ABSTRACT

GUIN, AUTUMN HOPE. Sexual Risk Behavior in College Students: Does the parent-college student relationship impact students' condom use? (Under the direction of Roger Mitchell.)

College students are at high risk of contracting sexually transmitted diseases, including HIV/AIDS, due to the high frequency of unprotected sexual activity (Centers for Disease Control and Prevention, 2003). However, use of condoms as a protective behavior has been inconsistent at best. Research on the predictors of condom use has focused primarily on individual decision making processes with some recent focus on the impact of peer norms. Parental influence has received little attention in the college student sexual risk literature, despite being associated with other important outcomes (e.g., academic achievement, alcohol use). The current study hypothesized that parent-young adult relationship variables (i.e. facilitation of independence, and affective quality) would be significantly associated with condom use and condom use intentions, even after controlling for other important predictors (e.g., peer influence, knowledge of HIV/AIDS, age at first intercourse, etc.). Data was collected from a convenience sample of 158 college students (63.9% male, 37.1% female) at a large Southeastern University. The quality of parent–young adult relationships was assessed using Kenny's Parental Attachment Questionnaire (PAQ). Contrary to predictions, greater parental facilitation of autonomy and greater affective quality of the parent-college student relationship were not significantly associated with greater condom use or condom use intentions. Peer influence was found to be the strongest significant predictor of condom use during the most recent sexual encounter. Peer influence, number of lifetime sexual partners, and gender were significant predictors of condom use intentions. Results and implications for future studies and practical applications of the current research are discussed.

Sexual Risk Behavior in College Students:
Does the parent-college student relationship impact students' condom use?

by
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BIOGRAPHY

Autumn Hope Cano Guin is originally from Fayetteville, NC. She graduated from Cape Fear High School in 1993. In 2000, she graduated from Fayetteville State University with a Bachelor of Science in Psychology. Later that year, she enrolled in a combined M.S. and Ph.D. program in the Psychology in the Public Interest program (formerly Human Resource Development) at North Carolina State University in Raleigh, NC. Autumn worked as a teaching assistant for four years, and was a primary instructor for developmental and adolescent development courses in psychology for two of those years. She also held a research assistantship for 15 months. Autumn's research interests are strongly rooted in the promotion of healthy behaviors for adolescents and young adults. While at North Carolina State University, she has worked on a web-based research project for the University of North Carolina Health Care System and on a Department of Defense funded research project investigating the breast care behaviors of women in rural North Carolina. She is a member of the Society for Community Research and Action and the American College Personnel Association. She is currently working with a team of students to establish a peer education organization to promote healthy sexual decision making on the North Carolina State University campus. Autumn plans to remain at North Carolina State University to complete her Ph.D. in psychology.

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Recent media reports direct public and professional attention to college campuses and the impact of unsafe sexual practices on older adolescents. According to the most recent statistics from the Centers for Disease Control and Prevention (2003), college age individuals are at increasing risk for contracting the AIDS virus with 11 percent of all HIV/AIDS diagnoses in 2002 occurring among individuals between the ages of 15 and 25. Further, the highest incidence of sexually transmitted diseases (STD) (e.g., syphilis, chlamydia) occurs among adolescents and young adults between the ages of 15 and 25 (Centers for Disease Control and Prevention, 2003). Though known for well over a decade that the best way to avoid the transmission of HIV/AIDS during sexual intercourse is to use a latex condom, the majority of college age youth either do not use condoms during sexual intercourse or do so inconsistently (Scandell, et al., 2003; Salina, Razzano, & Lesondak, 2000; Lewis & Malow, 1997). The inconsistent use of condoms among college age youth is even more disturbing given that more than 85 percent of college students have had sexual intercourse in their lifetime and approximately one-third of college students who have had sexual intercourse have had 6 or more lifetime partners (Centers for Disease Control and Prevention, 1997).

A search of the HIV/AIDS risk literature reveals a substantial number of studies of men who have sex with men (MWMs) (e.g., McFarland, et al., 2004; Parsons, et al., 2003; Courtenay-Quirk, et al., 2003), intravenous drug users (IDUs) (e.g., Semple, Patterson, & Grant, 2003; Perdue, et al., 2003; Stueve, et al., 2002), lower income at risk individuals (Robinson, et al., 2002; MacKellar, et al., 2000; Dancy, Marcanonio, & Norr, 2000), and incarcerated populations (Chen, Bovee, & Kerndt, 2003; Braitwaite, Hammett, & Arriola, 2002; Dean, Lansky, &

Flemming, 2002). Studies examining HIV/AIDS risk among heterosexual college student populations are less prevalent in the HIV/AIDS risk literature. Given that persons between the ages of 15 and 25 are the highest STD risk group (Centers for Disease Control, 2003), it is essential to continue the examination of college students and the risky sexual behaviors which place these youth at substantial levels of sexual risk.

Recent studies done in other areas of college risk behavior (i.e. alcohol misuse) suggest that parent-young adult relationship factors impact the decisions that college age youth make with regards to risk behavior participation (Wood, et al., 2004; Turrisi, et al., 2001; Turrisi, Wiersma, & Hughes, 2000). To date, this research has not been extended to the area of sexual risk behavior for college age adolescents. Extensive work with high school students demonstrates the importance of parent-adolescent relationship variables as potential determinants of sexual risk. Research that examines the association of parent-adolescent relationship variables with college student sexual behavior is sparse. There is reason to believe, given the impact of parent involvement on other college student risk behaviors, that the relationship college students have with their parents may influence college students' decisions about participation in risky sexual behavior.

Guided by recent studies on alcohol risk and academic outcomes which identify parents as a continuing influence on college student activities, this research will ascertain the existence of potential links between parent-college student relationship variables and sexual risk. The proposed research will examine the association of parenting variables with condom use after controlling for other variables previously identified as determinants of sexual risk behavior in college students including: condom self-efficacy, alcohol use, age of first intercourse, number of sexual partners, current sexual behaviors, and perceived risk for HIV/AIDS.

Sexual Risk Behavior among College Students

Sexual risk is defined as an individual's participation in behaviors that increase the individual's likelihood for contracting a STD. More explicitly, if an individual does not use a latex condom during sexual contact known to spread HIV/AIDS and other STDS, then that individual is at a high level of sexual risk. Cognitive models, such as the health belief model and theory of reasoned action, have explored the differential cognitive processes that are involved in the individual's decisions to participate in a given behavior (e.g., unprotected sexual activity) (Sanderson & Jemmott, 1996). These models, while concentrating on individual decision making processes, look beyond knowledge of risk to such factors as perceptions of vulnerability, self-efficacy, and barriers to behavior compliance. Such cognitive models provide a strong base from which to incorporate additional variables, but do not provide a complete understanding of the factors involved in individual college student decisions about condom use.

The majority of research on sexual risk in college students has evaluated the predictive ability of decision-making variables including: knowledge of HIV/AIDS and self-efficacy. Research has also identified correlations between sexual risk and alcohol use, relationship status, number of sexual partners, and year in college. The following sections of the literature review will identify and discuss those variables that are known to covary with college student sexual risk behavior.

Knowledge of HIV/AIDS. A prominent approach to reduce sexual risk among college students has been to increase knowledge of risk. However, more accurate knowledge of risk does not, by itself, reduce participation in risky sexual behavior (Lewis & Malow, 1997; MacNair-Semands & Simono, 1996). College students with high levels of knowledge about sexual risk consequences still participate in risky sexual behavior (MacNair-Semands & Simono, 1996).

Examining the correlates of sexual risk behavior among college students (N=189), MacNair-Semands and Simono (1996) found that college students in the sample exhibited a high degree of knowledge about HIV/AIDS. However, this knowledge was not significantly related to sexual risk behaviors. Highlighting a biological reason why knowledge about risk may not translate into protective action, Steinberg and Scott (2003) point out that neurological structures that allow for the development of cognitive decision making are still being refined between the ages of 18 and 22. If college students are at a biological transition point between adolescence and adulthood as research suggests (Steinberg & Scott, 2003), then it may be more difficult for college students than for mature adults to implement the sexual risk knowledge they possess when confronted with the socially, emotionally, and physically arousing situations.

Self-efficacy. In addition to the knowledge about the causes of HIV/AIDS risk, investigators have also examined the role of students' self-efficacy for condom use. In previous work, "self-efficacy expectancies were found to be the primary expectancy involved in young adult high-risk sexual behavior" (Cohen & Fromme, 2002, p. 1144).

> In general, an outcome expectancy is defined as a person's estimate that a given behavior will lead to certain outcomes. An efficacy expectation is the conviction that one can successfully execute the behavior required to produce the outcomes. Outcome and efficacy expectations are differentiated, because individuals can believe that a particular course of action will produce certain outcomes, but if they entertain serious doubts about whether they can perform the necessary activities such information does not influence their behavior (Bandura, 1977, 193).

Accordingly, efficacy expectations are formed from four sources of information: 1) performance accomplishments, including participant modeling, performance desensitization, performance exposure, and self-instructed performance; 2) vicarious experience, including live and symbolic modeling; 3) verbal persuasion, including suggestion, exhortation, self-instruction, and interpretive treatments; and 4) emotional arousal, including attribution, relaxation and

biofeedback, symbolic desensitization, and symbolic exposure (Bandura, 1977). That is, individuals develop self-efficacy for a given behavior both through their own accomplishments, through social learning mechanisms (e.g., watching others succeed or fail), and through interactions and verbal conversation with others. As seen with knowledge implementation, self-efficacy is dependent on emotional arousal and the evaluation of one's and others' ability to act in instances where emotional arousal is high.

Condom self-efficacy is the confidence that one can successfully use a condom during sexual intercourse (technical) and that one can successfully discuss condom use with a partner (communicative) (Cohen & Fromme, 2002; Trafimow, 2001; Sanderson & Jemmott, 1996). In relation to sexual risk prevention, self-efficacy for condom use may be expected to develop within sexually arousing situations. One's ability to successfully use a condom, to convince a partner to use a condom, and one's evaluation of social referent condom use would be expected to influence one's condom use efficacy. Further, the messages received about condom use from others (e.g., including peers, parents, health professionals, etc.) would be expected to influence personal efficacy for condom use.

Cohen and Fromme (2002) evaluated the relationships between personality traits, condom self-efficacy, social conformity, and outcome expectancies. Self-efficacy and social conformity were found to have a direct impact on sexual risk behavior with higher self-efficacy and higher social conformity significantly relating to lower levels of sexual risk behavior,-.35 and -.13, respectively.

Alcohol use. Alcohol use is also a known correlate of risky sexual behavior and is a major focus area in the college youth HIV/AIDS risk literature. "College students often explore a range of sexual behaviors and substance use during their years at school" (MacNair-Semands &

Simono, 1996). In a study designed to measure multiple correlates of sexual risk behavior among college students (N=189), MacNair-Semands and Simono (1996) found that substance use was related to the overall pattern of sexual risk behavior. Those respondents who used alcohol during their most recent sexual encounter, approximately 25 percent of the sample, had significantly higher risk scores than those who did not report alcohol use during their most recent sexual encounter.

Significant proportions of men and women (33.3% and 17.4%, respectively) in a sample (N=1902) from 12 universities across the United States reported that in the past year, they had let themselves drink more than they usually would in order to make having sex easier (Anderson & Mathieu, 1996). Of those reporting drinking more to make having sex easier, 38. 6 percent of the men and 12.9 percent of the women reported that they had either just met the sexual partner or knew the sexual partner as an acquaintance. Though condom use for this sample is reported to be high, with 76.3 percent of the women and 67.4 percent of the men reporting using condoms during the sexual encounter, a sizable proportion of these college students (23.7 % of women and 32.6% of men) did not use condoms. Further, of the men who initiated condom use (77.1%), 9 percent failed to use condoms during the sexual encounter.

In a review of studies examining the association between drinking and risky sex over the past decade, Cooper (2002) evaluated the associations between alcohol use and risky sex at both global and event-specific levels of analysis. In this review, Cooper (2002) reports that

> Equally strong evidence suggests that drinking in a potentially sexual situation (e.g., on a date) is associated with an increased probability of intercourse on that occasion and that drinking prior to intercourse is associated with risky partner choice as well as with decreased risk discussion on that occasion. Each of these relationships has been observed using within-persons designs, thus ruling out the possibility that strictly between-person differences can account for the data. These effects, however, may be qualified by relationship status and, in the case of intercourse probability, perhaps by gender as well (Cooper, 2002, 111).

Overall, the literature in alcohol use and risky sexual behavior shows mixed results regarding the links between drinking and condom use. Two of the studies reviewed (e.g., Wechler et al., 1994; Lowry et al., 1994) found no differences in condom use for drinkers and non-drinkers, two studies reviewed found less consistent condom use for heavy episodic drinkers (e.g., Graves, 1995; McEwan et al., 1992), and other studies (e.g., O'Leary et al., 1992) report that drinking "proximal to intercourse is positively associated with the frequency of having unprotected sex or with the number of unprotected sex episodes in a given time period" (Cooper, 2002, p. 105). What remains to be uncovered is "whether the same person engages in all of these behaviors or, more importantly, whether the likelihood of engaging in one behavior depends on involvement in another" (Cooper, 2002, 105).

Relationship status. Several studies have revealed a link between relationship status (e.g., being in a monogamous relationship) and risky sexual behavior. In a study of undergraduates at East Carolina University (N=134), for example, respondents were asked to reveal the riskiest or most dangerous thing that they had done in the "name of love" (Knox, Zusman, & Nieves, 1998). Twenty percent of the sample revealed that they had sex without protection with a partner with whom they were in love.

A consistent finding in the literature is the higher incidence of unsafe sexual behavior among monogamous couples in comparison to casual relationships. Among a sample of college students at a Midwestern university (N=1919) almost 90 percent of the sample reported inconsistent condom use during sexual intercourse (Prince & Bernard, 1998). Approximately 83% of respondents cited being in a monogamous relationship (i.e., having a single sexual partner in a one year period) as the predominant reason they did not use condoms with their

partner. However, 23% of the participants who gave monogamy as their reason for not using condoms indicated that they had two or more sexual partners in the past year.

Sanderson and Jemmott (1996), while examining the impact of two HIV prevention programs on condom use, discovered that the effects of both interventions were greater among those students who were not in committed relationships. Participants who were in committed relationships (i.e. they had a single steady dating partner for at least 3 months) revealed lower rates of condom use at the 3-month follow-up than those in casual dating situations. Though the interventions were successful in changing social cognitions about sexual risk behavior, changes in actual behavior were contingent on relationship status, with college age youths who were not in committed relationships more likely to change sexual risk behavior participation than college age youths in committed relationships (Sanderson & Jemmott, 1996).

The sexual risk behaviors of college students in committed relationships were examined in a same-sex focus group context. Thirty-four males and forty-five females who were involved in committed heterosexual relationships were recruited to participate in focus groups with each group comprised of 4 to 8 same-sex groups lasting an hour and a half on average (Hammer et al., 1996). Of the participants in these focus groups, 48 percent reported that they were not using condoms consistently. Further, those participants who were not using condoms believed it would be difficult to use condoms in their relationships because they were accustomed to having sex without condoms. A switch from condoms to the pill was symbolic for many of the participants in these focus groups. It appears that this switch signals growth in the relationship, more trust in partners, and intention to remain in the relationship. These decisions, however, were usually based on the length and seriousness of the relationships and not on the actual HIV status of the

individuals in the relationships as few of the participants reporting consistently not using condoms had been tested for HIV (Hammer et al., 1996).

Number of sexual partners. In addition to relationship status, the more lifetime sexual partners that an individual has, the more likely he or she is to participate in risky sexual behavior (i.e. no or inconsistent condom use). One hundred twenty six women were recruited from an introductory psychology course at a Midwestern University to complete a questionnaire on health beliefs, attitudes, condom use, and concern about HIV/AIDS (Salina, Razzano, & Lesondak, 2000). Of the respondents, 39 percent said they used condoms all of the time, 53 percent used them occasionally, and 8 percent used them infrequently. The only significant predictor of consistent condom use was the number of previous sexual partners (Salina, Razzano, & Lesondak, 2000). Greater number of sexual partners was associated with lower condom use.

Year in college. It has already been stated that relationship status is predictive of sexual risk behavior in college students, such that college students in a committed relationship participate in risky sexual behavior (i.e. sex without condoms) because they choose alternate forms of birth control (i.e. oral contraception/the pill). As with relationship status, college students who are further in their college careers may be more likely to choose to use the pill as their primary method of birth control (Siegel, et al., 1999). In a sample of college students (N=797), for example, Siegel, et al. (1999) found that seniors in college were more likely to have had sex, were currently more likely to participate in sexual activity, were more likely to report using the pill, and were less likely to use condoms compared to freshmen. Further, 52 percent of the sample declared a complete belief that their partners were monogamous and this belief increased steadily among both men and women across their academic lives.

Peer influence. Because individual decision making does not occur absent of context, there is a need to continue the expansion of college student sexual risk research beyond intrapersonal variables. Theoretical support for more contextually inclusive research can be found in the literature investigating the impact of peer norms on college student risk behaviors. Wood et al. (2004) refers to two types of peer influence, active and passive peer influence. Active peer influence directly influences behavior. Passive peer influence refers to perceptions and beliefs about the behaviors and beliefs of the peer group.

Attending college is one of the first times adolescents spend a substantial amount of time living away from home. It is well supported that peers act as a reference point for adolescents with the peak period of peer influence occurring during high school. However, research in the sexual risk (Lambert, Kahn, & Apple, 2003, Cohen & Fromme, 2002) and alcohol literatures (Wood, et al., 2004) purports that peers remain a central point of reference for college age youth. Thus, for this section of the review, the impact of peers on sexual risk participation will be explored.

Our social world places high value on “normalcy” and adolescents in particular are more likely to conform to social pressures than at any other time in their lives. Young adults may be more likely to engage in risky behavior if they perceive it to be commonplace among peers. However, student perceptions of the frequency of casual sexual encounters may be inaccurate. For example, when asked to rate their own comfort levels and the perceived comfort levels of their peers with regards to hooking-up behaviors, students at a midsized Southeastern university (N=327) reported lower levels of comfort in hooking-up themselves than they reported for their same sex peers (Lambert, et al., 2003). Specifically, participants believed that other college students were more comfortable with hooking-up than they themselves were. Men were more

comfortable with hooking-up than were women. However, both genders significantly overestimated the other gender's comfort level with hooking-up. This pluralistic ignorance may be one reason why individuals participate in risky sexual behaviors. "It is likely that most students believe others engage in these hooking-up behaviors primarily because they enjoy doing so, while they see themselves engaging in these behaviors primarily due to peer pressure" (Lambert, et al., 2003, p. 133).

Using a convenience sample of 725 college students in an introductory English class, Page, Hammermeister, and Scanian (2000) examined the students' perceptions of norms for sexual behavior and their individual sexual behavior. The data obtained from these questionnaires were used to assess normative sexual risk for the sample and individuals' perceived level of personal risk in relation to their perception of their individual sexual participation. Those individuals who had recently engaged in sexual activity reported higher estimations of peer participation in sexual intercourse. Approximately 25 percent of the sample reported that between 75 and 100 percent of their peers were participating in sexual intercourse. More females in the study reported recent sexual activity than males (49.7 percent and 42.9 percent, respectively). Those students who reported four or more sexual partners in their lifetime estimated higher percentages of sexual activity among their peers than those students who reported fewer lifetime sexual partners. It was also the case that students in the sample who had decided to abstain from sexual intercourse reported that a higher percentage of their peers had also decided to abstain from sexual intercourse. The misperceptions of college students with respect to normative sexual risk behaviors of their peers "appears to be a self-fulfilling prophecy, so that the more students believe sexual activity is occurring, the more sexual activity occurs" (Page, Hammermeister, & Scanian, 2000, p. 393).

Focusing on the social context, Steers, et al. (1996) conducted a survey on sexual risk including measures of self-efficacy and social support among a sample of undergraduates (N=424). In this analysis, perceived susceptibility to HIV, self-efficacy, and social support for condom use were found to be significant predictors of sexual protective behavior and for sexual behavior change. Social support for condom use was the primary predictor of current sexual behaviors. As the authors purport, "that current sexual behaviors were predicted primarily by social support suggests that a supportive social environment may be important for encouraging safer sex behaviors" (Steers, et al., 1996, p. 107).

Gap to be addressed: The role of parents in college student sexual risk behavior. There is a dearth in the college sexual risk literature with regards to parent-college student relational variables. Granted, developmental research continues to support the existence of a qualitatively different level of cognitive maturation for college students as compared to younger adolescents. However, despite the increased individuality and identity formation of these youth, it may be reasonably expected that parents continue to serve as a source of support (e.g., both financial and emotional), and as a source of social reference (e.g., political and social involvement). Two relevant areas are the work on parenting styles among older adolescents and the extension of attachment theory to college age adults

Parenting styles and risk behavior. Research on younger adolescents recently identified links between risky sexual behavior and the relationship that adolescents have with their parents. For example, Huebner & Howell (2003) identified parental monitoring, parent-adolescent communication, and parenting style by ethnicity as significant predictors of sexual risk-taking behavior in adolescents. Though an exploration of the impact of parent-college student relationship variables on other areas of college life has been undertaken (e.g., academic

adjustment and goal orientation), the impact of parent-college student relationship variables on the sexual risk behaviors of college students has not been addressed.

Parenting theory as described first by Baumrind (1967) and later by Steinberg, et al. (1992) holds that there are two components of parenting which lead to successful or unsuccessful childrearing outcomes. Those factors, parental responsiveness and parental demandingness, are the central tenants of parenting theory. Parental responsiveness consists of warmth, reciprocity and communication. “Responsiveness refers to the extent to which parents intentionally foster individuality and self-assertion by being attuned, supportive, and acquiescent to children’s needs and demands” (Baumrind, 1996, p. 410). Demandingness is comprised of monitoring, discipline, and confrontation. It is the means by which parents socialize their children to comply with social and familial expectations (Baumrind, 1996). Combined, responsiveness and demandingness create four separate parenting styles: authoritative, authoritarian, permissive, and unengaged. “Authoritative parents are both highly demanding and highly responsive, by contrast with authoritarian parents, who are highly demanding but not responsive; permissive parents, who are responsive but not demanding; and unengaged parents, who are neither demanding nor responsive” (Baumrind, 1996, p. 412).

Although research on parenting style has primarily focused on children and younger adolescents, researchers have recently began to define the role of parenting style as it relates to outcomes for older adolescents.

> Using our data on parenting practices, adolescent adjustment, and peer crowd affiliation, we developed and tested a model of parental influence on peer group affiliation, a question that focused on context at the mesosystem level (Brown, Mounts, Lamborn, & Steinberg, 1993)…Specifically, we found that parenting practices predict adolescent personality traits and orientations and that these traits and orientations, in turn, predict youngsters’ crowd affiliation. In essence, parents have a direct and primary impact on adolescent behavior patterns-prosocial as

> well as antisocial. Peer groups serve primarily to reinforce established behavior patterns and dispositions (Steinberg et al., 1995, 447).

Wood, Read, Mitchell and Brand (2004), for example, examined the impact of both parenting style variables and peer influence variables on risk factors in adolescents entering college. They found that parental support was negatively associated with the occurrence of negative, alcohol-related consequences. Further, parenting behavior moderated the relationship between peer influence and alcohol use such that the association between peer influence and alcohol use was lower for those adolescents with more characteristically authoritative parents.

Another lesson to be learned from the alcohol literature with regards to the impact of parents on alcohol risk behavior and attitudes can be found in the intervention work of Turrisi, et al. (2001). These investigators examined the impact of parent-young adult communication about alcohol use on the attitudes and alcohol-related consequences experienced by young adults as they enter their freshmen year in the university. The researchers provided parents in the intervention with a parent handbook. This handbook provided information about the incidences and consequences of student alcohol use on campus, strategies to use to increase communication about alcohol use with young adults, and methods parents could use to teach the young adults assertiveness skills and resistance to peer pressure on campus. Parents were told that the research had two goals; to evaluate the interest value and readability of the handbook and to facilitate conversations about binge-drinking with their teens. Turrisi et al. (2001) found that, as compared to a control group of similar teens, the teens whose parents received the intervention manual were significantly less likely to experience consequences as a result of drinking while at college and had lower drinking tendencies. Further, young adults in the intervention group had significantly less positive perceptions about activities that involved alcohol use, believed that their peers held less positive perceptions of alcohol-related activities, and had significantly lower

perceptions of peer and parental approval of alcohol use. This focus of this intervention on parent-young adult communication may provide insight into new ways of approaching prevention of the sexual risk behavior of college students. Links between alcohol use and risky sexual behavior among students transitioning to college suggest a need to further evaluate the impact of parenting variables on college student sexual risk behavior.

College age youth may be expected to be in a different developmental stage than younger adolescents, with more emotional and behavioral autonomy existing for college age youth than younger adolescents. However, parents do not cease to exist as an active influence in the lives of college students. Research with college students has examined the relationships between parenting style, goal orientation, adjustment, academic achievement, and substance use. Hickman, Bartholomae, and McKenry (2000) found that authoritative parenting and self-esteem were significant predictors of academic adjustment for college freshmen but failed to identify a link between parenting style and academic achievement. Gonzalez, Greenwood, and WenHsu (2001), examined the relationship between undergraduate goal orientations and parenting style and found that students with a mastery orientation (e.g., a student who learns for the sense of pride and accomplishment that the student gets from learning the material) were significantly more likely to have an authoritative mother than students with a performance orientation (e.g., a student who mentally retains the material in a course long enough to get a grade and move on). These results were strongest among female Caucasian undergraduate students but were supported for the entire sample. However, African American females were more likely to have a performance orientation when the father was authoritative.

Patock-Peckham, Cheong, Balhorn, and Nagoshi (2001) evaluated the impact of parenting styles on self-regulation, perceived drinking control and alcohol use and problems in a

college population finding that the parenting style of the same sex parent was associated with self-regulation. Specifically, college women with authoritative mothers were more likely to possess higher levels of self-regulation, which is protective against alcohol use and abuse.

Given that parental influence continues to impact the adjustment, decision-making, and behavior of college students in these other research domains, it is reasonably expected that parental influence functions in the prediction of sexual risk decision making for college age youth. However, measures that tap parenting style are typically designed for young children and adolescents below the age of 18. These measures are limited in their applicability to older adolescents because of the focus on parental monitoring and control. For example, an item from the parental *Strictness/supervision* scale (Steinberg et al., 1992) asks the child/adolescent to indicate, "In a typical week, what is the latest you can stay out on school nights (Monday – Thursday)?" (p. 1270). Such behavioral control may not be relevant for older adolescents who do not live with their parents. Therefore, there is a need for a measure of parental influence more appropriate for college student populations, i.e., measures that focus on the promotion of self-regulation rather than parental control.

Attachment Theory. In addition to the contribution of parenting style to college student adjustment, another line of empirical inquiry focuses on the importance of attachment theory, as proposed by Bowlby (1969) and expanded by Ainsworth, et al. (1978), to predict college student adjustment. "To say of a child that he is attached to or has an attachment to, someone means that he is strongly disposed to seek proximity to and contact with a specific figure (Bowlby, 1969, 371)."

> Attachment theory is among the most sweeping, comprehensive theories in psychology today. It offers a biosocial, lifespan account of how close relationships form, are maintained and dissolve and how relationships influence, sometimes permanently, the person involved in them (Bowlby,

> 1979). The theory addresses these issues from a variety of perspectives including physiological, emotional, cognitive, and behavioral. The theory articulates constructs and processes that are relevant to understanding elements of social development, interpersonal behavior, relationship functioning, psychosocial adjustment, and clinical disorders (Rholes & Simpson, 2004).

Parental attachment and parenting style are distinct developmental constructs, yet both are central to the understanding of the parent-young adult relationship. Just as higher levels of parental responsiveness and demandingness are the tenants that comprise parenting style (Baumrind, 1996; Steinberg, et al., 1992) these same elements assist the child in the development of a secure parental attachment. The attachment style formed, either secure or insecure, is dependent upon the parent's quality of caregiving (Bowlby, 1969). If the parent is warm, supportive, and consistent in the pattern of caregiving then the child is expected to form a secure attachment to that parent. However, if the parent exhibits inconsistent, neglectful, or hostile parenting characteristics then it may be reasonable to expect the child to have a less secure attachment to that parent. Given that the parent-young adult relationship is expected to follow from the earlier parent-child relationship (Bowlby, 1969; Ainsworth, et al., 1978; Kenny, 1986) a history of secure parental attachment and authoritative parenting style is expected to continue into the parent-young adult relationship throughout college and into adulthood. This continued parent-young adult bond is expected to guide the transitions and choices of the maturing college student.

Although parental attachment and parenting style are separate constructs, parental supportiveness is a defining element of both theories (Steinberg, et al., 1992; Kenny, 1986). The two theories are distinguishable because parenting style emphasizes the level of parental supervision and control, whereas parental attachment emphasizes the facilitation of

independence. As gleaned from the adult attachment literature, social competence, relationship formation, and facilitation of autonomy may be more salient constructs on which to base a measure of parent-young adult relationship quality in college students than are the constructs of parental supervision and control used with younger adolescent populations.

The attachment relationship is observed through proximity seeking behaviors that grow increasingly complex throughout the lifespan (Bowlby, 1969). Even as Bowlby expected the attachment relationship to form in the first 3 years of a child's life, he identified the expected continuation of this parental attachment throughout the lifespan (see Bowlby, 1969, p. 350). As explained by Kenny (1986), college students with secure parental attachments view their parents as a secure base, offering advice to the college student when needed, facilitating independence, and promoting social competence.

Traditional views of attachment theory focus on the implications of attachment to a primary caregiver for infant and early child development. However, recent research in the area of attachment is beginning to define the role of attachment to parents for older adolescents and young adults (Kenny, 1986, 1990 & 1994; Kenny & Donaldson, 1992; Kenny & Perez, 1996; Kenny & Stryker, 1996; Henderlie & Kenny, 2002) as predictive of romantic relationship quality throughout adulthood (Schachner & Shaver, 2004). Previous developmental views of older adolescents and young adults purport that successful autonomy development for these age groups requires separation from primary caregivers. This notion is disputed by recent research that supports the continuation of the parental attachment relationship as central to autonomy development and successful adult development across the lifespan. Kenny (1986), for example, developed a measure (PAQ – Parental Attachment Questionnaire) to assess "perceived parental availability, understanding, acceptance, respect for individuality, facilitation of autonomy,

interest in interaction with parents and affect towards parents during visits or reunion, student help-seeking behavior in situations of stress, satisfaction with help obtained from parents, and adjustment to separation (p. 20).” Parental attachments as identified in first year college students were not statistically different from parental attachments as identified in college seniors (Kenny, 1990).

Parental attachment in college students has been empirically linked to social competence (Kenny, 1986), career maturity (Kenny, 1990) personal and academic adjustment (Kenny & Donaldson, 1992), and reports of assertiveness by college-age females (Kenny, 1986) in predominantly European American samples. However, these attachments have also been supported in samples that vary by ethnicity, socioeconomic status, and gender. For example, young adult students in technical and trade schools described positive parental attachments as important sources of emotional support and as a source of autonomy facilitation (Kenny, 1994). Symptoms of psychological distress were lower in African American, Asian American, and Hispanic American college students who identified characteristics of positive attachment to parents (Kenny & Perez, 1996) and social adjustment was positively correlated with family support characteristics in African American, Asian American, Hispanic American, and Native American college students (Kenny & Stryker, 1996). For African American students attending predominantly European American Universities, attachment to parents contributed to college adjustment after controlling for the effects of on-campus social support for these students (Hinderlie & Kenny, 2002).

According to recent research by Schachner and Shaver (2004), attachment to parents forms the primary relational models by which every other relationship in the young person’s life is evaluated. This working model of relationship formation creates for the individual a

prototypical expectation of how to interact within social relationships as the child grows into adulthood. If the relationship with the parent is secure (i.e. marked by continued parental support and facilitation of autonomy) then the young adult is more likely to seek out relationships in which there is mutual respect, trust, and sharing (Shachner & Shaver, 2004). For young adults with a secure relational model, sex may more likely be a component of a long term relationship. If the parent-young adult relationship is characterized by an anxious type of attachment (i.e. the young adult learns not to trust, becomes more needy or dependent in a relationship) then the young adult may be more likely to use sex to achieve intimacy or to prove self-worth (Schachner & Shaver, 2004). This connection between sex, intimacy, and self-worth may lead someone with an anxious attachment style to participate in risky sexual behaviors (e.g., sex without a condom) in an attempt to prove that they are worthy of and show their commitment to a partner. Additionally, if an avoidant attachment style is the guiding model for the young-adult, then it may be more likely that the young adult will participate in casual sexual relationships with multiple partners and to participate in sexual intercourse for self-gratification (Schachner & Shaver, 2004). A young adult with an avoidant model of attachment formation may be less likely to think of the consequences of sexual activity than other attachment types.

Attachment to parents is predictive of how relationships, specifically sexual or intimate relationships, are formed and conceptualized by the adolescent or young adult. The history of the parent-child relationship forms a model by which other relationships are formed. Social competence (i.e., competence in forming relationships and decisions made within those relationships) is a product of both the early attachment history and the current relationship with parents (Schachner & Shaver, 2004; Freitag, et al., 1996). Further, the ability of parents to promote individuation and autonomy while maintaining a sense of support and connectedness

with the young adult are consistently identified as the most relevant components of the attachment relationship as that relationship pertains to young adult social competence (Freitag, Belsky, Grossmann, Grossman, & Scheuerer-Englisch, 1996). Therefore, Kenny's (1986) PAQ, which gauges parental facilitation of autonomy, quality of the affective relationship between parents and young adults, and parental support, is reflective of both the current state of the adult attachment literature and with the older literature on attachment formation.

The Current Study

The goal of the present study, then, is to evaluate sexual risk behavior among college students with specific attention to the influence of parent-college student relationship variables on sexual risk behavior. Specifically, the current study will examine the association of intrapersonal variables (i.e., decision making variables, substance use, relationship status, age at first intercourse, year in college, number of lifetime sexual partners), interpersonal variables (i.e., peer influence), and parent-college student relationship variables with college students' participation in risky sexual behavior. It is expected that those individuals who identify more parental facilitation of autonomy as identified by Kenny (1986) and more parental affective support as identified by Kenny (1986) and by Steinberg, et al (1992), will be more likely than their college age peers to use condoms during sexual intercourse. In keeping with those studies with both college students and younger adolescent populations that evaluate sexual risk behavior, the current study will draw on Bandura's (1982, 1980, 1977) social learning theory, specifically the concept of self-efficacy for condom use and the impact on unsafe sexual practices. Parent-young adult relational variables as defined by Schachner and Shaver (2004), Baumrind (1996), Freitag et al. (1996), Steinberg (1992), and Kenny (1987) will provide the foundation for the use

of parent-young adult relational characteristics to determine the impact of parent-young adult relationship quality and parental facilitation of autonomy on risky sexual behavior.

Hypotheses

Prediction of condom use during the most recent sexual encounter

1. Parent-student relationship variables (PAQ - Affective Quality and PAQ Facilitating Autonomy) will add significant variance to the prediction of condom use during the most recent sexual encounter, controlling for demographic variables (Gender, Ethnicity, Year in College, and Parent Education), intrapersonal variables (Condom Self-efficacy, Perceived susceptibility, Knowledge of HIV/AIDS, Alcohol use, Relationship status, Lifetime Sexual Partners #, and Age at first intercourse), and peer influence. Condom use during the most recent sexual encounter will be higher among those students with higher scores on PAQ-Affective Quality and PAQ-Facilitating Autonomy.

2. The interaction of parental affective quality and parental facilitation of autonomy (as measured by a multiplicative product term) will add significant variance to the prediction of condom use during the most recent sexual encounter, controlling for demographic variables (Gender, Ethnicity, Year in College, and Parent Education), intrapersonal variables (Condom Self-efficacy, Perceived susceptibility, Knowledge of HIV/AIDS, Alcohol use, Relationship status, Lifetime Sexual Partners #, and Age at first intercourse) peer influence, and parental variables (parental affective quality, and parental facilitation of autonomy). The relationship between most recent condom use and parental affective quality will increase as parental facilitation of autonomy increases.

Prediction of condom use during the previous three months

3. Parent-student relationship variables (PAQ - Affective Quality and PAQ Facilitating Autonomy) will add significant variance to the prediction of condom use during the previous three months, controlling for demographic variables (Gender, Ethnicity, Year in College, and Parent Education), intrapersonal variables (Condom Self-efficacy, Perceived susceptibility, Knowledge of HIV/AIDS, Alcohol use, Relationship status, Lifetime Sexual Partners #, and Age at first intercourse), and peer influence. Condom use during the previous 3 months will be higher among those students with higher scores on PAQ-Affective Quality and PAQ-Facilitating Autonomy.

4. The interaction of parental affective quality and parental facilitation of autonomy (as measured by a multiplicative product term) will add

significant variance to the prediction of condom use during the previous three months, controlling for demographic variables (Gender, Ethnicity, Year in College, and Parent Education), intrapersonal variables (Condom Self-efficacy, Perceived susceptibility, Knowledge of HIV/AIDS, Alcohol use, Relationship status, Lifetime Sexual Partners #, and Age at first intercourse), peer influence, and parental variables (parental affective quality, and parental facilitation of autonomy). The relationship between parental affective quality and previous 3 month condom use will increase as parental facilitation of autonomy increases.

Prediction of intentions to use condoms during future sexual encounters

5. Parent-student relationship variables (PAQ - Affective Quality and PAQ Facilitating Autonomy) will add significant variance to the prediction of intentions to use condoms in the future, controlling for demographic variables (Gender, Ethnicity, Year in College, and Parent Education), intrapersonal variables (Condom Self-efficacy, Perceived susceptibility, Knowledge of HIV/AIDS, Alcohol use, Relationship status, Lifetime Sexual Partners #, and Age at first intercourse), and peer influence. Condom use intentions will be higher among those students with higher scores on PAQ-Affective Quality and PAQ-Facilitating Autonomy.

6. The interaction of parental affective quality and parental facilitation of autonomy (as measured by a multiplicative product term) will add significant variance to the prediction of intentions to use condoms in the future, controlling for demographic variables (Gender, Ethnicity, Year in College, and Parent Education), intrapersonal variables (Condom Self-efficacy, Perceived susceptibility, Knowledge of HIV/AIDS, Alcohol use, Relationship status, Lifetime Sexual Partners #, and Age at first intercourse), peer influence, and parental variables (parental affective quality, and parental facilitation of autonomy). The relationship between parental affective quality and condom use intentions will increase as parental facilitation of autonomy increases.

Method

Participants

Participants were male and female undergraduate students from introductory psychology courses at a large Southeastern University who completed a survey on sexual risk participation. After receiving approval from the university's institutional review board, the experimenter posted dates and times that participants could complete the survey on a department's experiment

scheduling website. Each participant signed up for a time slot to complete the survey in the classroom designated as the experimental setting for that particular time slot. Data collection took place in a classroom at the university where the study was completed. The majority of participants completed the survey in a normal classroom that would seat up to 30 people, while approximately 10 percent of the participants completed the survey measures in a smaller room that sat approximately eight people. There were no more than 10 participants taking the survey at any one time.

When participants came for their appointments, they were instructed to read and complete an informed consent form. Upon completion of this form, participants were informed of the purpose of the research, to evaluate risk activities among college students on the university campus. Participants were then reminded of the anonymity of the survey and were given instructions on how to complete the survey. Participants were then given one hour to complete the survey.

In exchange for completing the survey measured, participants were each given two course research credits and an opportunity to receive one of two fifty dollar cash rewards. After all participants completed the survey measures, all names from the sign-up site were put into a Microsoft Excel worksheet and two participants were randomly selected as the recipients of the fifty dollar rewards. Those two individuals then met with the experimenter and each received fifty dollars in cash for which they signed a receipt form for the university's records.

Of the 200 students who completed surveys, 79% (n=158) indicated at least one occurrence of sexual intercourse. The remaining 21% were eliminated from further analyses. Of the remaining participants, the majority were White (79.75%) and male (63.92%). With respect to other ethnicities, 11.39% identified themselves as African American, 5.7% as Asian

American, 2.53% as American Indian, and 0.63% as Mexican American. Fifty-six percent of the participants were freshmen, 25% were sophomores, 11% were juniors, and 8% were seniors. Mean age of the participants was 19.4 years.

Measures

Table 1 provides an overview of all study measures.

Condom use during the most recent sexual encounter. (APPENDIX A) Most recent condom use was measured by one item from the College Student Behavior Questionnaire (CSBQ) Behavioral Risk subscale (MacNair-Semands & Simono, 1996) which instructed participants to "think back to the most recent time you had sex with a partner." Participants were then prompted to answer the question, "What type of contraception did you use?" with one of five possible responses coded on a 5 point scale (0= none; 1 = pill or IUD; 2 = condom; 3 = both pill or IUD and condom; 4 = other (please describe_____). The test-retest reliability for this question is .79 (MacNair-Semands, Cody, & Simono, 1997). For the purposes of the current investigation, responses to this item were coded "0" if the participant did not use a condomn and "1" if the participant did use a condom.

Among the 140 participants with complete data for most recent condom use, 54.3% (n=76) indicated that they did not use a condom during their most recent sexual intercourse.

Condom use during the past 3 months. (APPENDIX A) Actual sexual behavior of participants was assessed with questions from the College Student Behavior Questionnaire (CSBQ) Behavioral Risk subscale (MacNair-Semands & Simono, 1996) which included 6 items that refer to sexual risk behavior over the past 3 months. These items include: "Within the past 3 months, I have had genital intercourse without a condom," and "Within the past 3 months I have had genital intercourse with a condom." The remaining four items asked about condom use

during oral and anal intercourse. Responses to these 6 items are rated on a Likert-type scale ranging from 0 to 2 (0 = never; 2 = frequently). The test-retest reliability for this set of questions is .63 and internal consistency for the CSBQ Behavioral Risk subscale is .77 (MacNair-Semands, Cody, & Simono, 1997). A condom use score was computed for this scale by totaling items 1, 3, and 5 of the scale (items that gauge condom use during sexual activity) and dividing by the sum of all items (total sexual activity). For example, a score of 6/6 would indicate that a participant had always used condoms during any type of sexual contact; and a score of 6/12 would indicate that the participant used condoms for about one-half of all sexual encounters.

Of the 145 participants with complete data for condom use during the previous 3 month period, 27.6% indicated that they never used condoms during the previous 3 months, 66.9% indicated occasional condom use during the previous 3 months, and 5.52% indicated they frequently used condoms during the previous 3 months.

Condom-use intentions. (APPENDIX B) The Health Belief Model-Intentions for Safer Sex (HBMI) was used to assess the respondent's intention to practice safer sex in the future and includes such items as "I will make sure a condom is used when I have sex," and "I will not have sex with someone who refuses to use a condom." Internal consistency for the HBMI is minimally adequate (α=.64) (Lux & Petosa, 1994). Respondents evaluated their level of agreement with statements using a four-point scale (1 = Disagree to 4 = Agree) with higher scores indicating a higher intentions to us condoms in the future. The HBMI score was computed by adding the points for each item together and dividing by the total number of items on this scale.

All 158 respondents who indicated at least one instance of sexual intercourse had complete data for this scale. The mean for future condom use intentions was 2.74. Of all

respondents, 12% had scores at or below 2, indicating disagreement with statements that they would use condoms in the future; 57% had scores between 2.2 and 3, and 31% had scores at or above 3.2. Cronbach's alpha for this scale in this sample was .58.

HIV/AIDS risk knowledge. (APPENDIX C) The HIV Knowledge Questionnaire (HIV-KQ-18) provides a single score assessing knowledge of HIV/AIDS risk. According to Carey and Schroder (2002), the 18-item HIV Knowledge Questionnaire (HIV-KQ-18) was developed to offer a brief form of the original 45-item HIV Knowledge Questionnaire (HIV-KQ-45). Items from the HIV-KQ-45 were selected to produce a smaller set of items which would represent the domain of interest (i.e., HIV knowledge). HIV knowledge was defined as "HIV-related information relevant for awareness of sexual risk behavior, informed decisions, and behavior change" (Carey & Schroder, 2002, p. 176). The resulting short form, the HIV-KQ-18, was evaluated for internal consistency, stability over time, and for correlation with the HIV-KQ-45. The HIV-KQ-18 shows good internal consistencies (α range from .75 to .89). Test-retest reliability of the HIV-KQ-18 ranges between .76 and .94. Correlations between the HIV-KQ-45 and the HIV-KQ-18 ranged between r=.93 and r=.97 in three separate samples. According to the authors, this strong correlation with the HIV-KQ-45 shows that the HIV-KQ-18 "assesses nearly exactly the same dimension as the original 45-item scale" (Carey & Schroder, 2002, p. 177). Items on the HIV-KQ-18 range from "Coughing and sneezing DO NOT spread HIV" to "A person can get HIV from oral sex" and are rated by respondents as either "True" or "False."

Scoring of the HIV-KQ-18 was completed by giving participants one point for each correct answer and dividing the total number of items correct by the total number of questions on the HIV-KQ-18. Twenty-nine participants (18.4%) correctly answered all of the 18 items on the

HIV-KQ-18. A large majority of the participants, 91.77% were correct on at least 15 of the items and 100% of the participants correctly answered at least 12 of the items.

Perceived susceptibility. (APPENDIX B) The Health Belief Model-Perceived Susceptibility subscale (HBMP) gauged respondents' perceived susceptibility to HIV infection. Internal consistency for the HBMP is reported to be .72 among incarcerated youth between the ages of 13 and 18 (Lux & Petosa, 1994). There is no information available about the use of HBMP with college students. HBMP items are rated on a four point scale (1 = agree to 4 = disagree) and higher scores indicate that the participant is properly perceiving the risk that HIV/AIDS poses. Items on the HBMP include "People like me do not get HIV infections" and "I am not worried that I might get an HIV infection." Scores on the HBMP were computed by adding the total number of scale points for the participant and dividing by the total number of HBMP items.

Mean risk perception for the sample was 3.5 (SD=.43). The majority of the sample (90.5%) indicated an accurate perception of risk (i.e. ratings on the HBMP for these individuals averaged 3 or above). Cronbach's alpha for this scale with this sample was ..69.

Self-efficacy for condom use – technical. (APPENDIX B) The Self-Efficacy for Condom Use subscale of the HBMQ includes 8 items about the technical aspects of condom use. For example, "I am able to use condoms" and "I know how to use a condom when I have sex with someone." Internal consistency for this scale is .63 (Lux & Petosa, 1994). Items on this scale are rated on a four point scale with higher scores indicating a more favorable level of self-efficacy for technical aspects of condom use (1 = Disagree to 4 = Agree).

Mean self-efficacy for the technical aspects of condom use among the 158 respondents was 3.78 with a majority of participants indicating that they were confident in their technical

ability to properly use a condom (i.e. 98.7% had an average score of 3 or above on this scale). Cronbach's alpha for this scale with this sample was .58.

Self-efficacy for condom use – sexual discussion. (APPENDIX B) Self-efficacy for sexual discussion with a partner was measured using the Self-Efficacy for Sexual Discussion subscale of the HBMQ. Internal consistency for this scale is .79 (Lux & Petosa, 1994). The 8 items include "It is hard to ask a sex partner about other people they have had sex with" and "I am able to discuss the use of condoms with my sex partner." Items on this scale are rated on a four point scale with higher scores indicating a more favorable level of sexual discussion self-efficacy (1 = Disagree to 4 = Agree).

Mean self-efficacy for sexual discussion for the sample was 3.29. Just over 74% of participants had an average score of 3 or above on this scale, indicating that they felt confident that they would be able to discuss the use of condoms with a sexual partner. Cronbach's alpha for this scale with this sample was .82.

Relationship status. (APPENDIX A) Participants were asked to describe their relationship status and how sex was handled within their relationship using one item adapted from the College Student Behavior Questionnaire (MacNair-Semands & Simono, 1996) using a multiple choice format which includes six responses ranging from "not in a primary relationship" to "in several relationships, with only one being sexual." Responses to this item were coded as "1" or "0" indicating whether participants were or were not in a committed relationship, respectively.

Just over half (53.8%) of participants indicated that they were in a committed relationship at the time of the survey.

Number of sexual partners. (APPENDIX A) The number of sexual partners that someone has had throughout their lifetime was assessed using a question adapted from MacNair-Semands and Simono's (1996) College Student Behavior Questionnaire. This question prompted respondents to fill in a blank indicating the total number of sexual partners they have had in their lifetime.

The mean number of lifetime sexual partners was 5, and ranged from 1 to 30. Twenty six percent of participants had only had one sexual partner in their lifetime; thirty-nine percent had between 2 and 5 lifetime sexual partners; and the remaining thirty-five percent indicated having 6 or more lifetime partners.

Age at first intercourse. (APPENDIX A) This variable was measured using one question to which respondents filled in a blank indicating how old they were the first time they had intercourse.

Mean age at first intercourse for the sample was 16.8 years with a range from 12 to 21 years. Sixty-three percent of the sample indicated that they were 17 years or younger when they first had sexual intercourse. Twenty-eight percent of the sample indicated first having intercourse at the age of 18 years. Nine percent of the sample indicated having first had sexual intercourse between the ages of 19 and 21 years.

Current year in college. A single question asked students to identify their current year in college. Responses were coded from "0" to "3" with scores ranging from "0" indicating freshman status and "3"indicating senior status.

Ethnic background. Participants were asked to identify their ethnic background by filling in a blank beside a single item. For the remaining analyses, those indicating European American

ethnicity were coded as a 1 and those indicating anything other than European American ethnicity were coded as a 0.

Gender. A single item prompted participants to place a check mark beside their corresponding gender. Males were coded as 0 and females were coded as 1.

Substance use. (APPENDIX A) One item from the College Student Behavior Questionnaire (MacNair-Semands & Simono, 1996) measured the number of times within the past year that sexual intercourse would not have occurred without substance use. For this item, respondents are prompted to answer from the choices of “never,” “once,” “2-5 times,” or “more than 5 times.”

Responses to this item indicated that 49% of the sample reported sexual intercourse during the previous year that would not have occurred without alcohol or substance use. The number of such incidents were once (16%), 2 to 5 times (28%), and more than 5 times (4%).

Parental Education. Two items asked about the mother/primary caregiver’s highest educational attainment and the father’s/additional caregiver’s highest educational achievement. Responses to this item were rated from 1 to 6 (1 = 0 to 12 years but did not graduate from high school; 6 = doctorate / medical degree). Ratings from these two items were averaged an overall parental education rating between 1 and 6 with scores closer to 6 signifying higher educational attainment by the participants’ parents.

Mean parental education for the sample was 3.7 (SD=0.92). The majority of participants (86%) indicated that at least one parent had received an associate’s degree and 43% indicated that their parents had earned a bachelor’s or post-graduate degree.

Peer Influence. (APPENDIX D) Peer influence was assessed with the Sexual Risks Scale- Norms (SRSN) (DeHart & Birkimer, 1997). Cronbach’s alpha for the SRSN is .84 for use

with college students. Items on the SRSN include: "If I had sex and I told my friends that I did not use condoms, they would be angry or disappointed" and "My friends talk a lot about "safer" sex." The SRSN uese a five-point Likert type scale ranging from "1-Strongly Disagree" to "5-Strongly Agree." As with other scales in this survey, higher scores indicate a more favorable situation. A final score ranging from 1 to 5 combined the individual's responses and divided by the total number of items in the scale.

The mean score on the SRSN was 3.4 (SD=0.69). Nearly 26 percent of participants had an average score of 4 or above on this scale indicating agreement with statements that their peers were supportive of condom use. Almost 47 percent of the sample had an average score at or above 3 and below 4, indicating uncertainty about their peers support of condom use. The remaining participants (27%) had average scores below 3, indicating that their peers were not supportive of condom use. Cronbach's alpha for this scale with this sample was .77.

Affective Quality of Parent/College Student Relationship. (APPENDIX E) The affective quality of the parent-young adult attachment was assessed using the Parental Attachment Questionnaire (PAQ) Affective Quality of Relationship (PAQ-A) subscale developed by Kenny (1986) for use with college populations. Cronbach's alpha for this subscale is .96. There are 27 items on the Affective Quality of Relationship subscale, including: "In general, my parents support my goals and interests," and "In general, my parents understand my problems and concerns." The rating scale for the PAQ is a Likert-type response scale which prompts respondents to indicate their level of agreement with a given statement (1 = not at all to 5 = very much) with higher scores indicating a higher quality parent-college student interaction. The scale score is computed by adding the points per item and dividing by the total number of items.

Cronbach's alpha for this scale with this sample was .93. The mean for Parental Affective Quality of Relationship was 4.1. Fifty-eight percent of respondents scored above the mean on Parental Affective Quality of Relationship, indicating that overall college students had a positive view of their affective relationship with their parents. For analysis purposes, the scores on the PAQ-A were centered on the mean to allow for the creation of the multiplicative product term between the PAQ-A and PAQ-F.

Parents as Facilitators of Autonomy. (APPENDIX E) The perception college students have of their parents' abilities to facilitate autonomy was assessed with the PAQ Parents as Facilitators of Autonomy subscale (PAQ-F). The 14 items on the Parents as Facilitators of Autonomy subscale include: "In general, my parents encourage me to make my own decisions," and "In general, my parents impose their ideas and values on me." The rating scale for the PAQ is a Likert-type response scale which prompts respondents to indicate their level of agreement with a given statement (1 = not at all to 5 = very much) with higher scores indicating a higher quality parent-college student interaction. The scale score is computed by adding the points per item and dividing by the total number of items. Cronbach's alpha for this subscale is .88.

The mean for Parents as Facilitators of Autonomy was 3.8. Cronbach's alpha for this scale with this sample was .83. The majority of respondents viewed their parents as allowing them room to develop autonomy with 51 percent of respondents scoring above the mean and 49 percent scoring below the mean and a standard deviation of 0.5. For analysis purposes, the scores on the PAQ-F were centered on the mean to allow for the creation of the multiplicative product term between the PAQ-A and PAQ-F.

Overview of Data Analyses.

Zero-order correlations among study variables and descriptive statistics were performed. Data were examined for outliers and for normality of distribution. Multiple regression analyses were then performed to test the proposed hypotheses.

Six separate multiple regression equations were used to test the hypotheses. The following three sections discuss those regression equations in more detail as they apply to each of the individual outcome variables. Because the focus of the research questions is the prediction of condom use and condom use intentions, individuals indicating no sexual activity, 20 percent of the total sample, were eliminated from these analyses.

Parent-young adult relationship variables as predictors of condom use during the most recent sexual encounter. To test the effects of the individual PAQ variables on college student condom use during the most recent sexual encounter, a logistic regression was conducted which held all other predictor variables constant while entering the PAQ variables. [The variables entered as covariates in each equations were: Self-efficacy for Condom Use, Relationship Status, Age at First Intercourse, Knowledge of HIV/AIDS, Perceived Susceptibility, Gender, Number of Sexual Partners, Substance Use, Year in College, Age and Parental Socioeconomic Status in order to examine the impact of these predictor variables on condom use.] In line with the research by Schachner and Shaver (2004) and by Freitag, et al. (1996) a second logistic regression tested whether the interaction between the PAQ facilitation of independence subscale and the PAQ emotional quality of relationship subscale, as represented by the multiplicative product term of these two variables, added additional variance to the prediction of condom use during the most recent sexual encounter while holding all other predictor variables constant. PAQ variables were centered before interaction terms were constructed.

Parent-young adult relationship variables as predictors of condom use during the previous 3 months. To test the effects of the individual PAQ variables on college student condom use during the previous 3 month period, a regression analysis was conducted holding all other predictor variables constant while entering the PAQ variables. It is believed that each PAQ variable contributes unique variance to the prediction of condom use during the previous 3 month period. Again, to explore the impact of the interaction between the PAQ facilitation of autonomy subscale and the PAQ emotional quality of relationship subscale, PAQ variables were centered, and a multiplicative product term was formed between the facilitation of autonomy and emotional quality of relationship subscales, and an additional regression analysis was conducted in which condom use during the previous 3 month period was entered as the criterion.

Parent-young adult relationship variables as predictors of condom use intentions. Finally, to test the effects of the individual PAQ variables on college student condom use intentions, a regression analysis, holding all other predictor variables constant was conducted. PAQ variables were centered and the interaction between the PAQ facilitation of autonomy subscale and the PAQ emotional quality of relationship subscale was tested by a second ANOVA in which all predictors were included and condom use intentions was the criterion variable.

Results

Missing Data

Prior to analysis, it was discovered that several of the predictors had missing data (from 0.6% for lifetime partner to 15.8% for condom self-efficacy). The decision was made to approximate these values by multiple imputation. SAS statistical software was used to conduct this multiple imputation on those missing values using *proc MI.* Only those participants with complete data for Future Intentions were included in the imputation. After completion of the

multiple imputation procedure, which resulted in 5 imputed data sets, the composite scores for each of the measures were computed. Participants who were missing data on the remaining dependent variables prior to imputation were then deleted from the analyses for the respective dependent variable. Table 2 shows the percentage of participants missing for each variable.

Distributions and Outliers

Univariate statistics, including skewness and kurtosis values, were computed using SAS. One variable, number of lifetime partners, was significantly skewed and kurtotic. This variable was transformed, taking the natural logarithm of number of lifetime partners. Table 3 shows these univariate statistics.

Power Analysis.

Before initiation of the study, a power analysis was done suggesting that an 80 percent probability of detecting a 3 percent increase in variance could be perceived with a sample of 150 participants. This preliminary power analysis included 11 base predictors, 2 parenting variables, and the interaction between those parenting variables. Difficulties with data collection and the elimination of non sexually active respondents from data analysis resulted in a sample size of 140 for most recent condom use, 145 for condom use during the previous 3 months, and 158 for intentions to use condoms. Therefore, a second power analysis was conducted after data collection to explore the impact of these changes. That power analysis suggested that, for the current study with 140 participants, 13 base predictors, 2 parenting variables, and one interaction; there was a 64 percent probability of detecting a 3 percent increment change in outcome due to the parent variables and a 74 percent probability of detecting a 3 percent increment change in outcome due to the interaction term.

Bivariate Relationships

To investigate the relationship of the predictors of condom use among college students, zero order correlation analyses were initially conducted for each of three dependent measures of condom use: Most Recent Condom Use, Condom Use during the Previous 3 Months, and Future Intentions to Use Condoms. This analysis used the pre-imputation data set. These results are shown in Table 4. Predictors that were significantly associated with Most Recent Condom Use at the .05 level included peer influence, r =.32, self-efficacy for technical condom use, r =.30, and year in college, r = -.17. These relationships were in directions consistent with previous research.

Predictors that were significantly associated with Condom Use during the Previous 3 Months below the .05 level included peer influence, r =.30, and self-efficacy for technical condom use, r =.29. These relationships were in directions consistent with previous research.

Predictors that were significantly associated with Future Intentions to Use Condoms below the .05 level included peer influence, r =.31, log lifetime partners, r = -.46, age of first intercourse, r =.21, alcohol use, r = -.28, self-efficacy for technical condom use, r =.35, and gender, r =.22. Again, these relationships were in directions consistent with previous research.

Neither of the parent-college student relationship variables were significantly associated with any of the outcome variables.

Each of the multiply imputed data sets was then analyzed based on the six research hypotheses resulting in 3 analyses for each dependent variable across each of the 5 imputed data sets. The remaining discussion of analyses will present only the combined results of these 45 analyses, which yielded 9 summary models, 3 models for each outcome variable.

Condom Use during the Most Recent Sexual Encounter (Condom Use MR)

Three separate logistic regression analyses were used to determine whether affective quality of parent-college student relationship (PAQA), parental facilitation of autonomy (PAQF), or an interaction between these two variables (PAQAxPAQF) added significantly to the prediction of Condom Use MR when all other predictors were in the models (n=140). First, the base model (Model A) was analyzed without any of the parenting variables. Then PAQA and PAQF were added to the model for analysis (Model B). Finally, the full model (Model C) including the base predictors, PAQA, PAQF, and the interaction between the PAQ variables (PAQAxPAQF), as created by a multiplicative product term of these centered variables, was analyzed. All 3 models yielded significant Chi-square values. See Table 5 for combined logistic regression analyses for condom use during the most recent sexual encounter.

Because the hypotheses for the current study required comparisons between models, Chi-square difference values were computed between the models to determine whether the added parenting variables contributed significantly to the prediction of Condom Use MR. Models A and B were not significantly different (Chi-square difference = 4.66, df = 2) at the .05 level. Models B and C were significantly different (Chi-square difference = 5.81, df=1) at the .025 level and Models A and C were significantly different (Chi-square difference = 10.46, df=3) at the .025 level.

For Model A, peer influence was the only significant predictor ($\beta = .929$, $p<.004$) of Condom Use MR. For Model B, peer influence remained the only significant predictor ($\beta = .9119$, $p<.005$) of Condom Use MR. Therefore, the first hypothesis, the expectancy that affective quality of the parent college-student relationship and parental facilitation of autonomy

would each contribute significantly to the prediction of college student condom use during the most recent sexual encounter was not supported.

For Model C, peer influence ($\beta = .8945$, $p<.006$) was again the only significant predictor of Condom Use MR. Therefore, the second hypothesis, that the interaction between the parenting variable would account for significant variance in Condom Use MR, was not supported.

Odds ratios for the predictor variables are reported in Table 6.

Condom Use During the Previous Three Months (Condom Use 3M)

Using *proc glm* in SAS, three separate regression analyses were conducted to determine whether affective quality of parent-college student relationship (PAQA), parental facilitation of autonomy (PAQF), or an interaction between these two variables (PAQAxPAQF) added significantly to the prediction of Condom Use 3M when all other predictors were in the models (n=145). First, the base model (Model D) was analyzed without any of the parenting variables. Then PAQA and PAQF were added to the model for analysis (Model E). Finally, the full model (Model F) including the base predictors, PAQA, PAQF, and the interaction between the PAQ variables (PAQAxPAQF), as created by a multiplicative product term of these centered variables, was analyzed. None of the models predicting Condom Use 3M were significant. Therefore, the third and fourth hypotheses were not supported. See Table 7 for combined regression statistics for condom use during the previous 3 months.

Condom Use Intentions (Condom Use IN)

Using *proc glm* in SAS, three separate regression analyses were conducted to determine whether affective quality of parent-college student relationship (PAQA), parental facilitation of autonomy (PAQF), or an interaction between these two variables (PAQAxPAQF) added significantly to the prediction of Condom Use IN when all other predictors were in the models

(n=158). First, the base model (Model G) was analyzed without any of the parenting variables. Then PAQA and PAQF were added to the model for analysis (Model H). Finally, the full model (Model I) including the base predictors, PAQA, PAQF, and the interaction between the PAQ variables (PAQAxPAQF), as created by a multiplicative product term of these centered variables, was analyzed. All three models yielded significant F values at $p<.0001$. See Table 8 for combined F test statistics for condom use intentions.

The variables in Model G accounted for 42.99% of the variance in Condom Use IN, Model H accounted for 44.21% of the variance in Condom Use IN, and Model I accounted for 44.56% of the variance in Condom Use IN. For Model G, peer influence (β =.1998, $p<.001$), log lifetime partners (β = -.928, $p<.0001$), and gender (β = .221, $p<.01$) were the only significant predictors of Condom Use IN; for Model H, peer influence (β = .2111, $p<.0005$), log lifetime partners (β = -.9303, $p<.0001$), and gender (β = .2082, $p<.025$) were the only significant predictors of Condom Use IN; and for Model I, peer influence (β= .2147, $p<.0005$), log lifetime partners (β = -.9035, $p<.0001$), and gender (β = .1815, $p<.05$) remained the only significant predictors of Condom Use IN.

Neither the fifth hypothesis, that affective quality of the parent college-student relationship and parental facilitation of autonomy would each contribute significantly to the prediction of college student intentions to use condoms in the future, nor the sixth hypothesis, that the interaction of affective quality of the parent-college student relationship with parental facilitation of autonomy would contribute significantly to of college student intentions to use condoms in the future, were supported. See Tables 9 through 17 for statistical analyses of the 9 models used in the current study.

Discussion

The National Center for Disease Control estimates that approximately 40,000 individuals in the United States become infected with HIV each year (Center for Disease Control and Prevention, 2003b). Other than abstinence, the best way to avoid the transmission of HIV/AIDS through sexual contact is the use of a latex condom during sexual intercourse. Despite an increase in efforts to impart this knowledge to young people, the number of individuals between the ages of 15 and 24 infected with HIV increased steadily from 1999 to 2003 (Center for Disease Control and Prevention, 2003b). The current study was designed to further the understanding of factors that contribute to college students' decisions about condom use and that may assist with the design of interventions.

Summary of Results

The present study investigated the connections between college students' relationships with their parents and the impact of these relationships with college students' decisions about condom use during the most recent sexual experience, the previous 3 months, and future intentions to use condoms. Potential predictors of college student condom use included peer influence, perception of HIV/AIDS risk, alcohol use, relationship status, year in college, parental education level, age of first intercourse, number of lifetime partners, self-efficacy for condom use, self-efficacy for sexual discussion, HIV/AIDS knowledge, gender, ethnicity, and parental education. College students' perceptions of their affective relationships with their parents and of their parents' facilitation of autonomy were also examined as independent predictors and as those variables interacted.

The current study confirmed several bivariate relationships observed in the previous sexual risk literature. Consistent with Wulfert and Wan's research with social cognitive theory

and condom use intentions (1995) the variables of condom use self-efficacy, ($r = .35, p<.001$) and peer influence ($r = .31, p< .001$) were significantly correlated with intentions to use condoms, although less powerfully than in some previous studies. Wulfert and Wan (1995) found that 70% of variance in condom use intentions was accounted for by social norms, self-efficacy, and consequences in their evaluation of the predictive ability of a social cognitive theoretical model. Self-efficacy for the technical aspects of condom use was also significantly correlated with condom use during the most recent sexual intercourse ($r = .30, p < .001$) and condom use during the previous 3 months ($r = .29, p < .01$). These findings are consistent with previous research from Cohen and Fromme (2002), Trafimow 2001), and Sanderson and Jemmott (1996).

The number of lifetime partners was significantly and negatively correlated ($r = -.46, p<.001$) with intentions to use condoms. This is consistent with earlier findings that an increase in lifetime sexual partners is associated with a decrease in condom use (Salina, Razzano, & Lesondak, 2000).

College students reporting greater instances of sexual activity over the past year that would not have occurred without substance had lower intentions to use condoms, as evidenced by the zero-order correlation between this predictor ($r = -.28, p<.001$) and condom use intentions. This is similar to previously identified connections between risky sexual behavior and alcohol use (e.g., Cooper, 2002; MacNair-Semands & Simono, 1996).

Peer influence remained a strong predictor for all six of the models tested. The strong association between peer influence and current condom use behavior is consistent with earlier research (Steers, et al., 1996) and highlights the need for the inclusion of peer support components in future interventions to increase condom use behavior among college students.

Inclusion of all study variables in the model to predict future intentions to use condoms accounted for nearly 45% of the variance in condom use intentions. This is similar to the amount of variance explained in previous studies. For example, Wulfert and Wan (1995) found that health belief model variables accounted for 30% of the variance in condom use intentions; variables from the theory of reasoned action accounted for 60% of the variance in condom use intentions; and the social cognitive variables of consequences, peer norms, and self-efficacy accounted for 70% of the total variance in intentions to use condoms.

Despite the consistency in results with previous research, the current study failed to support the hypotheses that parental variables of facilitation of autonomy and affective quality of relationship were related to the outcome variables. There were no significant bivariate relationships between the parental relationship variables and the outcome variables. Further, parental relationship variables were not significant predictors in any of the other multivariate models.

Potential Strengths and Limitations of the Study

A strength of the current study is the predominant use of measures that were developed for and used with other college age populations. For example, the College Student Behavior Questionnaire (McNair-Semands & Simono, 1996) was designed to measure alcohol risk and sexual risk behaviors among college students and the Parental Attachment Questionnaire (Kenny, 1990) was designed to measure the quality of parental attachment among college students.

Another strength of the current analysis is the use of multiple imputation to predict missing values. Multiple imputation is less likely to bias results than other methods of dealing with missing data. Rather than creating a single value for each missing datum, as is done with

mean substitution, or deleting the values for a participant with missing data which results in the further loss of information, multiple imputation creates a prescribed number of data sets with the missing values in each new data set approximated from the available data in the primary data set (Schafer, 1999; Rubin, 1987). In this way, the imputed values represent the uncertainty about the missing data in a way that retains the variability and randomness of the missing data.

An additional strength of the current study is the use of multivariate models to examine the unique contribution of each of the predictors to the outcome variables. Multivariate statistical analysis reveals complex interrelationships among variables while keeping the potential for Type I errors low (Tabachnick & Fidell, 2001).

Previous studies have included some of the base model predictors used in this study but have not included all of these predictors together. This is both a strength and a weakness of the current research. The greater number of predictors made it necessary to secure a larger sample and decreased the power for the detection of effects. However, the inclusion of all the predictors that have been associated with condom use and condom use intentions highlighted which variables were most important.

A potential limitation of the current study is the smaller than expected sample size. The size of the current sample may have decreased the power to detect the effects of the predictors on condom use variables. As stated in the results section of this paper, the power to detect the effect of a 3 percent increase in variance due to the parenting variables at the .05 alpha level was .64 and the power to detect a 3 percent increase due to the interaction term at the .05 alpha level was .74. The size of the sample also made it difficult to perform additional sub analyses, such as analyses regarding gender or ethnic differences. Further, the sample used for this analysis was

comprised of students enrolled in an introductory psychology class who elected to participate in the current study. It is unclear how this might influence the results of the current analyses.

Areas for Further Investigation

Global vs. specific potential measures. Although the current study was unable to identify significant relationships between parental relationship variables with condom use variables, there is evidence from other research areas (e.g. alcohol use) that parents impact the decisions that college students make about risk participation. An example of this type of research was done by Turrisi, Wiersma, and Hughes (2000) and Turrisi et al. (2001) while examining the impact of parent-college student communication specific to attitudes about alcohol use. These authors found that communication between parents, usually mothers, and their college age children was related to beliefs about drinking and to the experience of consequences from binge-drinking. Further, an intervention that targeted increasing communication about alcohol related attitudes and consequences significantly decreased the likelihood that young adults would experience consequences of alcohol-related behavior and increased the likelihood that young adults would hold more accurate beliefs about alcohol use than peers whose parents did not receive intervention materials. Perhaps the current approach to parental relationship variables was not specific enough to parent-young adult communication about condom use and sexual risk on campus to detect the impact that such directed discussions between college students and their parents have on the risk related behaviors of those college students. Future research in college student condom use may prove more productive if measures focus more specifically on parent-student communication about condom use and condom use attitudes, rather than on the global parent-college student relationship.

It may also be the case that parent-college student relationships can have both direct and indirect effects on college student relationships and behaviors. It may be possible for a college student to learn a secure, positive way to negotiate within a relationship from his/her parents without ever discussing the sexual aspects of relationship negotiation. Therefore, the impact of parents may be two-fold. First, it may be that direct communication about condom use and how sex should be handled within a relationship context may impact college student condom use decisions. Subsequently, creating a positive relational model by giving the college student adequate emotional support and room to develop autonomy may assist in the establishment of secure committed relationship styles. As identified in the current study, over half of the students were in a committed relationship and the majority had positive views of their parents' ability to offer emotional support and to facilitate autonomy.

Attachment theory. Another area in need of further research is the theory of attachment for college-aged young adults. The theory of attachment with respect to a young adult population is a relatively new area of study. Much of the research on attachment, and the theory of attachment itself, focuses on young children. A growing body of literature accounts for the impact of the attachment relationship on adult relationship formation (e.g., Schacner & Shaver, 2004). The relationship of parental attachment to young adult developmental outcomes is less understood. For example, there is still tension among researchers as to whether adolescents maintain connectedness with parents (e.g. Bowlby, 1988 and Kenny, 1987) or must necessarily cut ties with parents (e.g. Blos, 1979) to become individuated adults. Therefore, future research may need to further explain the role of attachment theory in the case of college student developmental outcomes.

Gender differences in the attachment relationship. In the current analysis, college students completed the PAQ based on their relationship with both parents. In retrospect, this may not be the best approach to assessing the impact of attachment on developmental outcomes because the differential impact of the attachment relationships with mothers and fathers, as well as the impact of gender of the child on attachment, is not well understood (Lopez and Gover, 1993). Research designed to gauge the dynamics of gender of the child and the specified role of the parent may assist future researchers in the identification of links between attachment and developmental outcomes for individuals of varying age groups.

Limitations of self-report. The PAQ uses college student self-reports of the relationship that the college student has with their parents. It is therefore, the college student's perception of the attachment relationship with the parents that is being measured. Although the psychometric properties of the PAQ are well established and the measure has been shown to correlate in the expected directions with measures of social competence, psychological functioning and parent-adolescent over-involvement (Kenny & Donaldson, 1991; Lopez & Gover, 1993) information about how parents perceive their relationship with their college age children is needed to fully understand the parent-college student relationship. Many measures that tap attachment quality of parent-adolescent relationships are not designed to evaluate parental perspectives (Lopez & Gover, 1993). This approach provides a limited understanding of the parent-adolescent attachment relationship. Research that further explores the attachment relationship from both parental and adolescent perspectives is needed.

What do college students consider to be sexual intercourse? Of the 158 students in the current sample, nearly 82% identified participation in oral sex without a condom over the previous 3 months compared to the 54% who identified participation in vaginal sex without a

condom. It is unclear from the current study whether college students consider oral sex to be as potentially risky to their health as vaginal intercourse. The potential for severity of consequences from the participation in these behaviors without protection needs to be further examined in the literature to identify factors specifically linked to the decisions to participate in oral sex without a condom.

Implications for Practice

Although the research hypotheses were not supported, the current research reveals important information for practitioners in the field. First and foremost, the perception of peer attitudes about condom use was a strong predictor for all three of the condom use outcome variables. One way interventionists can use this information is to create informational programs on campus that provide information to entering college freshmen about the sexual behaviors and attitudes of their peers. This tack may prevent misperceptions about the types of activities that college students are expected to participate in once they enter the university and make those entering college less susceptible to perceived peer pressure.

As identified in previous research with college students (e.g. Lewis & Goodhart, 1996) most of the college students who were sexually active had participated in sexual intercourse prior to entry into college. The current emphasis on abstinence-only education may not be providing young adolescents with the tools necessary to protect themselves from the consequences of their sexual behaviors. An educational program that educates teens on the risks of HIV/AIDS, other STD's and the behaviors that lead to the contraction of these illnesses may also reduce some of the behaviors found during the current study. At the very least, self-efficacy for condom use and discussion of condom use with a partner for all types of sexual activity is warranted among both high school and college age youth.

As identified in the current study, just over 50 percent of students participating in vaginal intercourse reported using condoms during the previous three month period, but over 80 percent of sexually active students did not use condoms during oral sex. This is a crucial area that needs to be addressed by interventionists, as teens may not consider oral sex to be as risky as other sexual activities. Perhaps oral intercourse is seen by college students as a way to participate in sexual activities without risking pregnancy. However, decreased risk of pregnancy does not lessen the risks or consequences of unprotected sexual activities during which bodily fluids are exchanged. Similar findings by Scandel, et al. (2003), who reported that 1 person out of the sample of 189 participants had ever used a condom during oral intercourse, serve to highlight the importance of addressing college student distinctions between oral, genital, and anal intercourse and the risk to those students who do not protect themselves during oral intercourse.

Although the parent-college student relationship variables did not reach significance in the current analyses, it may not be clinically prudent to neglect parents as a potential resource for reducing sexual risk behavior among their college age children. Providing parents with information about the norms for sexual behavior on campus, the current state of self-protective behaviors among college students, and with ways to discuss these norms and behaviors with their entering college freshmen may assist in the reduction of positive outcome expectancies thereby reducing the risks and consequences experienced by those college students. For example, a handbook intervention, similar to the approach taken by Turrisi, et al. (2001) may be effective when directed at increasing condom use among college students. While it is expected that taking such an approach with condom use may initially be controversial, given the political and religious connotations of such an intervention, if approached with respect to those different values and view points, parents may be better equipped to discuss the issue of sexual safety with

their children in a way that serves to help their children to make better decisions about sex and condom use while reinforcing their individual religious and political viewpoints.

It may also be wise when working with college student populations at risk of contracting HIV/AIDS to speak to the clinicians and community-based organizations who are already confronting this issue, to ask about their insights into youth behavior. As identified by Yoshikawa, et al. (2003) many HIV prevention programs focus on the individual without attending to the various ecological levels that impact decisions about participation in behaviors that put an individual at risk of contracting HIV/AIDS. With the inability of researchers to account for more than 20 percent of the variance in condom use behavior using current approaches (Abraham, et al. 1999), it is clear that the search for prevention strategies must move beyond a focus on the individual to the impact of the social groups, communities, and organizations to which college students belong.

Concluding Remarks

Given that research suggests the importance of parent-college student relationships and the impact of these relationships in various areas of college student life, future work needs to examine additional areas that parents contribute to the growth and development of their students. It cannot be assumed that college students are immune to the impact of the history of their primary attachment relationships on their actions and/or cognitions while at college, nor can it be assumed that college students, having reached adulthood, are not influenced at all by parents. The areas of attachment have thoroughly investigated these relationships for adults and for adolescents but there exists a dearth in the attachment literature on college students. Refinement of theories and measures for this age group is a necessary next step in the developmental field.

In sum, condom use among college students, given the current realities of HIV/AIDS, is a major concern on college campuses. According to the current study, peer influence plays a primary role in the decisions that college students make about using condoms during sexual intercourse. Interventions that serve to increase accurate perceptions of peer condom use norms and peer attitudes about condom use may be the best protection against HIV/AIDS, as well as other STD's, that health professionals on campus can offer to college students. There is more to be done in the area of intervention and research to enhance HIV/AIDS prevention efforts among college students.

References

Abraham, C., Sheeran, P., Norman, P., Conner, M., de Vries, N., & Otten, W. (1999). When Good Intentions are not enough: Modeling postdecisional cognitive correlates of condom use. *Journal of Applied Social Psychology, 29,* 2591-2612.

Ainsworth, M., Blehar, M., Walters, E., & Wally, S. (1978). *Patterns of Attachment: A psychological study of the strange situation.* Hillsdale, NJ: Erlbaum.

Anderson, P. & Mathieu, D. (1996). College students' high-risk sexual behavior following alcohol consumption. *Journal of Sex & Marital Therapy, 22,* 259-264.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84,* 191-215.

Bandura, A. (1980). Gauging the relationship between self-efficacy judgment and action. *Cognitive Therapy and Research, 4,* 263-268.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37,* 122-147.

Baumrind, D. (1996). The discipline controversy revisited. *Family Relations, 45,* 405-414.

Baumrind, D. (1967). Child care practices anteceding three patters of preschool behavior. *Genetic Psychology Monographs, 75,* 43-88.

Bowlby, J. (1969). *Attachment and loss: Vol. 1 Attachment/* New York: Basic Books.

Carey, M. P. & Schroder, K. E. (2002). Development and psychometric evaluation of the brief HIV knowledge questionnaire. *AIDS Education and Prevention, 14,* 172-182.

Centers for Disease Control and Prevention (2003b). HIV/AIDS Surveillance Report, 2003: 15. Atlanta: US Department of Health and Human Services, CDC; 2004:1–46. Available at http://www.cdc.gov/hiv/stats/2003surveillancereport.pdf. Accessed September 19, 2005.

Centers for Disease Control and Prevention (2003). *HIV/AIDS Surveillance Report* 2002; 14. Also available at: http://www.cdc.gov/hiv/stats/hasrlink.htm.

Centers for Disease Control and Prevention (1997). *Youth Risk Behavior Surveillance: National College Health Risk Behavior Survey—United States 1995.* Also available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/00049859.htm

Cohen, E. S. & Fromme, K. (2002). Differential determinants of young adult substance use and high risk sexual behavior. *Journal of Applied Social Psychology, 32,* 1124-1150.

Cooper, M. L. (2002). Alcohol use and risky sexual behavior among college students and youth: evaluating the evidence. *Journal of Studies on Alcohol, 14*, 101-117.

DeHart, D. D. & Birkimer, J. C. (1997). Trying to practice safer sex: development of the sexual risks scale. *The Journal of Sex Research, 34*, 11-25.

Frietag, M., Belsky, J., Grossmann, K., Grossmann, K. E., Scheuerer-Englisch, H. Continuity in parent-child relationships from infancy to middle childhood and relations with friendship competence. *Child Development, 67,* 1437-1454.

Gonzalez, A., Greenwood, G., & WenHsu, J. (2001). Undergraduate students' goal orientations and their relationship to perceived parenting styles. *College Student Journal, 35*, 182-192.

Hammer, J. C., Fisher, J. D., Fitzgerald, P. , & Fisher, W. A. (1996). When two heads aren't better than one: AIDS risk behavior in college-age couples. *Journal of Applied Social Psychology, 26*, 375-397.

Hickman, G. P. , Bartholomae, S., McKenry, P. C. (2000). Influence of parenting styles on the adjustment and academic achievement of traditional college freshmen. *Journal of College Student Development, 41*, 41-54.

Hinderlie, H. & Kenny, M. (1992). Attachment, social support, and college adjustment among black students at predominantly white universities. *Journal of College Student Development, 43,* 327-340.

Huebner, A. J. & Howell, L. W. (2003). Examining the relationship between adolescent sexual risk-taking and perceptions of monitoring, communication, and parenting styles. *Journal of Adolescent Health, 33,* 71-78.

Kenny, M. (1994). Quality and correlates of parental attachment among late adolescents. *Journal of Counseling and Development, 72,* 399-403.

Kenny, M. (1990). College Seniors' Perceptions of Parental Attachments: The value and stability of family ties. *Journal of College Student Development, 31,* 39-46.

Kenny, M. (1986). The extent and function of parental attachment among first year college students. *Journal of Youth and Adolescence, 16,* 17-29.

Kenny, M. & Donaldson, G. (1992). The relationship of parental attachment and psychological separation to the adjustment of first-year college women. *Journal of College Student Development, 33,* 431-438.

Kenny, M. & Perez, V. (1996). Attachment and psychological well-being among racially and ethnically diverse first year college students. *Journal of College Student Development, 37,* 527-535.

Kenny, M. & Stryker, S. (1996). Social network characteristics and college adjustment among racially and ethnically diverse first-year students. *Journal of College Student Development, 37,* 649-658.

Knox, D., Zusman, M., & Nieves, W. (1998). What I did for love: risky behavior of college students in love. *College Student Journal, 32,* 203-206.

Lambert, T. A., Kahn, A. S., & Apple, K. J. (2003). Pluralistic ignorance and hooking up. *Journal of Sex Research, 40*, 129-134.

Lewis, J. E. & Malow, R. M. (1997). HIV/AIDS risk in heterosexual college students. *Journal of American College Health, 45*, 147-159.

Lopez, F. & Gover, M. (1993). Self-report measures of parent-adolescent attachment and separation-individualtion: A Selected Review. *Journal of Counseling & Development, 71*, 560-569.

Lux, K. M., & Petosa, R. (1994). Preventing HIV infection among juvenile delinquents: educational diagnosis using the health belief model. *International Quarterly of Community Health Education, 15*, 145-163.

MacNair-Semands, R. R. & Simono, R. B. (1996). College student risk behaviors: Implications for the HIV-AIDS Pandemic. *Journal of College Student Development, 37*, 574-587.

Page, R. M., Hammermeister, J. J., & Scanian, A. (2000). Everybody's not doing it: Misperceptions of college student's sexual activity. *American Journal of Health Behavior, 24*, 387-394.

Patock-Peckham, J. A., Cheong, J., Balhorn, M. E., & Nagoshi, C. T. (2001). A social learning perspective: A model of parenting styles, self-regulation, perceived drinking control and alcohol use and problems. *Alcoholism: Clinical and Experimental Research, 25*, 1284-1292.

Prince, A. & Bernard, A. L. (1998). Sexual behaviors and safer sex practices of college students on a commuter campus. *Journal of American College Health, 47*, 11-21.

Rholes, W. & Simpson, J. (2004). Attachment Theory: Basic concepts and contemporary questions. In W. S. Rholes & J. A. Stevens (Eds.), *Adult Attachment: Theory, Research, and Clinical Implications* (pp. 3-14).

Rubin, D. (1987). *Statistical analysis with missing data*. New York: John Wiley & Sons.

Salina, D. D., Razzano, L., Lesondak, L. (2000). Influence of health beliefs, attitudes and concern about HIV/AIDS on Condom Use INcollege women. *Journal of Prevention & Intervention in the Community, 19*, 41-53.

Sanderson, C. A. & Jemmott, J. B., III (1996). Moderation and mediation of HIV prevention interventions: Relationship status, intentions, and condom use among college students. *Journal of Applied Social Psychology, 26*, 2076-2099.

Scandell, D. J., Klinkenberg, W. D., Hawkes, M. C. & Spriggs, L.S. (2003). The assessment of high-risk sexual behavior and self-presentation concerns. *Research on Social Work Practice, 13*, 119-141.

Schacner, D. & Shaver, P. (2004). Attachment dimensions and sexual motives. *Personal Relationships, 11*, 179-195.

Schafer, J. (1999). Multiple imputation: a primer. *Statistical Methods in Medical Research, 8*, 3-15.

Siegel, D. M., Klein, D. I., & Roghmann, K. J. (1999). Sexual behavior, contraception, and risk among college students. *Journal of Adolescent Health, 25*, 336-343.

Steers, W. N., Elliot, E., Nemiro, J., Ditman, D., & Oskamp, S. (1996). Health beliefs as predictors of HIV-preventive behavior and ethnic differences in prediction. *The Journal of Social Psychology, 136*, 99-110.

Steinberg, L., Lamborn, S. D., Dornbush, S. M. & Darling, N. (1992). Impact of parenting practices on adolescent achievement: Authoritative parenting, school involvement, and encouragement to succeed. *Child Development, 63*, 1266-1281.

Steinberg, L., Darling, N. E., Fletcher, A. C., Brown, B. B., & Dornbusch, S. M. (1995). In P. Moen, G. H. Elder, Jr., & K. Luscher (Eds.), *Examining lives in context: perspectives on the ecology of human development.* Washington, DC: American Psychological

Association, 1995.

Steinberg, L. & Scott, E. S. (2003). Less guilty by reason of adolescence: Developmental immaturity, diminished responsibility, and the juvenile death penalty. *American Psychologist, 58*, 1009-1018.

Tabachnick, B. & Fidell, L. (2001). *Using Multivariate Statistics* (4th ed.). Boston: Allyn and Bacon.

Trafimow, D. (2001). Condom use among U.S. students: The importance of confidence in normative and attitudinal perceptions. *The Journal of Social Psychology, 141,* 49-59.

Turrisi, R. Jaccard, J. Taki, R., Dunnam, H., & Grimes, J. (2001). Examination of a short-term parent intervention to reduce college student drinking tendencies. *Psychology of Addictive Behaviors, 15,* 366-372.

Turrisi, R., Wiersma, K., & Hughes, K. (2000). Binge drinking-related consequences in college students: The role of drinking beliefs and parent-teen communications. *Psychology of Addictive Behaviors, 14,* 342-355.

Wood, M. D., Read, J. P. , Mitchell, R. E., & Brand, N. H. (2004). Do parents still matter? Parent and peer influences on alcohol involvement among recent high school graduates. *Psychology of Addictive Behaviors, 18,* 19-30.

Wulfert, E. & Wan, C. (1995). Safer sex intentions and condom use viewed from a health belief, reasoned action and social cognitive perspective. *The Journal of Sex Research, 32,* 299-311.

APPENDIX A

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APPENDIX C

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APPENDIX D

Contact Information for Sexual Risk Scales

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APPENDIX E

Contact Information for Parental Attachment Questionnaire

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Table 1

Measures

(IV/DV)	Construct	Measure	# of items	Test-retest reliability	Cronbach's alpha
DV1	Condom use- most recent sex	CSBQ-R	1		
DV2	Condom use - past 3 months	CSBQ-R	6	.63	.77
DV3	Condom use intentions	HBMI	5	.64	
IV-1	HIV/AIDS risk knowledge	HIV-KQ-18	18	.76 to .94	.75 to .89
IV-2	Perceived susceptibility to HIV infection	HBMP	6	.72	
IV-3	Self-efficacy for condom use	HBMC	8	.63	
IV-4	Self-efficacy for sexual discussion	HBMC	8	.79	
IV-4	Norms for Condom use	SRSN	7	.84	
IV-5	Substance use	CSBQ	1	N/A	N/A
IV-6	Relationship status	CSBQ	2	N/A	N/A
IV-7	Number of sexual partners in lifetime	CSBQ	1	N/A	N/A
IV-8	Age at first intercourse		1	N/A	N/A
IV-9	Current year in college		1	N/A	N/A
IV-10	Gender		1	N/A	N/A
IV-11	Ethnic background		1	N/A	N/A
IV-12	Age		1	N/A	N/A
IV-13	Parental SES		3	N/A	N/A
IV-14	Affective Quality of Relationships	PAQ-A	27	.82 to .91	.96
IV-15	Parents as Facilitators of Autonomy	PAQ-F	14	.82 to .91	.88

Table 2.

Percent Missing by Variable

Variable	**n**	**Percent Missing**
Most Recent Condom Use	140	11.4
Previous 3 Month Condom Use	145	8.2
Condom Use Intentions	158	0.0
Peer Influence	158	0.0
Commitment	158	0.0
Log Lifetime Partners	157	0.6
Age First Intercourse	158	0.0
Alcohol and Sex	158	0.0
Center Parent Affective Quality of Relationship	158	0.0
Center Parent Facilitation of Autonomy	158	0.0
Perception of HIV/AIDS Risk	158	0.0
Self-efficacy for technical aspects of condom use	158	0.0
Self-efficacy for sexual discussion	133	15.8
HIV Knowledge	158	0.0
Parent Education	152	3.8
Year in College	158	0.0
Gender	158	0.0
Ethnicity	158	0.0
PAQ affect and facilitation of autonomy interaction	158	0.0

Table 3

Means, Standard Deviations, Skewness, and Kurtosis of Study Variables Pre-imputation

Variable	N	Mean	Standard Deviation	Skewness	Kurtosis
Condom Use MR	140	0.458	0.500	0.174	-1.999
Condom Use 3M	145	0.331	0.268	0.548	0.108
Condom Use IN	158	2.737	0.625	-0.719	1.562
Peer Influence	158	3.442	0.692	0.037	-0.473
Commitment	158	0.538	0.500	-0.154	-2.002
Lifetime Partners	157	5.096	5.449	2.056	4.559
Log Lifetime Partners	157	0.657	0.319	0.584	-0.594
Age if First Intercourse	158	16.810	1.585	-0.217	0.325
Alcohol and Sex	158	0.854	0.976	0.588	-1.111
PAQ-Affect	158	4.108	0.523	-1.001	0.605
Center PAQ-Affect	158	-1.8E-6	0.523	-1.001	0.605
PAQ-Facilitate Autonomy	158	3.718	0.545	-0.680	1.474
Center PAQ-Facilitate	158	-0.054	0.545	-0.680	1.474
Perception of Risk	158	3.448	0.429	-1.152	1.959
Condom SE-technical	158	3.778	0.272	-1.360	-1.430
Condom SE-communication	133	3.293	0.592	-0.846	0.336
HIV Knowledge	158	0.902	0.072	-0.547	0.079
Parent Education	152	3.678	0.921	0.056	-0.167
Year in College	158	0.709	0.960	1.184	0.282
Gender	158	0.361	0.482	0.585	-1.679
Ethnicity	158	0.203	0.403	1.495	0.237

Table 4

Bivariate Correlations

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. CondomUseMR	---	0.63***	0.19**	0.32***	-0.14	0.03	-0.05	-0.08	-0.001	0.08	0.12	0.30**
2. CondomUse3M		---	0.17*	0.30**	-0.08	-0.05	0.03	0.03	-0.13	-0.04	-0.09	0.29**
3. CondomUseIN			---	0.31***	0.03	-0.46***	0.21**	-0.28**	0.02	-0.08	-0.03	0.35***
4. PeerInfluence				---	-0.04	-0.05	0.004	-0.15	-0.02	0.04	0.03	0.42***
5. Committment					---	-0.02	-0.07	-0.14	0.02	-0.02	0.10	-0.06
6. LogLifetimePartners						---	-0.54***	0.34***	-0.01	-0.001	0.07	-0.22**
7. AgeFirstIntercourse							---	-0.22**	0.05	0.05	0.10	0.003
8. Alcohol and Sex								---	0.06	0.004	-0.03	-0.16*
9. center PAQAffect									---	0.60***	0.04	0.05
10.center PAQFacilitate										---	0.12	0.13
11. Perception Risk											---	0.12
12. Condom SE technical												---

*p < .05. **p < .01. ***p < .0001.

Table 4 (continued)

Bivariate Correlations (continued)

Variable	1	2	3	4	5	6	7	8	9	10	11	12
13. Condom SE comm.	-0.01	-0.02	0.11	0.28**	0.24**	0.02	-0.06	-0.10	0.10	0.07	0.08	0.27**
14. HIV Knowledge	0.05	0.09	0.05	0.06	0.14	0.03	0.04	0.04	-0.01	0.05	0.03	-0.03
15. Parent Education	-0.03	0.04	-0.16	0.03	0.02	0.06	0.03	0.19*	0.14	0.05	-0.02	-0.13
16. Year in College	-0.17*	-0.10	-0.10	-0.16*	0.14	0.17*	0.20*	0.06	-0.04	0.04	-0.13	-0.16*
17. Gender	0.08	0.06	0.22**	0.29**	0.17*	0.008	-0.06	-0.14	0.10	0.07	0.08	0.008
18. Ethnicity	0.06	0.16	0.05	0.13	-0.007	0.07	0.02	-0.09	-0.04	-0.15	-0.02	-0.02
19. center PAQAxPAQF	-0.15	-0.02	0.09	0.000	0.11	-0.06	-0.09	0.06	-0.40***	0.42***	0.11	-0.09

*p < .05. **p < .01. ***p < .0001.

Table 4 (continued)

Bivariate Correlations (continued)

Variable	13	14	15	16	17	18	19
13. Condom SE comm.	---	0.07	0.02	-0.15	0.30**	0.04	-0.03
14. HIV Knowledge		---	0.10	0.16*	0.17*	-0.03	0.07
15. Parent Education			---	0.14	-0.07	0.02	0.001
16. Year in College				---	-0.01	0.07	0.02
17. Gender					---	0.01	0.23**
18. Ethnicity						---	0.02
19. center PAQAxPAQF							---

*p < .05. **p < .01. ***p < .0001.

Table 5

Results of Combined Logistic Regression Analyses by Model

Model	Chi square	p value	n	df
Base Model	25.92292	0.0174	140	126
Model with Parent Variables	28.5818	0.01822	140	124
Model with Parent Variables & Interaction Terms	33.38754	0.00658	140	123

Table 6

Odds Ratios for Predictors in Most Recent Condom Use Models

Predictor	Base Model	95% Wald Confidence Interval	Model with Parent Variables	95% Wald Confidence Interval	Model with Parent Variables and Interaction	95% Wald Confidence Interval
Peer Influence	2.531	1.370 to 4.677	2.483	1.343 to 4.953	2.442	1.317 to 4.526
Commitment	0.525	0.238 to 1.161	0.551	0.247 to 1.228	0.554	0.246 to 1.251
LogLifetime Partners	1.531	0.335 to 7.005	1.438	0.308 to 6.726	1.023	0.208 to 5.027
Age First Intercourse	0.936	0.695 to 1.259	0.931	0.688 to 1.259	0.898	0.657 to 1.227
Alcohol and Sex	0.823	0.535 to 1.266	0.851	0.549 to 1.319	0.872	0.558 to 1.363
Perception of Risk	1.565	0.651 to 3.765	1.458	0.595 to 3.570	1.732	0.692 to 4.337
CondomSE Technical	2.749	0.618 to 12.225	3.673	0.753 to 17.911	3.344	0.645 to 17.343
CondomSE Communication	1.524	0.678 to 3.428	1.657	0.727 to 3.779	1.761	0.756 to 4.099
HIV Knowledge	1.961	0.008 to 480.531	0.808	0.003 to 256.881	0.625	0.002 to 230.881
Parent Education	0.999	0.657 to 1.519	1.013	0.662 to 1.552	1.026	0.662 to 1.590
Year in College	0.771	0.497 to 1.142	0.728	0.464 to 1.142	0.750	0.472 to 1.191
Gender	0.912	0.403 to 2.063	0.952	0.419 to 2.163	1.311	0.548 to 3.140
Ethnicity	1.091	0.408 to 2.922	1.310	0.481 to 3.566	1.487	0.530 to 4.178
Parent Affect	-------	----------	0.565	0.208 to 1.535	0.412	0.139 to 1.220
Parent Facilitate	-------	----------	2.210	0.854 to 5.718	2.051	0.751 to 5.604
PAQA X PAQF	-------	----------	-------	----------	0.192	0.037 to 0.988

Table 7

Results for Regression Models on Previous Three Month Condom Use

Model	F	p value	n	df	r square
Base Model	1.658	0.07792	145	131	0.1412
Model with Parent Variables	1.722	0.05466	145	129	0.1666
Model with Parent Variables & Interaction	1.642	0.06722	145	128	0.1702

Table 8

Results for Regression Models on Condom Use Intentions

Model	F	p value	n	df	r square
Base Model	8.358	0.0001	158	144	0.4299
Model with Parent Variables	7.504	0.0001	158	142	0.4421
Model with Parent Variables & Interaction	7.086	0.0001	158	141	0.4456

Table 9

Results of Logistic Regression for Most Recent Condom Use Base Model

Regressor	Coef.	Avg. SE^2	Var. of Coef.	SE	t	df_m	df_obs	df*	p, 2-tailed	frac. miss.
Intercept	-9.2098	22.2562	0.0011	4.7178	-1.9521	1228135706.7997	124.0394	124.0394	0.0532	0.0001
Peer Influence	0.9293	0.0976	0.0000	0.3125	2.9740	255435450508.5250	124.0460	124.0460	0.0035	0.0000
Committment	-0.6473	0.1642	0.0000	0.4052	-1.5974	354930538.1932	124.0333	124.0333	0.1127	0.0001
Log Lifetime Partners	0.4550	0.5212	0.0007	0.7225	0.6297	1362142.9151	123.8339	123.8227	0.5300	0.0017
Age of FirstIntercourse	-0.0609	0.0231	0.0000	0.1519	-0.4005	2107110.7842	123.8756	123.8683	0.6895	0.0014
AlcoholandSex	-0.1920	0.0482	0.0000	0.2196	-0.8743	165910085.2757	124.0273	124.0272	0.3837	0.0002
PerceptionRisk	0.4498	0.2000	0.0000	0.4472	1.0057	5371412583.3294	124.0431	124.0431	0.3165	0.0000
Condom SE Technical	1.0393	0.5815	0.0006	0.7630	1.3620	2266979.5045	123.8817	123.8750	0.1757	0.0013
Condom SE Communication	0.3594	0.1595	0.0033	0.4043	0.8890	6924.8647	121.0652	118.9850	0.3758	0.0240
HIV Knowledge	0.7088	7.8868	0.0016	2.8087	0.2524	71227580.0448	124.0171	124.0169	0.8012	0.0002
Parent Education	-0.0262	0.0442	0.0005	0.2118	-0.1235	19334.2147	122.2623	121.4940	0.9019	0.0144
Year in College	-0.2648	0.0503	0.0000	0.2243	-1.1810	20028407.7145	123.9911	123.9903	0.2399	0.0004
Gender	-0.0801	0.1731	0.0001	0.4162	-0.1924	5089879.2654	123.9365	123.9335	0.8478	0.0009
Ethnicity	0.0900	0.2532	0.0000	0.5032	0.1788	4413658186.0439	124.0428	124.0428	0.8584	0.0000

N=140
Number of imputations = 5
Degrees of freedom if data were complete = 126

Table 10

Results of Logistic Regression for Most Recent Condom Use with Parent Variables

Regressor	Coef.	Avg.SE^2	Var. of Coef.	SE	t	df_m	df_obs	df*	p, 2-tailed	frac. miss.
Intercept	-9.4374	23.1586	0.0003	4.8124	-1.9611	14833547047.4421	122.0452	122.0452	0.0521	0.0000
Peer Influence	0.9119	0.0980	0.0000	0.3130	2.9132	1216680167.8321	122.0402	122.0402	0.0043	0.0001
Commitment	-0.5981	0.1676	0.0000	0.4094	-1.4609	636658867.9918	122.0376	122.0375	0.1466	0.0001
Log LifetimePartners	0.4016	0.6175	0.0013	0.7868	0.5104	634469.8607	121.7408	121.7174	0.6107	0.0025
Age of First Intercourse	-0.0653	0.0237	0.0000	0.1541	-0.4238	1187862.0263	121.8233	121.8108	0.6725	0.0018
Alcohol and Sex	-0.1598	0.0498	0.0000	0.2232	-0.7159	915388207.7844	122.0392	122.0392	0.4754	0.0001
Perception of Risk	0.3833	0.2077	0.0000	0.4558	0.8409	63710382.1822	122.0167	122.0164	0.4020	0.0003
Condom SE Technical	1.3376	0.6559	0.0011	0.8107	1.6499	1004786.7966	121.8037	121.7890	0.1015	0.0020
Condom SE Communication	0.4180	0.1632	0.0065	0.4135	1.0109	1910.2333	116.4624	109.7699	0.3143	0.0458
HIV Knowledge	-0.1452	8.6093	0.0053	2.9352	-0.0495	7428902.7049	121.9577	121.9557	0.9606	0.0007
Parent Education	-0.0143	0.0457	0.0006	0.2154	-0.0664	15513.4482	120.0875	119.1650	0.9472	0.0161
Year in College	-0.3218	0.0528	0.0000	0.2298	-1.4007	43984173.7770	122.0104	122.0101	0.1638	0.0003
Gender	-0.0360	0.1746	0.0001	0.4181	-0.0860	3859098.7045	121.9230	121.9191	0.9316	0.0010
Ethnicity	0.2648	0.2612	0.0000	0.5111	0.5182	384918985.5581	122.0348	122.0348	0.6052	0.0001
Center Parent Affect	-0.5625	0.2610	0.0001	0.5110	-1.1008	31690102.6067	122.0039	122.0034	0.2731	0.0004
Center Parent Facilitate	0.7676	0.2333	0.0006	0.4838	1.5868	458627.8978	121.6868	121.6545	0.1152	0.0030

N=140
Number of imputations = 5
Degrees of freedom if data were complete = 124

Table 11

Results of Logistic Regression for Most Recent Condom Use with Parent Variables and Interaction

Regressor	Coef.	Avg.SE^2	Var. of Coef.	SE	t	df_m	df_obs	df*	p, 2-tailed	frac. miss.
Intercept	-8.7864	23.8000	0.0002	4.8785	-1.8010	49512180364.0701	121.0465	121.0465	0.074	0.0000
Peer Influence	0.8945	0.0987	0.0000	0.3141	2.8475	3786372413.2215	121.0437	121.0437	0.0052	0.0000
Commitment	-0.5942	0.1729	0.0000	0.4158	-1.4290	147415851.0330	121.0277	121.0276	0.1556	0.0002
Log LifetimePartners	0.0573	0.6582	0.0011	0.8121	0.0706	998432.2407	120.8053	120.7907	0.9438	0.0020
Age of First Intercourse	-0.1029	0.0255	0.0000	0.1597	-0.6445	4328485.6839	120.9313	120.9279	0.5205	0.0010
Alcohol and Sex	-0.1359	0.0517	0.0000	0.2274	-0.5974	9635894518.3376	121.0452	121.0452	0.5513	0.0000
Perception of Risk	0.5581	0.2184	0.0001	0.4675	1.1939	22645674.4936	120.9967	120.9961	0.2349	0.0004
Condom SE Technical	1.2621	0.7030	0.0025	0.8402	1.5021	226808.9407	120.5393	120.4752	0.1357	0.0042
Condom SE Communication	0.4758	0.1702	0.0069	0.4224	1.1262	1870.3395	115.4497	108.7377	0.2626	0.0462
HIV Knowledge	-0.4020	9.0592	0.0051	3.0109	-0.1335	8810574.5887	120.9661	120.9644	0.8940	0.0007
Parent Education	-0.0035	0.0481	0.0007	0.2213	-0.0159	13515.8812	118.9652	117.9272	0.9873	0.0172
Year in College	-0.2909	0.0555	0.0000	0.2355	-1.2348	96603579.9352	121.0230	121.0228	0.2193	0.0002
Gender	0.2846	0.1981	0.0002	0.4454	0.6390	4153703.0889	120.9288	120.9253	0.5240	0.0010
Ethnicity	0.3922	0.2783	0.0000	0.5276	0.7434	645647364.2782	121.0381	121.0381	0.4587	0.0001
Center Parent Affect	-0.8793	0.3083	0.0001	0.5554	-1.5833	52365245.0882	121.0142	121.0139	0.1160	0.0003
Center Parent Facilitate	0.6882	0.2612	0.0008	0.5121	1.3439	292252.8773	120.5998	120.5500	0.1815	0.0037
Center PAQAxPAQF	-1.6304	0.6937	0.0003	0.8331	-1.9570	16197025.9940	120.9875	120.9866	0.0527	0.0005

N=140
Number of imputations = 5
Degrees of freedom if data were complete = 123

Table 12

Results of Regression for Previous Three Month Condom Use Base Model

Regressor	Coef.	Avg.SE^2	Var. Coef.	SE	t	df_m	df_obs	df*	p, 2-tailed	frac.miss.
Intercept	-0.3692	0.2813	0.0000	0.5304	-0.6961	7145056804.8141	128.0421	128.0421	0.4876	0.0000
Peer Influence	0.1026	0.0012	0.0000	0.0340	3.0187	1611290960.6229	128.0387	128.0387	0.0031	0.0000
Commitment	-0.0259	0.0022	0.0000	0.0468	-0.5540	208569485739.4520	128.0446	128.0446	0.5805	0.0000
Log Lifetime Partners	-0.0310	0.0079	0.0000	0.0889	-0.3490	186863.3928	127.4527	127.3658	0.7277	0.0046
Age of First Intercourse	0.0049	0.0003	0.0000	0.0175	0.2815	1388000.3328	127.8277	127.8160	0.7787	0.0017
Alcohol And Sex	0.0216	0.0006	0.0000	0.0248	0.8715	123391205.7065	128.0221	128.0219	0.3851	0.0002
Perception of Risk	-0.0605	0.0026	0.0000	0.0507	-1.1932	20393267579972300.00	128.0451	128.0451	0.2350	0.0000
Condom SE Technical	0.0381	0.0074	0.0000	0.0862	0.4415	7652170.1556	127.9525	127.9504	0.6596	0.0007
Condom SE Communication	0.0263	0.0020	0.0000	0.0448	0.5874	353694.2515	127.6145	127.5685	0.5580	0.0034
HIV Knowledge	0.2817	0.1035	0.0000	0.3218	0.8756	17635966.0008	127.9841	127.9832	0.3829	0.0005
Parent Education	0.0010	0.0006	0.0000	0.0247	0.0413	1530.9595	121.5001	112.5666	0.9671	0.0511
Year In College	-0.0259	0.0007	0.0000	0.0257	-1.0059	59314415606.5648	128.0441	128.0441	0.3164	0.0000
Gender	-0.0004	0.0024	0.0000	0.0487	-0.0078	21363438512.2854	128.0434	128.0434	0.9938	0.0000
Ethnicity	0.0941	0.0030	0.0000	0.0545	1.7271	381796187765.7730	128.0447	128.0447	0.0866	0.0000

n = 145
number of imputations = 5
degrees of freedom if data complete =131

Table 13

Results of Regression for Previous Three Month Condom Use Model with Parent Variables

Regressor	Coef.	Avg.SE^2	Var Coef.	SE	t	df_m	df_obs	df*	p, 2-tailed	frac.miss.
Intercept	-0.4408	0.2794	0.0000	0.5286	-0.8338	14723886023.1446	127.0434	127.0434	0.4060	0.0000
Peer Influence	0.0969	0.0011	0.0000	0.0339	2.8588	169822385.8017	127.0260	127.0259	0.0050	0.0002
Commitment	-0.0156	0.0022	0.0000	0.0467	-0.3347	807892983.6252	127.0365	127.0365	0.7384	0.0001
Log Lifetime Partners	-0.0207	0.0078	0.0000	0.0884	-0.2337	300081.2015	126.5816	126.5282	0.8156	0.0037
Age of First Intercourse	0.0077	0.0063	0.0000	0.0796	0.0973	1887268147.5346	127.0396	127.0396	0.9227	0.0000
Alcohol and Sex	0.0261	0.0006	0.0000	0.0247	1.0599	62729617.5414	127.0134	127.0131	0.2912	0.0003
Perception of Risk	-0.0685	0.0026	0.0000	0.0510	-1.3433	3338976068.8830	127.0411	127.0411	0.1816	0.0000
Condom SE Technical	0.0719	0.0076	0.0000	0.0874	0.8227	33299649.0023	127.0014	127.0009	0.4122	0.0003
Condom SE Communication	0.0242	0.0020	0.0000	0.0449	0.5382	265424.5691	126.5523	126.4919	0.5914	0.0039
HIV Knowledge	0.1854	0.1048	0.0000	0.3239	0.5725	12586399.9218	126.9738	126.9726	0.5680	0.0006
Parent Education	0.0076	0.0006	0.0000	0.0248	0.3083	1370.1690	120.1811	110.4897	0.7584	0.0540
Year in College	-0.0357	0.0007	0.0000	0.0261	-1.3662	559564938.7682	127.0347	127.0347	0.1743	0.0001
Gender	0.0120	0.0024	0.0000	0.0488	0.2454	109580897681.1290	127.0447	127.0447	0.8066	0.0000
Ethnicity	0.1021	0.0030	0.0000	0.0548	1.8635	2959892986.4168	127.0408	127.0408	0.0647	0.0000
Center Parent Affect	-0.1096	0.0031	0.0000	0.0553	-1.9830	6808447.5594	126.9481	126.9457	0.0495	0.0008
Center ParentFacilitate	0.0632	0.0027	0.0000	0.0520	1.2163	2442300.7634	126.8829	126.8763	0.2261	0.0013

n=145. number of imputations = 5. degrees of freedom if data complete = 129

Table 14

Results of Regression for Previous Three Month Condom Use Model with Parent Variables and Interaction

Regressor	Coef.	Avg.SE^2	Var. of Coef.	SE	t	df_m	df_obs	df*	p, 2-tailed	frac.miss.
Intercept	-0.4198	0.2812	0.0000	0.5303	-0.7915	8849055507.6915	126.0431	126.0431	0.4301	0.0000
Peer Influence	0.0948	0.0012	0.0000	0.0341	2.7790	101949833.2188	126.0208	126.0207	0.0063	0.0002
Commitment	-0.0127	0.0022	0.0000	0.0470	-0.2709	220823514.7486	126.0288	126.0288	0.7869	0.0001
Log Lifetime Partners	-0.0326	0.0081	0.0000	0.0900	-0.3621	353021.7235	125.6215	125.5768	0.7179	0.0034
Age of First Intercourse	0.0062	0.0003	0.0000	0.0176	0.3518	7178716.4030	125.9517	125.9495	0.7256	0.0007
Alcohol And Sex	0.0291	0.0006	0.0000	0.0251	1.1618	285156260.8880	126.0309	126.0308	0.2475	0.0001
Perception Of Risk	-0.0614	0.0027	0.0000	0.0519	-1.1834	27647116972.7360	126.0443	126.0443	0.2389	0.0000
Condom SE Technical	0.0681	0.0077	0.0000	0.0877	0.7766	31600910.6606	126.0010	126.0005	0.4389	0.0004
Condom SE Communication	0.0250	0.0020	0.0000	0.0450	0.5560	483700.8709	125.6833	125.6507	0.5792	0.0029
HIV Knowledge	0.1878	0.1052	0.0000	0.3244	0.5789	16768451.6297	125.9842	125.9833	0.5637	0.0005
Parent Education	0.0084	0.0006	0.0000	0.0249	0.3387	1416.8400	119.3485	110.0762	0.7355	0.0531
Year in College	-0.0344	0.0007	0.0000	0.0262	-1.3116	548761436.5239	126.0350	126.0350	0.1920	0.0001
Gender	0.0240	0.0027	0.0000	0.0515	0.4658	3479453060.7812	126.0415	126.0415	0.6421	0.0000
Ethnicity	0.1029	0.0030	0.0000	0.0549	1.8739	6564851984.1308	126.0427	126.0427	0.0633	0.0000
Center Parent Affect	-0.1210	0.0033	0.0000	0.0575	-2.1047	4444853.6093	125.9262	125.9227	0.0373	0.0009
Center Parent Facilitate	0.0524	0.0029	0.0000	0.0541	0.9686	3725976.0227	125.9152	125.9109	0.3346	0.0010
Center PAQA x PAQF	-0.0460	0.0038	0.0000	0.0619	-0.7431	218130421.9156	126.0287	126.0287	0.4588	0.0001

n=145. number of imputations = 5. degrees of freedom if data complete = 128

Table 15

Results of Regression for Condom Use Intentions Base Model

Regressor	Coef.	Avg.SE^2	Var. Coef.	SE	t	df_m	df_obs	df*	p, 2-tailed	frac. miss.
Intercept	2.5843	0.8248	0.0095	0.9145	2.8260	21425.9549	139.1140	138.2166	0.0054	0.0137
Peer Influence	0.1998	0.0033	0.0000	0.0577	3.4647	134966376.0772	141.0168	141.0167	0.0007	0.0002
Commitment	-0.0014	0.0062	0.0000	0.0791	-0.0172	94590.0694	140.1239	139.9166	0.9863	0.0065
Log Lifetime Partners	-0.9279	0.0230	0.0003	0.1532	-6.0586	13283.0275	138.5936	137.1624	0.0000	0.0174
Age of First Intercourse	-0.0216	0.0009	0.0000	0.0301	-0.7200	713091.0506	140.7071	140.6793	0.4727	0.0024
Alcohol And Sex	-0.0521	0.0018	0.0000	0.0431	-1.2083	11836.1483	138.4483	136.8476	0.2290	0.0184
Perception Of Risk	-0.0158	0.0078	0.0000	0.0881	-0.1790	37603657.3068	140.9951	140.9946	0.8582	0.0003
Condom SE Technical	0.1100	0.0207	0.0001	0.1445	0.7615	57718.6861	139.8670	139.5288	0.4477	0.0083
Condom SE Communication	0.1120	0.0057	0.0000	0.0755	1.4845	1419783.1079	140.8044	140.7904	0.1399	0.0017
HIV Knowledge	-0.2172	0.2992	0.0000	0.5470	-0.3971	530121265.7058	141.0288	141.0288	0.6919	0.0001
Parent Education	-0.0391	0.0017	0.0001	0.0430	-0.9085	818.0210	131.1784	113.0497	0.3655	0.0699
Year in College	0.0145	0.0019	0.0000	0.0439	0.3295	1357651.4409	140.7990	140.7844	0.7423	0.0017
Gender	0.2207	0.0070	0.0000	0.0836	2.6408	2160038.4108	140.8492	140.8400	0.0092	0.0014
Ethnicity	0.0582	0.0088	0.0000	0.0941	0.6185	3293870322.8423	141.0362	141.0362	0.5373	0.0000

n=158
number of imputations = 5
degrees of freedom if data complete = 144

Table 16

Results of Regression for Condom Use Intentions Model with Parent Variables

Regressor	Coef.	Avg.SE^2	Var. of Coef.	SE	t	df_m	df_obs	df*	p, 2-tailed	frac. miss.
Intercept	2.6598	0.8265	0.0122	0.9172	2.9000	13112.8371	137.5955	136.1667	0.0044	0.0175
Peer Influence	0.2111	0.0033	0.0000	0.0578	3.6518	110423086.7437	140.0147	140.0145	0.0004	0.0002
Commitment	-0.0124	0.0062	0.0000	0.0790	-0.1569	97533.3645	139.1446	138.9463	0.8755	0.0064
Log Lifetime Partners	-0.9303	0.0229	0.0003	0.1526	-6.0946	12372.7790	137.5234	136.0116	0.0000	0.0180
Age of First Intercourse	-0.0240	0.0009	0.0000	0.0301	-0.7968	247885.5817	139.4788	139.4004	0.4269	0.0040
Alcohol And Sex	-0.0590	0.0018	0.0000	0.0431	-1.3684	13243.8513	137.6076	136.1925	0.1735	0.0174
Perception Of Risk	-0.0010	0.0078	0.0000	0.0886	-0.0117	8988054922.6469	140.0384	140.0384	0.9907	0.0000
Condom SE Technical	0.0645	0.0212	0.0001	0.1462	0.4412	83452.3854	139.0718	138.8405	0.6598	0.0069
Condom SE Communication	0.1071	0.0058	0.0000	0.0759	1.4111	5376495.0117	139.9206	139.9169	0.1604	0.0009
HIV Knowledge	-0.1046	0.3012	0.0000	0.5489	-0.1906	346823529.4255	140.0263	140.0263	0.8491	0.0001
Parent Education	-0.0478	0.0017	0.0001	0.0435	-1.0999	677.4092	129.2802	108.5617	0.2738	0.0768
Year in College	0.0258	0.0020	0.0000	0.0442	0.5836	1229861.6497	139.7888	139.7729	0.5605	0.0018
Gender	0.2082	0.0071	0.0000	0.0840	2.4785	5949894.1491	139.9266	139.9233	0.0144	0.0008
Ethnicity	0.0358	0.0091	0.0000	0.0955	0.3750	42503258.3349	139.9984	139.9980	0.7082	0.0003
Center Parent Affect	0.1521	0.0086	0.0000	0.0926	1.6430	1933130.5785	139.8399	139.8298	0.1026	0.0014
Center Parent Facilitate	-0.1335	0.0080	0.0000	0.0895	-1.4909	96982.1782	139.1420	138.9427	0.1383	0.0064

n=158
number of imputations = 5
degrees of freedom if data complete = 142

Table 17

Results of Regression for Condom Use Intentions Model with Parent Variables and Interaction

Regressor	Coef.	Avg.SE^2	Var. Coef.	SE	t	df_m	df_obs	df*	p, 2-tailed	frac. miss.
Intercept	2.6300	0.8282	0.0121	0.9180	2.8650	13545.5779	136.6523	135.2875	0.0048	0.0172
Peer Influence	0.2147	0.0034	0.0000	0.0580	3.7032	35804450.8275	138.9952	138.9947	0.0003	0.0003
Commitment	-0.0160	0.0062	0.0000	0.0791	-0.2028	136806.5973	138.2898	138.1502	0.8396	0.0054
Log Lifetime Partners	-0.9035	0.0237	0.0003	0.1552	-5.8223	16767.6459	136.8941	135.7856	0.0000	0.0154
Age of First Intercourse	-0.0210	0.0009	0.0000	0.0303	-0.6953	284671.5429	138.5205	138.4531	0.4880	0.0037
Alcohol And Sex	-0.0654	0.0019	0.0000	0.0436	-1.4991	19121.4561	137.0307	136.0556	0.1362	0.0145
Perception of Risk	-0.0160	0.0081	0.0000	0.0900	-0.1781	1244880938.1610	139.0338	139.0338	0.8589	0.0001
Condom SE Technical	0.0728	0.0213	0.0001	0.1464	0.4973	109496.5683	138.2013	138.0271	0.6198	0.0060
Condom SE Communication	0.1059	0.0058	0.0000	0.0760	1.3933	3750186.0905	138.8981	138.8929	0.1658	0.0010
HIV Knowledge	-0.1189	0.3017	0.0000	0.5493	-0.2164	133788792.6376	139.0176	139.0175	0.8290	0.0002
Parent Education	-0.0502	0.0018	0.0001	0.0436	-1.1518	652.6170	128.1562	107.1206	0.2520	0.0783
Year in College	0.0231	0.0020	0.0000	0.0444	0.5214	1244662.6275	138.7924	138.7769	0.6030	0.0018
Gender	0.1815	0.0079	0.0000	0.0886	2.0479	352057231.5861	139.0268	139.0268	0.0424	0.0001
Ethnicity	0.0362	0.0091	0.0000	0.0955	0.3794	37045982.3940	138.9960	138.9955	0.7050	0.0003
Center Parent Affect	0.1745	0.0091	0.0000	0.0957	1.8234	497707.3250	138.6475	138.6089	0.0704	0.0028
Center Parent Facilitate	-0.1103	0.0086	0.0001	0.0931	-1.1849	51938.6693	137.8215	137.4567	0.2381	0.0088
Center PAQA x PAQF	0.1008	0.0115	0.0000	0.1074	0.9386	204229.3335	138.4263	138.3326	0.3496	0.0044

n=158. number of imputations = 5. degrees of freedom if data complete = 141