual decision-making components, four Social Cognitive Theory (SCT) constructs, and the decision to engage in sexual activity. The SCT constructs acted as latent variables that encompassed the sexual decision-making components. The decision to engage in sexual activity was constructed by examining three different decisions: (1) to engage in oral sex, (2) to engage in vaginal sex, and (3) to engage in other sexual behaviors. This construct was separated into these three decisions because of the hypothesized differences between the decision-making for each behavior. Because the SCT construct self-control and the decision to engage in sexual activity were each measured by only one scale, the error terms for level of sexual experience and decision to engage in sexual activity were constrained to zero. The correlation matrix (found in Appendix H) for the total 496 participants was used to perform this analysis.

All three versions of the model converged. Convergence occurs when the computer program is able to generate a model from the data provided. Problems with the

data or with the model may prevent a solution from being generated. Data problems can include high mulitcollinearity, outliers, and nonnormality.

However, while LISREL was able to generate path coefficients for the model, none of the versions provided proper solutions. A nonproper solution is defined by one of three criteria: (1) standardized factor loadings (path coefficients) larger than 1.0 in absolute value, (2) standardized correlations larger than 1.0 in absolute value, or (3) negative unique error variances (Lance, Noble, & Scullen, 2002). If a solution meets any of these three criteria, it should be considered nonproper and model inferences should not be definitive. For the decision to have oral sex model, the path between the SCT construct situation and decision was -1.12, indicating a strong negative association. For the vaginal sex model, the path between expectation and relational concerns was 1.22 and the path between situation and decision was –1.22. For the other sexual behavior model, the path between expectation and relational concerns was 1.01. Figures I1, I2, and I3 in Appendix I show the path coefficients for each version. These nonproper solutions prevent making definitive statements about the relation among the sexual decision-making components, the SCT constructs, and the decision to engage in sexual activity.

However, given that limitation, there were several consistencies between the models. For all three models, the paths from self-control to expectation, situation to self-efficacy, and situation to decision were significant. Self-control had a positive impact on expectation, meaning as an individual's number of sex partners increased the perceived impact of relational concerns on sexual decision-making increased, the perceived impact of physical gratification on sexual decision-making also increased, and one's developmental stage was more intimacy (versus identity) focused.

Likewise, situation had a positive effect on self-efficacy. This path demonstrated that a strong belief in abstinence during casual encounters, a high concern for disease and pregnancy risk, and a low sense of pressure and obligation to engage in sexual activity influences one's self-efficacy positively, meaning that an individual has a high confidence in his/her ability to communicate about sex, make sexual decisions when alcohol is involved, and make healthy sexual decisions.

Conversely, the perception of the situation had a direct negative impact on the decision to engage in sexual activity. This path indicated that individuals with a strong belief in abstinence during casual encounters, a high concern for disease and pregnancy risk, and a low sense of pressure and obligation to engage in sexual activity were less likely to engage in sexual activity.

In addition, the models for the decision to engage in oral sex and the decision to engage in other sexual behaviors included another significant positive path: expectation to decision. This path demonstrated that expectations surrounding sexual activity have a positive impact on the decision to engage in sexual activity. Explicitly, this means that a high belief that relational concerns affect sexual decision-making, a high belief that physical gratification affects sexual decision-making, and an intimacy-focused identity increase the likelihood of a decision to engage in other sexual behaviors.

Paths between the SCT constructs and the sexual decision-making components were almost all significant; only expectation to relational and self-efficacy to alcohol were not identified as significant paths, and this result was most likely caused by LISREL controlling these variables during the model analysis. The goodness of fit indices for all three models are listed in Table 21. According to the criteria established in Chapter 3, the

goodness of fit indices indicate that none of these models replicate the original covariance matrix of the participants' responses.

Table 21. Goodness of Fit Indices for Proposed Model

| **Model** | **Df** | **Chi-Square** | **Proper Solution** | **SRMSR** | **RMSEA** | **TLI (NNFI)** | **CFI** |
|---|---|---|---|---|---|---|---|
| Figure I1 (oral sex) | 37 | 378.6** | No | .13 | .13 | .64 | .76 |
| Figure I2 (vaginal sex) | 37 | 366.2** | No | .13 | .13 | .68 | .79 |
| Figure I3 (other sexual behaviors) | 37 | 362.7** | No | .12 | .13 | .59 | .72 |

** p-value<.01

*Regression Analyses.*

Even though the proposed models converged, it was not a proper solution. A proper solution is one that does not contain path coefficients over 1.0; none of the models met these criteria because all had at least one path coefficient over 1.0. As a result, regression analyses to determine significant predictors of sexual decision-making were conducted for all three decisions. The analyses used the 10 components of sexual decision-making (concern for risk, future, obligation/pressure, relational, developmental, physical gratification, self-efficacy regarding alcohol, self-efficacy regarding communication, self-efficacy regarding sexual decision-making and level of sexual experience) as independent variables and each of the three decisions (decision to engage in oral sex, decision to engage in vaginal sex or decision to engage in other sexual behaviors) as dependent variables. Because of the exploratory nature of these analyses, stepwise regression was conducted; the results are shown in Table 22. The order of input for the variables for all three regressions used the following formula: Decision = $\beta_0 + \beta_1$ (risk)+ $\beta_2$(obligation) + $\beta_{3(}$relational) + $\beta_4$(developmental) + $\beta_5$(physical gratification) +

$\beta_6$(SE alcohol) + $\beta_7$(SE communication) + $\beta_8$(SE SDM) + $\beta_9$(level of sexual experience) + $\beta_{10}$(future) + $\varepsilon$.

For the decision to engage in oral sex, four significant predictors were identified: sense of future, physical gratification, level of sexual experience, and self-efficacy regarding communication. Both sense of future and self-efficacy regarding communication were negative predictors of the decision to engage in oral sex. As individual's belief that abstinence was appropriate for casual situations increased, the individual was less likely to make a decision to engage in oral sex. Likewise, as an individual's confidence in his/her ability to communicate about sexual issues increased, the individual was less likely to make a decision to engage in oral sex.

On the other hand, physical gratification and level of sexual experience were positive predictors for the decision to engage in oral sex. As the belief that physical gratification affected one's sexual decision increased, the likelihood that the individual would make the decision to engage in oral sex also increased. Similarly, as the number of sexual partners increased, an individual was more likely to make a decision to engage in oral sex.

For the decision to engage in vaginal sex, five significant predictors were identified: sense of future, self-efficacy regarding sexual decision-making, physical gratification, self-efficacy regarding alcohol, and level of sexual experience. Sense of future, self-efficacy regarding sexual decision-making and self-efficacy regarding alcohol were negative predictors for the decision to engage in vaginal sex. As an individual's belief that abstinence is appropriate for casual situations increased, the individual was less likely to make a decision to engage in vaginal sex. Similarly, as an individual's

confidence to communicate about sexual issues or make healthy decisions increased, the individual was less likely to decide to engage in vaginal sex.

Like the decision to engage in oral sex, physical gratification and level of sexual experience indicated a positive relation to the decision to engage in vaginal sex. As the belief that physical gratification influenced one's sexual decision increased, the likelihood that the individual would make the decision to engage in vaginal sex also increased. Similarly, as the number of sexual partners increased, an individual was more likely to decide to engage in vaginal sex.

For the decision to engage in other sexual behaviors, four significant predictors were identified: sense of future, physical gratification, relational concerns, and developmental stage. Sense of future and developmental stage were negative predictors for the decision to engage in other sexual behaviors; as an individual's belief that abstinence was appropriate for casual situations increased, the decision to engage in other sexual behaviors decreased. Similarly, as an individual became more intimacy focused in his/her identity, the less likely he/she decided to engage in other sexual behaviors.

Conversely, physical gratification and relational concerns were both positive predictors in the decision to engage in other sexual behaviors. Specifically, as the belief that physical gratification and arousal influences sexual decisions increases, an individual was more likely to decide to engage in other sexual behaviors. Similarly, as the belief that relational issues affect sexual decisions increases, an individual was more likely to decide to engage in other sexual behaviors.

Table 22. Stepwise Regression Analysis for Decision to Engage in Sexual Activity

| | Oral Sex | | Vaginal Sex | | Other Sexual Behaviors | |
|---|---|---|---|---|---|---|
| | Beta (standardized) | Partial Correlation Coefficients | Beta (standardized) | Partial Correlation Coefficients | Beta (standardized) | Partial Correlation Coefficients |
| Sense of future | -.420** | -.448 | -.558** | -.602 | -.252** | -.255 |
| Self-Efficacy - sexual decision-making | | | -.153** | -.208 | | |
| Physical gratification | .313 ** | .386 | .157** | .236 | .223** | .197 |
| Self-efficacy - alcohol | | | -.106** | -.154 | | |
| Level of sexual experience | .154** | .186 | .082* | .114 | | |
| Relational concerns | | | | | .202** | .178 |
| Developmental | | | | | -.095* | -.099 |
| Self-Efficacy - communication | -.101** | -.134 | | | | |
| Obligation | | | | | | |
| Concern for risk | | | | | | |

* p-value <.05, **p-value<.01

*Exploratory Model Analysis.*

An unexamined assumption of this model was that all of the sexual decision-making components were distinct factors. Although conceptually appropriate based on supporting research literature, the inclusion of many scales from different sources tested on different populations could be problematic. Therefore, further exploratory factor analysis was conducted to evaluate the extent to which the items assessed distinct latent sexual decision-making components as hypothesized. This analysis is consistent with Kline's (1998) suggestion of two-step estimation for hybrid models.

As the entire model was not a proper fit, examination of specific parts of the model was undertaken. Factor analysis with all survey items measuring each SCT construct was conducted. In addition, to support the model analysis, factor loadings for

each sexual decision-making component on the SCT construct were also examined. For all analyses, principle component with varimax rotation was used.

Eleven items in three scales were used to assess the latent SCT construct, "Situation." Factor analysis supported the hypothesized latent sexual decision-making components; three distinct factors emerged. Factor 1 accounted for 22.8% of the variance, factor 2 accounted for 27.1% of the variance, and factor 3 accounted for 24.1% of the variance. The cumulative variance explained by all three is 74.0%. Table 23 shows the factor loadings using principle component with varimax rotation.

Table 23. Factor Loadings for SCT Construct Situation

| | Factor 1 (future) | Factor 2 (obligation) | Factor 3 (concern for risk) |
|---|---|---|---|
| Concern for risk: pregnancy | | | .709 |
| Concern for risk: pregnancy 2 | .343 | | .716 |
| Concern for risk: disease | | | .885 |
| Concern for risk: disease 2 | | | .880 |
| Future: committed relationship | .858 | | |
| Future: first date | .890 | | |
| Future: one-night stand | .889 | | |
| Obligation: my obligation | | .868 | |
| Obligation: partner's obligation | | .905 | |
| Obligation: my pressure | | .806 | |
| Obligation: partner pressure | | .858 | |

Similar results were found for the SCT construct "Self-Efficacy." The items loaded only on the hypothesized sexual decision-making components, as shown in Table 24. Factor loadings ranged from .619 to .924 with no double or questionable loadings. The total variance explained by all three factors was 68.7%, with self-efficacy regarding communication explaining 26.1%, self-efficacy regarding alcohol accounting for 24.8%, and self-efficacy regarding decision-making accounting for 17.7%.

Table 24. Factor Loadings for SCT Construct Self-Efficacy

| | Factor 1 (SE-comm.) | Factor 2 (SE-SDM) | Factor 3 (SE-alcohol) |
|---|---|---|---|
| SE-alcohol: refuse sex when intoxicated | | | .898 |
| SE-alcohol: refuse sex when drinking | | | .924 |
| SE-alcohol: refuse sex when partner has been drinking | | | .867 |
| SE-communication: talk about sex | .806 | | |
| SE-communication: talk about alternatives to high risk | .818 | | |
| SE-communication: talk about intimacy w/o sexual activity | .777 | | |
| SE-communication: talk about past histories | .795 | | |
| SE-communication: talk about past sexual behaviors | .799 | | |
| SE-communication: talk about how sex influences relationship | .704 | | |
| SE-SDM: able to make sexual decisions consistent with values | | .806 | |
| SE-SDM: able to make healthy sexual decisions | | .850 | |
| SE-SDM: confident in my sexual decision-making | | .839 | |
| SE-SDM: able to make sexual decisions I won't regret | | .670 | |
| SE-SDM: difficult to follow through with healthy sexual decisions | | .619 | |
| SE-SDM: difficult for me to make good sexual decisions | | .752 | |

The last SCT construct examined was “Expectation.” This construct had three hypothesized sexual decision-making components measured with 25 items. The exploratory factor analysis for this SCT construct indicated a four-factor solution, as seen in Table 25. The physical gratification and relational concerns components accounted for 25.8% and 20.2% of the variance explained, respectively. The final two factors, accounting for 20.3% of the variance combined, contained the items for the developmental stage scale. This is consistent with the factor analysis conducted previous to the model testing.

Table 25. Factor Loadings for SCT Construct Expectation

| | Factor 1 (physical) | Factor 2 (relational) | Factor 3 | Factor 4 |
|---|---|---|---|---|
| Relational: my liking | .405 | .722 | | |
| Relational: my partner's liking for me | .342 | .782 | | |
| Relational: my love | | .869 | | |
| Relational: my partner's love for me | | .856 | | |
| Relational: my awareness of my partner's feeling | .320 | .795 | | |
| Relational: my partner's awareness of my feelings | | .798 | | |
| Relational: degree of commitment | | .714 | | |
| Developmental: share my most intimate thoughts | | .416 | .364 | |
| Developmental: take care of partner | | | .765 | |
| Developmental: be with those who make life more comfortable/stable | | | .782 | |
| Developmental: someone with whom I might fall in love | | | .664 | |
| Developmental: consider partner best friend | | | .712 | |
| Developmental: spend substantial amout of time with partner | | | .710 | |
| Developmental: consistently date someone | | | | .723 |
| Developmental: focus on future | | | .359 | .755 |
| Developmental: be with those I can count on | | | .634 | .354 |
| Physical: my physical arousal - immediately before | .779 | | | |
| Physical: my partner's physical arousal - immediately before | .802 | | | |
| Physical: my arousal during the day | .850 | | | |
| Physical: my partner's arousal during the day | .850 | | | |
| Physical: my receptivity | .843 | | | |
| Physical: my partner's receptivity to me | .824 | | | |
| Physical: my arousal prior to seeing partner | .786 | | | |
| Physical: my partner's arousal prior to seeing me | .779 | | | |
| Physical: physical attractiveness of my partner | .739 | | | |

By forcing the factor analysis into a three-factor solution, the items loaded onto the three hypothesized components, most likely representing the intended scales, as shown in Table 26. There are some double loadings for this solution; three relational concern items are loading on the physical gratification component and one developmental item loaded on relational. However, the factor loadings are less than .40 for the relational concern items, indicating minimal cross-loading. The developmental item does actually load higher on the relational scale than the developmental; however, neither loading is very high. Future use of this scale should include reassessment of the use of this item. Physical gratification accounted for 25.8% of the variance, relational concerns accounted

for 20.2%, and developmental stage accounted for 16.2%, for a total 62.2% of the variance explained by these three factors.

Table 26. Factor Loadings for SCT Construct Expectation, Forced Three Factors

| | Factor 1 (physical) | Factor 2 (relational) | Factor 3 (developmental) |
|---|---|---|---|
| Relational: my liking | .402 | .729 | |
| Relational: my partner's liking for me | .340 | .788 | |
| Relational: my love | | .864 | |
| Relational: my partner's love for me | | .851 | |
| Relational: my awareness of my partner's feelings | .317 | .802 | |
| Relational: my partner's awareness of my feelings | | .799 | |
| Relational: degree of commitment | | .700 | |
| Developmental: share my most intimate thoughts | | .412 | .409 |
| Developmental: take care of partner | | | .650 |
| Developmental: be with those who make life more comfortable/stable | | | .655 |
| Developmental: someone with whom I might fall in love | | | .721 |
| Developmental: consider partner best friend | | | .737 |
| Developmental: spend substantial amount of time with partner | | | .743 |
| Developmental: consistently date someone | | | .554 |
| Developmental: focus on future | | | .667 |
| Developmental: be with those I can count on | | | .726 |
| Physical: my physical arousal - immediately before | .775 | | |
| Physical: my partner's physical arousal - immediately before | .801 | | |
| Physical: my arousal during the day | .849 | | |
| Physical: my partner's arousal during the day | .851 | | |
| Physical: my receptivity | .841 | | |
| Physical: my partner's receptivity to me | .825 | | |
| Physical: my arousal prior to seeing partner | .789 | | |
| Physical: my partner's arousal prior to seeing me | .783 | | |
| Physical: physical attractiveness of my partner | .738 | | |

The additional model analyses validated the distinct relations of the sexual decision-making components for each SCT construct. The causes of the nonproper solution remain unidentified; possible causes are discussed in Chapter 5.

*Research Question 2*

The second primary research question asked, “Does biological sex impact the relationships between the components of sexual decision-making and the components’

impact on sexual decision-making?" This research question was examined through three primary methods: (1) differences in the means, (2) model analysis, and (3) multiple regression.

*Differences in Means for Responses by Biological Sex.*

ANOVA was used to examine differences between the biological sexes (male and female) for the 10 sexual decision-making components. The results are shown in Table 27. With the exception of relational concerns, the means for male and females responses were different for all components, indicating that biological sex does impact the components of sexual decision-making.

Table 27. ANOVA between Biological Sex for Components

| **Components** | | **Mean** | | **df** | **F** |
|---|---|---|---|---|---|
| Concern for Risk | Male | 3.86 | Between Groups | 1 | 18.05** |
| | Female | 4.24 | Within Groups | 492 | |
| Sense of Future | Male | 3.58 | Between Groups | 1 | 145.68** |
| | Female | 4.62 | Within Groups | 492 | |
| Pressure | Male | 2.68 | Between Groups | 1 | 9.36** |
| | Female | 2.36 | Within Groups | 489 | |
| Relational Concerns | Male | 3.90 | Between Groups | 1 | 1.38 |
| | Female | 4.01 | Within Groups | 491 | |
| Developmental | Male | 3.99 | Between Groups | 1 | 20.01** |
| | Female | 4.24 | Within Groups | 489 | |
| Physical Gratification | Male | 3.73 | Between Groups | 1 | 22.60** |
| | Female | 3.30 | Within Groups | 489 | |
| Self-Efficacy–Alcohol | Male | 3.89 | Between Groups | 1 | 36.93** |
| | Female | 4.45 | Within Groups | 473 | |
| Self-Efficacy–Communication | Male | 3.75 | Between Groups | 1 | 48.78** |
| | Female | 4.29 | Within Groups | 473 | |
| Self-Efficacy–Sexual Decision-making | Male | 3.90 | Between Groups | 1 | 18.34** |
| | Female | 4.21 | Within Groups | 491 | |
| Level of Sexual Experience | Male | 9.80 | Between Groups | 1 | 20.08** |
| | Female | 5.50 | Within Groups | 464 | |
| Decision to Engage in Oral Sex | Male | 3.25 | Between Groups | 1 | 184.40** |
| | Female | 1.99 | Within Groups | 485 | |
| Decision to Engage in Vaginal Sex | Male | 2.74 | Between Groups | 1 | 167.18** |
| | Female | 1.61 | Within Groups | 485 | |
| Decision to Engage in Other Sexual Behaviors | Male | 4.34 | Between Groups | 1 | 41.49** |
| | Female | 3.75 | Within Groups | 485 | |

** p-value <.001

*Model Analysis for Differences in Biological Sex.*

According to Garson (2002), it is common for a researcher to test models separately when examining multigroup invariance. While the sample size for females (n=328) is adequate for most structural equation modeling, the small sample of males (n=167) was a limitation. Acknowledging this limitation, the originally proposed model was tested separately for males and females.

Each of the three versions of the model (vaginal sex, oral sex, and other sexual behaviors) converged for females (see Figures 3, 4, and 5). All of these models were also proper solutions. All paths between sexual decision-making components and the hypothesized SCT construct were significant except for the paths between relational concerns and expectation and self-efficacy and self-efficacy regarding alcohol. LISREL was unable to identify the standard error for these variables, as they were the first sexual decision-making components input for that SCT construct. Table 28 details the significant path coefficients among the SCT constructs and the decision to engage in sexual activity. For all three models, situation had a positive impact on self-efficacy. This path indicated that a strong belief in abstinence during casual encounters, a high concern for disease and pregnancy risk, and a low sense of pressure and obligation to engage in sexual activity affected one's self-efficacy positively, such that an individual would have a high confidence in his/her ability to communicate about sex, make sexual decisions when alcohol is involved, and make healthy sexual decisions.

For the decisions to engage in oral sex and vaginal sex, there was a significant negative path from situation to decision, indicating that individuals with a strong belief in abstinence during casual encounters, a high concern for disease and pregnancy risk, and a

low sense of pressure and obligation to engage in sexual activity were less likely to make a decision to engage in oral or vaginal sex.

For the decisions to engage in oral sex and other sexual behaviors, there was a positive significant relation from expectation to decision. This path demonstrated that the expectations surrounding sexual activity had a positive impact on the decision to engage in sexual activity. Explicitly, a high belief that relational concerns influence sexual decision-making, a high belief that physical gratification affect sexual decision-making, and an intimacy-focused identity all increase the likelihood of a decision to engage in oral sex or other sexual behaviors.

While self-efficacy is considered an important construct in SCT, no paths from self-efficacy to decision were significant for any of the models.

Table 28. Significant Path Coefficients for Female-Only Models

| | |
|---|---|
| **Oral Sex Model** | |
| *Between SCT constructs:* | Situation to self-efficacy |
| *Direct paths to decision:* | Expectation to decision |
| | Situation to decision |
| **Vaginal Sex Model** | |
| *Between SCT constructs*: | Situation to self-efficacy |
| | Self-control to expectation |
| *Direct paths to decision:* | Situation to decision |
| **Other Sexual Behavior Model** | |
| *Between SCT constructs*: | Situation to self-efficacy |
| *Direct paths to decision:* | Expectation to decision |
| | Self-control to decision |

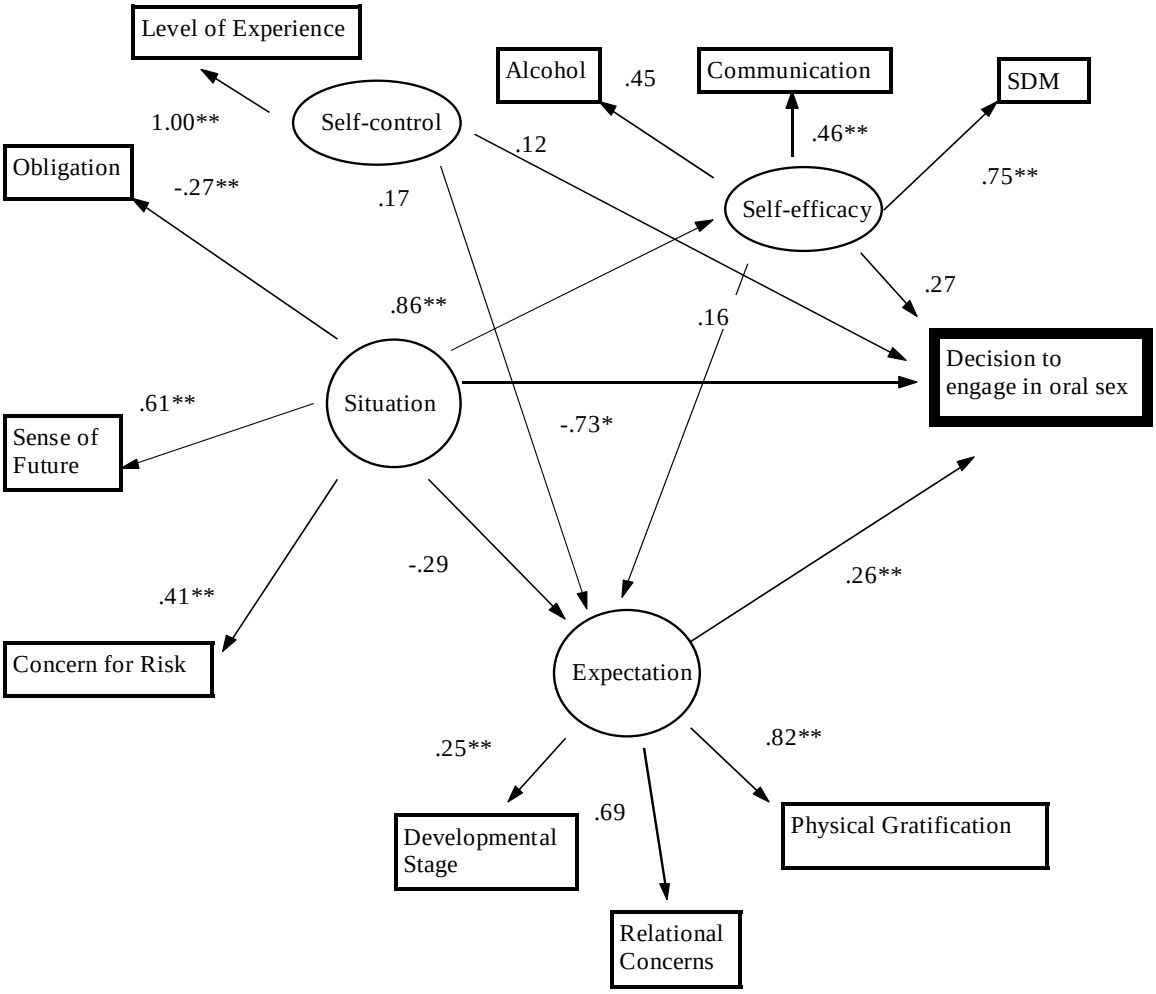


Figure 3. Proposed Model for Decision to Engage in Oral Sex, Females Only, Proper Solution (n=328)

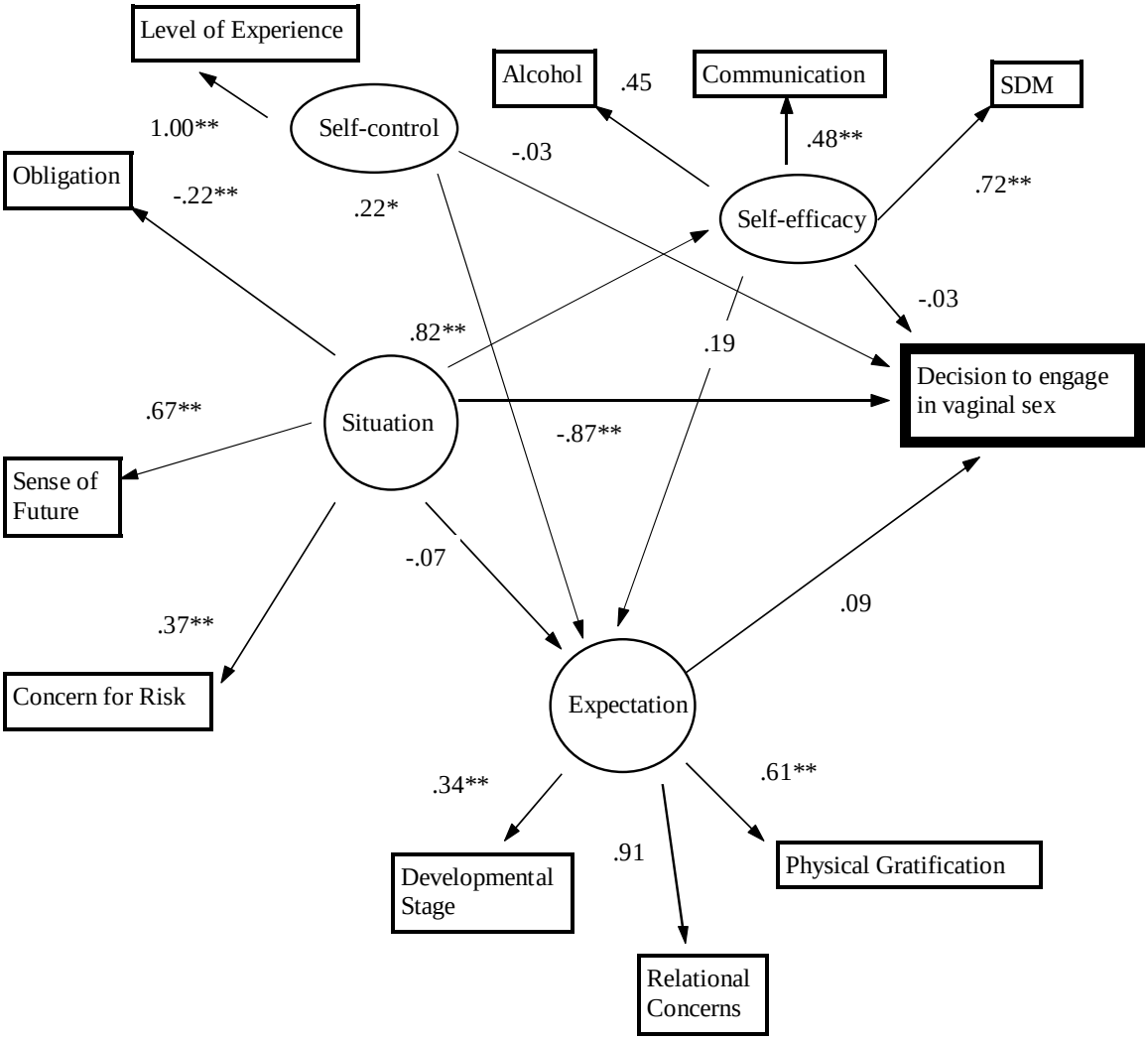


Figure 4. Proposed Model for Decision to Engage in Vaginal Sex, Females Only, Proper Solution (n=328)

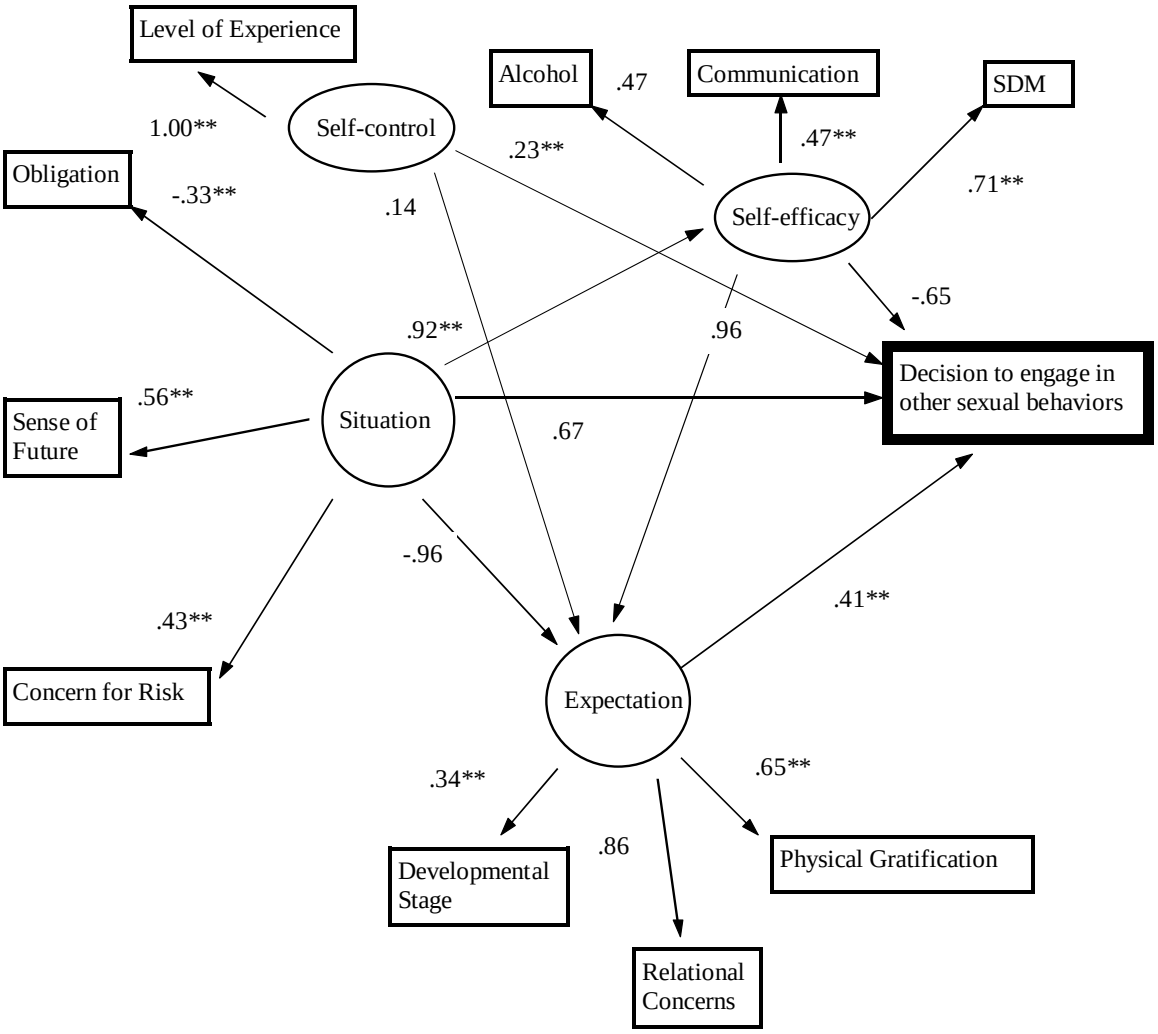


Figure 5. Proposed Model for Decision to Engage in Other Sexual Behaviors, Females Only, Proper Solution (n=328)

Table 29 provides goodness of fit indices for the female-only models and the originally proposed models. The difference between the Chi-Square value for the models for females only and the total sample model is over 100, indicating a much better fit for the female-only models. Interestingly, the other goodness of fit indices indicate that the female model may be a slightly less good fit.

For the originally proposed model, two of the three versions of the model converged for males: oral sex model and other sexual behavior model. The vaginal model did not converge. Convergence occurs when the computer program is able to generate a model from the data provided. Problems with the data or with the model may prevent a solution from being generated, and the computer program cannot "converge." Data problems can include high mulitcollinearity, outliers, and nonnormality. Model misspecification can also interfere with convergence; however, because the other versions of the model were able to converge, a problem with the data is the most probable cause of the vaginal model not converging. Unlike the female-only models, only the oral sex model was a proper solution. In the model for other sexual behaviors, the path coefficient between expectation and relational concerns was 1.14. The path coefficients for these models are shown in Figures 6 and I4, respectively. Figure 6 is included in the text, while I4 is included with the other nonproper solutions in Appendix I.

Table 29 compares goodness of fit indices for all converged models. One can have good fit in a model that contains a nonproper solution; the goodness of fit indices do not indicate whether each component of a model is a good fit (Garson, 2002) but examines the overall model fit. With one part of a model indicating a nonproper solution, the likelihood of a good fit is low, but it is not impossible. Some goodness of fit indices indicate that the male-only models are a better fit; this may be due to the lower sample size of males. However, regardless of the goodness of fit indices, proper solution is more critical than goodness of fit indices.

Table 29. Goodness of Fit Indices for All Three Models and All Sample Groups

| Model | Df | Chi-Square | Proper Solution | SRMSR | RMSEA | TLI (NNFI) | CFI |
|---|---|---|---|---|---|---|---|
| **Oral Sex Models** | | | | | | | |
| Figure I1 Total | 37 | 378.60** | No | .13 | .13 | .64 | .76 |
| Figure 3 Female Only | 37 | 255.18** | Yes | .12 | .13 | .59 | .73 |
| Figure 6 Male Only | 37 | 109.84** | Yes | .099 | .10 | .70 | .80 |
| **Vaginal Sex Models** | | | | | | | |
| Figure I2 Total | 37 | 366.22** | No | .13 | .13 | .68 | .79 |
| Figure 4 Female Only | 37 | 254.95** | Yes | .12 | .13 | .64 | .76 |
| Male Only: Did not Converge | | | | | | | |
| **Other Sexual Behaviors Models** | | | | | | | |
| Figure I3 Total | 37 | 362.7** | No | .12 | .13 | .59 | .72 |
| Figure 5 Female Only | 37 | 254.91** | Yes | .12 | .13 | .53 | .69 |
| Figure I4 Male Only | 37 | 102.28** | No | .10 | .095 | .69 | .79 |

** p-value<.01

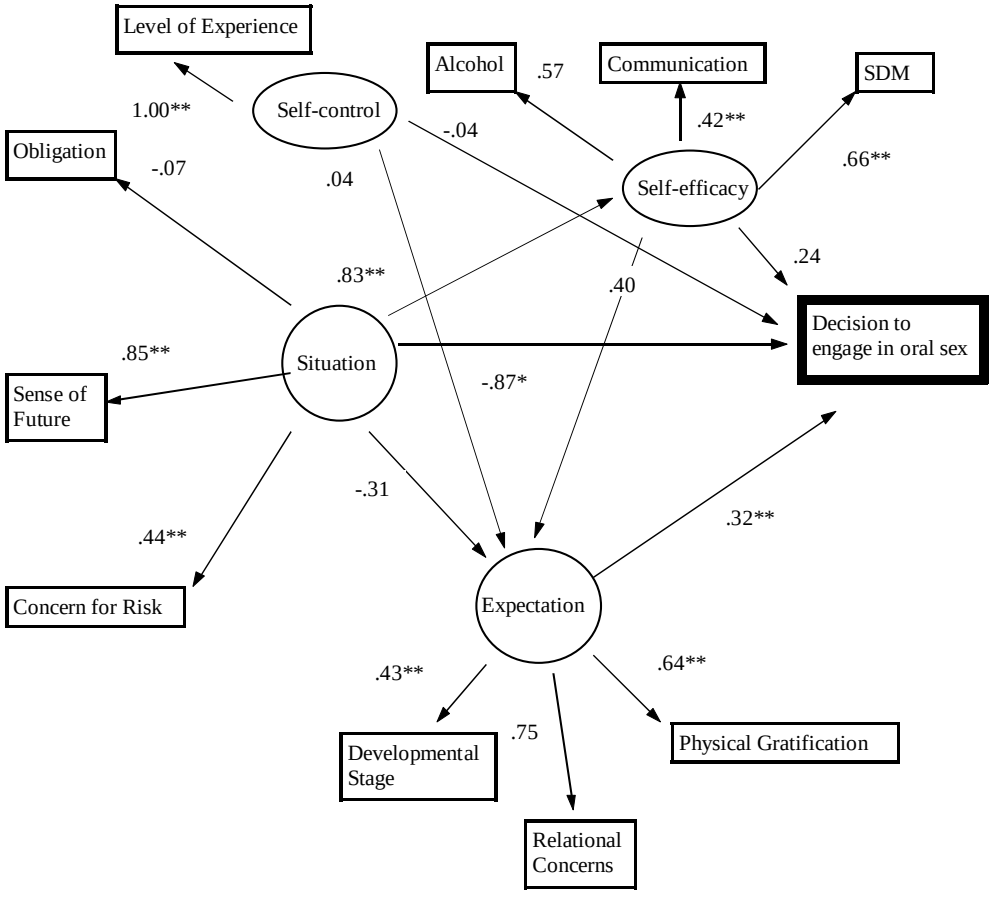


Figure 6. Originally Proposed Model, Decision to Engage in Oral Sex, Males Only, Proper Solution (n=167)

*Regression Analyses for Each Biological Sex.*

Multiple regression analyses to examine predictors of sexual decisions were conducted separately for males and females to examine any differences. The predictors were determined using stepwise regression for each biological sex, and all three versions of the model are shown in Table 30. Because of the small sample size for males (n=167) and the limited number of predictor variables identified through the regression analysis, additional model analysis was not undertaken. The formula used to input the variables was: Decision = $\beta_0 + \beta_1$ (risk)+ $\beta_2$(obligation) + $\beta_3$(relational) + $\beta_4$(developmental) + $\beta_5$(physical gratification) + $\beta_6$(SE alcohol) + $\beta_7$(SE communication) + $\beta_8$(SE SDM) + $\beta_9$(level of sexual experience) + $\beta_{10}$(future) + $\varepsilon$.

The regression analysis for males for the decision to engage in oral sex showed three significant predictors: sense of future, physical gratification, and self-efficacy regarding alcohol. Both sense of future and self-efficacy regarding alcohol were negative predictors for the decision to engage in oral sex. As a male's belief that abstinence was appropriate for casual situations increased, the male was less likely to make a decision to engage in oral sex. Likewise, as a male's confidence in his ability to make sexual decisions that involve alcohol increased, the male was less likely to make a decision to engage in oral sex. Conversely, physical gratification was a positive predictor indicating that for males, as the belief that physical gratification affected one's sexual decision increased, the male was more likely to make the decision to engage in oral sex.

The regression analysis for females for the decision to engage in oral sex had four significant predictors: sense of future, physical gratification, level of sexual experience, and self-efficacy regarding decision-making. Both sense of future and self-efficacy

regarding decision-making were negative predictors regarding the decision to engage in oral sex for females. As a female's belief that abstinence was appropriate for casual situations increased, the female was less likely to make a decision to engage in oral sex. Likewise, as a female's confidence in her ability to make sexual decisions increased, the female was less likely to make a decision to engage in oral sex.

There were two positive predictors for females for the decision to engage in oral sex: physical gratification and level of sexual experience. As the belief that physical gratification affected one's sexual decision increased, the likelihood that the female would decide to engage in oral sex also increased. Similarly, as the number of sexual partners increased, a female was more likely to make a decision to engage in oral sex.

For the decision to engage in vaginal sex, for males, significant predictors were sense of future and physical gratification; again with sense of future having a negative impact on the decision to engage in vaginal sex and physical gratification having a positive impact on the decision. As a male's belief that abstinence was appropriate for casual situations increased, the male was less likely to make a decision to engage in vaginal sex, and as the belief that physical gratification influenced one's sexual decision increased, a male was more likely to decide to engage in vaginal sex.

For females, similar to oral sex, physical gratification and level of sexual experience were significant positive predictors of the decision to engage in vaginal sex. As the belief that physical gratification impacted one's sexual decision increased, the likelihood that the female would decide to engage in oral sex also increased. Similarly, as the number of sexual partners increased, a female was more likely to make a decision to engage in oral sex. For females, there were also two negative predictors to engage in

vaginal sex: self-efficacy regarding decision-making and self-efficacy regarding alcohol. As a female's confidence in her ability to make sexual decisions increased and as a female's confidence in her ability to make sexual decisions involving alcohol increased, she was less likely to make a decision to engage in vaginal sex.

For the decision to engage in other sexual behaviors, for males, significant predictors included sense of future, physical gratification, and relational concerns. Similar to the other sexual decisions, sense of future had a negative impact on the decision to engage in vaginal sex and physical gratification had a positive impact on the decision. These paths indicated that as a male's belief that abstinence was appropriate for casual situations increased, the male was less likely to make a decision to engage in other sexual behaviors, and as the belief that physical gratification influenced one's sexual decision increased, a male was more likely to decide to engage in other sexual behaviors. In addition, relational concerns had a positive impact on the decision to engage in other sexual behaviors for men. This positive predictor indicated that as the belief that relational concerns have an impact on sexual decisions increases, a males was more likely to make a decision to engage in other sexual behavior.

For females, there were four significant positive predictors for the decision to engage in other sexual behaviors: physical gratification, relational concerns, level of sexual experience, and self-efficacy regarding alcohol. As a female's belief that physical arousal affects her sexual decisions increases and as her belief that relational concerns influence her sexual decisions increases, she was more likely to decide to engage in other sexual behaviors. Similarly, as a female's number of sexual partner's increases, her likelihood to decide to engage in other sexual behavior increases. Also, as a female's

confidence in her ability to make sexual decisions related to alcohol increased, she was more likely to make a decision to engage in other sexual behaviors.

Table 30. Stepwise Regression Analysis by Biological Sex

| | **Oral Sex** | | **Vaginal Sex** | | **Other Sexual Behaviors** | |
|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female |
| | Beta (partial correlation coefficient) | Beta (partial correlation coefficient) | Beta (partial correlation coefficient) | Beta (partial correlation coefficient) | Beta (partial correlation coefficient) | Beta (partial correlation coefficient) |
| Future | -.343**(.358) | -.223**(-.244) | -.634**(-.652) | -.377 (-.442) | -.314**(-.314) | |
| Physical Gratification | .331**(.368) | .280** (.320) | .179** (.236) | .118** (.163) | .155** (.139) | .207** (.175) |
| Relational Concerns | | | | | .228* (.209) | .145* (.126) |
| Level of Sexual Experience | | .264** (.268) | | .204** (.243) | | .220** (.223) |
| Self-Efficacy - Decision-Making | | -.131* (-.146) | | -.272**(-.332) | | |
| Self-Efficacy – Alcohol | -.162*(-.184) | | | -.110* (-.152) | | .113* (.117) |
| Self-Efficacy - Communication | | | | | | |
| Developmental | | | | | | |
| Concern for Risk | | | | | | |
| Obligation | | | | | | |

* p-value <.05; **p-value<.01

*Additional Findings*

Because of the small number of individuals who identified as gay, lesbian, or bisexual (7 participants, less than 2% of the sample), differences in responses between various sexual orientations could not be examined. Similarly, a small percentage of participants identified as non-White (almost 14%). Because of this small percentage, responses were collapsed into dichotomous categories of White and non-White. A t-test showed no significant differences in any of the 10 sexual decision-making components. Comparisons of responses to decisions to engage in sexual activity (oral sex, vaginal sex, or other sexual behaviors) revealed White respondents were more likely to engage in other sexual behaviors than other ethnicities. This difference had a p-value of .02. There

was no difference in the responses between White participants and non-White participants regarding the decision to engage in vaginal or oral sex.

Relationship status may also impact responses regarding sexual decisions. In this study, respondents could select one of four responses regarding relationship status: single, not dating; single, dating one person exclusively; single, dating multiple individuals; committed relationship, living together. Over 86% of the respondents indicated that they were either single, not dating or single, dating one person exclusively. Since the other two responses did not have large numbers, ANOVA analysis to compare all four response categories would have been limited by the different sample sizes. Instead, a dichotomous t-test examined differences between the two most common responses (single, not dating or single, dating one person exclusively). There were significant differences in responses for six sexual decision-making components: concern for risk, relational concerns, developmental, physical gratification, self-efficacy regarding communication, and level of sexual experience. There were no differences in decision to engage in any sexual behaviors. Test statistics and actual p-values are shown in Table 31.

Table 31. Differences between Dichotomous Responses of Relationship Status

| **Sexual Decision-Making Component** | **Test Statistic** | **p-value** |
|---|---|---|
| Concern for Risk | 2.372 | .018* |
| Future | -1.842 | .066 |
| Obligation | .049 | .961 |
| Relational Concerns | -3.490 | .001** |
| Developmental | -4.476 | .000** |
| Physical Gratification | -2.622 | .009** |
| Self-Efficacy – Alcohol | -.917 | .360 |
| Self-Efficacy – Communication | -6.126 | .000** |
| Self-Efficacy - Sexual Decision-making | -.167 | .867 |
| Level of Sexual Experience | -1.881 | .061 |
| Decision to Engage in Oral Sex | 1.951 | .052 |
| Decision to Engage in Vaginal Sex | .751 | .453 |
| Decision to Engage in Other Sexual Behaviors | 1.810 | .071 |

* p-value<.05, ** p-value<.01

## Chapter Summary

A variety of statistical analyses were used to examine two primary research questions and to further examine how the components of sexual decision-making relate to the actual decision to engage in sexual activity, to each other, and to SCT constructs. While the proposed model converged for all participants, it was not considered a proper solution. Additional model analysis revealed that the items clearly loaded on the intended sexual decision-making components. The relation between the sexual decision- making components and the SCT constructs were also supported through the model analysis and additional factor analyses.

The second research question examined differences between males and females in the sexual decision-making process. ANOVA revealed different responses for the sexual decision-making components for males and females. Concerning model testing, all versions of the proposed model converged and were proper solutions for females. For males, the oral sex model converged and was proper. The other sexual behavior model converged but was not a proper solution. The vaginal sex model did not converge. Differences between males and females were also examined through regression analysis.

# CHAPTER 5

# CONCLUSIONS

The final chapter includes a summary of the study, a synopsis of the significant findings, and a discussion of the findings. Limitations, implications of this research for practitioners, and suggestions for future research are also discussed.

This study examined how undergraduate college students make sexual decisions. From a public health perspective, there has been extensive emphasis on reducing unintended pregnancies and sexually transmitted infections (STIs). Most of this emphasis has been on safer sex practices and the use of contraceptive devices. There has been little effort to examine factors influencing the precursor decision to engage in sexual activity. This study fills that void and was directed by two primary research questions: (1) How do the components of sexual decision-making relate to each other and the decision to engage in sexual activity? and (2) Are there differences between males and females regarding sexual decision-making?

## Summary of the Study

A thorough review of the literature identified 12 sexual decision-making components. Using SCT as a framework, 11 of the 12 components (concern for risk, sense of future, social norms, relational concerns, developmental stage, physical gratification, circumstantial, level of sexual experience, self-efficacy regarding alcohol, self-efficacy regarding communication, and self-efficacy regarding decision-making)

were placed into a model that demonstrated relations between the components and their impact on the decision to engage in sexual activity.

The instrument was pilot tested with 205 students. Based on descriptive statistics, reliability analysis, content validity analysis, and factor analysis, revisions were made to the instrument. The revised instrument was completed by 524 students at the University of Georgia. Of the 524 surveys collected, 496 were considered usable.

Structural equation modeling, multiple regression analysis, and further model analysis were used to answer the first research question. To answer the second research question, ANOVA, structural equation modeling, and regression analysis examined differences between males and females.

## Summary of Significant Findings

### *Analysis of Originally Proposed Model*

The originally proposed model for sexual decision-making (Figure 2) was tested for three different decisions: decision to engage in oral sex, decision to engage in vaginal sex, and decision to engage in other sexual behaviors. The decisions were analyzed separately because it was hypothesized that different processes were used for each decision. While the models for oral sex, vaginal sex, and other sexual behaviors converged, none of the models were a proper fit, indicating an extremely poor solution. Further analysis involved multiple regression for each of the three dependent decision variables. The remaining 10 sexual decision-making components were treated as independent variables. There were four significant predictors of the decision to engage in oral sex: sense of future, physical gratification, level of sexual experience, and self-efficacy regarding communication. Analysis of the decision to engage in vaginal sex

indicated five significant predictor variables: sense of future, physical gratification, level of sexual experience, self-efficacy regarding alcohol, and self-efficacy regarding decision-making. Analysis of the decision to engage in other sexual behaviors indicated four significant predictors: sense of future, physical gratification, relational concerns, and developmental stage. Further model analysis revealed relations between the survey items, the sexual decision-making components, and the SCT constructs supporting the originally proposed model.

*Differences Based on Biological Sex*

The second research question assessed differences between males and females in sexual decision-making. First, ANOVA revealed that male and female responses differed significantly for all sexual decision-making components except relational concerns. The originally proposed model was then tested separately for females and males. For females, all versions of the proposed model converged and were proper solutions, indicating that this was an appropriate model for female sexual decision-making. The proposed model was also tested for males. The decision to engage in oral sex model converged and was proper; the decision to engage in other sexual behaviors model converged, but was not a proper solution. The vaginal sex model did not converge. Multiple regression analyses revealed different predictors between males and females for the three different decisions to engage in sexual activity.

*Additional Findings*

Differences between demographic variables were also examined. Significant differences included: (1) White participants were more likely to engage in other sexual behaviors than non-White respondents, and (2) those not dating anyone and those dating

one person exclusively had significantly different responses for five sexual decision-making components (concern for risk, relational concerns, developmental stage, physical gratification, and self-efficacy regarding communication).

## Discussion of the Findings

### *Lack of Model Exhibiting a Proper Fit for Total Sample*

The originally proposed model did not have a proper fit for any of the sexual decisions. The original model was an attempt to synthesize the sexual decision-making literature and conduct a comprehensive examination of all identified components using a theoretical framework. Several possible causes for the improper solution exist.

Previous research identified these sexual decision-making components; however, no study combined all of them. The effect of some components may not be significant in the presence of other sexual decision-making components. This possibility is clearly supported by the regression analyses that showed only five predictors for the decision to engage in vaginal sex and four predictors for both the decision to engage in oral sex and the decision to engage in other sexual behaviors.

A second reason could be that social cognitive theory (SCT) as a guide for sexual decision-making may not adequately address decision-making as a cognitive process. SCT is often applied to behaviors (using condoms, eating five fruits or vegetables); perhaps the application of SCT to decision-making overextended the applicability of the theoretical framework. Similarly, SCT is primarily a tool used to develop interventions, and while other researchers have used SCT for model development (e.g., Anderson, Winett, & Wojcik, 2000; Bishop & Bieschke, 1998; DiIorio, Dudley, Soet, Watkins, & Maibach, 2000; Lopez, Lent, Brown, & Gore, 1997; Pajares & Miller, 1994; Rimal,

2001; Wulfert & Wan, 1993), most have included only two SCT constructs: expectation and self-efficacy (Anderson, Winett, & Wojcik, 2000; Bishop & Bieschke, 1998; DiIorio, Dudley, Lehr, & Soet, 2000; DiIorio, Dudley, Soet, Watkins, & Maibach, 2000; Lopez, Lent, Brown, & Gore, 1997). The inclusion of additional SCT constructs (situation and self-control) may have affected model fit.

Because the additional model analyses supported the items used to measure each sexual decision-making component and their placement in the SCT constructs, another possible cause of improper model fit relates to the paths among the SCT constructs. Previous models did not include self-control and situation, so the paths connecting these constructs to the other SCT constructs and the decision were hypothesized. The hypothesized paths as well as the paths based on other SCT models are higher order factors, which are more likely to contain errors because they are farther from the originally measured items. Since the additional model analyses supported the lower order factors, these higher order factors are another possible cause of improper model fit.

Similarly, the SCT construct self-control was measured by only one sexual decision-making component. Using only one indicator to measure a latent variable is not recommended because error cannot be modeled. There may also be components related to the SCT construct self-control that were not identified in the literature. For this model, self-control is the level of sexual experience, whereas in reality, self-control may include other components. In addition, while most of the sexual decision-making components were within the established guidelines for normality, level of sexual experience and therefore, the SCT construct self-control, was not within normality guidelines. Normality

is assumed for MLE in structural equation modeling, and this may have affected the model solution.

Likewise, many items used to measure the sexual decision-making components were developed without any theoretical framework. Using atheoretical items and placing them in a theoretical context or a different theoretical framework may prevent viable solutions from being obtained. Developing items to measure sexual decision-making within a consistent framework may provide items that are a better fit for the constructs of that framework.

In addition to theoretical considerations, statistical problems could have accounted for the lack of proper solution. The nonnormality of data related to level of sexual experience and some of the vignette responses could have impacted the model's solution. For example level of sexual experience, a sexual decision-making component, had a skewness of 3.91 and kurtosis of 23.69. Both of these descriptive statistics are beyond acceptable limits (skewness < 2, kurtosis < 8). For vignette two, the decision to engage in other sexual behaviors had a high skewness of –2.24 and the decision to engage in vaginal sex for vignette three also had a slightly high skewness of 2.67.

Other data problems like high multicollinearity and outliers could also have caused the lack of proper solution. Responses for the items about the level of sexual experience had several outliers. These outliers included: two individuals of the 473 that responded indicated having 50 or more vaginal partners (the next closest had 27 vaginal sex partners), and 1 individual of the 463 who responded indicated having 50 or more oral sex partners (the next closest had 30 oral sex partners). Strategies for dealing with multicollinearity could include elimination of the variables that are highly correlated;

using a structural equation modeling technique other than maximum likelihood, eliminating missing data listwise instead of pairwise. In addition, statistical manipulation of the data to ensure normality can be undertaken although that may impact the interpretation of the results to actual decision-making. For the male vaginal sex model, which not did converge, multicollinearity, path estimates close to zero, and the small sample size all may have impacted the lack of convergence.

The examination of the proposed female-only model was a proper solution for the decision to engage in oral sex, vaginal sex, and other sexual behavior models, lending support for the model to be constructed and tested as originally proposed. All three models had a significant path coefficient for situation to self-efficacy. However, none included a significant path from self-efficacy to expectation or decision, indicating that self-efficacy was not a significant factor in either. Significance is not as important in structural equation modeling as in other analysis techniques (Garson, 2002; Kline, 1998). However, because self-efficacy is often considered the primary SCT construct, this lack of significance is important. In addition, the results contrast with other SCT models that have demonstrated a significant path from self-efficacy to expectation (Anderson, Winett, & Wojcik, 2000; Bishop & Bieschke, 1998; DiIorio, Dudley, Soet, Watkins, & Maibach, 2000; Lopez, Lent, Brown, & Gore, 1997) and from self-efficacy to the dependent variable (Bishop & Bieschke, 1998; DiIorio, Dudley, Soet, Watkins, & Maibach, 2000; Lopez, Lent, Brown, & Gore, 1997). Differences between males and females will be discussed in more detail later, but the impact of biological sex on the proper solution of the model cannot be dismissed and may have had an impact on the overall fit of the model.

*Differences in Predictor Variables for Oral Sex, Vaginal Sex, and Other Sexual Behaviors*

As self-efficacy is a critical construct in the SCT framework, the inclusion of only one self-efficacy component (communication) as a significant predictor for oral sex is notable. A reexamination of the self-efficacy regarding alcohol items reveals that the items use the word "sex" and not sexual activity. Some individuals do not consider oral sex and other sexual behaviors "sex" (Pitts & Rahman, 2001). An inclusive term like "sexual activity" for the self-efficacy regarding alcohol items would ensure that the participants consider self-efficacy regarding alcohol in the context of oral sex and other sexual behaviors.

However, the wording for the items on the self-efficacy regarding sexual decision-making scale included sexual decision and sexual activity. Why this factor was not a predictor for the decision to engage in oral sex and other sexual behaviors needs to be considered. The skewness and kurtosis for these items were within acceptable limits; however, many individuals indicated a high self-efficacy regarding sexual decision-making. The mean scores for these items ranged from 3.91 to 4.28 on a one-to-five scale, with five being a high self-efficacy. This high rate of self-efficacy among the respondents may not have distinguished their responses related to oral sex. Again, a limited definition of sex and sexual decisions may have caused individuals to interpret sexual decisions as relating to vaginal sex only.

The inclusion of self-efficacy regarding communication as a predictor for oral sex is understandable. This scale includes the item "talk about alternatives to high risk

behaviors." The perceived risk of disease for oral sex is often lower than for vaginal sex (CDC, 2001), so individuals may be discussing oral sex as an alternative to vaginal sex.

The sexual decision-making component relational concerns was a predictor for the decision to engage in other sexual behaviors for the total sample, female-only, and male-only regression analyses. Because this scale addresses feelings (like, love, and awareness of partner's feelings), inclusion as a predictor for a sexual decision is not surprising. However, that it was only a predictor for "other sexual behaviors" is surprising. One would assume that these feelings would also be important predictors for the decisions to engage in oral and vaginal sex. Like relational concerns, developmental stage was also a predictor for the total sample for the decision to engage in other sexual behaviors, but not for any of the other decisions. Similar to relational concerns, this factor addresses the level of dependence and interaction with a partner. Because of this aspect, if other sexual behaviors were thought to include mutual masturbation, fondling, etc., perhaps the connection with one's partner would be an important factor.

*Differences Between Males and Females*

This study found differences between males and females in their sexual decision-making, and the literature supports this finding (Browning, Hatfield, Kessler, & Levine, 2000; Carroll, Volk, & Hyde, 1985; Christopher & Cate, 1984; Erickson & Rapkin, 1991; Hill, 1997; Hill & Preston, 1996; Randolph & Winstead, 1988). Interestingly, relational concerns, the only component that did not demonstrate a difference in means, have been different between males and females in several studies (Browning, Hatfield, Kessler, & Levine, 2000; Carroll, Volk, & Hyde, 1985; Christopher & Cate, 1984; Hill, 1997; Hill & Preston, 1996; Randolph & Winstead, 1988). Christopher and Cate's (1984) scale for

positive affect and communication was used to measure relational concerns; their original study showed that relational concerns were more important for females' sexual decisions than males'. Perhaps omitting items through the instrument revision impacted the scale as a whole. Removed items included: my discussion about the meaning of sexual activity, my partner's discussion about the meaning of sexual activity, the number of dates, my religiosity, and the possibility of marriage. With the exception of religiosity, the others could be perceived as female-centered items ("talking about things," number of dates, and consideration of marriage). Once removed, perhaps the scale was more androgynous, which resulted in nondifferences between the sexes.

In addition to the differences in means, regression analysis revealed different predictors for males and females for all three sexual decision-making models. Physical gratification was the sole predictor for both males and females in all three sexual decisions. Beyond that, there were several differences between males and females.

For all three decisions, level of sexual experience was a predictor for females' sexual decision-making but not for males'. Christopher and Cate's (1984) work demonstrated that increased level of sexual experience affected other sexual decision-making components. In this study, level of sexual experience was measured by the total number of oral and vaginal partners; the mean number of partners for females was 5.5 (median = 3.0) and the mean number of partners for males was 9.8 (median = 7.0). This difference in experience may account for other differences in the sexual decision-making components' impact.

Another difference between males and females was self-efficacy. Self-efficacy regarding sexual decision-making was a significant predictor for females for the decision

to have oral and vaginal sex. Self-efficacy regarding alcohol was also a significant predictor for the decision to engage in vaginal sex and other sexual behaviors for females. For males, the only significant self-efficacy predictor for sexual decision-making was self-efficacy regarding alcohol and the decision to engage in oral sex. This difference may reflect society's dictate that women need to control sexual situations. Women are often considered the "gatekeepers" in preventing sexual activity from occurring, and society encourages women in this role. Because of this influence, perhaps women are more aware of their level of confidence to make decisions about sexual activity.

*Lack of Concern for Risk*

The regression analysis did not reveal concern for risk as a significant predictor of sexual decision-making. This finding contradicts Leigh's (1989) work, which identified concern about sexually transmitted infections (STIs) and pregnancy as influences on the sexual decisions of heterosexuals. One possible explanation is that the current study measured the concern for risk component by combining concern about disease and concern about pregnancy into one component. Levinson, Jaccard, and Beamer (1995) found that concern about disease contraction did not have an impact on casual sex decisions of college students; however, concern about pregnancy did have an impact on sexual decisions of females. Combining disease and pregnancy may have prevented the effects from being seen.

In addition, for the decision to engage in oral sex, the perceived risk of disease for oral sex is often lower than for vaginal sex (CDC, 2001). This perception could have reduced the impact of concern for risk for oral sex and other sexual behaviors. However,

it does not explain why concern for risk was not identified as a predictor in the decision to engage in vaginal sex.

Because no information was collected about the condom and contraceptive use of the study participants, definitive assumptions about their preventative behaviors cannot be made. The consistent use of condoms or other contraceptive methods may decrease concern about pregnancy or disease. Data for University of Georgia students show high contraceptive use during last vaginal sex (73.7%) but not high condom use. Of those engaging in the behavior, less than 1% of students reported condom use during their last oral sex episode, and 51.1% of students reported condom use during their last vaginal sex occurrence. Concerning consistent condom use, 46% of students engaging in vaginal sex in the past month reported using condoms for vaginal sex "always" or "mostly" (University Health Center, 2001). Assuming these condom and contraceptive use rates are consistent for this sample, pregnancy and disease are possibilities and should be factors considered in sexual decision-making.

The level of sexual activity among the participants is another possible reason that concern for risk was not identified as a predictor. Over 30% of the sample had zero vaginal sex partners, and 20% had zero oral sex partners. These individuals may not consider disease or pregnancy as concerns given their behavior. Considering only individuals who indicated at least one oral or vaginal sex partner may provide different information about concern for risk.

*Importance of Physical Gratification and Sense of Future Components*

Physical gratification was identified as a predictor in all decisions for the total sample and the sex-segregated regression analyses. For all regression models except the

analysis of other sexual behaviors for females only, sense of future was identified as a predictor in the regression analyses. Levinson, Jaccard, and Beamer (1995) also found pleasure to be a significant predictor in their regression analysis about casual sex decisions. Perhaps the participants in this study considered the situations casual. If the participants did consider the vignettes casual situations, this might also explain the impact of the sexual decision-making component sense of future. The items for sense of future addressed the right time for an individual to engage in sexual activity, many of which related to casual situations.

*Differences in Other Demographic Variables*

The participants were somewhat homogeneous in regard to sexual orientation and ethnicity, making additional comparisons between these demographic groups difficult. The comparison between White and non-White participant responses yielded no differences except that white participants were more likely to make the decision to engage in other sexual behaviors. This result is consistent with Soet, Dudley, and DiIorio's (1999) previous work that found no differences between ethnicities regarding sexual decision-making. Others have found different rates of oral sex between ethnicities, with African Americans less likely to engage in oral sex (Quadagno, Sly, Harrison, Eberstein, & Soler, 1998); however, this behavior was not different between White and non-White respondents in this study.

## Limitations

Several study limitations prevent the results from being definitive. First, the sample was a limitation. The participants were extremely homogeneous, especially in ethnicity and sexual orientation. This limits the generalizability of the sample and

subsequent inferences. In addition, the participants were all students at a large, southeastern university. Students at this university may be more conservative than other university students. This specificity limits generalizations being extended to university students in other geographical locations. The participants were also a convenience, not random, sample, which may limit inferences to the UGA student population as a whole. The large percentage of women respondents also limits the results.

A second limitation was nonnormality of the responses as determined through skewness and kurtosis. Because of this, items were eliminated from the analysis which may have affected the scales, especially the relational concern scale. Because there is a social dictate about appropriate responses regarding sexuality and sexual behavior, there may have been socially desirable response bias accounting for skewness. In addition, some participants had never engaged in oral or vaginal sex. This portion of the sample may also have influenced the normality of the responses and subsequent model fit.

Third, while vignettes have been used successfully in other research contexts, with this research study, they may have impacted responses. When it comes to sexual situations, reading a scenario does not have the same effect as the "heat of the moment." However, creating a real-life situation in which an individual makes a sexual decision to examine the decision-making process has ethical concerns. Presenting scenarios in video format or using self-reported diaries are alternatives to correct this limitation.

Likewise, while the vignettes were illustrative of three typical scenarios college students may find themselves in, the vignettes represented sexual decision-making within three different levels of relational commitment: stranger, acquaintance, and romantic partner. The purpose of including all three vignettes was to examine sexual decision-

making across levels of relational commitment. In order to examine the general idea of sexual decision-making, the responses for the scenarios were averaged across the vignettes. However, this statistical process may not have represented the decision-making process for each scenario accurately because of the different levels of relational commitment and alcohol use in the scenarios. For example, in vignette two, the respondent was asked to place him/herself in a romantic relationship of three months in which oral sex has occurred. For some individuals this scenario may not be part of their reality for a variety of reasons (e.g. not having been in a three month relationship, not having ever engaged in oral sex), and they could not relate to the situation in order to make an accurate response about their decision. Similarly, if an individual does not drink alcohol, it may be difficult to know how he/she would make a decision in vignette one. However, using the responses from only one vignette would limit the generalizability of sexual decision-making to that particular vignette. If future studies utilize different techniques to present and examine sexual situations (like self-reported diaries) these limitations could be avoided.

Fourth, revising items that asked about the decision to engage in other sexual behaviors may have impacted responses. For the pilot study, each vignette included the item, “I am likely to engage in other sexual behaviors.” In response to expert comments and in order to be clearer, this item for all vignettes was revised by adding, “such as hugging and kissing” in parentheses after the original statement. The intent to clarify the definition of “other sexual behaviors” was appropriate; however, the change may have impacted participants’ responses. For items addressing other sexual behaviors, the response differences between the means for the pilot study and the actual study were

2.23, 1.0, and 1.96 for vignettes 1, 2, and 3, respectively. This variability between the pilot and actual study was not intended and should be considered a limitation.

Fifth, individuals who were not sexually active (or at least identified no oral or vaginal sex partners) were included in the analysis. Individuals who have engaged in certain behaviors may have an increased propensity to continue to engage in such behaviors, while individuals who have never engaged in sexual behaviors may be less likely to consider those behaviors. This difference between sexually active and non-sexually active participants may have impacted responses. Similarly, vignette 2 asked participants to place themselves in a three-month relationship which involved oral sex. Some participants had never engaged in oral sex, and these individuals may have had difficulty adequately visualizing themselves in the situation and responding to the items.

The sixth limitation was the elimination of the social norms component from the model analysis. Because of omitting nonnormal items within the social norms scale, a two-item scale remained. While the decision to not use a two-item scale was based on sound research principles (Garson, 2002), because of this omission, the impact of social norms on sexual decision-making could not even be tested. Research linking social norms and sexual decisions in adolescents is prevalent (Kelly, 1998; Romer et al., 1994; Rosenthal, Lewis, and Cohen, 1996), and others have shown that social norms have an impact on the sexual decision-making of college students (Christopher & Cate, 1984; Regan & Dreyer, 1999). The extent to which the omission of the social norms component affected the model and regression analyses is unknown but should be regarded as potentially significant. As a result, further investigation about the impact of social norms on the sexual decision-making of college students is warranted.

## Implications for Practice

This study has important implications for sex education practitioners. First, the difference in predictors regarding decisions for oral sex, vaginal sex, and other sexual behaviors must be explored further and appropriate education efforts developed. Current sexuality education often focuses on reproductive concerns, disease prevention, or moralistic issues (abstinence until marriage). Because of the different factors influencing oral sex and other sexual behaviors, practitioners should address all areas of sexual activity, not just vaginal sex. This suggestion is consistent with the "Guidelines for Comprehensive Sexuality Education K–12 " that recommends teaching 15- to 18-year-olds that sexual expression can be demonstrated through a variety of sexual behaviors (National Guidelines Task Force, 1996). Similarly, on their website, Advocates for Youth (2003) encourages families to inform adolescents between 13 and 17 that a variety of options exist for expressing love and intimacy. Given the current political climate that abstinence until marriage is the ideal, politicians who are interested in having individuals delay vaginal sex should support education on other sexual behaviors.

Second, the differences between males and females have a critical impact on how practitioners address sexuality education for college students. Most sexuality education at the college level is generically directed toward both sexes, usually containing messages about possible disease or pregnancy consequences. However, because of the differences between males and females identified in this study, educators need to be more deliberate about developing and directing messages appropriate for each of the sexes. For males, physical gratification and right time were the *only* consistently significant predictors of males' sexual decisions. Unfortunately, these results reinforce stereotypes that males care

only about physical gratification; however, in order to reach males and impact males' decision-making, sexuality educators need to more fully address these components. Perhaps educating males on how they can obtain physical gratification (pleasure, arousal, receptivity) from other behaviors (such as masturbation, outercourse, mutual masturbation) would provide other avenues for pleasure. In addition, educators need to help males understand the importance of other sexual decision-making components that impact others' sexual decisions.

Third, participants generally indicated a high level of self-efficacy regarding their sexual decision-making. This lack of variability in response may limit the usability of the data, but it is a positive for society. Given all the negativity surrounding sex and sexual issues, students' confidence in their ability to make healthy and good sexual decisions is critical to their well-being. Practitioners should develop educational programs and materials that support and enhance this high self-efficacy.

Fourth, practitioners need to examine and understand why concern for risk did not have an impact on sexual decisions. As stated previously, much sexuality education focuses on disease prevention. Interestingly, the students perceived their decisions as good and healthy, but concern for risk was not identified as a predictor in their decision-making. In two vignettes, the participant already had a relationship (either acquaintance or romantic) with the potential sexual partner. Perhaps this relationship impacted their assessment of risk. The idea that STIs happen to "someone else" (not my friends or "s/he doesn't look like they have anything") may have impacted the level of risk the individual perceived in these scenarios. To help students make healthy, positive decisions,

practitioners need to understand why concern for risk was not identified as a significant predictor and help students have an accurate perception of their risk.

## Recommendations for Future Research

As with many research projects, this study answered some questions and created many others for those interested in sexual decision-making. The literature surrounding sexual decision-making and the practical application for sexuality education could be enhanced by additional research in the following areas.

First, additional research in order to more adequately understand male sexual decision-making should be undertaken. The participants in this study were primarily female, which prevents understanding male sexual decision-making fully. Since the regression analyses revealed differences between males and females, a more thorough examination of male sexual decision-making needs to be undertaken. Qualitative exploration into the situations in which sexual decisions must be made could inform vignettes or scenarios more consistent with a male perspective. One qualitative study that examined adolescent male sexual situations focused on STIs (Gilmore, DeLamater, & Wagstaff, 1996); similar efforts need to be undertaken without the assumption that STIs are a factor in order to better understand male sexual decision-making. This research may also reveal a theoretical framework more appropriate for male sexual decision-making. In addition, obtaining a larger sample would provide more accurate information to repeat the regression analysis. Subsequent steps could extend to model analysis once a framework, model, and appropriate scenarios have been identified.

Second, further research needs to be conducted on how non-heterosexuals make sexual decisions. Previous research indicated some differences (Leigh, 1989), but the

small percentage of gay male, lesbian, or bisexual participants in this study limited examination of differences. Because there are few societal images to follow when it comes to sexual decision-making, the components identified in the research may not be applicable to non-heterosexuals. Consideration of additional components or modifications of already-identified components should be conducted first. In addition, as self-identified sexual orientation may differ from sexual behavior, this research may want to distinguish more about the actual sexual behavior while being sensitive to participants' discomfort at providing extreme detail. For example, if a lesbian indicated the decision to engage in vaginal penetration, how important is knowing if that penetration was by a hand, a dildo, or a penis? Research shows some Black men identify as heterosexual but also engage in sexual activity with men (CDC, 2003; CDC 2000a). Research on sexual decision-making may be conducted differently if the behavior is inconsistent with one's self-identified sexual orientation. The best methods to address these issues would need to be considered.

Third, additional research needs to examine the sexual decision-making processes of other age groups. Undergraduate college students are often making sexual decisions for the first time; how, or whether, the process differs for adolescents or single individuals in their 30s or 40s needs to be examined. While there is extensive research on adolescents, none uses structural equation modeling to examine the decision-making process. For individuals between the ages of 30 and 50, there is minimal research regarding sexuality (Fowlkes, 1994) and none on sexual decision-making.

Fourth, a prospective study that records the sexual situations of college students and their self-reported decision process for these situations would provide more accurate

data about sexual decision-making. Self-report diaries have been used in other studies about sexual activity with successful results (Fortenberry, Orr, Katz, Brizendine, & Blythe, 1997). A prospective study using a similar data collection procedure could be implemented to examine the decision-making process.

Fifth, separate examinations of sexually active and non-sexually active individuals and their decision-making need to be undertaken. Almost 18% of those individuals who responded to these specific items indicated zero oral and vaginal sex partners. Examining the sexual decision-making of non-sexually active individuals is important; however, the decision-making process for these individuals is most likely different from that of sexually active individuals. In order to best understand how both groups make decisions, further examination of these differences and the impact on a sexual decision-making model need to be explored.

Sixth, further research needs to reconsider the theoretical framework for sexual decision-making. This study showed that SCT, or how it was applied in this study, may not adequately guide sexual decisions. Research using a revised SCT application or another theoretical framework may strengthen the results. Similarly, developing sexual decision-making items using a SCT theoretical framework would assist in the application of the model.

Seventh, further confirmatory factor analysis with the model needs to be conducted. The exploratory analysis was a logical next step that produced further support for the model. However, confirmatory factor analysis would provide more definitive models and conclusions about sexual decision-making.

Eighth, further research needs to examine how couples make sexual decisions. This study examines how one individual makes a sexual decision, but sexual decisions are usually dyadic in nature and not made individually. Other researchers (Gerrard, Breda, & Gibbons, 1990) have examined couples' contraceptive decisions by determining each individual's perception and the actual contraceptive behavior of the couple. Similar methodology could be used to further examine how the individual sexual decision relates to the actual sexual decision and behavior of a couple.

## Chapter Summary

The relations between the components of sexual decision-making and their impact on the decision to engage in sexual activity were examined through structural equation modeling and multiple regression analyses. Analyses revealed that few of the components identified in the literature were actual predictors in the decision to engage in sexual activity when all components were considered. Using SCT as a framework for the sexual decision-making process may not have been applicable, because self-efficacy, a critical construct of SCT, was not strongly identified to impact sexual decisions. Differences between males and females need to be examined further as there were differences in both model and regression analyses.

The findings described in this study have implications for sexuality educators who are interested in sexual decision-making and are conducting sexuality education. Stronger recommendations can be made when further research examining males, non-heterosexuals, and individuals in other age groups is conducted.

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# APPENDIX A

## SCALES FOR SEXUAL DECISION-MAKING COMPONENTS

*Concern for risk (4):*
I think about the risk of pregnancy before engaging in sexual activity.
Possible pregnancy impacts my decisions to engage in sex.
I think about the risk of disease (including HIV) before engaging in sexual activity.
Possible disease contraction (including HIV) impacts my decisions to engage in sex.

*Circumstantial Components (5):*
My preplanning to increase the chance of sexual activity impacts my sexual decisions.
My partner's preplanning to increase the chance of sexual activity impacts my sexual decisions.
The amount of alcohol/drugs consumed by me impacts my sexual decisions.
The amount of alcohol/drugs consumed by my partner impacts my sexual decisions.
A special event or occasion impacts my sexual decisions.

*Sense of future (7):*
I believe I should abstain from sex until I am in a committed relationship.
I believe I should abstain from sex on the first date.
I believe I should abstain from sex with someone I just met.
I believe I should abstain from sex with someone I hardly know.
I believe I should abstain from sex in the context of a one-night stand.
There are many things I want to accomplish in the next few years.
I worry that I won't get to do everything I want to in life.

*Social norms and pressure (10):*
My feelings of obligation to engage in sexual activity with my partner impact my sexual decisions.
My partner's feelings of obligation to engage in sexual activity with me impact my sexual decisions.
My pressure on my partner to engage in sexual activity impacts my sexual decisions.
My partner's pressure on me to engage in sexual activity impacts my sexual decisions.
The number of my friends engaging in sexual activity impacts my sexual decisions.
The number of my partner's friends engaging in sexual activity impacts my sexual decisions.
If I am not engaging in sexual activity, then I am not "cool."
I think my friends will ridicule me if I don't engage in sexual activity.
I think my friends will think less of me if I don't engage in sexual activity.
I think my friends will make fun of me if I don't engage in sexual activity.

*Relational concerns (12):*
Liking for my partner impacts my sexual decisions.
My partner's liking for me impacts my sexual decisions.
Love for my partner impacts my sexual decisions.
My partner's love for me impacts my sexual decisions.
My discussion of the meaning of sex with my partner impacts my sexual decisions.
My partner's discussion of the meaning of sex with me impacts my sexual decisions.
The number of dates with my partner impacts my sexual decisions.
My religiosity impacts my sexual decisions.
My awareness of my partner's feelings impacts my sexual decisions.
My partner's awareness of my feelings impacts my sexual decisions.
The possibility of eventual marriage or commitment impacts my sexual decisions.
The degree of commitment between my partner and I impacts my sexual decisions.

*Developmental stage (13):*
In my romantic relationships, I try to:

Maintain a strong sense of independence.
Share my most intimate thoughts and feelings.
Take care of my girl/boy friend(s).
Be with those who make my life more comfortable and stable.
Be with people with whom I might fall in love.
Keep my individual identity.
Consider my girl/boy friend(s) my best friend(s).
Spend a substantial amount of time with my girl/boy friend(s).
Consistently date someone.
Determine what I want in future relationships.
Focus on possible future plans with my girl/boy friend(s).
Be with those who I can count on.
Maintain a focus on my other life goals.

*Physical gratification (9):*
My physical arousal immediately prior to sexual activity impacts my sexual decisions.
My partner's physical arousal immediately prior to sexual activity impacts my sexual decisions.
My physical arousal during time spent with my partner that day impacts my sexual decisions.
My partner's physical arousal during time spent with me that day impacts my sexual decisions.
My receptivity to my partner's sexual advances impacts my sexual decisions.
My partner's receptivity to my sexual advances impacts my sexual decisions.
My arousal prior to seeing my partner impacts my sexual decisions.
My partner's arousal prior to seeing me impacts my sexual decisions.
The physical attractiveness of my partner impacts my sexual decisions.

*Level of sexual experience (3):*
I have engaged in oral sex with _____ (number) of people.

I have engaged in anal sex with _____ (number) of people.
I have engaged in vaginal sex with _____ (number) of people.

*Self-efficacy regarding alcohol (3):*
I am able to refuse sex when I am intoxicated.
I am able to refuse sex when I have been drinking.
I am able to refuse sex when my partner has been drinking.

*Self-efficacy regarding communication (6):*
I am able to talk to my partner about sexual issues.
I am able to talk to my partner about alternatives to high-risk sexual activity.
I am able to talk to my partner about intimacy without intercourse.
I am able to talk to my partner about our past sexual histories/experiences.
I am able to talk to my partner about past sexual behaviors.
I am able to talk to my partner about how sex might influence our relationship.

*Self-efficacy regarding decision-making (13):*
I begin sex with my partner if I want to.
I let my partner know if I want my partner to touch my genitals.
I wait for my partner to touch my genitals instead of letting my partner know that's what I want.
I let my partner know if I want to have my genitals kissed.
I give in and kiss if my partner pressures me, even if I already said no.
I put my mouth on my partner's genitals if my partner wants me to, even if I don't want to.
I have sex if my partner wants me to, even if I don't want to.
If I said no, I won't let my partner touch my genitals even if my partner pressures me.
I refuse to have sex if I don't want to, even if my partner insists.
I am able to make sexual decisions that are consistent with my values.
I am able to make healthy sexual decisions.
I am confident in my sexual decision-making.
I am able to make good sexual decisions.

# APPENDIX B

## SEXUAL DECISION-MAKING VIGNETTES

*Vignette One*

You've had several drinks and are feeling "buzzed." You have met someone at a party that you think is attractive. One of your friends knows this person casually from a class they have together. This person invites you to The Grill so you can talk and get to know each other better. You decide to go. After several hours of talking, this person invites you back to their place. You decide to go.

Please indicate your response to the following statements:

| | Strongly Agree | | | | Strongly Disagree |
|---|---|---|---|---|---|
| I am likely to have vaginal sex with this person tonight. | 5 | 4 | 3 | 2 | 1 |
| I am likely to have oral sex with this person tonight. | 5 | 4 | 3 | 2 | 1 |
| I am likely to have anal sex with this person tonight. | 5 | 4 | 3 | 2 | 1 |
| I am likely to engage in other sexual activities with this person tonight. | 5 | 4 | 3 | 2 | 1 |

*Vignette Two*

You have been in a relationship for three months with someone, and have been sexually intimate through kissing, hugging and oral sex. Previous to this relationship, you have engaged in other sexual behaviors. Your partner asks if you'd like to go to a formal dance with them for a student organization they belong to. The dance is in Atlanta and you would get a hotel room together. You decide to go to the dance.

Please indicate your response to the following statements as if it was the night of the dance:

| | Strongly Agree | | | | Strongly Disagree |
|---|---|---|---|---|---|
| I am likely to have vaginal sex with this person tonight. | 5 | 4 | 3 | 2 | 1 |
| I am likely to have oral sex with this person tonight. | 5 | 4 | 3 | 2 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| I am likely to have anal sex with this person tonight. | 5 | 4 | 3 | 2 | 1 |
| I am likely to engage in other sexual activities with this person tonight. | 5 | 4 | 3 | 2 | 1 |

*Vignette Three*

Your study partner in Biology class is really attractive. You've known this person for over a semester and you think they are attractive. As you are studying together, the conversation drifts from Biology to other, more personal things and you have a bonding session. You end up talking late into the night and decide to go back to your place to continue the conversation. During this conversation, you kiss your study partner.

Please indicate your response to the following statements:

| | Strongly Agree | | | | Strongly Disagree |
|---|---|---|---|---|---|
| I am likely to have vaginal sex with this person tonight. | 5 | 4 | 3 | 2 | 1 |
| I am likely to have oral sex with this person tonight. | 5 | 4 | 3 | 2 | 1 |
| I am likely to have anal sex with this person tonight. | 5 | 4 | 3 | 2 | 1 |
| I am likely to engage in other sexual activities with this person tonight. | 5 | 4 | 3 | 2 | 1 |

# APPENDIX C

## FEEDBACK FORM FOR RESEARCHERS ASSESSING THE INSTRUMENT

Please review the instrument related to sexual decision-making and complete the following brief questions.

1. The items used to measure “concern for risk” are well matched to the variable.

Yes _____ No _____ If no, please explain.

2. The items used to measure “circumstantial” are well matched to the variable.

Yes _____ No _____ If no, please explain.

3. The items used to measure “sense of future” are well matched to the variable.

Yes _____ No _____ If no, please explain.

4. The items used to measure “social norms and pressure” are well matched to the variable.

Yes _____ No _____ If no, please explain.

5. The items used to measure “relational concerns” are well matched to the variable.

Yes _____ No _____ If no, please explain.

6. The items used to measure “developmental stage” are well matched to the variable.

Yes _____ No _____ If no, please explain.

7. The items used to measure “physical gratification” are well matched to the variable.

Yes _____ No _____ If no, please explain.

8. The items used to measure “level of sexual experience” are well matched to the variable.

Yes _____ No _____ If no, please explain.

9. The items used to measure “self efficacy - alcohol” are well matched to the variable.

Yes _____ No _____ If no, please explain.

10. The items used to measure “self efficacy - communication” are well matched to the variable.

Yes _____ No _____ If no, please explain.

11. The items used to measure “self efficacy - decision-making” are well matched to the variable.

Yes _____ No _____ If no, please explain.

12. The items used to measure sexual decision-making are well matched to the variable.

Yes _____ No _____ If no, please explain.

13. Are there other items that you feel need to be included in any of these scales?

Yes _____ No _____ If yes, please explain.

14. Please list below any other comments or suggestions about the instrument.

Thank you for your time.

# APPENDIX D

## DESCRIPTIVE STATISTICS FOR PILOT STUDY ITEMS (n=205)

| | Mean | Std. Deviation | Skewness | Kurtosis |
|---|---|---|---|---|
| Concern for risk: | | | | |
| Pregnancy | 4.29 | 1.043 | -1.751 | 2.741 |
| Pregnancy 2 | 4.08 | 1.173 | -1.257 | .707 |
| Disease | 4.14 | 1.125 | -1.378 | 1.285 |
| Disease 2 | 4.20 | 1.073 | -1.465 | 1.706 |
| Circumstantial: | | | | |
| My preplanning | 3.59 | 1.263 | -.528 | -.558 |
| My partner's preplanning | 3.36 | 1.290 | -.504 | -.651 |
| My alcohol/drug use | 3.55 | 1.337 | -.626 | -.748 |
| My partner's alcohol/drug use | 3.33 | 1.367 | -.339 | -1.038 |
| Special event | 3.05 | 1.279 | -.206 | -.986 |
| Future: | | | | |
| Committed relationship | 3.77 | 1.460 | -.770 | -.892 |
| First date | 4.36 | 1.089 | -1.628 | 1.582 |
| Just met | 4.41 | 1.058 | -1.742 | 2.052 |
| Hardly know | 4.42 | 1.061 | -1.731 | 1.889 |
| One-night stand | 4.23 | 1.169 | -1.288 | .504 |
| Accomplish many things | 4.81 | .608 | -4.145 | 19.266 |
| Get to do everything | 3.65 | 1.219 | -.694 | -.408 |
| Obligation: | | | | |
| My obligation | 2.64 | 1.185 | .186 | -.855 |
| Partner's obligation | 2.59 | 1.194 | .245 | -.844 |
| My pressure | 2.34 | 1.153 | .505 | -.548 |
| Partner pressure | 2.50 | 1.164 | .284 | -.930 |
| # of my friends having sex | 1.96 | 1.115 | 1.063 | .279 |
| # of my partner's friends | 1.71 | .986 | 1.545 | 2.114 |
| Not cool | 1.31 | .686 | 2.358 | 5.108 |
| Friends ridicule | 1.42 | .747 | 1.631 | 1.563 |
| Friends think less | 1.33 | .711 | 2.490 | 6.447 |
| Friends make fun | 1.50 | .891 | 2.022 | 3.775 |
| Relational Concerns: | | | | |
| My liking | 3.90 | 1.122 | -1.079 | .652 |
| My partner's liking for me | 3.83 | 1.157 | -.966 | .272 |
| My love | 4.26 | 1.090 | -1.638 | 2.042 |
| My partner's love for me | 4.14 | 1.159 | -1.411 | 1.142 |
| My discussion | 3.35 | 1.218 | -.427 | -.651 |
| My partner's discussion | 3.31 | 1.204 | -.390 | -.644 |
| # of dates | 2.94 | 1.310 | -.027 | -1.168 |
| My religiosity | 2.99 | 1.513 | .094 | -1.458 |
| My awareness of partner's feelings | 4.00 | 1.041 | -1.248 | 1.388 |
| My partner's awareness of my feelings | 3.89 | 1.099 | -.894 | .203 |
| Possibility of marriage | 3.85 | 1.278 | -.908 | -.290 |

| | | | | |
|---|---|---|---|---|
| Degree of commitment | 4.07 | 1.161 | -1.253 | .701 |
| Developmental: | | | | |
| Strong sense of independence | 3.83 | .97 | .63 | .05 |
| Share my most intimate thoughts | 3.74 | .978 | -.444 | -.230 |
| Take care of partner | 4.38 | .858 | -1.525 | 2.252 |
| Be with those who make life comft./stable | 4.32 | .807 | -1.274 | 1.714 |
| Whom I might fall in love | 4.24 | .918 | -1.157 | .872 |
| Keep my individual identity | 4.38 | .76 | 1.180 | 1.119 |
| Consider partner best friend | 4.17 | .963 | -1.015 | .475 |
| Spend substantial amount of time with partner | 4.14 | .825 | -1.062 | 1.817 |
| Consistently date someone | 3.36 | 1.356 | -.275 | -1.186 |
| Determine what I want in future | 4.06 | .93454 | .886 | .338 |
| Focus on future | 3.76 | 1.046 | -.441 | -.667 |
| Be with those I can count on | 4.45 | .770 | -1.635 | 3.035 |
| Maintain focus on other life goals | 4.38 | .780 | -1.458 | 2.874 |
| Physical Gratification: | | | | |
| My physical arousal – imm. Before | 3.85 | 1.014 | -.957 | .729 |
| My partner's physical arousal – imm. before | 3.62 | 1.107 | -.745 | -.074 |
| My arousal during the day | 3.72 | 1.003 | -.773 | .177 |
| My partner's arousal during the day | 3.58 | 1.093 | -.583 | -.383 |
| My receptivity | 3.78 | 1.049 | -.931 | .462 |
| My partner's receptivity to me | 3.83 | 1.085 | -.938 | .386 |
| My arousal prior to seeing partner | 3.48 | 1.089 | -.538 | -.292 |
| My partner's arousal prior to seeing me | 3.35 | 1.128 | -.386 | -.540 |
| Physical attractiveness of my partner | 3.95 | 1.117 | -1.045 | .524 |
| Level of Sexual Experience: | | | | |
| # of oral sex partners | 4.12 | 4.435 | 2.105 | 5.286 |
| # of vaginal sex partners | 2.65 | 3.286 | 2.205 | 6.303 |
| SE- Alcohol: | | | | |
| Refuse sex when intoxicated | 4.06 | 1.185 | -1.046 | .044 |
| Refuse sex when drinking | 4.18 | 1.118 | -1.230 | .583 |
| Refuse sex when partner has been drinking | 4.39 | 1.031 | -1.871 | 2.943 |
| SE- Communication: | | | | |
| Talk about sex | 4.27 | .914 | -1.182 | 1.085 |
| Talk about alternatives to high risk | 3.99 | 1.092 | -.737 | -.537 |
| Talk about intimacy w/o sexual activity | 4.18 | .979 | -1.118 | .789 |
| Talk about past histories | 3.90 | 1.209 | -.955 | -.079 |
| Talk about past sexual behaviors | 3.88 | 1.178 | -.878 | -.166 |
| Talk about how sex influences relationship | 4.10 | 1.045 | -1.195 | .965 |
| SE- SDM: | | | | |
| I begin sex if I want to | 3.55 | 1.355 | -.615 | -.754 |
| I let partner know about touching genitals | 3.38 | 1.209 | -.363 | -.839 |
| Wait for partner to touch genitals | 3.14 | 1.17208 | .280 | -.688 |
| Let partner know if want genitals kissed | 3.02 | 1.193 | -.048 | -.816 |
| Kiss partner under pressure | 2.05 | 1.12629 | -.801 | -.304 |
| Oral sex with partner under pressure | 2.05 | 1.17760 | -.855 | -.367 |
| Have sex under pressure | 1.94 | 1.15604 | -1.004 | -.034 |
| Won't let partner touch genitals if said no | 3.76 | 1.344 | -.767 | -.658 |
| Can refuse sex even if partner insists | 3.96 | 1.264 | -.986 | -.101 |
| Able to make sexual decisions consistent w/values | 4.08 | 1.031 | -1.134 | .821 |
| Able to make healthy sexual decisions | 4.20 | .938 | -1.321 | 1.648 |
| Confident in my sexual decision-making | 4.29 | .888 | -1.371 | 1.911 |
| Able to make good sexual decisions | 4.26 | .955 | -1.398 | 1.670 |

| | | | | |
|---|---|---|---|---|
| Vignette One | | | | |
| Vaginal sex | 1.90 | 1.275 | 1.193 | .142 |
| Oral sex | 2.41 | 1.451 | .456 | -1.276 |
| Other sexual behaviors | 1.29 | 1.376 | .017 | -1.233 |
| Vignette Two | | | | |
| Vaginal sex | 2.83 | 1.481 | .025 | -1.420 |
| Oral sex | 2.84 | 1.401 | -.648 | -.840 |
| Other sexual behaviors | 3.50 | 1.313 | -.696 | -.562 |
| Vignette Three | | | | |
| Vaginal sex | 1.36 | 1.189 | 1.200 | .259 |
| Oral sex | 3.61 | 1.317 | .840 | -.591 |
| Other sexual behaviors | 1.85 | 1.382 | .090 | -1.251 |

# APPENDIX E

## FINAL INSTRUMENT

**A Model of Sexual Decision Making in College Students Questionnaire**

Most of your responses will be marked on the bubble answer sheet. Please use a #2 pencil only and fill in the circle completely so your response can be read correctly. **Do not fill in your name on the bubble answer sheet.**

**On the bubble answer sheet, please list the last four numbers of your student ID in the identification box. Use columns A through D.**

**FOR THIS SECTION, PLEASE USE THE BUBBLE ANSWER SHEET. FILL IN YOUR RESPONSE COMPLETELY ON THE SHEET.**

For the following, please indicate on a scale of 1 to 5 if you **strongly disagree** or **strongly agree** with the statement.

| | SD SA |
|---|---|
| 1. I think about the risk of pregnancy before engaging in sexual activity. | 1 2 3 4 5 |
| 2. Possible pregnancy impacts my decisions to engage in sex. | 1 2 3 4 5 |
| 3.I think about the risk of disease (including HIV) before engaging in sexual activity. | 1 2 3 4 5 |
| 4.Possible disease contraction (including HIV) impacts my decisions to engage in sex. | 1 2 3 4 5 |
| 5.I believe I should abstain from sex because there are many things I want to accomplish in the next few years. | 1 2 3 4 5 |
| | SD SA |
| 6.I believe I should abstain from sex because I worry that I won't get to do everything I want to in life. | 1 2 3 4 5 |
| 7. I believe I should abstain from sex until I am in a committed relationship. | 1 2 3 4 5 |
| 8. I believe I should abstain from sex on the first date. | 1 2 3 4 5 |
| 9. I believe I should abstain from sex with someone I just met. | 1 2 3 4 5 |
| 10. I believe I should abstain from sex with someone I hardly know. | 1 2 3 4 5 |
| | SD SA |
| 11. I believe I should abstain from sex in the context of a one-night stand. | 1 2 3 4 5 |
| 12. My feelings of obligation to engage in sexual activity with my partner impact my sexual decisions. | 1 2 3 4 5 |
| 13. My partner's feelings of obligation to engage in sexual activity with me impact my sexual decisions. | 1 2 3 4 5 |
| 14. The pressure I put on my partner to engage in sexual activity impacts my sexual decisions. | 1 2 3 4 5 |
| 15. My partner's pressure on me to engage in sexual activity impacts my sexual decisions. | 1 2 3 4 5 |
| | SD SA |
| 16. The number of my friends engaging in sexual activity impacts my sexual decisions. | 1 2 3 4 5 |
| 17. The number of my partner's friends engaging in sexual activity impacts | |

my sexual decisions. 1 2 3 4 5
18. If I am not engaging in sexual activity, then I am not "cool." 1 2 3 4 5
19. I think my friends will ridicule me if I don't engage in sexual activity. 1 2 3 4 5
20. I think my friends will think less of me if I don't engage in sexual activity. 1 2 3 4 5

SD SA

21. I think my friends will make fun of me if I don't engage in sexual activity. 1 2 3 4 5
22. My liking for my partner impacts my sexual decisions. 1 2 3 4 5
23. My partner's liking for me impacts my sexual decisions. 1 2 3 4 5
24. My love for my partner impacts my sexual decisions. 1 2 3 4 5
25. My partner's love for me impacts my sexual decisions. 1 2 3 4 5

SD SA

26. My awareness of my partner's feelings impacts my sexual decisions. 1 2 3 4 5
27. My partner's awareness of my feelings impacts my sexual decisions. 1 2 3 4 5
28. The possibility of eventual marriage or commitment impacts my sexual decisions. 1 2 3 4 5
29. The degree of commitment between my partner and I impacts my sexual decisions. 1 2 3 4 5
30. In my romantic relationships, I try to share my most intimate thoughts and feelings. 1 2 3 4 5

SD SA

31. In my romantic relationships, I try to take care of my girl/boyfriend(s). 1 2 3 4 5
32. In my romantic relationships, I try to be with those who make my life more comfortable and stable. 1 2 3 4 5
33. In my romantic relationships, I try to be with people with whom I might fall in love. 1 2 3 4 5
34. In my romantic relationships, I try to consider my partner(s) my best friend(s). 1 2 3 4 5
35. In my romantic relationships, I try to spend a substantial amount of time with my girl/boy friend(s). 1 2 3 4 5

SD SA

36. In my romantic relationships, I try to consistently date someone. 1 2 3 4 5
37. In my romantic relationships, I try to focus on possible future plans with my girl/boy friend(s). 1 2 3 4 5
38. In my romantic relationships, I try to be with those who I can count on. 1 2 3 4 5
39. My physical arousal immediately prior to sexual activity impacts my sexual decisions. 1 2 3 4 5
40. My partner's physical arousal immediately prior to sexual activity impacts my sexual decisions. 1 2 3 4 5

SD SA

41. My physical arousal during time spent with partner that day impacts my sexual decisions. 1 2 3 4 5
42. My partner's physical arousal during time spent with me that day impacts my sexual decisions. 1 2 3 4 5
43. My receptivity to partner's sexual advances impacts my sexual decisions. 1 2 3 4 5
44. My partner's receptivity to my sexual advances impacts my sexual decisions. 1 2 3 4 5
45. My arousal prior to seeing my partner impacts my sexual decisions. 1 2 3 4 5

SD SA

46. My partner's arousal prior to seeing me impacts my sexual decisions 1 2 3 4 5
47. The physical attractiveness of my partner impacts my sexual decisions. 1 2 3 4 5
48. I am able to refuse sex when I am intoxicated. 1 2 3 4 5
49. I am able to refuse sex when I have been drinking. 1 2 3 4 5
50. I am able to refuse sex when my partner has been drinking. 1 2 3 4 5

SD SA

51. I am able to talk to my partner about sexual issues. 1 2 3 4 5
52. I am able to talk to my partner about alternatives to high-risk sexual activity. 1 2 3 4 5
53. I am able to talk to my partner about intimacy without sexual activity. 1 2 3 4 5
54. I am able to talk to my partner about our past sexual histories/experiences. 1 2 3 4 5

55. I am able to talk to my partner about past sexual behaviors. 1 2 3 4 5
SD SA

56. I am able to talk to my partner about how sex might influence our relationship. 1 2 3 4 5

57. It is difficult for me to follow through with healthy sexual decisions. 1 2 3 4 5

58. I am able to make sexual decisions that are consistent with my values. 1 2 3 4 5

59. I am able to make healthy sexual decisions. 1 2 3 4 5

60. I am confident in my sexual decision making. 1 2 3 4 5

61. It is difficult for me to make good sexual decisions. 1 2 3 4 5

62. I am able to make sexual decisions that I won't regret later. 1 2 3 4 5

**Please read the following vignettes and indicate on a scale of 1 to 5 if you strongly disagree or strongly agree with the statements listed below the scenario.**

You've had several drinks and are feeling "buzzed." You have met someone at a party that you think is attractive. One of your friends knows this person casually from a class they have together. This person invites you to The Grill so you can talk and get to know each other better. You decide to go. After several hours of talking, this person invites you back to their place. You decide to go.

SD SA

63. I am likely to have vaginal sex with this person tonight. 1 2 3 4 5

64. I am likely to have oral sex with this person tonight. 1 2 3 4 5

65. I am likely to have anal sex with this person tonight. 1 2 3 4 5

66. I am likely to engage in other sexual activities (including kissing, hugging, etc.) with this person tonight. 1 2 3 4 5

You have been in a relationship for three months with someone, and have been sexually intimate through kissing, hugging and oral sex. Previous to this relationship, you have engaged in other sexual behaviors. Your partner asks if you'd like to go to a formal dance with them for a student organization they belong to. The dance is in Atlanta and you'd get a hotel room together. You decide to go to the dance. Please indicate your response to the following statements as if it was the night of the dance:

SD SA

67. I am likely to have vaginal sex with this person tonight. 1 2 3 4 5

68. I am likely to have oral sex with this person tonight. 1 2 3 4 5

69. I am likely to have anal sex with this person tonight. 1 2 3 4 5

70. I am likely to engage in other sexual activities (including kissing, hugging, etc.) with this person tonight. 1 2 3 4 5

Your study partner in Biology class is really attractive. You've known this person for over a semester, and you think they are attractive. As you are studying together, the conversation drifts from Biology to other, more personal things and you have a bonding session. You end up talking late into the night and decide to go back to your place to continue the conversation. During this conversation, you kiss your study partner.

SD SA

71. I am likely to have vaginal sex with this person tonight. 1 2 3 4 5

72. I am likely to have oral sex with this person tonight. 1 2 3 4 5

73. I am likely to have anal sex with this person tonight. 1 2 3 4 5

74. I am likely to engage in other sexual activities (including kissing, hugging, etc.) with this person tonight in addition to the kiss that has already occurred. 1 2 3 4 5

**For this section, please use the bubble answer sheet. Fill in your response completely on the sheet. If you answer other, please list your response directly on the survey.**

75. Gender 1 Male
2 Female

76. Classification
1 First Year
2 Second Year
3 Third Year
4 Fourth or Higher Year
5 Graduate or Professional Student

77. Ethnicity
1 White
2 Black
3 Asian
4 Hispanic
5 Other, please indicate _____

78. I have engaged in sexual activity (including kissing, hugging, etc.) with.....
1 Men
2 Women
3 Both men and women

79. I primarily identify as (please indicate only one)
1 Heterosexual
2 Gay Male
3 Lesbian
4 Bisexual
5 Other _____

80. Relationship status:
1 Single, not dating anyone
2 Single, dating one person exclusively
3 Single, dating multiple individuals
4 Committed relationship in which you are living together, including marriage

**For these five questions, LIST YOUR RESPONSE DIRECTLY ON THE SURVEY. Do not use the bubble answer sheet.**

81. Age __ __

82. In my lifetime, I have engaged in oral sex with _____ (number) of people.

83. In my lifetime, I have engaged in vaginal sex with _____ (number) of people.

84. In my lifetime, I have engaged in anal sex with _____ (number) of people.

85. Please list the LAST four numbers of your student ID ___ ____ ____ ____

# APPENDIX F

## DESCRIPTIVE STATISTICS FOR MODEL ANALYSIS ITEMS (n=496)

F1. Descriptive Statistics For Model Analysis Items

| | Response Number | Frequency | | | | | Mean | Standard Deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | | | | Strongly Disagree | | | | |
| Concern for Risk: | | | | | | | | | | |
| Pregnancy | 496 | 303 | 108 | 60 | 13 | 12 | 4.36 | .961 | -1.62 | 2.27 |
| Pregnancy 2 | 496 | 246 | 125 | 67 | 30 | 28 | 4.07 | 1.17 | -1.21 | .54 |
| Disease | 496 | 250 | 99 | 73 | 48 | 26 | 4.01 | 1.23 | -1.02 | -.14 |
| Disease 2 | 495 | 247 | 114 | 62 | 39 | 33 | 4.02 | 1.24 | -1.12 | .15 |
| Future: | | | | | | | | | | |
| Accomplish many things (omitted) | 496 | 116 | 59 | 87 | 111 | 123 | 2.87 | 1.50 | .20 | -.14 |
| Get to do everything (omitted) | 496 | 67 | 55 | 86 | 145 | 143 | 2.51 | 1.37 | .57 | -.90 |
| Committed relationship | 495 | 266 | 78 | 70 | 45 | 36 | 4.00 | 1.30 | -1.03 | -.22 |
| First date | 496 | 353 | 68 | 31 | 26 | 18 | 4.44 | 1.06 | -1.94 | 2.81 |
| Just met (omitted) | 496 | 368 | 62 | 30 | 24 | 12 | 4.51 | .98 | -2.11 | 3.66 |
| Hardly know (omitted) | 496 | 378 | 61 | 25 | 20 | 12 | 4.56 | .94 | -2.33 | 4.74 |
| One-night stand | 496 | 337 | 70 | 43 | 25 | 21 | 4.36 | 1.10 | -1.75 | 2.05 |
| Obligation: | | | | | | | | | | |
| My obligation | 494 | 63 | 83 | 117 | 101 | 130 | 2.69 | 1.36 | .24 | -1.14 |
| Partner's obligation | 494 | 62 | 87 | 114 | 103 | 128 | 2.70 | 1.36 | .23 | -1.15 |
| My pressure | 494 | 25 | 49 | 110 | 104 | 206 | 2.16 | 1.21 | .72 | -.525 |
| Partner pressure | 495 | 36 | 73 | 89 | 118 | 179 | 2.33 | 1.30 | .58 | -.86 |
| Social Norms: | | | | | | | | | | |
| # of my friends having sex (omitted) | 496 | 11 | 44 | 56 | 105 | 280 | 1.79 | 1.09 | 1.24 | .50 |
| # of my partner's friends (omitted) | 496 | 8 | 21 | 39 | 96 | 332 | 1.54 | .93 | 1.85 | 2.91 |
| Friends think not cool (omitted) | 496 | 3 | 7 | 17 | 52 | 417 | 1.24 | .64 | 3.23 | 11.50 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Friends ridicule (omitted) | 496 | 4 | 8 | 20 | 70 | 394 | 1.30 | .70 | 2.81 | 8.73 |
| Friends think less (omitted) | 496 | 2 | 6 | 13 | 59 | 416 | 1.22 | .59 | 3.28 | 12.45 |
| Friends make fun (omitted) | 496 | 6 | 9 | 27 | 68 | 386 | 1.35 | .77 | 2.60 | 7.10 |
| Relational Concerns: | | | | | | | | | | |
| My liking | 496 | 198 | 164 | 65 | 28 | 41 | 3.91 | 1.22 | -1.10 | .30 |
| My partner's liking for me | 495 | 181 | 158 | 75 | 40 | 41 | 3.80 | 1.25 | -.91 | -.16 |
| My love | 495 | 264 | 130 | 49 | 21 | 31 | 4.16 | 1.16 | -1.46 | 1.28 |
| My partner's love for me | 496 | 256 | 126 | 58 | 23 | 33 | 4.11 | 1.19 | -1.34 | .87 |
| My awareness of partner's feelings | 496 | 186 | 188 | 65 | 21 | 36 | 3.94 | 1.15 | -1.20 | .78 |
| My partner's awareness of my feelings | 496 | 179 | 166 | 84 | 30 | 37 | 3.85 | 1.19 | -.98 | .15 |
| Possibility of marriage (omitted) | 496 | 209 | 139 | 73 | 37 | 38 | 3.90 | 1.24 | -.99 | -.03 |
| Degree of commitment | 496 | 230 | 146 | 57 | 26 | 37 | 4.02 | 1.21 | -1.23 | .60 |
| Developmental Stage: | | | | | | | | | | |
| Share my most intimate thoughts | 495 | 162 | 167 | 116 | 37 | 13 | 3.86 | 1.04 | -.69 | -.11 |
| Take care of partner | 496 | 306 | 143 | 41 | 3 | 5 | 4.50 | .73 | -1.58 | 2.97 |
| Be with those who make life more comfortable/stable | 496 | 286 | 160 | 39 | 8 | 3 | 4.45 | .76 | -1.51 | 2.64 |
| Whom I might fall in love | 496 | 283 | 143 | 52 | 13 | 5 | 4.38 | .85 | -1.47 | 2.06 |
| Consider partner best friend | 495 | 250 | 135 | 82 | 19 | 9 | 4.21 | .97 | -1.16 | .82 |
| Spend substantial amount of time with partner | 496 | 212 | 198 | 71 | 11 | 4 | 4.22 | .83 | -1.00 | 1.01 |
| Consistently date someone | 494 | 147 | 136 | 98 | 63 | 50 | 3.54 | 1.31 | -.54 | -.83 |
| Focus on future | 496 | 133 | 185 | 115 | 50 | 13 | 3.76 | 1.04 | -.60 | -.25 |
| Be with those I can count on | 495 | 294 | 162 | 32 | 6 | 1 | 4.50 | .69 | -1.40 | 2.15 |
| Physical Gratification: | | | | | | | | | | |
| My physical arousal - immediately before | 494 | 105 | 196 | 101 | 50 | 42 | 3.55 | 1.18 | -.70 | -.30 |
| My partner's physical arousal - immediately before | 493 | 92 | 180 | 111 | 60 | 50 | 3.41 | 1.20 | -.55 | -.60 |
| My arousal during the day | 494 | 77 | 186 | 135 | 47 | 49 | 3.39 | 1.16 | -.59 | -.35 |
| My partner's arousal during the day | 494 | 72 | 176 | 146 | 49 | 57 | 3.34 | 1.16 | -.53 | -.41 |
| My receptivity | 495 | 98 | 196 | 115 | 42 | 44 | 3.53 | 1.16 | -.71 | -.20 |
| My partner's receptivity to me | 495 | 106 | 206 | 105 | 34 | 44 | 3.60 | 1.16 | -.82 | .001 |
| My arousal prior to seeing partner | 495 | 71 | 150 | 160 | 58 | 52 | 3.25 | 1.18 | -.38 | -.59 |
| My partner's arousal prior to seeing me | 494 | 63 | 146 | 161 | 68 | 56 | 3.19 | 1.17 | -.31 | -.64 |
| Physical attractiveness of my partner | 494 | 141 | 198 | 90 | 32 | 33 | 3.77 | 1.13 | -.93 | .27 |
| Level of Sexual Experience: | | | | | | | | | | |
| # of oral sex partners | 467 | | | | | | 4.03 | 5.29 | 3.30 | 18.88 |
| # of vaginal sex partners | 473 | | | | | | 2.97 | 5.69 | 6.44 | 64.84 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SE Alcohol: | | | | | | | | | | |
| Refuse sex when intoxicated | 476 | 261 | 91 | 72 | 30 | 22 | 4.13 | 1.16 | -1.21 | .48 |
| Refuse sex when drinking | 477 | 277 | 94 | 68 | 22 | 16 | 4.25 | 1.07 | -1.38 | 1.13 |
| Refuse sex when partner has been drinking | 480 | 313 | 90 | 50 | 15 | 12 | 4.41 | .97 | 1.77 | 2.65 |
| SE Communication: | | | | | | | | | | |
| Talk about sex | 494 | 253 | 145 | 64 | 24 | 8 | 4.24 | .96 | -1.23 | 1.08 |
| Talk about alternatives to high risk behaviors | 494 | 229 | 133 | 93 | 28 | 11 | 4.10 | 1.04 | -.98 | .26 |
| Talk about intimacy w/o sexual activity | 494 | 244 | 140 | 74 | 22 | 14 | 4.17 | 1.03 | -1.23 | 1.00 |
| Talk about past histories | 494 | 211 | 142 | 81 | 41 | 19 | 3.98 | 1.13 | -.96 | .08 |
| Talk about past sexual behaviors | 493 | 200 | 144 | 77 | 51 | 21 | 3.91 | 1.16 | -.88 | -.18 |
| Talk about how sex influences relationship | 495 | 241 | 159 | 73 | 18 | 4 | 4.24 | .90 | -1.08 | .71 |
| SE SDM: | | | | | | | | | | |
| Able to make sexual decisions consistent with values | 496 | 209 | 148 | 97 | 35 | 7 | 4.04 | 1.01 | -.82 | -.11 |
| Able to make healthy sexual decisions | 495 | 245 | 167 | 61 | 20 | 2 | 4.28 | .86 | -1.11 | .73 |
| Confident in my sexual decision-making | 495 | 239 | 155 | 66 | 26 | 9 | 4.19 | .98 | -1.20 | .94 |
| Able to make sexual decisions I won't regret | 496 | 179 | 166 | 93 | 43 | 15 | 3.91 | 1.08 | -.82 | -.04 |
| It is difficult for me to follow through with healthy decisions | 496 | 21 | 49 | 66 | 147 | 213 | 2.03 | 1.16 | -.99 | .03 |
| It is difficult for me to make good sexual decisions. | 496 | 13 | 26 | 58 | 143 | 256 | 1.78 | 1.02 | -1.35 | 1.27 |
| Vignette One | | | | | | | | | | |
| Vaginal sex | 490 | 16 | 33 | 55 | 40 | 346 | 1.64 | 1.12 | 1.60 | 1.35 |
| Oral sex | 489 | 26 | 75 | 67 | 51 | 270 | 2.05 | 1.35 | .84 | -.78 |
| Other sexual behaviors | 489 | 151 | 125 | 106 | 39 | 68 | 3.52 | 1.37 | -.59 | -.83 |
| Vignette Two | | | | | | | | | | |
| Vaginal sex | 492 | 69 | 117 | 87 | 51 | 168 | 2.73 | 1.49 | .10 | -1.46 |
| Oral sex | 492 | 137 | 143 | 70 | 29 | 113 | 3.33 | 1.51 | -.49 | -1.22 |
| Other sexual behaviors | 492 | 342 | 94 | 32 | 7 | 17 | 4.50 | .94 | -2.24 | 4.95 |
| Vignette Three | | | | | | | | | | |
| Vaginal sex | 493 | 13 | 23 | 58 | 63 | 336 | 1.61 | 1.04 | 2.67 | 1.88 |
| Oral sex | 493 | 20 | 41 | 76 | 69 | 287 | 1.86 | 1.19 | 1.15 | .15 |
| Other sexual behaviors | 493 | 181 | 155 | 85 | 26 | 46 | 3.81 | 1.25 | -.96 | -.11 |

F2. Descriptive Statistics For Items, Females Only

| | Response Number | Frequency | | | | | Mean | Standard Deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | | | | Strongly Disagree | | | | |
| Concern for Risk: | | | | | | | | | | |
| Pregnancy | 328 | 220 | 66 | 30 | 5 | 7 | 4.48 | .885 | -1.993 | 4.029 |
| Pregnancy 2 | 328 | 180 | 80 | 37 | 19 | 12 | 4.21 | 1.087 | -1.389 | 1.159 |
| Disease | 328 | 178 | 65 | 47 | 25 | 13 | 4.13 | 1.156 | -1.173 | .355 |
| Disease 2 | 328 | 179 | 71 | 39 | 22 | 17 | 4.14 | 1.177 | -1.288 | .660 |
| Future: | | | | | | | | | | |
| Accomplish many things (omitted) | 328 | 92 | 38 | 68 | 66 | 64 | 3.09 | 1.490 | .009 | -1.405 |
| Get to do everything (omitted) | 328 | 51 | 43 | 65 | 91 | 78 | 2.69 | 1.375 | .382 | -1.078 |
| Committed relationship | 328 | 217 | 48 | 37 | 18 | 8 | 4.37 | 1.041 | -1.597 | 1.635 |
| First date | 328 | 281 | 29 | 10 | 3 | 5 | 4.76 | .694 | -3.622 | 14.215 |
| Just met (omitted) | 328 | 293 | 24 | 4 | 2 | 5 | 4.82 | .625 | -4.542 | 22.500 |
| Hardly know (omitted) | 328 | 293 | 26 | 3 | 2 | 4 | 4.84 | .583 | -4.717 | 25.076 |
| One-night stand | 328 | 277 | 32 | 9 | 4 | 6 | 4.74 | .737 | -3.467 | 12.719 |
| Obligation: | | | | | | | | | | |
| My obligation | 326 | 46 | 47 | 70 | 66 | 97 | 2.63 | 1.403 | .339 | -1.158 |
| Partner's obligation | 326 | 41 | 44 | 67 | 75 | 99 | 2.55 | 1.373 | .435 | -1.040 |
| My pressure | 326 | 15 | 25 | 60 | 68 | 158 | 1.99 | 1.181 | .977 | -.040 |
| Partner pressure | 327 | 27 | 45 | 49 | 76 | 130 | 2.28 | 1.331 | .687 | -.791 |
| Social Norms: | | | | | | | | | | |
| # of my friends having sex (omitted) | 328 | 8 | 22 | 34 | 62 | 202 | 1.70 | 1.057 | 1.478 | 1.264 |
| # of my partner's friends (omitted) | 328 | 6 | 8 | 20 | 53 | 241 | 1.43 | .857 | 2.328 | 5.382 |
| Friends think not cool (omitted) | 328 | 1 | 1 | 4 | 28 | 294 | 1.13 | .440 | 4.521 | 26.558 |
| Friends ridicule (omitted) | 328 | 1 | 0 | 5 | 25 | 297 | 1.12 | .415 | 4.658 | 28.909 |
| Friends think less (omitted) | 328 | 1 | 3 | 1 | 21 | 302 | 1.11 | .443 | 5.412 | 34.675 |
| Friends make fun (omitted) | 328 | 4 | 1 | 5 | 28 | 290 | 1.17 | .583 | 4.527 | 23.689 |
| Relational Concerns: | | | | | | | | | | |
| My liking | 328 | 134 | 98 | 46 | 20 | 30 | 3.87 | 1.267 | -1.029 | .034 |
| My partner's liking for me | 328 | 125 | 94 | 53 | 29 | 27 | 3.80 | 1.265 | -.859 | -.309 |
| My love | 328 | 187 | 84 | 23 | 11 | 23 | 4.22 | 1.166 | -1.640 | 1.803 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| My partner's love for me | 328 | 184 | 75 | 32 | 13 | 24 | 4.16 | 1.205 | -1.469 | 1.164 |
| My awareness of partner's feelings | 328 | 126 | 123 | 37 | 15 | 27 | 3.93 | 1.192 | -1.211 | .675 |
| My partner's awareness of my feelings | 328 | 125 | 114 | 48 | 14 | 27 | 3.90 | 1.197 | -1.123 | .476 |
| Possibility of marriage (omitted) | 328 | 152 | 96 | 42 | 16 | 22 | 4.04 | 1.180 | -1.239 | .704 |
| Degree of commitment | 328 | 173 | 97 | 23 | 11 | 24 | 4.17 | 1.168 | -1.574 | 1.643 |
| Developmental Stage: | | | | | | | | | | |
| Share my most intimate thoughts | 327 | 128 | 105 | 70 | 15 | 9 | 4.00 | 1.020 | -.897 | .355 |
| Take care of partner | 328 | 194 | 100 | 30 | 2 | 2 | 4.47 | .737 | -1.461 | 2.503 |
| Be with those who make life more comfortable/stable | 328 | 194 | 101 | 25 | 6 | 2 | 4.46 | .765 | -1.576 | 2.798 |
| Whom I might fall in love | 328 | 199 | 89 | 29 | 8 | 3 | 4.44 | .826 | -1.634 | 2.695 |
| Consider partner best friend | 327 | 192 | 80 | 43 | 8 | 4 | 4.37 | .890 | -1.428 | 1.711 |
| Spend substantial amount of time with partner | 328 | 152 | 130 | 40 | 4 | 2 | 4.30 | .776 | -1.049 | 1.277 |
| Consistently date someone | 326 | 105 | 91 | 59 | 35 | 36 | 3.60 | 1.330 | -.641 | -.743 |
| Focus on future | 328 | 105 | 132 | 59 | 25 | 7 | 3.92 | .997 | -.833 | .243 |
| Be with those I can count on | 327 | 224 | 86 | 13 | 3 | 1 | 4.62 | .639 | -1.937 | 4.803 |
| Physical Gratification: | | | | | | | | | | |
| My physical arousal - immediately before | 326 | 61 | 125 | 68 | 39 | 33 | 3.44 | 1.213 | -.593 | -.556 |
| My partner's physical arousal - immediately before | 325 | 46 | 114 | 74 | 49 | 42 | 3.22 | 1.241 | -.395 | -.854 |
| My arousal during the day | 326 | 41 | 126 | 85 | 34 | 40 | 3.29 | 1.186 | -.563 | -.530 |
| My partner's arousal during the day | 326 | 36 | 114 | 93 | 40 | 43 | 3.18 | 1.188 | -.438 | -.672 |
| My receptivity | 327 | 48 | 128 | 82 | 33 | 36 | 3.36 | 1.180 | -.602 | -.439 |
| My partner's receptivity to me | 327 | 54 | 138 | 71 | 28 | 36 | 3.45 | 1.189 | -.721 | -.303 |
| My arousal prior to seeing partner | 327 | 41 | 98 | 99 | 44 | 45 | 3.14 | 1.213 | -.314 | -.771 |
| My partner's arousal prior to seeing me | 326 | 32 | 96 | 102 | 49 | 47 | 3.05 | 1.190 | -.267 | -.789 |
| Physical attractiveness of my partner | 327 | 70 | 134 | 66 | 28 | 29 | 3.57 | 1.175 | -.769 | -.161 |
| Level of Sexual Experience: | | | | | | | | | | |
| # of oral sex partners | 309 | | | | | | 3.07 | 4.086 | 3.073 | 12.810 |
| # of vaginal sex partners | 313 | | | | | | 2.42 | 4.439 | 5.344 | 44.861 |
| SE Alcohol: | | | | | | | | | | |
| Refuse sex when intoxicated | 314 | 199 | 58 | 30 | 15 | 12 | 4.33 | 1.077 | -1.655 | 1.922 |
| Refuse sex when drinking | 315 | 214 | 53 | 30 | 9 | 9 | 4.44 | .977 | -1.907 | 3.152 |
| Refuse sex when partner has been drinking | 318 | 240 | 46 | 20 | 6 | 6 | 4.60 | .842 | -2.452 | 6.078 |
| SE Communication: | | | | | | | | | | |
| Talk about sex | 326 | 196 | 89 | 28 | 9 | 4 | 4.42 | .855 | -1.676 | 2.832 |
| Talk about alternatives to high risk behaviors | 326 | 178 | 86 | 43 | 13 | 6 | 4.28 | .963 | -1.353 | 1.369 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Talk about intimacy w/o sexual activity | 326 | 195 | 82 | 35 | 8 | 6 | 4.39 | .907 | -1.639 | 2.567 |
| Talk about past histories | 326 | 167 | 90 | 37 | 19 | 13 | 4.16 | 1.093 | -1.336 | 1.067 |
| Talk about past sexual behaviors | 325 | 154 | 90 | 42 | 25 | 14 | 4.06 | 1.140 | -1.141 | .429 |
| Talk about how sex influences relationship | 327 | 192 | 90 | 36 | 6 | 3 | 4.41 | .828 | -1.484 | 2.163 |
| SE SDM: | | | | | | | | | | |
| Able to make sexual decisions consistent with values | 328 | 157 | 93 | 51 | 21 | 6 | 4.14 | 1.019 | -1.069 | .428 |
| Able to make healthy sexual decisions | 328 | 184 | 100 | 28 | 14 | 2 | 4.37 | .858 | -1.440 | 1.755 |
| Confident in my sexual decision-making | 328 | 172 | 96 | 38 | 17 | 5 | 4.26 | .959 | -1.313 | 1.218 |
| Able to make sexual decisions I won't regret | 328 | 129 | 113 | 56 | 21 | 9 | 4.01 | 1.034 | -.975 | .417 |
| It is difficult for me to follow through with healthy decisions | 328 | 11 | 25 | 35 | 88 | 169 | 1.84 | 1.099 | 1.271 | .768 |
| It is difficult for me to make good sexual decisions. | 328 | 8 | 12 | 30 | 92 | 186 | 1.67 | .959 | 1.623 | 2.391 |
| Vignette One | | | | | | | | | | |
| Vaginal sex | 326 | 1 | 5 | 14 | 20 | 286 | 1.21 | .616 | 3.344 | 11.488 |
| Oral sex | 325 | 2 | 21 | 31 | 34 | 237 | 1.51 | .951 | 1.735 | 1.838 |
| Other sexual behaviors | 325 | 59 | 88 | 88 | 31 | 59 | 3.18 | 1.339 | -.324 | -.999 |
| Vignette Two | | | | | | | | | | |
| Vaginal sex | 326 | 22 | 68 | 57 | 38 | 141 | 2.36 | 1.387 | .417 | -1.292 |
| Oral sex | 326 | 16 | 86 | 57 | 23 | 94 | 3.02 | 1.518 | -.185 | -1.443 |
| Other sexual behaviors | 326 | 215 | 72 | 22 | 7 | 10 | 4.46 | .940 | -2.081 | 4.230 |
| Vignette Three | | | | | | | | | | |
| Vaginal sex | 327 | 3 | 4 | 14 | 34 | 272 | 1.26 | .681 | 3.127 | 10.713 |
| Oral sex | 327 | 4 | 8 | 24 | 47 | 244 | 1.41 | .828 | 2.241 | 4.871 |
| Other sexual behaviors | 327 | 89 | 11 | 67 | 23 | 37 | 3.59 | 1.269 | -.736 | -.417 |

F3. Descriptive Statistics For Items, Males Only

| | Response Number | Frequency | | | | | Mean | Standard Deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | | | | Strongly Disagree | | | | |
| Concern for Risk: | | | | | | | | | | |
| Pregnancy | 167 | 82 | 42 | 30 | 8 | 5 | 4.13 | 1.060 | -1.116 | .596 |
| Pregnancy 2 | 167 | 65 | 45 | 30 | 11 | 16 | 3.79 | 1.289 | -.884 | -.260 |
| Disease | 167 | 72 | 33 | 26 | 23 | 13 | 3.77 | 1.340 | -.706 | -.803 |
| Disease 2 | 166 | 68 | 42 | 23 | 17 | 16 | 3.78 | 1.337 | -.833 | -.531 |
| Future: | | | | | | | | | | |
| Accomplish many things (omitted) | 167 | 24 | 21 | 19 | 44 | 59 | 2.44 | 1.442 | .615 | -1.021 |
| Get to do everything (omitted) | 167 | 16 | 12 | 21 | 54 | 64 | 2.17 | 1.280 | .996 | -.063 |
| Committed relationship | 166 | 49 | 30 | 33 | 26 | 28 | 3.28 | 1.459 | -.244 | -1.305 |
| First date | 167 | 72 | 39 | 21 | 22 | 13 | 3.81 | 1.326 | -.803 | -.634 |
| Just met (omitted) | 167 | 75 | 38 | 26 | 21 | 7 | 3.92 | 1.219 | -.827 | -.481 |
| Hardly know (omitted) | 167 | 85 | 35 | 22 | 17 | 8 | 4.03 | 1.219 | -1.046 | -.053 |
| One-night stand | 167 | 60 | 38 | 34 | 20 | 15 | 3.65 | 1.318 | -.603 | -.794 |
| Obligation: | | | | | | | | | | |
| My obligation | 167 | 17 | 36 | 46 | 35 | 33 | 2.81 | 1.264 | .066 | -1.019 |
| Partner's obligation | 167 | 21 | 43 | 46 | 28 | 29 | 2.99 | 1.278 | -.129 | -1.016 |
| My pressure | 167 | 10 | 24 | 49 | 36 | 48 | 2.47 | 1.216 | .328 | -.859 |
| Partner pressure | 167 | 9 | 28 | 40 | 41 | 49 | 2.44 | 1.225 | .372 | -.929 |
| Social Norms: | | | | | | | | | | |
| # of my friends having sex (omitted) | 167 | 3 | 22 | 21 | 43 | 78 | 1.98 | 1.135 | .898 | -.370 |
| # of my partner's friends (omitted) | 167 | 2 | 12 | 19 | 43 | 91 | 1.75 | .998 | 1.259 | .764 |
| Friends think not cool (omitted) | 167 | 2 | 6 | 13 | 24 | 122 | 1.46 | .876 | 2.070 | 3.825 |
| Friends ridicule (omitted) | 167 | 3 | 8 | 15 | 44 | 97 | 1.66 | .955 | 1.571 | 2.054 |
| Friends think less (omitted) | 167 | 1 | 3 | 12 | 37 | 114 | 1.44 | .757 | 1.922 | 3.908 |
| Friends make fun (omitted) | 167 | 2 | 8 | 22 | 39 | 96 | 1.69 | .956 | 1.331 | 1.096 |
| Relational Concerns: | | | | | | | | | | |
| My liking | 167 | 64 | 65 | 19 | 8 | 11 | 3.98 | 1.135 | -1.253 | .979 |
| My partner's liking for me | 166 | 56 | 63 | 22 | 11 | 14 | 3.82 | 1.213 | -1.031 | .212 |
| My love | 166 | 77 | 45 | 26 | 10 | 8 | 4.04 | 1.141 | -1.125 | .488 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| My partner's love for me | 167 | 72 | 50 | 26 | 10 | 9 | 3.99 | 1.149 | -1.099 | .463 |
| My awareness of partner's feelings | 167 | 60 | 64 | 28 | 6 | 9 | 3.96 | 1.077 | -1.144 | .985 |
| My partner's awareness of my feelings | 167 | 54 | 51 | 36 | 16 | 10 | 3.74 | 1.183 | -.711 | -.331 |
| Possibility of marriage (omitted) | 167 | 57 | 42 | 31 | 21 | 16 | 3.62 | 1.325 | -.601 | -.811 |
| Degree of commitment | 167 | 57 | 48 | 34 | 15 | 13 | 3.72 | 1.240 | -.746 | -.390 |
| Developmental Stage: | | | | | | | | | | |
| Share my most intimate thoughts | 167 | 34 | 62 | 45 | 22 | 4 | 3.60 | 1.030 | -.403 | -.477 |
| Take care of partner | 167 | 111 | 43 | 11 | 1 | 1 | 4.57 | .698 | -1.860 | 4.317 |
| Be with those who make life more comfortable/stable | 167 | 91 | 59 | 14 | 2 | 1 | 4.42 | .747 | -1.386 | 2.440 |
| Whom I might fall in love | 167 | 83 | 54 | 23 | 5 | 2 | 4.26 | .893 | -1.213 | 1.278 |
| Consider partner best friend | 167 | 58 | 54 | 39 | 11 | 5 | 3.89 | 1.053 | -.753 | .008 |
| Spend substantial amount of time with partner | 167 | 60 | 67 | 31 | 7 | 2 | 4.05 | .907 | -.843 | .499 |
| Consistently date someone | 167 | 42 | 44 | 39 | 28 | 14 | 3.43 | 1.263 | -.351 | -.930 |
| Focus on future | 167 | 28 | 52 | 56 | 25 | 6 | 3.43 | 1.049 | -.227 | -.529 |
| Be with those I can count on | 167 | 70 | 75 | 19 | 3 | 0 | 4.27 | .732 | -.749 | .197 |
| Physical Gratification: | | | | | | | | | | |
| My physical arousal - immediately before | 167 | 44 | 70 | 33 | 11 | 9 | 3.77 | 1.079 | -.902 | .408 |
| My partner's physical arousal - immediately before | 167 | 46 | 65 | 37 | 11 | 8 | 3.78 | 1.072 | -.823 | .268 |
| My arousal during the day | 167 | 36 | 59 | 50 | 13 | 9 | 3.60 | 1.076 | -.583 | -.060 |
| My partner's arousal during the day | 167 | 36 | 61 | 53 | 9 | 8 | 3.65 | 1.030 | -.619 | .216 |
| My receptivity | 167 | 50 | 67 | 33 | 9 | 8 | 3.85 | 1.062 | -.948 | .568 |
| My partner's receptivity to me | 167 | 52 | 67 | 34 | 6 | 8 | 3.89 | 1.041 | -1.012 | .855 |
| My arousal prior to seeing partner | 167 | 30 | 51 | 61 | 14 | 11 | 3.45 | 1.085 | -.427 | -.176 |
| My partner's arousal prior to seeing me | 167 | 31 | 49 | 59 | 19 | 9 | 3.44 | 1.084 | -.325 | -.380 |
| Physical attractiveness of my partner | 166 | 71 | 63 | 24 | 4 | 4 | 4.16 | .930 | -1.247 | 1.711 |
| Level of Sexual Experience: | | | | | | | | | | |
| # of oral sex partners | 157 | | | | | | 5.81 | 6.639 | 3.014 | 16.219 |
| # of vaginal sex partners | 159 | | | | | | 3.95 | 7.382 | 6.264 | 54.855 |
| SE Alcohol: | | | | | | | | | | |
| Refuse sex when intoxicated | 161 | 62 | 33 | 41 | 15 | 10 | 3.76 | 1.234 | -.639 | -.585 |
| Refuse sex when drinking | 161 | 63 | 40 | 38 | 13 | 7 | 3.86 | 1.154 | -.743 | -.298 |
| Refuse sex when partner has been drinking | 161 | 73 | 43 | 30 | 9 | 6 | 4.04 | 1.097 | -1.035 | .380 |
| SE Communication: | | | | | | | | | | |
| Talk about sex | 167 | 57 | 55 | 36 | 15 | 4 | 3.87 | 1.060 | -.699 | -.227 |
| Talk about alternatives to high risk behaviors | 167 | 51 | 46 | 50 | 15 | 5 | 3.74 | 1.082 | -.468 | -.497 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Talk about intimacy w/o sexual activity | 167 | 49 | 57 | 39 | 14 | 8 | 3.75 | 1.112 | -.710 | -.119 |
| Talk about past histories | 167 | 44 | 51 | 44 | 22 | 6 | 3.63 | 1.117 | -.433 | -.625 |
| Talk about past sexual behaviors | 167 | 46 | 53 | 35 | 26 | 7 | 3.63 | 1.164 | -.490 | -.721 |
| Talk about how sex influences relationship | 167 | 49 | 68 | 37 | 12 | 1 | 3.91 | .924 | -.562 | -.259 |
| SE SDM: | | | | | | | | | | |
| Able to make sexual decisions consistent with values | 167 | 52 | 55 | 45 | 14 | 1 | 3.86 | .977 | -.412 | -.686 |
| Able to make healthy sexual decisions | 166 | 61 | 67 | 32 | 6 | 0 | 4.10 | .836 | -.574 | -.427 |
| Confident in my sexual decision-making | 166 | 67 | 59 | 27 | 9 | 4 | 4.06 | 1.001 | -1.039 | .693 |
| Able to make sexual decisions I won't regret | 167 | 50 | 53 | 37 | 21 | 6 | 3.72 | 1.129 | -.569 | -.538 |
| It is difficult for me to follow through with healthy decisions | 167 | 10 | 23 | 31 | 59 | 44 | 2.38 | 1.185 | .615 | -.534 |
| It is difficult for me to make good sexual decisions. | 167 | 5 | 14 | 27 | 51 | 70 | 2.00 | 1.092 | .955 | .132 |
| Vignette One | | | | | | | | | | |
| Vaginal sex | 163 | 14 | 28 | 41 | 20 | 60 | 2.48 | 1.362 | .314 | -1.191 |
| Oral sex | 163 | 23 | 54 | 36 | 17 | 33 | 3.10 | 1.345 | -.346 | -1.093 |
| Other sexual behaviors | 163 | 91 | 37 | 18 | 8 | 9 | 4.18 | 1.156 | -1.434 | 1.187 |
| Vignette Two | | | | | | | | | | |
| Vaginal sex | 165 | 46 | 49 | 30 | 13 | 27 | 3.45 | 1.399 | -.583 | -.907 |
| Oral sex | 165 | 70 | 57 | 13 | 6 | 19 | 3.93 | 1.300 | -1.246 | .444 |
| Other sexual behaviors | 165 | 126 | 22 | 10 | 0 | 7 | 4.58 | .938 | -2.645 | 6.850 |
| Vignette Three | | | | | | | | | | |
| Vaginal sex | 165 | 9 | 19 | 44 | 29 | 64 | 2.27 | 1.241 | .532 | -.799 |
| Oral sex | 165 | 15 | 33 | 52 | 22 | 43 | 2.73 | 1.294 | .043 | -1.081 |
| Other sexual behaviors | 165 | 91 | 44 | 18 | 3 | 9 | 4.24 | 1.083 | -1.634 | 2.205 |

# APPENDIX G

## DESCRIPTIVE STATISTICS FOR EACH SCALE (n=496)

| **Component** | **Range** | **M (SD)** | **Skewness** | **Kurtosis** | **Correlation Oral Sex** | **Correlation Vaginal Sex** | **Correlation Other Sexual Behaviors** |
|---|---|---|---|---|---|---|---|
| Concern for risk | 4.0 | 4.11 (.94) | -1.01 | .33 | -.29** | -.35** | -.08 |
| Future | 4.0 | 2.27 (1.04) | -1.51 | 1.37 | -.59** | -.73** | -.31** |
| Obligation | 4.0 | 2.47 (1.12) | .29 | -.869 | .19** | .20** | .10** |
| Relational concerns | 4.0 | 3.97 (1.01) | -1.32 | 1.44 | .18** | .04 | .27** |
| Developmental stage | 3.78 | 4.16 (.60) | -.86 | 1.35 | -.14** | -.23** | -.07 |
| Physical gratification | 4.0 | 3.45 (.97) | -.83 | .42 | .45** | .37** | .38** |
| Level of sexual experience | 100.0 | 7.02 (10.08) | 3.91 | 23.69 | .43** | .46** | .24** |
| Self-efficacy – alcohol | 4.0 | 4.26 (1.00) | -1.31 | 1.03 | -.34** | -.41** | -.09* |
| Self-efficacy – communication | 4.0 | 4.11 (.84) | -.83 | .26 | -.26** | -.29** | -.09** |
| Self-efficacy – decision-making | 4.0 | 4.10 (.79) | -.75 | .04 | -.40** | -.49** | -.24** |

*p-value<.05, **p-value<.01

# APPENDIX H

## CORRELATION MATRIX FOR TOTAL SAMPLE (n=496)

| | Risk | Future | Obligation | Relational | Developmental | Physical gratification | SE alcohol | SE comm. | SE SDM | Level of experience | Vaginal sex | Oral sex | Other Sexual Behaviors |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Risk | 1.000 | | | | | | | | | | | | |
| Future | .340** | 1.000 | | | | | | | | | | | |
| Obligation | -.038 | -.117** | 1.000 | | | | | | | | | | |
| Relational | .031 | .074 | .237** | 1.000 | | | | | | | | | |
| Developmental | .114* | .238** | .014 | .313** | 1.000 | | | | | | | | |
| Physical gratification | -.137** | -.234** | .364** | .543** | .112* | 1.000 | | | | | | | |
| SE alcohol | .316** | .366** | -.240** | .070 | .233** | -.161** | 1.000 | | | | | | |
| SE comm. | .188** | .282** | -.124** | .166** | .417** | -.038 | .374** | 1.000 | | | | | |
| SE SDM | .242** | .409** | -.275** | -.085 | .209** | -.267** | .327** | .391** | 1.000 | | | | |
| Level of experience | -.206** | -.447** | .083 | .093* | -.114* | .234** | -.269** | -.149** | -.396** | 1.000 | | | |
| Vaginal sex | -.346** | -.733** | .201** | .037 | -.232** | .365** | -.407** | -.288** | -.490** | .457** | 1.000 | | |
| Oral sex | -.288** | -.591** | .189** | .183** | -.138** | .451** | -.339** | -.255** | -.403** | .431** | .769** | 1.000 | |
| Other sexual behaviors | -.077 | -.312** | .099* | .274** | -.067 | .381** | -.090* | -.093** | -.239** | .242** | .623** | .452** | 1.000 |

* p-value < 0.05 (2-tailed), ** p-value<.01 (2-tailed)

# APPENDIX I

## FIGURES OF NONPROPER SOLUTION MODELS

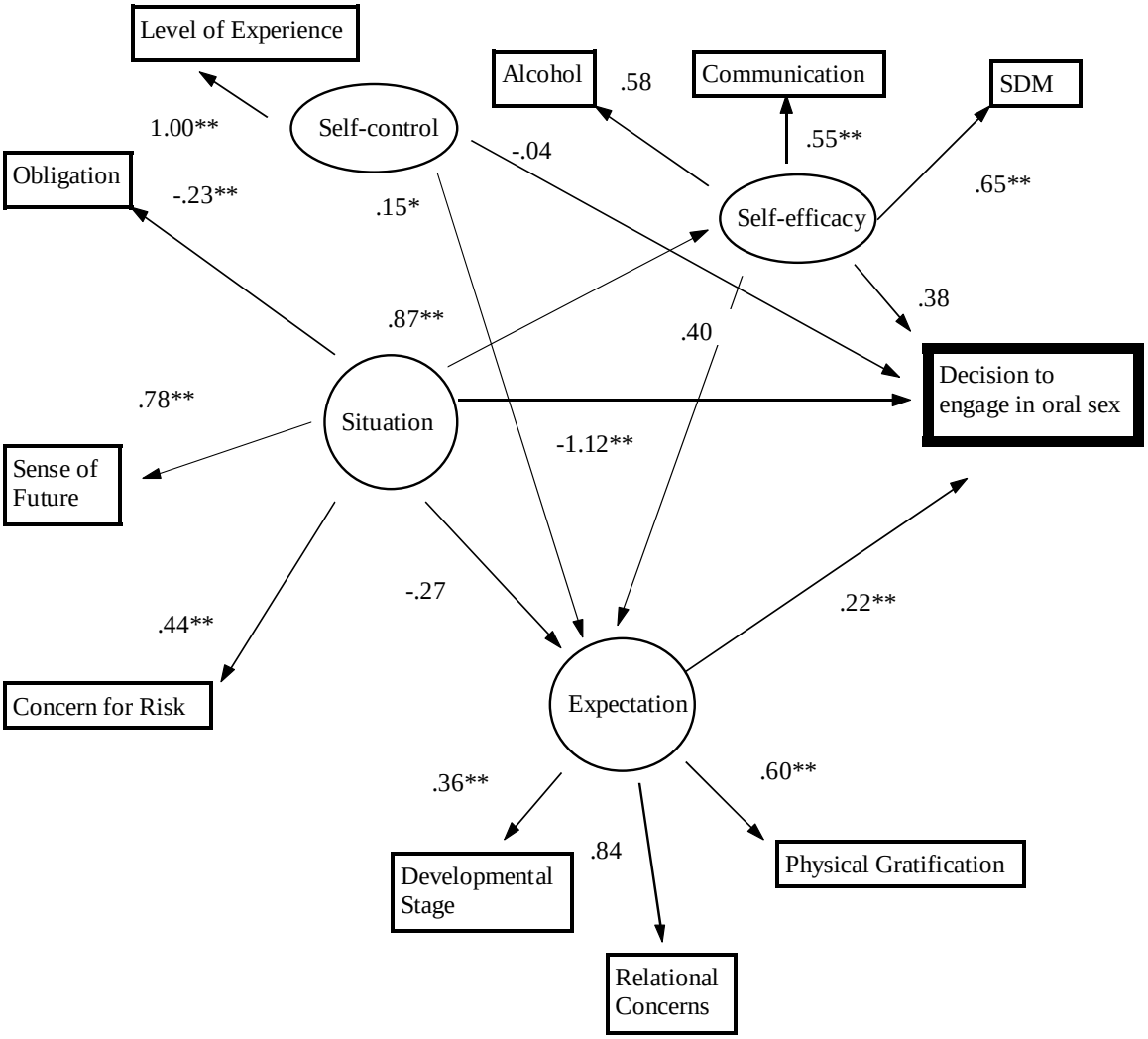


Figure I1. Originally Proposed Model, Decision to Engage in Oral Sex, Nonproper Solution (n=496)

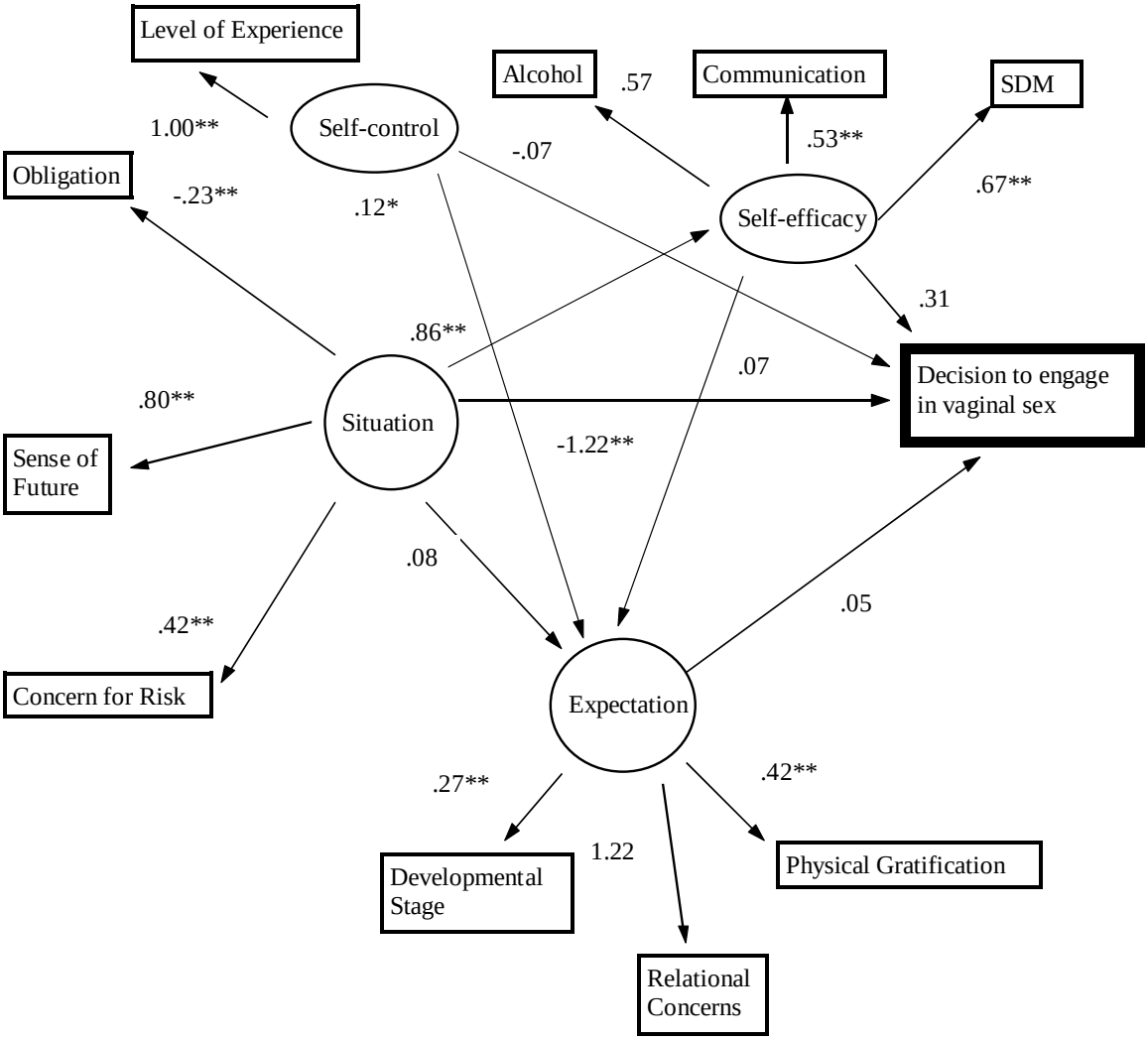


Figure I2. Originally Proposed Model, Decision to Engage in Vaginal Sex, Nonproper Solution (n=496)

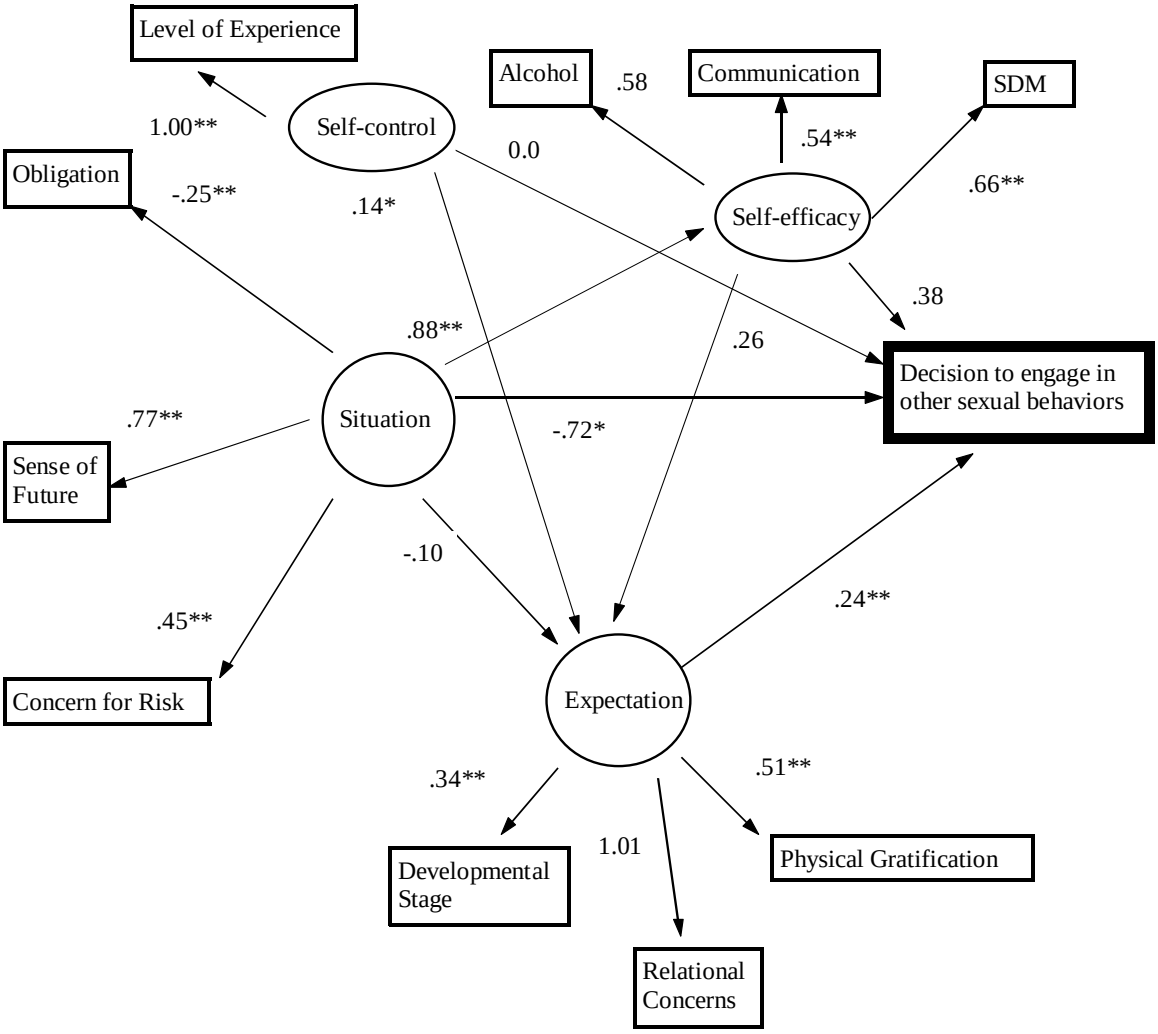


Figure I3. Originally Proposed Model, Decision to Engage in Other Sexual Behavior, Nonproper Solution (n=496)

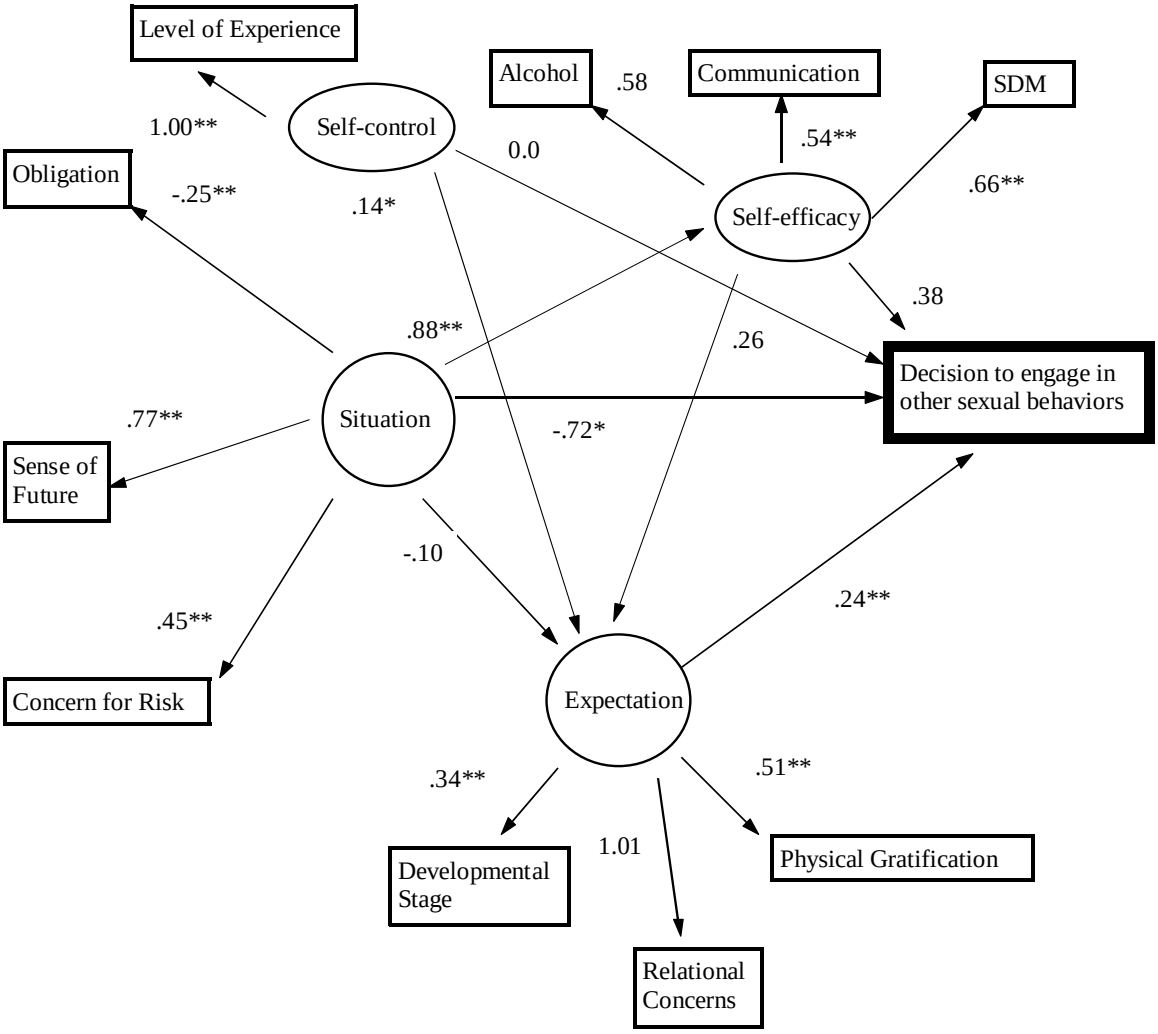


Figure I4. Originally Proposed Model, Decision to Engage in Other Sexual Behaviors, Males Only, Nonproper Solution (n=167)