A Mixed-Methods Exploration of Magazine Use and Safe Sex in Emerging Adulthood

by

Jennifer L. Walsh

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Doctoral Committee:

Associate Professor L. Monique Ward, Chair
Professor John E. Schulenberg
Assistant Professor Terri Conley
Assistant Professor Sonya Dal Cin

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Abstract

Mainstream women's and men's lifestyle magazines are widely read and contain large amounts of sexual content, giving them great potential to influence safe sex outcomes in emerging adulthood. However, previous media effects research has failed to examine magazine reading or involvement, to consider a variety of safe sex outcomes, and to investigate pathways through which influence on outcomes may occur. This dissertation addresses these gaps by exploring associations between magazine reading and involvement and a variety of safe sex outcomes using the framework of the Theory of Planned Behavior (TPB) and multiple research methods.

Study 1 used structural equation modeling to assess TPB mediators of the connections between magazine use and safe sex intentions among first-year college students (*N*=457, 61.9% female). Models showed a variety of positive associations between magazine reading and safe sex outcomes, particularly for men who had never engaged in intercourse. Associations between magazine involvement and outcomes were mixed.

Study 2 assessed connections between magazine use and safe sex outcomes longitudinally. A subsample of Study 1 participants (*N*=175, 65.1% female) provided additional data 4 months later, and we assessed how magazine use at Wave 1 related to TPB constructs at Wave 2. Cross-lagged models showed women's earlier magazine reading was frequently related to their later safe sex outcomes.

Finally, Study 3 examined experimental effects of exposure to safe sex content from women's magazines on safe sex outcomes among college women (*N*=95). This study demonstrated the ability of brief exposure to magazine content to improve safe sex attitudes and intentions. These effects were often stronger for women who had never engaged in intercourse.

These studies for the first time address the potential impact of magazine reading on safe sex outcomes using the framework of TPB, showing that magazine reading may contribute to positive outcomes in the arenas of condom use, safe sex discussion, and HIV/STI testing. Mainstream magazines' popularity with young people makes them a powerful vehicle through which to share sexual health information and promote safe sex behavior. Future research should continue to investigate the potential for these magazines to positively impact young people's sexual decision making.

Chapter 1

Introduction

Partnered sexual behavior typically begins in adolescence, and the adolescent and young adult years are prime times for sexual exploration (Arnett, 2000; Savin-Williams & Diamond, 2004). Although sexual activity is a normative part of adolescent development, it may also expose adolescents to significant risks. More than half of all new HIV infections occur in people under the age of 25 (CDC, 2003), but only 30% of college students report having used a condom during their last intercourse (Brigham et al., 2002). Due to the widespread nature of sexual activity in emerging adulthood and the risk associated with this behavior, researchers have long aspired to understand the sexual decision-making of young adults, specifically the factors associated with safe-sex behavior. This dissertation contributes to this literature by exploring mainstream magazines as a source of sexual socialization, examining through multiple methods how magazines may influence a variety of safe-sex outcomes, including attitudes, norms, self-efficacy, knowledge, intentions, and behavior.

Study 1 uses structural equation modeling (SEM) to examine possible mechanisms by which magazine use may influence safe-sex intentions, testing mediators from the Theory of Planned Behavior (TPB; Ajzen, 1991). Study 2 explores longitudinal connections between magazine reading and safe-sex outcomes among new college students. Finally, Study 3 experimentally tests whether brief exposure to mainstream magazines can modify safe-sex attitudes, norms, self-efficacy, and intentions. These studies aim to enhance our understanding of safe-sex behaviors during late adolescence and emerging adulthood (roughly ages 16-24).

Sexual activity and risk in emerging adulthood

Partnered sexual activity is a normative part of emerging adulthood, and establishing sexual relationships is a central developmental task for young people (Arnett, 2000). The mean age of first intercourse is currently approximately 17 years for both girls and boys (Alan Guttmacher Institute, 2002), and 64.6% of adolescents have engaged in

intercourse by the 12th grade (CDC, 2008). By the time they reach ages 18 to 24, only 12% of men and 6% of women have not had intercourse (Laumann, Gagnon, Michael, & Michaels, 1994). Additionally, sexual activity may increase in college (Cooper, 2002; Siegel, Klein, & Roughmann, 1999), with many students engaging in intercourse with multiple partners (Page, Hammermeister, & Scanlan, 2000; Siegel et al.). For example, one study found that undergraduate men had an average of three sexual partners in the past year and undergraduate women had an average of two (Weinberg, Lottes, & Shaver, 1995). Women and men also report a number of "one-night stands" during the college years, with men reporting an average of five and women three in one study (Reinisch, Hill, Sanders, & Ziemba-Davis, 1995).

Although sexual activity is normative and can be a healthy part of development, it may also carry significant risk for young people. Rates of STIs have increased in adolescents and young adults in recent years (CDC, 2008), with nearly half of all new STIs occurring in 15- to 24-year-olds (CDC, 2004; Weinstock, Berman, & Cates, 2004). Additionally, rates of HIV/AIDS are increasing the fastest among young adults (CDC, 2009a). Teen pregnancy rates in the U.S. are also especially high when compared to rates in other industrialized nations (National Campaign to Prevent Teen Pregnancy, 2005). These statistics are no surprise, as behaviors associated with high HIV and STI risk, such as sexual intercourse with multiple partners, low frequencies of condom use, and binge drinking are prevalent in college populations (Brigham et al., 2002). Most young people use condoms inconsistently if at all (Grimley, Prochaska, Velicer, & Prochaska, 1995; Hollar & Snizek, 1996; Lewis, Malow, & Ireland, 1997; Noar, Morokoff, & Redding, 2001; Parsons, Halkitis, Bimbi, & Borkowski, 2000). The CDC (2002) notes that less than one third of young adults use condoms consistently, while Lewis et al. reviewed a number of studies and found only 8 to 23% of college students consistently using condoms. Additionally, research suggests that half of teens do not discuss contraception or STIs before having intercourse for the first time (Ryan, Franzetta, Manlove, & Holcombe, 2007). Contributing to these unsafe sexual behaviors, young people also often use alcohol and other drugs in conjunction with sex, which may interfere with their safer sex decision-making (Ford & Norris, 1994).

Defining safer sex behavior

Safer sex behavior has often been defined solely in terms of condom use but may entail a variety of behaviors. In addition to condom use, these behaviors include HIV and STI testing, certain types of safe-sex discussion with sexual partners, and abstaining from intercourse. Abstaining from sexual intercourse is the most basic form of safer sex behavior. Although some college students are not sexually active (Grunbaum et al., 2004), purposely abstaining as a form of safer sex may be rather rare (Cline, Freeman, & Johnson, 1990), especially after individuals have initiated sexual activity (Tubman, Windle, & Windle, 1996). Due to the multiple potential reasons for abstinence, especially in college, abstinence is not considered as a specific safer sex outcome here, but three other behaviors are.

The first safe-sex behavior assessed here is condom use, which is the most commonly used measure of safer sex behavior, and with good reason. Using condoms consistently and correctly greatly reduces the risk of STI and HIV transmission and also prevents pregnancy (CDC, 2009b). Additionally, condom use as a protective strategy does not require knowledge of partners' STI/HIV status or monogamy. However, as previously noted, young people are inconsistent condom users (CDC, 2002; Lewis et al., 1997). Notably, condom use has been identified as a health behavior that is particularly hard to maintain and may require continued cognitive and emotional effort (e.g., Evers, Harlow, Redding, & LaForge, 1998; Galavotti, Cabral, Lansky, Grimley, Riley, & Prochaska, 1995).

A second form of safer sex behavior under consideration is HIV and STI testing. Although many young people see monogamy itself as a "safe sex" behavior (Hammer, Fisher, Fitzgerald, & Fisher, 1996; Hernandez & Smith, 1990), they are often unaware of their partners' past risky behaviors or true HIV and STI status (Hammer et al.; Williams et al., 1992). Indeed, serial monogamy is quite common during the college years (Bowen & Michal-Johnson, 1989), creating risk for exposure to HIV and STIs even among those who only engage in long-term monogamous relationships. Additionally, research has found that many college students (both men and women) report that they would lie to a partner about their past sexual behavior and sexual infidelity within their relationships

(Cochran & Mays, 1990). These risk factors suggest that even individuals with only one current partner should be tested for STIs and HIV. However, most heterosexuals at risk for HIV have not been tested: Berrios et al. (1993) reported that only 33% of those at risk had been tested, whereas the CDC (1996) found that only one-third of women aged 18 to 44 had been tested. Additionally, sexual risk behaviors often do not predict testing (Bond, Lauby, & Batson, 2005), meaning that riskier individuals are no more likely to be tested than less risky individuals. Research has also found that HIV testing practices are not related to condom use (Bond et al.), making the consideration of this outcome distinct from condom use important. HIV and STI testing are thus considered here as a second measure of safer sex behavior.

The third safer sex behavior addressed here is partner communication related to safe sex. It has been suggested that communication in early sexual relationships may function as a bridge between awareness of the health risks of unprotected sex and the implementation of a concrete risk-reduction strategy (Fullilove, Fullilove, Haynes, & Gross, 1990; Troth & Peterson, 2000). Although communication itself does not guarantee safe-sex practices such as condom use will be enacted (Cline et al., 1990), communication has been found to affect the nature of sexual encounters in a variety of ways. Most directly, communication about safer sex has been found to be a key predictor of condom use in heterosexual relationships (Catania et al., 1992; Evers, Saxon, Redding, Rossi, & Levesque, 1996; Redding & Rossi, 1993). All communication is not equal, however—some types of communication have even been found to be associated with more frequent *unsafe* sex (Rosenthal, Moore, & Brumen, 1990), particularly when discussion serves as a substitute for preventative action (Cline et al., 1990). Indeed, the type of communication that is useful in reducing risks is "communication that leads to condom use" (Cline et al., 1990). Despite the potential benefits of discussion, young people often find it difficult to communicate with romantic partners about condom use (Desiderato & Crawford, 1995), fearing that requests to use condoms may be misinterpreted as indicating a lack of trust or their own engagement in "promiscuous" behavior (Cline et al., 1990; Hammer et al., 1996). Ability to communicate about safer sex may determine whether condoms are used in new sexual relationships, making it a particularly important outcome during emerging adulthood, when relationship transitions

are frequent. Therefore, we here consider safe-sex discussion that focuses on action to be taken as a third measure of safe-sex behavior.

Understanding safe sex behavior: The Theory of Planned Behavior

Given the risks associated with unprotected sexual activity, understanding why people in general, and young people in particular, do not practice safe sex has been of great interest from a public health perspective. Psychology has contributed many theories designed to explain health behaviors that have been extensively tested in the arena of sexual health. One of the best known is the Theory of Planned Behavior (Ajzen & Madden, 1986; Ajzen, 1991). According to this theory (depicted in Figure 1.1), a variety of psychological constructs contribute to the performance of safe-sex behavior, and to condom use, in particular. The theory postulates that attitudes, norms, and self-efficacy contribute to behavioral intentions to practice safe-sex behavior, and that these intentions lead directly to the performance of the behavior. This theory frequently has been found useful in explaining adolescent sexual behavior, specifically the decision to use condoms (see Sheeran & Taylor, 1998 for review; Basen-Engquist & Parcel, 1992; Gillmore, Morrison, Lowery, & Baker, 1994; Kegeles, Adler, & Irwin, 1989; Morrison, Baker, & Gillmore, 1998; Richard & van der Pligt, 1991). The individual components are discussed next.

The first component of the model, safe-sex attitudes, have been extensively studied as a contributor to intentions and behaviors. Attitudes involve an appraisal of how desirable a particular behavior (e.g., condom use) seems to an individual. Research on condom attitudes among young people has been mixed, with some studies finding youths' feelings toward condoms to be generally positive (de Wit, Kok, Timmermans, & Wijnsma, 1990; Richard, Van der Plight, & de Vries, 1991), and other studies describing overall attitudes as negative (Jemott & Jemott, 1991; Mink, Mareth, Russell, & Young, 1991; Sacco, Levine, Reed, & Thompson, 1991).[1] These differences may be due to conflict over the definition of attitudes and thus over the measures used to assess attitudes. Condom attitudes include both an affective component, involving emotional responses to condoms, and a cognitive component, involving thoughts, beliefs, and

[1] Interestingly, both studies cited here that found condom attitudes to be generally positive were conducted with young people outside the U.S.

judgments about condoms (de Wit, Victoir, & Van den Bergh, 1997). Although young peoples' beliefs about condoms may be fairly positive (e.g., "Condoms are a good way to protect against disease"), their affect may be negative (e.g., "I don't enjoy using condoms"; de Wit et al., 1997). Multiple studies have found that young people with more positive attitudes about condoms report more condom use over their lifetimes (Boone & Lefkowitz, 2004; de Wit et al., 1990; Jemott & Jemott, 1991; Sacco et al., 1991), and a meta-analysis (Sheeran, Abraham, & Orbell, 1999) found condom attitudes correlated with condom use, $r = .32$. Attitudes toward other safer sex practices, such as discussion and HIV/STI testing, have been less extensively studied, but researchers have similarly located links between these attitudes and the outcomes of actual discussion and testing (Boshamer & Bruce, 1999; Troth & Peterson, 2000; Wilson, Jaccard, & Minkoff, 1996). Attitudes toward HIV/STI testing among young adults are generally fairly positive (Boshamer & Bruce), as are attitudes toward discussion (Troth & Peterson).

Norms, the second component of TPB, are frequently defined as an individuals' perception of what others want him or her to do—also known as *proscriptive* norms (or injunctive or subjective norms). A second category of norms are *descriptive* norms, which involve an individual's perception of what relevant others, such as one's peers, actually do or believe themselves. Sheeran et al.'s (1999) meta-analysis found that descriptive norms ($r = .37$) were more strongly correlated with condom use than proscriptive norms ($r = .26$), and thus these descriptive norms are of interest in the current study. Indeed, peer norms are of special importance in adolescence and emerging adulthood due to the primacy of the peer context during this developmental period (Andrews, Tildesley, Hops, & Li, 2002; Kirchler, Palmonari, & Pombeni, 1993; Osgood & Lee, 1993). In adolescence, peer relationships become increasingly important and occupy an increasing amount of adolescents' time (Brown, 2004). Peers are thought to influence adolescents in multiple ways, including through direct peer pressure, modeling, normative regulation (the reinforcement of the normative expectations of a group), and structuring of opportunities (the providing of contexts for certain behaviors; Brown, 2004). Adolescents are believed to be more sensitive than adults or younger children to conformity pressures associated with real and perceived social norms (Bronfenbrenner, 1970; Gibbons, Helweg-Larsen, & Gerrard, 1995; Suls & Mullen, 1982). Presumably due

to the primacy of peers during adolescence, research has shown that HIV prevention programs focusing on norms are more effective with adolescent populations than with adults (see Albarracin, Durantini, & Earl, 2006 for review). Young people's perceptions of peer norms have frequently been shown to have little relation to reality; instead, adolescents typically overestimate how sexually active their peers are and how liberal their peers' sexual attitudes are (Chia & Gunther, 2006; Cohen & Shotland, 1996; Hines, Saris, & Throckmorton-Belzer, 2002; Lambert, Kahn, & Apple, 2003).

Previous research has shown that young people's perceptions of peer norms are associated with their safe-sex behaviors. For example, perceiving peer norms supporting risky behavior is associated with taking STI-related risks for sexually active adolescents (Boyer, Tschann, & Shafer, 1999). In a study by Walter, Vaughan, Gladis, Ragin, Kase, and Cohall (1992), students who believed that the majority of their peers had intercourse were 3.7 times more likely to score in the higher risk categories of an AIDS behavior index. Young people who report having peers who engage in high-risk behaviors also report engaging in such behaviors themselves (Bachanas et al., 2002; Black, Ricardo, & Stanton, 1997; Millstein & Moscicki, 1995). Descriptive peer norms have also been shown to be predictors of condom use (DiClemente, 1991; Svenson & Hanson, 1996; Svenson, Östergren, Merlo, & Råstam, 2002), such that adolescents who perceive that most of their peers use condoms are more likely to use condoms themselves.

The third component of TPB, self-efficacy (one operationalization of the TPB construct "perceived control"; Ajzen, 2002; Schwarzer & Luszczynska, 2006) can be defined as a judgment of one's ability to perform a certain behavior (Bandura, 1977)—in this case, to practice safe sex by, for example, discussing contraception with a potential partner or doctor or purchasing contraception.[2] Because young people are often becoming sexually active for the first time, their sense of efficacy in this arena may just be developing (Bandura, 1997; Schunk & Meece, 2006; Zimmerman & Cleary, 2006).

[2] Perceived behavioral control and self-efficacy both deal with individuals acting in agentic ways on their environment. Some argue that the two concepts are nearly identical (Schwarzer & Luszczynska, 2006), while others suggest that perceived control fails to take into account particular tasks within a particular context in the way self-efficacy does (Bandura, 1986, 1997). In research on exercise behavior, perceived control has been found to make no independent contribution once self-efficacy is accounted for, suggesting the superiority of self-efficacy as a health-behavior-predicting construct (Dzewaltowski, 1989). However, because perceived behavioral control has generally been used in a contextualized way within TPB, the two constructs can be seen as nearly equivalent here.

Research has shown that safe-sex self-efficacy predicts condom use among adolescents (e.g., Basen-Engquist & Parcel, 1992; Basen-Engquist et al., 1999; Brien, Thombs, Mahoney, & Wallnau, 1994; DiClemente, 1992; DiIorio, Dudley, Soet, Watkins, & Maibach, 2000; Longmore, Manning, Giodano, & Rudolph, 2004; Mahoney, Thombs, & Ford, 1995; Morrison et al., 1998; O'Leary, Goodhart, Jemmott, & Boccher-Lattimore, 1992; Richard & van der Pligt, 1991; Rosenthal, Moore, & Flynn, 1991; Ryan, Franzetta, & Manlove, 2007; Schaalma, Kok, & Peters, 1993; Taris & Semin, 1998). Sheeran et al.'s (1999) meta-analysis showed that condom use self-efficacy significantly correlated with condom use, $r = .25$. Safe-sex self-efficacy has been shown to be multidimensional (Mahoney et al., 1995), including, for example, one's confidence to carry out mechanics of condom use, one's confidence dealing with partner disapproval of condom use, and one's perceived ability to be assertive about condom use.

Although knowledge does not play a direct role in TPB, it is possible that sexual health knowledge could contribute indirectly to intentions and behavior by increasing self-efficacy (Gist & Mitchell, 1992; Levinson, 1995; Sayles et al., 2006). Previous studies have identified links between sexual health knowledge and condom-use self-efficacy (Wiener, Battles, & Wood, 2007). Additionally, knowledge has been associated with safe-sex behavior in previous research. Adolescents who perceive themselves as having greater condom knowledge are more likely to discuss contraception or STIs with partners before engaging in sex for the first time (Ryan, Franzetta, Manlove, & Holcombe, 2007). Additionally, for young men, greater *perceived* knowledge is associated with increased odds of using contraception, whereas for young women, greater *actual* reproductive health knowledge is associated with increased odds of using contraception (Ryan, Franzetta, & Manlove, 2007). Unfortunately, nationally representative studies have shown that misinformation about condom use is frequent among adolescents (Crosby & Yarber, 2001). For example, one-third to one-half of adolescents believed that there should be no space at the tip of a condom and that Vaseline can be used with condoms. Although safe-sex knowledge may be slightly better among college students (Strader & Beaman, 2007), there are still significant deficits in college students' knowledge (e.g., Weinstein, Walsh, & Ward, 2008). Drawing on these findings, we therefore include knowledge as an indirect predictor of safe-sex intentions

and behavior (via self-efficacy), in addition to the TPB predictors of attitudes, norms, and self-efficacy.

The final predictor in the model, intention, is believed to be the immediate antecedent of behavior (Ajzen, 1991); intentions indicate an individual's readiness to perform a particular behavior. In terms of safe sex, these intentions would involve intentions to use condoms, intentions to discuss sexual health with partners, and intentions to get tested for STIs. In research conducted with adolescents and emerging adults, intentions may be of interest as the primary outcome (because a number of young people may not yet be engaging in intercourse or be currently sexually active) or as an antecedent of actual behavior. A meta-analysis of studies using TPB found a correlation of .47 between intentions and behavior across a variety of health behaviors (Armitage & Conner, 2001). More specifically, a meta-analysis focused only on condom use indicated that intentions were an important predictor of behavior, with an average correlation of r = .43 (Sheeran et al., 1999). Intentions to get tested for HIV have been shown to correlate more moderately but still significantly with actual testing (Wilson et al., 1996). Preparatory behaviors, such as purchasing and carrying condoms, can also be included under the umbrella of safer sex intentions, and have been shown to have significant connections with actual safer sex behavior (Sacco, Rickman, Thompson, Levine, & Reed, 1993), particularly for men.

Current understanding of the media's role

We know from previous research that young people's attitudes, norms, efficacy, knowledge, and intentions are important in predicting their safe-sex behavior. What is less clear is the source of these predictors. From where do these attitudes, norms, feelings of efficacy, knowledge, and intentions emerge? Previous research has suggested some contributors to these constructs. Much attention has focused on the role of formative socialization experiences, with particular emphasis on communication about sexuality and sexual health provided by parents (for review, see DiIorio, Pluhar, & Belcher, 2003) and on models provided by peers (e.g., Ballard & Morris, 1998). Given their large role in young people's lives, the media have also been identified as a key sexual socializer (see Ward, 2003 for review). However, the bulk of research on media influence in adolescence and emerging adulthood has had four major weaknesses, as outlined below.

One central limitation of current research investigating the media's role as a sexual informant is the limited range of sexual outcomes examined. Much of the existing research relating media use to adolescent sexual behavior has focused on two outcomes: permissive sexual attitudes and sexual initiation (see Ward, 2003 for review). More recently, research has begun to explore how media use might relate to safe sex behaviors, generally looking exclusively at condom or contraception use and often presuming negative effects. For example, Schultz and Kalma (2003) found that Dutch female teenagers who viewed more soap operas were more willing to have unprotected sex. Few studies have considered potential positive connections between media use and safe sex behavior or looked at diverse safer sex outcomes such as HIV/STI testing and partner discussion.

A second limitation is that little existing research has empirically examined pathways through which media effects may operate. Given the Theory of Planned Behavior, we have a good sense of what psychological constructs contribute to eventual behavior, but few studies have examined these constructs as mediators of media effects in the sexual health arena (see Martino, Collins, Kanouse, Elliott, & Berry, 2005 for one exception). It is clear that young people are affected by the media in complex ways; they rarely simply view behaviors and imitate. Therefore, it is necessary to understand the mechanisms of media effects, and the Theory of Planned Behavior provides a framework in which to do this. If media use influences emerging adults' safe sex behaviors, then attitudes, norms, self-efficacy, and intentions provide pathways through which this influence might occur.

A third limitation of previous research is its limited scope in terms of media forms. Researchers have extensively examined television as a sexual socializer, compiling an impressive body of literature. However, other media forms have been less frequently considered in much depth. In particular, mainstream magazines have been examined only sporadically and in relation to a limited number of outcomes (for review, see Ward, 2003). This lack of attention is surprising, given that the sexual content in magazines is often more explicit than that on mainstream television (Walsh-Childers, Gotthoffer, & Lepre, 2002; Ward, 2003), and that some studies have found stronger

effects on sexual behavior of magazines than of television (e.g., Ward, Merriwether, & Caruthers, 2006).

Finally, previous research has often looked at media exposure only rather than media involvement, or individuals' connection with the material. Media involvement has been conceptualized to include constructs such as identification with characters and motivations for engaging with media (Ward, 2002). Although involvement has more recently been acknowledged as important to understanding media effects when it comes to television (see Ward, 2003 for review), magazine involvement is understudied. Three forms of magazine involvement are addressed here: reading motivations (individuals' reasons for choosing and using certain types of magazines), friend magazine discussion (individuals' processing of magazine content in conjunction with their friends), and identification (individuals' personal connection with magazines). The importance of involvement is supported by theories such as social cognitive learning theory (Bandura, 1986, 1994), which suggests that similar models are more likely to be imitated, and by media theories (Bauer, 1963; Blumler, 1979) that emphasize the importance of facilitative activity.

Therefore, given these limitations, this dissertation investigates magazine reading and involvement as predictors of safe-sex behavior among emerging adults. Mainstream magazines were chosen as the medium of interest because they are both salient and understudied. This series of studies investigates their direct connections with diverse safe-sex intentions and behaviors, as well as mediated contributions via safe-sex attitudes, norms, self-efficacy, and knowledge as outlined by TPB.

Media as a source of sexual socialization

Is there any existing evidence that media use contributes to safe-sex behavior? Up until now, most existing research has framed the media primarily as a negative influence on sexual risk-taking among young people, observing that media may encourage stereotypical sexual attitudes and push youth to engage in sexual behavior before they are ready (see Ward, 2003 for review; Ashby, Arcari, & Edmonson, 2006; Escobar-Chaves, Tortolero, Markham, Low, Eitel, & Thickstun, 2005; Strouse & Buerkel-Rothfuss, 1987; Strouse, Buerkel-Rothfuss, & Long, 1995). Although there is a rich body of research framing media effects in this way, there is no reason to believe that all media effects on

young people's sexuality must be negative (Ward, Day, & Epstein, 2006). Media may also include information about STIs and safe-sex practices, discussions of sexual intentions and sexual agency, and depictions of complex decision-making. Indeed, mainstream magazines do include this type of content.

Young people acknowledge the media as an important source of sexual education. In one study (Kaiser Family Foundation & Children Now, 1997), entertainment media ranked as *the* top source of sexuality and sexual health information among early adolescents (ages 13 to 15). Indeed, a quarter of teens ages 12 to 17 say they have learned "a lot" about HIV/AIDS from TV and movies (Kaiser Family Foundation, 2000a), and almost as many say they have learned "a lot" about pregnancy and birth control from these sources (Kaiser Family Foundation, 1996). In a separate survey, 36% of 12- to 17-year-olds said they learned about STIs from television, whereas 32% said they learned about them from magazines (Kaiser Family Foundation & Children Now, 2001). Emerging adults also see the media as a source of information on sexual health. In one study, 96% of 22- to 26-year-old men said they heard about sexual health issues from the media, and 30% said they received no information at all on STI and HIV prevention from other sources (Bradner, Ku, & Lindberg, 2000). A national survey of 18- to 29-year-olds similarly found that media were the most common source of information about sexual health (Benson & Marano, 1994). Teens cite the media not only as a source of factual information, but also as a way that they learn about sexual communication—40% of 13- to 18-year-olds acknowledge getting ideas from the media about how to discuss sexual issues with their partners (Kaiser Family Foundation, 1998).

Additionally, previous research on entertainment-education, or "the intentional placement of educational content in entertainment messages" (Singhal & Rogers, 2008, p. 117), has shown that the media can be influential in promoting sexual health. Much of this research has taken place internationally, with at least 12 studies finding media exposure to be associated with increases in sexual health knowledge, positive contraceptive attitudes, and usage of family planning methods around the globe (as summarized by Singhal & Rogers, 1999). Efforts to promote sexual health via the mainstream media have also had some success in the United States. For example, confirmed teen viewers of an episode of *Friends* that contained information on condoms'

rate of effectiveness were more likely to accurately provide this statistic than non-viewers (Collins, Elliott, Berry, Kanouse, & Hunter, 2003). Viewers of an episode of *ER* containing information on HPV and its ties to cervical cancer were also more aware of the virus than nonviewers when surveyed, and there was an increase in the number of regular *ER* viewers who could explain the use of emergency contraception following a separate episode featuring the method (Kaiser Family Foundation, 2000b). Therefore, adolescents and emerging adults see the mainstream media as a source of sexual health information and may actually learn from it, as well.

Magazines as a source of sexual information

Although most previous research has focused on TV and radio, magazines may also play a role in sexual health education (Walsh & Ward, 2009). In general, magazines tend to be more direct and explicit than television, exposing readers to discussions of sexual techniques and models of sexual behaviors (Ward, 2003). Moreover, content analyses have shown that women's and men's magazines contain large amounts of sex-related content (Taylor, 2005; Walsh-Childers et al., 2002), and that the amount of sex-related content in women's magazines has increased over time (Carpenter, 1998; Walsh-Childers, Treise, & Gotthoffer, 1997). For example, Walsh-Childers et al. (2002) observed that the amount of sexual content in women's magazines increased by 26% between 1986 and 1996.

Although much of this content has been shown to focus on dating, sexual experiences, and relationship advice (see Ward, 2003 for review), analyses show that magazines also contain information on sexual health, including sexually transmitted diseases, pregnancy, and birth control methods such as condoms and the birth control pill. In an analysis of popular magazines in the mid-1990s**,** Walsh-Childers et al. (1997) found that in women's magazines, a third of all articles about sex focused on sexual health; in men's magazines, more than a quarter (28%) of articles about sex focused on sexual health. In addition to articles that were primarily about sexual health, many articles that focused on other sexual issues also referenced sexual health. In both men's and women's magazines, approximately 20% of articles that were primarily about some other sexual topic included mention of STIs (including HIV/AIDS), contraception, or unintended pregnancy. Condoms were named in three out of four articles mentioning contraception

in men's magazines, whereas women's magazines discussed a broader range of contraceptives, including condoms, birth control pills, Norplant, and Depo-Provera. Walsh-Childers et al. also found that condom references in women's magazines increased between 1986 and 1996. Other analyses have suggested that although sexual health content rarely appears in the media most popular with young adolescents, a higher proportion of the sexual content in magazines relates to sexual health as compared to most television programming, movies, and music (Hust, Brown, & L'Engle, 2008).

Additionally, young people are frequent readers of magazines. Research has shown that over 60% of college-aged women read women's or teen magazines on a regular basis (Kim & Ward, 2004). In the last decade, new "lad" or "men's service" magazines targeted specifically at young men have also emerged and developed a wide readership (Taylor, 2005). Compared to older men's magazines (e.g., *GQ*), these magazines contain more photos and articles with overt sexual content and clearly acknowledge their sexual focus. They also have higher circulations than their older counterparts—for example, *Maxim* has a circulation of 2.6 million monthly, whereas *Stuff* reaches 1.1 million monthly. Research about sex has also shown that teens and emerging adults see magazines as a valuable source of information on sex (Bielay & Herold, 1995; Duffy & Gotcher, 1996; Nonoyama, Tsurugi, Shirai, Ishikawa, & Horiguchi, 2005). Therefore, due to their large amount of sexual health content and their presence in young peoples' lives, magazines are likely to be a key source of sexual information for adolescents and emerging adults.

Magazine use and the Theory of Planned Behavior

How specifically might magazine reading influence young people's sexual health? Communication theories highlight the potential of media exposure (cultivation theory; Gerbner, Gross, Morgan, & Signorielli, 1994) and media models (social learning theory; Bandura, 1977, 1986) to shape behavior. Here we focus on how magazine reading and involvement might relate to the various constructs in the Theory of Planned Behavior. First, magazine use could relate to *safe-sex attitudes*. Because many young people are relatively sexually inexperienced, it is likely that attitudes are just beginning to form at this stage and might be especially open to influence from outside sources such as the media (Gerbner, Gross, Morgan, Signorielli, & Shanahan, 2002; Weaver &

Wakshlag, 1986). Through their mentions of condoms and other contraceptives and potential associations between these safe-sex practices and photos of attractive models and depictions of idealized relationships, magazines could contribute to more positive attitudes toward safe sex. Although magazines' influence on attitudes has not been explored, experimental exposure to television programs featuring condom use has been shown to lead to more positive attitudes about condom use for women (Farrar, 2006).

Second, magazine use may relate to *perceptions of peer norms* related to safe-sex behaviors. The media have been viewed as a "sexual super peer" (Brown, Halpern, & L'Engle, 2005), serving as a source of information about and models of sexuality. As noted earlier, young people's perceptions of their peers' sexual attitudes and activity are often inaccurate, and one way that adolescents and emerging adults may develop false impressions of peer norms is based on sexual content in the media (Hines et al., 2002; Kunkel, Eyal, Biely, Cope-Farrar, Donnerstein, & Fandrich, 2003). Young readers of magazines might view the publications as presenting the norms of their peers. If this is the case, they might perceive their peers as being quite interested in sex and sexually active (Walsh & Ward, in preparation), but also as favoring safe-sex behaviors such as condom use.

Third, magazine use might relate to *safe-sex self-efficacy*, both directly and indirectly via sexual health knowledge. Because magazines contain information on condom use, STIs, and negotiation of safe-sex practices with partners, young people who read them regularly might feel increased efficacy to enact safe-sex practices. Indeed, previous research has shown that adolescents who view more sexual content on television feel more safe-sex self-efficacy than adolescents who view less (Martino et al., 2005), and that emerging adults who read more magazines and identify more with magazine portrayals also feel more efficacious (Walsh & Ward, 2009). As discussed earlier, *knowledge* has been shown to contribute to feelings of efficacy, and previous research has provided evidence that magazine use is positively correlated with sexual health knowledge (Walsh & Ward, 2009). Therefore, we have reason to anticipate associations between magazine reading and attitudes, norms, self-efficacy, and knowledge. Based on TPB, we would anticipate that through these pathways, magazine use may also relate to safe-sex intentions (e.g., intentions to use condoms, discuss sexual health with partners,

or get tested for STIs/HIV) and behavior (e.g., consistency of condom use, actual discussion, and STI/HIV testing).

The importance of magazine involvement

As described earlier, magazine involvement, or individuals' connection with the material in magazines, is understudied, despite the fact that media theory (e.g., Bandura, 1986, 1994) as well as research on television (Ward, 2002; 2003) support the significance of involvement in fully explaining media influence. Therefore, three types of magazine involvement are examined in the current studies. First, *reading motivations* concern people's reasons for choosing and using certain types of magazines. Magazines may be used to gain certain types of information (on sex and gender, for example), or simply to fill time. Previous research has found that reading women's magazines for sex advice is associated with support of specific sexual stereotypes (Kim & Ward, 2004). And indeed, adolescents and emerging adults may be especially likely to seek out and attend to sex-related content because romantic and sexual relationships are both new and important to them (Jeffres, 1997). In previous research on magazines and safe sex (Walsh & Ward, 2009), motivation to read magazines for sex and gender content related to higher levels of sexual health knowledge among both undergraduate women and men, to greater safe-sex self-efficacy among men, and to stronger intentions to use condoms in the future among women.

Second, *friend magazine discussion*, a type of active reading, involves individuals' level of engagement with magazines with their peers. It includes activities such as reading and discussing magazines with friends (Walsh & Ward, 2009). Research on television use has suggested that these types of facilitative activity may enhance media effects (Kim & Rubin, 1997). In a previous study of magazine reading, active reading in general was associated with greater sexual health knowledge for women and knowledge confidence for men, greater safe-sex self-efficacy for both men and women, and greater condom use intentions for women (Walsh & Ward, 2009). We attempt here to narrow the construct of active reading to focus solely on interactions with friends, given the importance of peer relationships at this stage of development (Brown, 2004).

Finally, *identification* involves individuals' personal connection with magazine content—how similar they feel to those written about in magazines and "typical readers"

of magazines (Walsh & Ward, 2009). Theories such as cognitive social learning theory (Bandura, 1986, 1994) suggest that models perceived as similar—those identified with—are more likely to be imitated. Identifying more strongly with magazine features has been shown to relate to men's sexual health knowledge, women's safe-sex self-efficacy, and women's condom use intentions (Walsh & Ward, 2009). Notably, in past research, involvement has sometimes been correlated with outcomes even when reading levels themselves are not (Walsh & Ward, 2009).

Thus, previous research has shown connections between magazine reading and involvement and both safe-sex intentions and condom use (Walsh & Ward, 2009), but the pathways between these constructs remain unexplored. Therefore, these findings will be extended upon in this dissertation through the examination of mediators of magazine involvement-behavior connections and through the examination of more diverse safe-sex outcomes, including HIV/STI testing and partner discussion in addition to condom use.

Research plan

This dissertation consists of three related studies examining magazine use and sexual health outcomes. These studies approach media as a potential *positive* influence on young people and make use of multiple research methods to investigate how magazine use relates to the safe-sex behaviors of condom use, STI/HIV testing, and safe-sex discussion. Specifically, we examine (1) mediation of magazine use-intention and magazine use-behavior connections by constructs in TPB, (2) longitudinal associations between magazine reading and safe-sex outcomes, and (3) experimental effects of magazine exposure on TPB constructs of attitudes, norms, self-efficacy, and intentions.

Although past research has examined how media use relates to sexual behavior, little work has focused specifically on *safe* sex behavior or examined mechanisms of media effects. Study 1 uses structural equation modeling to assess multiple mediators of the connection between magazine use and safe sex intentions. College is associated with increases in sexual behavior, making an undergraduate sample appropriate. As measures of magazine use, this study makes use of data on women's and men's magazine reading, as well as three types of involvement: identification (personal connection with magazine content), reading motivations (motivations to read for sex and gender information), and friend discussion (level of active magazine engagement with peers).

The aim of Study 2 is to assess connections between magazine use and safe-sex outcomes longitudinally. A second wave of data is collected from Study 1 participants approximately 4 months after their initial participation, allowing for assessment of how magazine use at Time 1 relates to sexual health attitudes, norms, self-efficacy, knowledge, intentions, and behaviors at Time 2. Looking at these associations across time allows for stronger causal arguments and permits us to test competing hypotheses of whether media use predicts later sexual health outcomes or vice versa. This research focuses on students in their first-year of college, when sexual behaviors are especially likely to be in flux.

The aim of Study 3 is to examine experimental effects of magazine exposure on safe-sex outcomes based on TPB. No previous studies have experimentally examined effects of magazine exposure on sexual health outcomes. Women in this study are exposed to women's magazine articles that do or do not contain safe-sex content. Following exposure, they complete measures of TPB constructs, including attitudes, norms, self-efficacy, and intentions. They also have the opportunity to procure free condoms, with taking condoms serving as a concrete measure of safe-sex intentions. Study 3 examines the main effects of exposure to sexual health content as well as interactions between exposure and intercourse status, regular reading, personality characteristics, and magazine identification.

Chapter 2

Study 1

Introduction and Hypotheses

Given that magazine reading and involvement had rarely been examined as potential contributors to safe sex outcomes, Study 1 sought to examine direct and indirect connections of magazine use with safe-sex intentions, specifically testing as mediators the constructs of the Theory of Planned Behavior (Ajzen & Madden, 1986; Ajzen, 1991). Toward this goal, we gathered data from a large sample of first-year college students and made use of structural equation modeling (SEM) to examine the associations between magazine use and multiple variables related to condom use, safe sex discussion, and HIV/STI testing. Based on the safe-sex content in mainstream women's and men's magazines and previous research on TPB, Study 1 hypotheses were as follows:

H_1: Levels of women's lifestyle and men's lifestyle magazine reading and of magazine involvement will positively predict intentions to practice safe sex, including condom use intentions, safe sex discussion intentions, and HIV/STI testing intentions.[3]

H_{1b}: The strength of associations between magazine reading and safe-sex outcomes may differ based on genre of magazine and category of safe sex outcome.

H_2: Attitudes, perceptions of peer norms, and safe-sex self-efficacy will mediate associations between magazine use and safe-sex intentions.

H_{2b}: Associations between magazine use and safe-sex self-efficacy will be partially mediated by sexual health knowledge.

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[3] We opted to examine intentions rather than actual behavior here because (1) a large proportion of our participants were not yet sexually active and (2) our data were not longitudinal. Participants in Study 1 were asked to report on their future intentions to practice safe sex (e.g., how often they plan to use condoms with different types of partners) and their past behavior (e.g., whether they used a condom the last time they had intercourse). Although a full test of TPB would look at intentions as a predictor of behavior, this did not seem appropriate here given the composition of the sample and the nature of these measures. Intentions were tested as a predictor of behavior using longitudinal data in Study 2.

H_3: Associations between magazine reading and safe-sex outcomes may differ based on sexual experience, with more associations expected to occur for those who have never engaged in intercourse.[4]

Method

Participants and procedure

Participants were 457 college students (61.9% female). The majority of participants were first year students, and only those ages 19 or under were included in analyses (M_{age} = 18.73, SD = .50). Participants were recruited from two universities, one large Midwestern university (School 1) and one mid-sized Midwestern university (School 2). School 1 is a public university enrolling approximately 26,000 undergraduate students (50.4% female, 71.2% White), with 65% coming from within the state. Psychology is the second largest major at School 1. School 2 is a smaller public university enrolling approximately 11,000 undergraduate students (56.6% female, 93.2% White), over 90% from within the state. Psychology ranks as the seventh most popular major at School 2. One-hundred and sixty nine participants (63.9% female) were recruited through School 1's psychology subject pool and completed the survey for partial course credit; these students all indicated they were ages 18 and 19. Additional students at School 1 (N = 115, 47.8% female) were recruited through fliers placed in buildings around campus and were compensated with $10 gift cards. These participants responded to a flier advertising a "Paid Online Research Study: Dating and Relationships During the College Years"; all were college freshmen ages 18 and 19. Students at School 2 (N = 173, 69.4% female) were recruited through Introduction Psychology courses and completed the survey for partial course credit; these students were enrolled in courses limited to first years or indicated that they were in their first year of college. Participants were primarily

[4] This hypothesis was based on previous research showing that past safe sex behaviors are strong determinants of safe sex attitudes, norms, self-efficacy, and intentions (Godin, Gagnon, Lambert, & Conner, 2005; Reinecke, Schmidt, & Ajzen, 1996; Rise, 1992; Sheeran & Taylor, 1999; Sutton, 1994). Given that young people with little sexual experience are less likely to have established patterns of safe sex behavior, it is likely that their safe sex attitudes, norms, self-efficacy, and intentions are more open to outside influence.

It is also worth noting here that we opted to divide the sample for multigroup comparisons based only based on whether or not participants had engaged in vaginal intercourse and not based on other measures of sexual experience. This was thought to be appropriate based on the high percentage of heterosexual participants in our sample. At times throughout this manuscript we refer to those who have engaged in intercourse as "sexually active" or "sexually experienced" for brevity's sake, although we acknowledge that there are other types of sexual activities and experiences.

European American (82.3%), but participants also identified as Asian or Asian American (9.8%), Black (2.6%), Latino/Latina (0.9%), Middle Eastern (1.5%), mixed or multiracial (2.0%), and other races or ethnicities (0.9%).

Following informed consent, participants completed the hour-long survey online. Participants could volunteer to be recontacted for a follow-up survey for pay if they wished; in this case, they provided an email address and were given an ID number to link their Wave 1 and Wave 2 surveys. Email addresses were used only to recontact participants, and survey responses remained confidential, identified only by ID numbers.

Removal of suspicious data

Due to the nature of online data collection (Galesic & Bosnjak, 2009; Mustanski, 2001), it was thought necessary to examine the data for suspicious response patterns. Thus, to reach the final sample described above, the following procedure was followed. Of 649 records on SurveyMonkey, 76 were initially eliminated because (1) they did not indicate consent to participate, (2) they were determined to be duplicate records based on date and time of response and IP address, (3) they belonged to participants who terminated the survey before reaching the end, (4) they had substantial amounts of missing data (multiple entire pages of the survey), or (5) they belonged to participants who spent an unreasonably short amount of time completing the survey (less than 15 minutes). Three participants did not consent to participate; the remaining 73 were eliminated for reasons (2)-(5). Of those eliminated at this early stage, 17 were male, three were female, one preferred not to answer, and 55 did not report their gender. Eight came from School 1's Psychology Subject Pool, 35 came from School 2's Psychology Subject Pool, and 33 were paid participants.

This left data from 573 participants. These data were examined for the following properties thought to interfere with their validity:

(1) *Repeated response patterns.* The majority of key measures involved some reverse coding; therefore, responding the same to all items in a scale was considered suspicious. Participants who had identical responses (e.g., "strongly agree") to all

items in a key measure[5] were thus eliminated; this resulted in the loss of 58 participants.

(2) *Missing data.* Although participants were allowed to skip individual items, their responses to individual measures were not considered valid if over 30% of the items within the measure were left blank. Therefore, no scale scores were calculated for individual participant measures missing more than 30% of responses. Additionally, participants who were missing more than 30% of the items for *multiple* key measures[6] were removed; this resulted in the loss of 17 additional participants.

(3) *Large within-measure standard deviations.* Following reverse-coding, within-participant within-measure standard deviations were examined. Unusually large standard deviations were considered suspicious, as they indicated participants had responded very differently to items with similar meanings. Participants with standard deviations more than three standard deviations above the mean for *multiple* key measures[7] were eliminated; this resulted in the loss of three additional participants.

(4) *Suspicious within-measure standard deviations.* For each measure, within-participant standard deviations were calculated; these standard deviations described how much a participant's responses to items within that measure varied. Participants' standard deviations for the raw data (prior to reverse coding) were compared to standard deviations calculated for alternating responses (e.g.,

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[5] Key measures here were condom attitudes, HIV testing attitudes, safe-sex discussion attitudes, peer norms, male condom use norms, female condom use norms, sexual health knowledge, and magazine identification. Additionally, for measures of active reading and magazine reading motivations, repeated responses other than the lowest end of the scale (1) were considered suspicious; repeated responses of 1 were considered valid as they may have represented participants who never read magazines. Similarly, repeated responses of 0 were acceptable for magazine reading as participants could legitimately read no magazines. Repeated responses to condom use intentions, keeping and carrying condoms, and safe-sex discussion intentions were considered acceptable due to the similar meanings of all items and the lack of reverse scoring.

[6] Key measures here were condom attitudes, HIV testing attitudes, safe-sex discussion attitudes, peer norms, male condom use norms, female condom use norms, safe-sex self-efficacy, sexual health knowledge, condom use intentions, keeping and carrying condoms, safe sex discussion intentions, magazine reading, magazine identification, active reading, and magazine reading motivations.

[7] Key measures here were the same as for (2), with keeping and carrying condoms excluded due to potential large variance in valid responses (as items asked about both current and future behavior), magazine reading excluded due to the expectation of large standard deviations for that measure, and knowledge excluded as it was true-false.

responses of 1-2-1-2-1-2 throughout the entire measure). Matches with standard deviations from the alternating response pattern suggested suspicious response patterns; participants with two or more matches were eliminated. This resulted in the loss of 17 additional participants.

These data screening techniques resulted in a sample size of 478. Of those excluded for reasons (1)-(4), 18 were men and 16 were women, and 15 came from School 1's Subject Pool, eight came from School 2's Subject Pool, and 11 were paid participants. Men were marginally more likely to be excluded than women, $\chi^2(1) = 2.73$, $p < .10$, but there were no significant differences in exclusion rates based on pool, $\chi^2(2) = 2.61$, $p = .27$.

Because we planned to construct models separately for women and men, an additional four participants were excluded because they did not report their gender. Finally, due to our interest in focusing on a specific developmental stage, we excluded 17 participants aged 20 years or older from analyses, leaving 457 participants (61.9% female, 38.1% male; 37.0% from School 1's Subject Pool, 37.9% from School 2's Subject Pool, 25.2% paid participants) to be included in the analyses described below.

Measures

Magazine reading. Participants estimated the number of issues of 30 popular, mainstream monthly magazines they had read during the last year. Participants' answers could range from 0 to 12 issues for each monthly magazine. Factor analyses were previously used to cluster magazines into categories, two of which were of primary interest here: women's lifestyle magazines (3 titles, $\alpha = .52$) and men's lifestyle magazines (6 titles, $\alpha = .69$; see Table 2.1). These clusters represent magazines that are conceptually related and are also related in patterns of participants' reading.[8] Issues read were summed within each category to create continuous measures of participants' reading levels of women's lifestyle and men's lifestyle magazines. These measures were

[8] One factor represented both women's fashion magazines and women's lifestyle magazines in the factor analysis. Because the interest here was in magazines containing sexual-health-related content, only the lifestyle magazines (e.g., *Cosmopolitan*) were included when calculating the total score, while those magazines focusing only on fashion (e.g., *Allure*) were excluded. *Cosmopolitan* was dramatically more popular than any other women's title, with 75.0% of women reporting reading it. Although the reliability of a factor formed by the three women's lifestyle titles was lower than desired, these magazines had frequently been used together in the past and were believed to contain similar content; therefore, the lower reliability of this category was accepted.

capped at two standard deviations above the mean to avoid outliers and were used as single indicators of latent variables. Levels of women's lifestyle magazine reading were of primary interest for women, whereas levels of men's lifestyle magazine reading were of primary interest for men.

Magazine involvement: Reading motivations. Participants rated 24 possible reasons for liking to read magazines (adapted from Kim & Ward, 2004), by indicating on a 6-point scale anchored by 1 (strongly disagree) and 6 (strongly agree) whether each is a reason they read magazines. Seven of these items, identified through factor analysis, form a subscale of reading for information related to sex and gender (e.g., "because they teach me things about sex and romantic relationships not learned elsewhere"); these items were averaged to create a mean motivation score for sex/gender (α = .93), such that higher scores indicate greater reading motivation. Sex reading motivation was included in models as a manifest variable.

Magazine involvement: Friend magazine discussion. As a second measure of involvement, participants indicated how often during the last year they had read or discussed magazines with their friends (α = .73). These were two items from Walsh and Ward's (2009) active reading scale. Responses were made on a 5-point scale ranging from 1 (never) to 5 (very often). The items were averaged to create a mean score such that higher scores indicate higher levels of friend discussion. Friend magazine discussion was included in models as a manifest variable.

Magazine involvement: Identification. As a final measure of involvement, participants rated how strongly they agreed with 6 statements concerning their identification with women's or men's magazines, depending on their sex (e.g., "I would really like to be like the women written about in women's magazines" or "I am similar to the average reader of men's magazines"; Walsh & Ward, 2009; α = .83 for women and α = .75 for men). Responses were provided on a 6-point scale anchored by 1 (strongly disagree) and 6 (strongly agree). After relevant items were reverse-scored, a mean identification score was created, with higher scores indicating greater identification. Identification was included in models as a manifest variable.

Other media use. In order to control for other media use, participants also reported their hours of television viewing, their hours of music listening, and their hours

of leisure internet browsing on the average weekday, Saturday, and Sunday (from 0 hours to 10+ hours). For each media form, average hours per day were calculated by taking the mean of weekdays, Saturday, and Sunday (α = .87 for television, α = .93 for music, α = .91 for internet). Additionally, participants reported the average number of movies they viewed each month in the theatre and on DVD. The two were summed to get a total number of movies viewed per month (α = .37); this score was capped at two standard deviations above the mean to avoid outliers.[9] Z-scores were calculated for hours of television viewing, hours of music listening, hours of internet use, and number of movies viewed per month, and the four were then averaged to create a variable representing "average other media use" (α = .57). Finally, participants reported their hours of leisure book reading and their hours of newspaper reading in the average week (from 0 hours to 10+ hours); Z-scores were calculated for each form and an "average hours reading" variable created by taking the mean of these two Z-scores (α = .46).

Other sources of sexual education. In order to control for other sources of sexual education, participants also reported their perceptions of how much information about sexual health they had received from a variety of sources, using the scale 1 (no information) to 5 (a lot of information). They also had the option of responding "not applicable." Scores for parents, peers, schools, books, and the internet were averaged to create an average socialization score (α = .38).

Sexual health attitudes: Condom use. Participants completed the UCLA Multidimensional Condom Attitudes Scale (Helweg-Larsen & Collins, 1994), which has five subscales: Reliability and Effectiveness (e.g., "Condoms are an effective measure of birth control," α = .83), Pleasure (e.g., "The use of condoms can make sex more stimulating," α = .66), Identity Stigma (e.g., "People who suggest condom use are a little bit geeky," α = .81), Embarrassment About Negotiation and Use (e.g., "When I suggest using a condom I am almost always embarrassed," α = .88), and Embarrassment About Purchase (e.g., "It is very embarrassing to buy condoms," α = .82). Response options range from 1 (strongly disagree) to 7 (strongly agree), and some items are reverse-coded.

[9] This resulted in seven individuals who had viewed more than 25 movies in the last month receiving a value of 25 on the measure.

Averages were computed for all subscales, with higher scores indicating more positive attitudes.

To simplify models, it was desirable to use only one condom attitudes construct. Because the subscales could not be combined into a cohesive, reliable measure, we opted to compare the five subscales in terms of their reliability and their relation to condom use intentions. To examine the subscales' relations to intention outcomes, we constructed models for both women and men that included the five subscales as correlated latent constructs (each represented by three parcels of randomly-divided items) and two condom use intention measures (the CUQ-I and keeping and carrying condoms in the future, as described below) as correlated manifest variables. All paths from attitude subscales to intentions were included. These models indicated that the identity stigma and pleasure subscales were the most consistently predictive of condom use intentions. The identity stigma subscale was shown to be substantially more reliable in our sample than the pleasure subscale, and therefore was chosen for future analyses. Items in this subscale were randomly divided into three parcels that were used as indicators of a latent condom attitudes construct, with higher scores indicating more positive attitudes. Correlations between subscales are indicated in Table 2.2 and a summary of the subscales' reliabilities and connections with intentions is included in Table 2.3.

Sexual health attitudes: Discussion. To assess attitudes toward safe-sex discussion with partners, participants completed Troth and Peterson's (2000) measure of comfort in discussing AIDS and safe-sex precautions. This scale consists of seven items ($\alpha = .78$) that participants rate on a scale from 1 (totally disagree) to 6 (totally agree). A sample item is "Sexual partners need to be open and honest about previous sexual experiences." Items were randomly divided into three parcels that were used as indicators of a latent discussion attitudes construct, with higher scores indicating more positive attitudes.

Sexual health attitudes: Testing. To assess attitudes toward STI and HIV testing, participants completed 31 items from Boshamer and Bruce's (1999) HIV-Antibody Testing Attitude Scale dealing with friends' concerns about HIV testing ("I would be embarrassed if my friends found out I had decided to have an HIV test" [reverse scored]), family concerns about HIV testing ("I could easily discuss HIV antibody testing with my family"), concerns about public opinion of HIV testing ("Anyone who is tested for HIV

is disgusting" [reverse scored]), and concerns about confidentiality of HIV testing ("I trust the HIV counselors and nurses to keep my information confidential"). Participants responded to items using a scale from 1 (strongly disagree) to 5 (strongly agree). Because this scale was long, it was desirable to reduce the number of items, making use of a combination with high reliability. Therefore, the scale's reliability was analyzed and successive items with the lowest item-total correlations dropped until 10 items remained ($\alpha = .87$). This reduced version of the scale was almost as reliable as the original full scale. Items were randomly divided into three parcels that were used as indicators of a latent testing attitudes construct, with higher scores indicating more positive attitudes.

Perceptions of peer norms. To assess perceptions of peer safe-sex norms, participants estimated the percentage of male and female American college students from 0% to 100% who have experienced certain sexual behaviors or outcomes by age 19 and who hold different opinions, attitudes, or beliefs at age 19. Sample items include having sexual intercourse at least once, performing and receiving oral sex, having sexual intercourse during a "hook-up," and having an STI. Three separate categories of norms (corresponding to the safe sex behaviors of interest) were utilized in the current study: perceptions of *condom norms* among male and female peers (6 items for each sex, e.g., "What percentage of American female college students think that condoms are pleasant to use," $\alpha = .80$ for male peers and $\alpha = .74$ for female peers), perceptions of *discussion norms* among male and female peers (1 item for each sex, the percentage of peers who usually discuss safe sex with their sexual partners), and perceptions of *testing norms* among male and female peers (1 item for each sex, the percentage of peers who would ask a potential sexual partner to get tested for STIs or HIV). All item scores were divided by 10 (resulting in scores ranging from 0-10), making the variances of these measures more comparable to other measures. Both women and men originally indicated their perceptions of both female and male peers; we compared the perceptions of men and women (Table 2.4) and the correlations between perceptions of female and male peers (Table 2.5). Because there were significant differences in perceptions of male and female peers and because correlations were moderate but not high, we decided to make use of sex-specific peer norms, using female peer norms for women and male peer norms for men. For each sex, the appropriate condom norm items were randomly divided into three

parcels that were used as indicators of a latent condom norms construct, with higher scores indicating more positive norms. Discussion norms and testing norms were each included in models as manifest variables, with higher scores indicating more positive norms.

Safe-sex self-efficacy. To assess safe-sex self-efficacy, participants completed the nine self-efficacy items from Basen-Engquist and colleagues' (1992, 1999) Sexual Risk Beliefs and Self-Efficacy scale (α = .79). This scale has been used with adolescents and is acknowledged as one of the measures that is most consistent with self-efficacy theory (Forsyth & Carey, 1998), as it contains items assessing respondents' beliefs about their capacities to perform behaviors within a particular domain of functioning under circumstances that present gradations of challenge. For this scale, participants imagined themselves in nine scenarios and assessed how confident they were that they could do described behaviors, including abstaining from sexual intercourse, communicating about condom use, and using and buying condoms, on a scale from 1 (not at all confident) to 9 (totally confident). The two subscales of interest here were those dealing with self-efficacy for negotiating condom use (3 items, α = .78) and self-efficacy for buying and using condoms (3 items, α = .76). The three items within each scale were used as indicators of latent constructs, with higher scores indicating greater self-efficacy.

Sexual health knowledge. To assess their sexual health knowledge, participants completed a 37-item true/false sexual knowledge scale containing factual questions about reproductive health, contraception, condom use, STIs, and HIV/AIDS (Walsh & Ward, 2009). This scale contains five questions on reproductive health (e.g., "Fertilization of the egg by the sperm (conception) occurs in the woman's uterus"), six questions on contraception (e.g., "In terms of preventing pregnancy, antibiotics do not reduce the effectiveness of birth control pills"), five questions on condom use (e.g., "Using Vaseline or petroleum jelly is a good way to increase the effectiveness of a condom"), nine questions on STIs (e.g., "Some kinds of sexually transmitted disease don't give you symptoms until six weeks or more after you catch the infection"), and 12 questions on HIV/AIDS (e.g., "A woman can only get HIV from a man if she has anal sex with him"). For each item, participants answer true or false. Each item is scored, with a "1" for correct responses and "0" for incorrect responses. Points were summed across items to

create a global knowledge score (37 items, α = .64) as well as a condom use knowledge score (5 items, α = .35), and an STI/HIV knowledge score (21 items, α = .56).

Condom use intentions. To assess intentions to use condoms in the future, participants completed the Condom Use Questionnaire-Intended (CUQ-I) scale and items from the Condom Use Questionnaire-Prelim (CUQ-P) scale (Sacco et al., 1993). The CUQ-I asks participants how frequently they will use a condom in the future in a variety of situations involving some risk of HIV or STI (e.g., "if you engage in sexual activity with someone you've known for a pretty long time and are attracted to, but you don't know their sexual history" or "if you engage in sexual activity with someone who has had many sexual partners, and who you have already had sex with recently without using a condom"). These 12 items (α = .98) depict situations that pose varying levels of risk. Two items from the CUQ-P (α = .77) assessed participants' intentions to carry and keep condoms in the future (e.g., "Do you intend to keep condoms in your room/apartment/ home in the future?"). Because many participants were not yet sexually active, only items focusing on future behavior rather than current keeping and carrying were included here. Responses to both scales range from 1 (never) to 7 (always) and are averaged to create overall scores, with higher scores indicating greater intentions to use condoms and to keep and carry condoms in the future. These constructs were included in models as latent variables with single indicators.

STI/HIV testing intentions. Participants answered questions about their intentions to get tested for HIV and STIs, indicating the probability that they would get tested for each during the next six months using a percentage scale from 0% to 100%. Participants could also indicate that they had already been tested; this was coded as 110% in line with Boshamer and Bruce (1999). These two items were averaged (α = .81). The majority of participants (61.2%) indicated that there was no chance (0%) that they would get tested. Due to extreme non-normality, we opted to treat this variable as categorical (0=no chance of testing, 1=low chance of testing, 2=moderate chance of testing).[10] This measure was used as a single indicator of a latent variable. Participants also answered a question about their probability of asking future sexual partners to get tested for STIs and HIV prior to

[10] For women, the breakdown was 60.8% no chance, 19.8% low chance, and 19.4% moderate chance. For men, it was 61.8% no chance, 21.4% low chance, and 16.8% moderate chance.

engaging in sexual intercourse from 0% to 100%. This item was divided by 10 and included in models as a manifest variable.

Safer sex discussion intentions. Participants reported their intentions of discussing safer sex with future partners, rating how thoroughly they believed they would discuss condom use and STI or HIV testing on a scale of 1 ("we probably won't discuss this at all") to 5 ("we probably will discuss this thoroughly"). This new scale was created because previous research has suggested that discussing specific safer sex actions (e.g., condom use) is more beneficial than discussing "safe sex" in general (Cline et al., 1990). These items were averaged to create a scale of discussion intentions (α = .74), with higher scores indicating greater intentions to discuss safer sex, and included in models as a latent variable with a single indicator. Participants also indicated their probability of discussing safe sex with future committed and casual partners before engaging in sexual intercourse on a scale from 0% to 100%. They could also indicate that they did not intend to have either type of partner. These two items were averaged to create a probability of discussion scale (α = .91) which was divided by 10 and used as a single indicator of a latent variable.

Levels of dating experience and involvement in a monogamous relationship. Participants reported their current level of experience with dating and sexual relationships on a 10-point scale from 1 ("just starting out") to 10 ("several sexual relationships"). They also reported whether they were currently involved in a monogamous sexual relationship (0=no, 1=yes). These two variables served as controls in all analyses. They also reported whether they had ever engaged in vaginal intercourse (0=no, 1=yes) so that models could be constructed comparing those who had and had not.

Religiosity. To assess religiosity, three questions were used, all measured on 5-point scales: (a) "How religious are you?" (from *not at all* to *very*), (b) "How often do you attend religious services?" (from *never* to *very regularly, more than once a week*), and (c) "How often do you pray?" (from *never* to *very regularly, at least once a day*). Responses to each question were scored from 1 to 5 and summed to create a religiosity score for each participant (α = .91).

Additional demographics. Participants also self-reported their age in years and months[11], their racial/ethnic identification, their sexual orientation (from "exclusively heterosexual" to "exclusively homosexual"), and their mother's and father's highest levels of education (from 1=a few years of high school or less to 7=Ph.D.). In terms of ethnic/racial identification, the only categories with substantial representation (more than 5%) in our sample were White/European and Asian/Asian American/Pacific Islander. For analyses, a dummy variable was created with a score of "1" assigned to respondents who identified as Asian/Asian American/Pacific Islander and "0" assigned to all other participants. Sexual orientation was recoded to indicate sexual minority status (0=exclusively or predominantly heterosexual, 1=bisexual, predominantly or exclusively homosexual, or unsure). Mother's and father's highest levels of education were averaged to create a parental education score (α = .63); this variable represented average parental education for participants who provided data on both mothers and fathers and either mother or father education for those participants who provided data on only one parent. Participants were also coded based on the sample they came from—School 1's Psychology Subject Pool served as the reference group, and separate variables indicated whether a participant came from School 1's paid pool (0=no, 1=yes) or School 2 (0=no, 1=yes).

Results

Preliminary analyses: Descriptives

As a first step, we examined levels of magazine reading and involvement as well as safe sex attitudes, norms, self-efficacy, knowledge, and intentions, examining overall levels and differences based on gender, sample, and sexual experience. Gender differences are summarized in Table 2.6, sample differences in Tables 2.7 and 2.8, and differences based on sexual experience in Tables 2.9 and 2.10. Because we were interested in three distinct categories of safe sex intentions, we also examined correlations between condom use, safe sex discussion, and HIV/STI testing intentions for women and men.

[11] A precise current age was calculated by multiplying the number of years by 12, adding the number of months, and then dividing by 12.

Levels of magazine reading and involvement. As shown in Table 2.1, the majority of participants had read magazines, with 93.6% of women and 64.9% of men reporting some reading in the past year. Over three quarters of women (77.5%) had read women's lifestyle magazines, reading on average 6 issues per year (M = 6.11, SD = 6.18). Over half of men (55.4%) had read men's lifestyle magazines, reading on average 4 issues per year (M = 4.21, SD = 7.47). Participants were less likely than in the past (Walsh & Ward, 2009) to report reading magazines intended for the other gender, with only 17.9% of women reading any men's magazines and 25.6% of men reading any women's magazines in the past year. Sexually experienced women read more women's magazines than did non-experienced women; there were no differences for men.

Overall, levels of magazine involvement were moderate (Table 2.11). Men were lower in all types of magazine involvement than were women; they reported lower levels of identification, lower motivation to read for information on sex and gender, and lower levels of friend discussion. As would be expected, readers of both women's lifestyle and men's lifestyle reported higher levels of involvement than did non-readers of these magazine categories (Table 2.11). Additionally, sexually experienced women reported a greater motivation to read for information on sex and gender than did those who had never had intercourse.

Safe sex attitudes. In general, attitudes toward condoms and safe sex discussion were very positive (for condoms, M = 6.24 [out of 7], SD = .76; for discussion, M = 4.82 [out of 6], SD = .70), whereas attitudes toward HIV testing were neutral (M = 3.27 [out of 5], SD = .79). Women reported more positive condom attitudes and discussion attitudes than did men. Men from School 1's paid pool had significantly more positive discussion attitudes than those from School 2. Sexually experienced participants had more positive condom and HIV testing attitudes than did non-experienced participants.

Safe sex norms. Overall, participants believed more than half of their peers felt positively toward condoms (for female peers, M = 6.48 [out of 10], SD = 1.35; for male peers, M = 5.48, SD = 1.59). Although they estimated that half of their female peers usually discussed safe sex with partners (M = 4.99, SD = 2.09), they thought that only one-third of their male peers did (M = 3.85, SD = 2.08). Participants estimated that one-third of their female peers (M = 3.59, SD = 2.15) and less than one-quarter of their male

peers (*M* = 2.26, *SD* = 1.70) would ask sexual partners to get tested for STIs and HIV. Men had more positive peer norms regarding condom use than did women. Interestingly, men had more positive *male* peer discussion norms than did women, whereas women had more positive *female* peer discussion norms than did men. Both women and men from School 2 reported significantly more negative condom peer norms (for both males and females) than did those from School 1. Women from School 2 reported more positive female discussion peer norms than those from School 1's paid pool; they also had the most positive female testing peer norms. Notably, sexually experienced participants reported more *negative* condom peer norms and more *positive* peer discussion norms than did non-experienced participants.

Safe sex self-efficacy. Efficacy levels in this sample were generally high (for condoms, *M* = 6.72 [out of 9], *SD* = 1.87; for safe sex negotiation, *M* = 7.57, *SD* = 1.40). Men reported higher levels of condom use self-efficacy than did women, whereas women had higher levels of negotiation self-efficacy than did men. Men from School 2 reported higher levels of condom use self-efficacy than did other men. Sexually experienced participants had higher levels of condom use self-efficacy than did non-experienced participants, although there were no differences in negotiation self-efficacy.

Sexual health knowledge. Participants were knowledgeable about safe sex in general, answering 78% of sexual health knowledge questions correctly on average (*M* = 28.67 [out of 37], *SD* = 3.73). Women scored higher than men both in overall sexual health knowledge and in STI/HIV knowledge, although there were no differences in condom use knowledge. Women from School 2 were significantly less knowledgeable about STIs and HIV than those from School 1. Sexually experienced participants were more knowledgeable about condom use than were non-experienced participants; sexually experienced women were also more knowledgeable in general.

Safe sex intentions. Although most participants intended to use condoms consistently in the future (*M* = 6.04 [out of 7], *SD* = 1.57), they had lower intentions of keeping and carrying condoms with them (*M* = 3.90 [out of 7], *SD* = 1.72). Participants thought there was a high probability they would discuss safe sex with future partners (*M* = 7.98 [out of 10], *SD* = 2.39), and anticipated that this discussion would be fairly thorough (*M* = 3.62 [out of 5], *SD* = 1.21). As noted previously, however, participants

thought it was quite unlikely they would be tested for STIs or HIV in the next six months (*M* = 1.39 [out of 10], *SD* = 2.64), and they were in general uncertain whether they would ask future partners to get tested for STIs and HIV (*M* = 4.92 [out of 10], *SD* = 3.26). Men expressed lower intentions to use condoms in the future than did women; however, they were more likely to think they would keep and carry condoms in the future than were women. Sexually experienced participants were more likely to think they would keep and carry condoms in the future than were non-experienced participants. Women intended to discuss safe sex more thoroughly with future partners than did men; they also perceived a higher probability of talking about safe sex with future partners. Similarly, women perceived a higher probability of asking future sexual partners to get tested for STIs and HIV than did men. As would be expected, sexually experienced participants thought there was a greater probability they would get tested for STIs and HIV in the next six months than did non-experienced participants.

Correlations between different types of intentions. We examined condom use, safe sex discussion, and HIV/STI testing intentions. To explore whether these different types of safe sex intentions were related, we examined zero-order correlations for women and men. Correlations between different types of safe sex intentions were generally low (Table 2.12). For women, condom use intentions were positively related to intentions to discuss safe sex thoroughly as well as to probability of discussion. Both types of discussion intentions were also positively correlated with probability of asking future partners to get tested. Probability of testing had a low, positive correlation with intentions of keeping and carrying condoms in the future as well as intentions of discussing safe sex thoroughly. For men, intentions to keep and carry condoms in the future were positively correlated with condom use intentions, intentions of discussing safe sex thoroughly, probability of discussion, and probability of asking future partners to test. Probability of discussion was also positively associated with condom use intention and intentions of discussing safe sex thoroughly, whereas probability of asking future partners to test was positively related to intentions of discussing safe sex thoroughly, probability of discussion, and probability of getting tested. The low correlations between different types of intentions showed the value of examining diverse categories of safe sex behavior.

Preliminary analyses: Gender and sample differences and demographic correlates

Gender and sample differences. In addition to the differences in study variables described above, women and men in our sample differed demographically in several ways. Men entered the study slightly later on average than did women (approximately 1 week later) and were more likely to be part of School 1's paid pool and less likely to be part of School 2's pool. Men were also more likely to identify as Asian/Asian American/Pacific Islander than were women (15% vs. 7%). In addition to these gender differences, participants coming from the three different samples also differed in several important ways demographically, as summarized in Tables 2.7 and 2.8.[12]

Demographic and media use controls. In order to include important control variables in structural equation models, zero-order correlations were used to identify associations between demographic and media use control variables and study variables. Demographic variables considered included age, identifying as Asian/Asian American/Pacific Islander; religiosity; parental education; sexual minority status; being a member of the paid sample; being a member of the School 2 sample; week of entry; level of dating experience; current involvement in a monogamous relationship; amount of sexual health information received from parents, peers, schools, books, and the internet; time spent reading books and newspapers; and time spent using other media (including television viewing, music listening, movie viewing, and internet use).[13] Demographic and

[12] Aside from study variables, four main features differentiated Schools 1 and 2. First, School 1 was more ethnically and racially diverse than School 2; nearly all participants at School 2 identified as European American. Second, parental education levels were lower for both men and women at School 2. Third, those from School 2 were generally more sexually experienced than those at School 1, with substantially more men from School 2 reporting having ever had intercourse (nearly 70% versus just 44% in School 1's subject pool); women at School 2 were also the most likely to have ever had intercourse and reported the highest levels of dating experience. Finally, both women and men from School 2 were heavier media consumers in general than those from School 1, spending more time viewing television, listening to music, watching movies, and using the internet.

[13] Ethnicity, religiosity, and parental education were chosen as control variables because of their established associations with sexual behaviors. Asian and Asian American adolescents have been found to engage in lower levels of sexual activity than other adolescents (Lefkowitz & Gillen, 2006; SIECUS, 2003), and greater religiosity has also frequently been found to relate to delayed onset of sexual activity and lower levels of sexual activity (see Rostosky, Wilcox, Comer Wright, & Randall, 2004 for review; Lammers et al., 2000; McCree, Wingood, DiClemente, Davies, & Harrington, 2003; Minichiello, Paxton, & Cowling, 1996; Thornton & Camburn, 1989). Higher socioeconomic status (SES), often assessed through parental education levels, is associated with lower levels of sexual activity across adolescence (Lammers et al., 2000) and with later sexual initiation (Santelli, Lowry, Brener, & Robin, 2000). Sexual minority status was controlled for due to magazines' focus on heterosexual relationships. We controlled for other forms of

media use variables were associated with study variables in a variety of ways for both women (Tables 2.13-2.17) and men (Tables 2.18-2.22). Control variables were included in models if they were correlated with any study variable at the .05 level.

Primary research questions

To answer our primary research questions about associations between magazine reading and involvement and TPB constructs, including attitudes, norms, self-efficacy, knowledge, and intentions, models were tested using structural equation modeling in MPlus (MuthÈn & MuthÈn, 1998-2010). Because many variables had non-normal distributions, the MLR estimator (Asparouhov & Muthén, 2005) was used. This expectation-maximization (EM) based estimator provides a robust chi-square test and correct standard errors under non-normality (Kaplan, 2009) and is a robust full information maximum likelihood estimator. When appropriate, we modeled latent variables with multiple indicators. Other constructs were modeled as latent variables with single indicators; this was accomplished by setting error for these latent variables equal to the variance multiplied by 1 - α (Kline, 2005, p. 229-331). Constructs based on single items as well as knowledge scales and all demographic controls were included as manifest variables. We report the following goodness-of-fit measures provided by MPlus: the comparative fit index (CFI; Bentler, 1990); the Tucker-Lewis index (TLI; Tucker & Lewis, 1973), which is also referred to as the nonnormed fit index (NNFI); as well as the misfit measure known as the root-mean-square error of approximation (RMSEA; Hu & Bentler, 1999). Indications for minimum acceptable fit are provided by fit indices that exceed .90 and RMSEA less than .10. More recently, Hu and Bentler suggested that models with a CFI closer to .96 and RMSEA equal to or less than .06 provide reliable evidence of acceptable fit. Because models were fit with the MLR estimator, the chi-square values reported are Satorra-Bentler scaled (mean-adjusted) chi-square values.

For each safe-sex behavior of interest (condom use, safe sex discussion, and HIV/STI testing), separate models were constructed for women and men. For each gender-behavior combination, three models were constructed. First, an overall model was constructed to test the Theory of Planned Behavior as well as to test attitudes, norms,

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media use as well as other sources of sexual socialization because we were interested in isolating associations with magazine use specifically.

self-efficacy, and knowledge as mediators of the association between levels of magazine reading and safe-sex intentions. Second, a multigroup model was constructed comparing those who had and had not engaged in vaginal intercourse. This model allowed us to see whether the paths within TPB as well as associations between magazine reading and safe sex outcomes differed based on level of sexual experience. Factor loadings, intercepts, and thresholds were held equal across groups in all multigroup analyses to reflect measurement invariance of these parameters (MuthÈn & MuthÈn, 1998-2010). Additionally, we began multigroup analyses with all correlations and directional paths held equal across groups, then tested whether constraints should be released using procedures for difference testing with Satorra-Bentler scaled chi-square values outlined by Satorra and Bentler (1999). Finally, a model looked at the influence of magazine involvement (including magazine identification, sex reading motivation, and friend magazine discussion) on TPB constructs controlling for reading levels. Relevant demographic and media use controls (those shown by initial correlation matrices to be associated with predictors or outcomes) were also included in models, including age, racial/ethnic identity, religiosity, parental education levels, sexual orientation, dating experience, current involvement in a monogamous sexual relationship, subject pool recruited from, study entry week, sexual health information provided by other sources, media use, and reading.[14] We maintained all hypothesized TPB and magazine paths in models regardless of their significance, but demographic paths as well as correlations between outcomes were occasionally dropped (when $p > .40$) or added based on modification indices (the LaGrange Multipliers). For all loadings, paths, and covariances, we report standardized coefficients. When testing for mediation, we report tests of indirect effects with bootstrapped confidence intervals.[15]

Condom use: Women. A model was constructed including women's magazine reading, condom attitudes, condom norms, condom use self-efficacy, condom knowledge, and two measures of intentions: intentions of using condoms in the future and intentions to keep and carry condoms in the future. Prior to constructing a structural model, we

[14] The variety of control variables considered in the current study often resulted in models including a large number of paths. Although we report fully controlled models here, models with only the most important demographic controls as well as uncontrolled models were also tested to assure that path coefficients did not dramatically differ across models.

[15] All confidence intervals reported are bootstrapped 95% confidence intervals with 5,000 iterations.

tested a measurement model with all constructs correlated. This model (Figure 2.1) was a good fit, $\chi^2(37, N = 283) = 39.98$, $p = .27$; CFI = 1.00, TLI = .99, RMSEA = .02. A structural model was then constructed with condom attitudes, norms, self-efficacy, and knowledge predicting intentions. Knowledge was examined as a contributor to intentions directly as well as to self-efficacy in line with hypotheses. Women's magazine reading was examined as a contributor to attitudes, norms, self-efficacy, and knowledge as well as to the intentional outcomes. Important demographic and media use control variables were included (Table 2.24). The overall model (Figure 2.2) was a very good fit for the data, $\chi^2(139, N = 283) = 114.48$, $p = .94$; CFI = 1.00, TLI = 1.04, RMSEA = .00. This model showed support for some but not all aspects of TPB. Specifically, attitudes and efficacy were both positively associated with intentions of keeping and carrying condoms in the future, $\beta = .23$, $p < .001$ and $\beta = .19$, $p < .01$ respectively. Knowledge also positively contributed to intentions to keep and carry condoms, $\beta = .15$, $p < .05$, but norms did not. There was weaker support for TPB in terms of condom use intentions—attitudes and norms had only marginal positive associations with condom use intentions, $\beta = .18$, $p = .06$ and $\beta = .12$, $p = .06$, respectively. Neither efficacy nor knowledge was associated with intentions to use condoms. Contrary to hypotheses, knowledge did not contribute to condom use self-efficacy. As would be expected, condom attitudes, norms, and efficacy were all intercorrelated; however, the two intentional outcomes were not associated. Women's magazine reading marginally predicted condom use self-efficacy, $\beta = .14$, $p = .09$, but was not associated with any other condom use variables. The connection with self-efficacy resulted in a marginal total indirect association with intentions to keep and carry condoms, $\beta = .06$, $p = .07$, $CI_{.95} = -.01, .13$, primarily via efficacy, indicating that efficacy may serve as a mediator of associations between magazine reading and intentions to keep and carry condoms.

Next, a model was constructed comparing women who had previously engaged in vaginal intercourse to those who had not. Prior to testing a multigroup structural model, we assured that the measurement model held for both groups of women. The measurement model was shown to be a good fit for both sexually active women, $\chi^2(37, N = 149) = 35.72$, $p = .53$; CFI = 1.00, TLI = 1.01, RMSEA = .00, and women who had never had intercourse, $\chi^2(37, N = 134) = 37.18$, $p = .46$; CFI = 1.00, TLI = 1.00, RMSEA

= .01. Again, important demographic and media use controls were included (Table 2.24). An initial model with all paths and correlations constrained was a good fit, $\chi^2(291, N = 134{,}149) = 277.72$, $p = .70$; CFI = 1.00, TLI = 1.02, RMSEA = .00. However, releasing two constraints marginally improved the fit, $\chi^2(2) = 5.36$, $p < .10$, suggesting that these paths may differ for the two groups of women. The final model (Figure 2.3) fit the data very well, $\chi^2(289, N = 134{,}149) = 272.36$, $p = .75$; CFI = 1.00, TLI = 1.02, RMSEA = .00. The two paths that differed based on sexual experience were the paths from norms and efficacy to intentions to keep and carry condoms in the future. For sexually active women, efficacy was positively associated with intentions to keep and carry condoms in line with hypotheses, $\beta = .32$, $p < .01$; there was no such association for women who had not engaged in intercourse. In contrast to hypotheses, norms were *negatively* associated with intentions to keep and carry condoms for sexually active women, $\beta = -.20$, $p < .05$; there was again no association for women who had not engaged in intercourse. Thus, for women who had never engaged in intercourse, only attitudes and knowledge were related to intentional variables. For both groups of women, women's magazine reading had a significant, positive association with condom use self-efficacy ($\beta = .15$, $p < .05$ for women who had not engaged in intercourse and $\beta = .19$, $p < .05$ for women who had), in line with hypotheses. Women's magazine reading was not associated with attitudes, norms, knowledge, or intentions for either group of women.

Finally, a model was constructed looking at the associations between three different types of magazine involvement and condom use outcomes. Prior to constructing a structural model, we tested a measurement model with all constructs correlated. This model was a reasonable fit, $\chi^2(47, N = 283) = 81.73$, $p = .001$; CFI = .97, TLI = .94, RMSEA = .05. A structural model was then constructed with magazine identification, sex reading motivation, and friend magazine discussion as predictors of attitudes, norms, knowledge, and intentions. Important demographic and media use controls were included (Table 2.25); women's magazine reading was also included as a control here. The overall model (Figure 2.4) was a very good fit for the data, $\chi^2(168, N = 283) = 167.36$, $p = .50$; CFI = 1.00, TLI = 1.00, RMSEA = .00. However, after accounting for reading levels as a control (not pictured), magazine involvement did not relate to many condom use outcomes. In line with hypotheses, magazine identification was positively associated with

intentions to keep and carry condoms in the future, β = .21, $p < .01$. There were no other paths from any involvement variables to any condom use outcomes.

Condom use: Men. A model was constructed including men's magazine reading, condom attitudes, condom norms, condom use self-efficacy, condom knowledge, and two measures of intentions: intentions of using condoms in the future and intentions to keep and carry condoms in the future. Prior to constructing a structural model, we tested a measurement model with all constructs correlated. This model (Figure 2.5) was a good fit, $\chi^2(37, N = 174) = 28.92$, $p = .83$; CFI = 1.00, TLI = 1.03, RMSEA = .00. A structural model was then constructed with condom attitudes, norms, self-efficacy, and knowledge predicting intentions. Knowledge was examined as a contributor to intentions directly as well as to condom use self-efficacy in line with hypotheses. Men's magazine reading was examined as a contributor to attitudes, norms, self-efficacy, and knowledge as well as to the intentional outcomes. Important demographic and media use control variables were included (Table 2.26). The overall model (Figure 2.6) was a good fit for the data, $\chi^2(123, N = 174) = 121.39$, $p = .52$; CFI = 1.00, TLI = 1.00, RMSEA = .00. This model showed support for some but not all aspects of TPB. Specifically, attitudes contributed positively to condom use intentions, β = .36, $p < .01$, whereas efficacy was marginally associated with intentions, β = .20, $p = .06$. Knowledge was also marginally positively correlated with intentions, β = .12, $p = .08$, while norms were not associated with intentions. Only efficacy was positively associated with intentions of keeping and carrying condoms in the future, β = .33, $p < .01$. In line with hypotheses, knowledge contributed to condom use self-efficacy, β = .23, $p < .01$. In addition to this direct effect, there was a marginal indirect effect of knowledge on intentions to keep and carry condoms, β = .08, $p = .07$, $CI_{.95}$ = -.02, .17. The total effect of knowledge on condom use intentions, a combination of the direct effect and an effect via efficacy, was significant, β = .16, $p < .05$, $CI_{.95}$ = -.03, .28. As would be expected, condom attitudes, norms, and efficacy were all intercorrelated. Additionally, intentions to use condoms and intentions to keep and carry condoms were positively associated for men, β = .31, $p < .01$. Men's magazine reading positively predicted intentions to keep and carry condoms directly, β = .17, $p < .05$, but was not associated with any other condom use variables.

Next, a model was constructed comparing men who had previously engaged in vaginal intercourse to those who had not. Prior to testing a multigroup structural model, we assured that the measurement model held for both groups of men. The measurement model was shown to be a good fit for both sexually active men, $\chi^2(37, N = 95) = 36.12$, $p = .51$; CFI = 1.00, TLI = 1.01, RMSEA = .00, and men who had never had intercourse, $\chi^2(37, N = 77) = 25.63$, $p = .92$; CFI = 1.00, TLI = 1.11, RMSEA = .00. Again, important demographic and media use controls were included (Table 2.27). An initial model with all directional paths constrained was a moderate fit, $\chi^2(343, N = 134{,}149) = 386.81$, $p = .04$; CFI = .93, TLI = .92, RMSEA = .04. However, releasing six constraints significantly improved the fit, $\chi^2(6) = 21.41$, $p < .01$, suggesting that these paths differed for the two groups of men. The final model (Figure 2.7) fit the data reasonably well, $\chi^2(337, N = 134{,}149) = 361.95$, $p = .17$; CFI = .96, TLI = .95, RMSEA = .03. The first three paths that differed based on sexual experience were the paths from men's magazine reading to attitudes, self-efficacy, and intentions to keep and carry condoms. All of these paths were found to be significant for men who had never engaged in intercourse and non-significant for men who had. For men who had never engaged in intercourse, men's magazine reading was positively associated with condom attitudes, $\beta = .34$, $p < .05$, as well as intentions to keep and carry condoms in the future, $\beta = .30$, $p < .05$. Additionally, men's magazine reading was marginally positively associated with condom self-efficacy for these men, $\beta = .35$, $p = .08$. None of these associations existed for sexually active men. Two paths from norms and knowledge to intentions to keep and carry condoms in the future also differed based on sexual experience. For men who had never engaged in intercourse, condom norms were marginally *negatively* associated with intentions to keep and carry condoms, $\beta = -.23$, $p = .06$, contrary to hypotheses. There was no association for sexually active men. Although not significant in either group, the association of knowledge with intentions to keep and carry was *positive* for men who had never engaged in intercourse and *negative* for those who had. A final path that differed based on sexual experience was that between efficacy and condom use intentions. This association was positive and significant for men who had never engaged in intercourse, $\beta = .43$, $p < .001$, but did not exist for sexually active men. This pattern of associations resulted in a significant indirect effect of magazine reading on intentions to keep and

carry condoms for men who had never engaged in intercourse, β = .11, $p < .05$, $CI_{.95}$ = -.04, .25, primarily via efficacy, as well as a significant total effect, β = .40, $p < .05$, $CI_{.95}$ = .07, .74, indicating that efficacy mediated the association between magazine reading and intentions to keep and carry condoms. There was no significant indirect or total effect for sexually active men. Similarly, for men who had never engaged in intercourse, magazine reading had a marginal indirect effect on condom use intentions, β = .19, p = .08, $CI_{.95}$ = -.05, .44, and a marginal total effect on condom use intentions, β = .18, p = .10, $CI_{.95}$ = -.06, .42; there were no such effects for sexually active men. For men who had never engaged in intercourse, knowledge also had a significant indirect effect on condom use intentions, β = .10, $p < .05$, $CI_{.95}$ = -.02, .22, and a marginal indirect effect on intentions to keep and carry condoms, β = .06, p = .08, $CI_{.95}$ = -.02, .14, both via efficacy; these indirect effects contributed to a significant total effect of knowledge on condom use intentions, β = .20, $p < .01$, $CI_{.95}$ = .04, .35, and a marginal total effect of knowledge on intentions to keep and carry, β = .23, p = .06, $CI_{.95}$ = -.02, .48. Only the marginal indirect effect of knowledge on intentions to keep and carry existed for sexually active men, β = .11, p = .06, $CI_{.95}$ = -.03, .25. There were no associations between reading and norms or knowledge for either group of men.

Finally, a model was constructed looking at the associations between three different types of magazine involvement and condom use outcomes. Prior to constructing a structural model, we tested a measurement model with all constructs correlated. This model was a reasonable fit, $\chi^2(47, N = 174) = 61.44$, p = .08; CFI = .97, TLI = .95, RMSEA = .04. A structural model was then constructed with magazine identification, sex reading motivation, and friend magazine discussion as predictors of attitudes, norms, knowledge, and intentions. Important demographic and media use controls were included (Table 2.28); men's magazine reading was also included as a control here. The overall model (Figure 2.8) was a good fit for the data, $\chi^2(142, N = 174) = 163.61$, p = .10; CFI = .97, TLI = .95, RMSEA = .03. In line with hypotheses, after accounting for reading levels, friend magazine discussion was positively associated with condom attitudes, β = .18, $p < .05$. This resulted in a marginal positive indirect effect of friend magazine discussion on condom use intentions via attitudes, β = .07, p = .08, $CI_{.95}$ = -.02, .15, indicating attitudes may serve as a mediator of associations between friend discussion

and condom use intentions. However, friend magazine discussion was also *negatively* associated with intentions to keep and carry condoms in the future, β = -.20, $p < .05$, contrary to our hypothesis. Magazine identification was marginally negatively associated with condom attitudes, β = -.19, $p = .08$, also contrary to our hypothesis. This negative association with attitudes resulted in significant negative indirect effects of magazine identification on condom use intent, β = -.11, $p < .05$, $CI_{.95}$ = -.22, .00, as well as intentions to keep and carry condoms, β = -.11, $p < .05$, $CI_{.95}$ = -.23, .01, both primarily via attitudes. There was a significant negative total effect of magazine identification on condom use intentions, β = -.24, $p < .01$, $CI_{.95}$ = -.40, -.08, but not on intentions to keep and carry condoms. There were no other paths from any involvement variables to any condom use outcomes.

Safe sex discussion: Women. A model was constructed including women's magazine reading, safe sex discussion attitudes, safe sex discussion norms, negotiation self-efficacy, general sexual health knowledge, and two measures of intentions: probability of discussion with future partners and intentions of discussing safe sex thoroughly with future partners. Prior to constructing a structural model, we tested a measurement model with all constructs correlated. This model (Figure 2.9) was a good fit, $\chi^2(28, N = 283) = 27.87$, $p = .47$; CFI = 1.00, TLI = 1.00, RMSEA = .00. A structural model was then constructed with attitudes, norms, self-efficacy, and knowledge predicting intentions. Knowledge was originally examined as a contributor to intentions directly as well as to negotiation self-efficacy in line with hypotheses, but modification indices suggested it should be examined as a contributor to attitudes as well. Women's magazine reading was examined as a contributor to attitudes, norms, self-efficacy, and knowledge as well as to the intentional outcomes. Important demographic and media use control variables were included (Table 2.29). The overall model (Figure 2.10) was a good fit for the data, $\chi^2(129, N = 283) = 124.31$, $p = .60$; CFI = 1.00, TLI = 1.01, RMSEA = .00. This model showed support for some but not all aspects of TPB. Specifically, attitudes and self-efficacy both contributed positively to probability of discussion, β = .31, $p < .001$, and β = .26, $p < .01$, respectively. Knowledge was also positively associated with probability of discussion, β = .16, $p < .05$, but norms were not. Only knowledge positively predicted intentions of discussing safe sex thoroughly, β = .18, $p <$

.05; attitudes, norms, and self-efficacy were not significantly associated with this outcome, suggesting TPB constructs failed to explain this type of intention. Knowledge was marginally positively correlated with discussion attitudes, $\beta = .13$, $p = .08$, but was not associated with efficacy. Magazine reading was not associated with any safe sex discussion variables.

Next, a model was constructed comparing women who had previously engaged in vaginal intercourse to those who had not. Prior to testing a multigroup structural model, we assured that the measurement model held for both groups of women. The measurement model was shown to be a reasonable fit for both sexually active women, $\chi^2(28, N = 149) = 25.37$, $p = .61$; CFI = 1.00, TLI = 1.02, RMSEA = .00, and women who had never had intercourse, $\chi^2(28, N = 134) = 18.98$, $p = .90$; CFI = 1.00, TLI = 1.07, RMSEA = .00. Again, important demographic and media use controls were included (Table 2.30). An initial model with all directional paths constrained was a good fit, $\chi^2(264, N = 134{,}149) = 271.13$, $p = .37$; CFI = .99, TLI = .99, RMSEA = .01. However, releasing three constraints significantly improved the fit, $\chi^2(3) = 21.84$, $p < .001$, suggesting that these paths differed for the two groups of women. The final model (Figure 2.11) fit the data very well, $\chi^2(261, N = 134{,}149) = 252.57$, $p = .63$; CFI = 1.00, TLI = 1.02, RMSEA = .00. The first path that differed based on sexual experience was the path from knowledge to attitudes. There was a significant positive association between knowledge and attitudes for sexually active women, $\beta = .25$, $p < .01$, but not for those women who had not engaged in intercourse. The directional paths from attitudes and self-efficacy to probability of discussion also differed based on sexual experience. For sexually active women, there was a strong, positive association between efficacy and probability of discussion, $\beta = .58$, $p < .001$; there was no significant association for women who had never engaged in intercourse. In contrast, attitudes had a strong, positive association with probability of discussion for women who had not engaged in intercourse, $\beta = .46$, $p < .001$; there was no such association for sexually experienced women. Once again, there were no significant paths from magazine reading to any outcomes.

Finally, a model was constructed looking at the associations between three different types of magazine involvement and safe sex discussion outcomes. Prior to constructing a structural model, we tested a measurement model with all constructs

correlated. This model was a good fit, $\chi^2(36, N = 283) = 33.59$, $p = .58$; CFI = 1.00, TLI = 1.01, RMSEA = .00. A structural model was then constructed with magazine identification, sex reading motivation, and friend magazine discussion as predictors of attitudes, norms, knowledge, and intentions. Important demographic and media use controls were included (Table 2.31); women's magazine reading was also included as a control here. The overall model (Figure 2.12) was a good fit for the data, $\chi^2(157, N = 283) = 149.24$, $p = .66$; CFI = 1.00, TLI = 1.01, RMSEA = .00. Contrary to our hypothesis, this model showed that friend magazine discussion was *negatively* related to general sexual health knowledge, $\beta = -.14$, $p < .05$. Controlling for reading, there were no other associations between involvement variables and safe sex discussion outcomes.

Safe-sex discussion: Men. A model was constructed including men's magazine reading, safe sex discussion attitudes, safe sex discussion norms, negotiation self-efficacy, general sexual health knowledge, and two measures of intentions: probability of discussion with future partners and intentions of discussing safe sex thoroughly with future partners. Prior to constructing a structural model, we tested a measurement model with all constructs correlated. This model (Figure 2.13) was a good fit, $\chi^2(19, N = 174) = 20.48$, $p = .37$; CFI = .99, TLI = .99, RMSEA = .02. A structural model was then constructed with attitudes, norms, self-efficacy, and knowledge predicting intentions. Knowledge was originally examined as a contributor to intentions directly as well as to negotiation self-efficacy in line with hypotheses. Modification indices instead suggested it should also be examined as a contributor to attitudes. Men's magazine reading was examined as a contributor to attitudes, norms, self-efficacy, and knowledge as well as to the intentional outcomes. Important demographic and media use control variables were included (Table 2.32). The overall model (Figure 2.14) was a good fit for the data, $\chi^2(66, N = 174) = 73.62$, $p = .24$; CFI = .98, TLI = .97, RMSEA = .03. This model showed support for some but not all aspects of TPB. Specifically, attitudes and norms contributed positively to discussion intention, $\beta = .35$, $p < .05$ and $\beta = .17$, $p < .05$, respectively. Neither self-efficacy nor knowledge contributed to discussion intention. Only efficacy positively predicted probability of discussion, $\beta = .41$, $p < .001$; attitudes, norms, and knowledge did not. As hypothesized, knowledge was positively associated with self-efficacy, $\beta = .50$, $p < .001$. Additionally, knowledge was positively associated with

discussion attitudes, β = .29, $p < .01$. Knowledge was also shown to have a significant indirect effect on probability of discussion, β = .26, $p < .001$, $CI_{.95}$ = .10, .41, primarily via self-efficacy, β = .21, $p < .01$, $CI_{.95}$ = .05, .20, indicating that self-efficacy mediated associations between knowledge and probability of discussion in line with hypotheses. This resulted in a significant total effect of knowledge on probability of discussion, β = .26, $p < .01$, $CI_{.95}$ = .08, .45. Although both attitudes and norms were associated with efficacy, the two were not associated with one another. As anticipated, the two intentional outcomes were associated, β = .28, $p < .05$. Men's magazine reading positively predicted negotiation self-efficacy, β = .23, $p < .01$, but was not associated with any other discussion variables. The association between men's magazine reading and efficacy resulted in a significant indirect effect of magazine reading on probability of discussion via efficacy, β = .09, $p < .05$, $CI_{.95}$ = -.01, .19, indicating that negotiation self-efficacy mediates associations between magazine reading and probability of discussion.

Next, a model was constructed comparing men who had previously engaged in vaginal intercourse to those who had not. Prior to testing a multigroup structural model, we assured that the measurement model held for both groups of men. The measurement model was shown to be a reasonable fit for both sexually active men, $\chi^2(11, N = 95) = 10.71$, $p = .47$; CFI = 1.00, TLI = 1.01, RMSEA = .00, and men who had never had intercourse, $\chi^2(11, N = 77) = 15.52$, $p = .16$; CFI = .96, TLI = .87, RMSEA = .07. Again, important demographic and media use controls were included (Table 2.33). An initial model with all directional paths constrained was a good fit, $\chi^2(215, N = 77,95) = 218.23$, $p = .43$; CFI = .99, TLI = .99, RMSEA = .01. However, releasing four constraints significantly improved the fit, $\chi^2(4) = 12.22$, $p < .05$, suggesting that these paths differed for the two groups of men. The final model (Figure 2.15) fit the data very well, $\chi^2(211, N = 77,95) = 206.00$, $p = .58$; CFI = 1.00, TLI = 1.02, RMSEA = .00. The first path that differed based on sexual experience was the path from men's magazine reading to self-efficacy. This association was strong and positive for men who had never engaged in intercourse, β = .32, $p < .05$, but not for sexually active men. This also resulted in a marginally significant indirect effect of magazine reading on probability of discussion for men who had never engaged in intercourse, β = .10, $p = .10$, $CI_{.95}$ = -.03, .28; there was no indirect effect for sexually active men. The path from magazine reading to attitudes

also differed for the two groups. Although not significant for either group, the path was negative for men who had never engaged in intercourse, β = -.21, p = .18, and very near zero for sexually active men, β = .02, p = .94. A third difference based on sexual experience was in the correlation between norms and efficacy. The two were correlated for men who had never had intercourse, β = .34, p < .01, but not for sexually active men. Finally, the association between norms and probability of discussion differed based on sexual experience: it was positive for men who had never engaged in intercourse, β = .23, p < .10, and not significant for sexually active men.

Finally, a model was constructed looking at the associations between three different types of magazine involvement and safe sex discussion outcomes. Prior to constructing a structural model, we tested a measurement model with all constructs correlated. This model was a reasonable fit, $\chi^2(25, N = 174) = 32.78$, p = .14; CFI = .98, TLI = .94, RMSEA = .04. A structural model was then constructed with magazine identification, sex reading motivation, and friend magazine discussion as predictors of attitudes, norms, self-efficacy, knowledge, and intentions. Important demographic and media use controls were included (Table 2.34); men's magazine reading was also included as a control here. The overall model (Figure 2.16) was a good fit for the data, $\chi^2(97, N = 174) = 111.62$, p = .15; CFI = .97, TLI = .95, RMSEA = .03. In line with hypotheses, friend discussion was positively associated with discussion attitudes, β = .19, p < .05, and marginally positively associated with negotiation self-efficacy, β = .14, p = .09. This resulted in a positive total indirect effect of friend discussion on probability of discussion, β = .11, p < .05, $CI_{.95}$ = -.14, .35.[16] However, contrary to hypotheses, magazine identification was negatively associated with both negotiation self-efficacy, β = -.21, p < .01, and sexual health knowledge, β = -.20, p < .01. These associations resulted in a significant total indirect effect of magazine identification on probability of discussion, β = -.14, p < .01, $CI_{.95}$ = -.86, -.08, via both efficacy directly, β = -.08, p < .05, $CI_{.95}$ = -.55, -.04, and knowledge and efficacy, β = -.04, p = .06, $CI_{.95}$ = -.28, -.02. There was also a significant total negative effect of magazine identification on probability of discussion, β = -.20, p < .05, $CI_{.95}$ = -1.14, -.04.

[16] Prior to standardization, $CI_{.95}$ = .03, .64.

HIV/STI testing: Women. A model was constructed including women's magazine reading, HIV testing attitudes, HIV/STI testing norms, HIV/STI knowledge, and two measures of intentions: probability of getting tested for HIV and STIs in the next six months and probability of asking future partners to get tested. We did not measure HIV/STI testing self-efficacy and thus were unable to include a measure of efficacy in testing models. Prior to constructing a structural model, we tested a measurement model with all constructs correlated. This model (Figure 2.17) was a good fit, $\chi^2(4, N = 283) = 1.38$, $p = .96$; CFI = 1.00, TLI = 1.05, RMSEA = .00. A structural model was then constructed with HIV testing attitudes and norms and HIV/STI knowledge predicting intentions. Knowledge was examined as a direct contributor to intentions, but an indirect path via attitudes was also included based on modification indices. Women's magazine reading was examined as a contributor to attitudes, norms, and knowledge as well as to the intentional outcomes. Important demographic and media use controls were included (Table 2.35). The overall model (Figure 2.18) was a good fit for the data, $\chi^2(30, N = 283) = 27.50$, $p = .60$; CFI = 1.00, TLI = 1.01, RMSEA = .00. This model showed support for some but not all aspects of TPB. Specifically, attitudes were positively associated with probability of testing, $\beta = .28$, $p < .001$, but norms were not. Attitudes and norms were both positively associated with probability of asking partners to test, $\beta = .13$, $p < .05$ and $\beta = .28$, $p < .001$, respectively. Knowledge was not directly associated with either intentional outcome, but was a positive contributor to attitudes, $\beta = .16$, $p < .01$. In addition to significant direct paths, this model showed a significant indirect effect of knowledge on probability of testing via attitudes, $\beta = .05$, $p < .05$, $CI_{.95} = .01, .08$; there was also a marginally significant indirect effect of knowledge on probability of asking future partners to test, $\beta = .02$, $p = .09$, $CI_{.95} = -.01, .05$. Magazine reading was unrelated to attitudes, norms, and knowledge, but was marginally directly associated with probability of testing, $\beta = .16$, $p = .07$, such that women who read more women's magazines indicated a greater probability of getting tested for STIs and HIV in the near future.

A model was constructed comparing women who had previously engaged in vaginal intercourse to those who had not. Prior to testing a multigroup structural model, we assured that the measurement model held for both groups of women. The

measurement model was shown to be a reasonable fit for both sexually active women, $\chi^2(4, N = 149) = 4.412$, $p = .35$; CFI = 1.00, TLI = .98, RMSEA = .03, and women who had never had intercourse, $\chi^2(4, N = 134) = .69$, $p = .95$; CFI = 1.00, TLI = 1.15, RMSEA = .00. Again, important demographic and media use controls were included (Table 2.36). An initial model with all directional paths constrained was a good fit, $\chi^2(151, N = 134{,}149) = 158.71$, $p = .32$; CFI = .98, TLI = .98, RMSEA = .02. However, releasing the constraint on the path from attitudes to probability of testing marginally improved the fit, $\chi^2(1) = 3.57$, $p < .10$, suggesting that this path might differ for the two groups of women. No other paths significantly differed. The final model (Figure 2.19) fit the data well, $\chi^2(150, N = 134{,}149) = 154.74$, $p = .38$; CFI = .99, TLI = .99, RMSEA = .02. As compared to the overall model, this model showed that attitudes were a stronger contributor to probability of testing for sexually active women, $\beta = .38$, $p < .001$, than they were for women who had never engaged in intercourse, $\beta = .29$, $p < .05$. As a result, there was a significant indirect effect of knowledge on probability of testing via attitudes only for sexually active women, $\beta = .06$, $p < .01$, $CI_{.95} = .01, .12$. This model showed no significant paths from magazine reading to any outcomes for either group of women.

Finally, a model was constructed looking at the associations between three different types of magazine involvement and HIV/STI testing outcomes. Prior to constructing a structural model, we tested a measurement model with all constructs correlated. This model was a good fit, $\chi^2(6, N = 283) = 3.93$, $p = .69$; CFI = 1.00, TLI = 1.03, RMSEA = .00. A structural model was then constructed with magazine identification, sex reading motivation, and friend magazine discussion as predictors of attitudes, norms, knowledge, and intentions. Important demographic and media use controls were included (Table 2.37); women's magazine reading was also included as a control here. The overall model (Figure 2.20) was a good fit for the data, $\chi^2(73, N = 283) = 64.33$, $p = .76$; CFI = 1.00, TLI = 1.02, RMSEA = .00. In line with hypotheses, friend discussion was positively associated with probability of asking partners to test, $\beta = .15$, $p < .05$. However, all other significant paths were contrary to hypotheses. Magazine identification was negatively associated with probability of asking future partners to test, $\beta = -.25$, $p < .001$, whereas friend discussion was negatively associated with testing norms, $\beta = -.13$, $p < .05$. Additionally, sex reading motivation was marginally negatively

associated with testing attitudes, β = -.14, $p < .10$. The two contrasting paths from friend discussion to norms and probability of asking partners to test resulted in a marginally positive total effect of friend discussion on probability of asking partners to test, β = .12, $p = .08$, $CI_{.95}$ = -.02, .26.[17]

HIV/STI testing: Men. A model was constructed including men's magazine reading, HIV testing attitudes, HIV/STI testing norms, HIV/STI knowledge, and two measures of intentions: probability of getting tested for HIV and STIs in the next six months and probability of asking future partners to get tested. We did not measure HIV/STI testing self-efficacy and thus were unable to include a measure of efficacy in testing models. Prior to constructing a structural model, we tested a measurement model with all constructs correlated. This model (Figure 2.21) was a good fit, $\chi^2(10, N = 174) = 8.90$, $p = .54$; CFI = 1.00, TLI = 1.01, RMSEA = .00. A structural model was then constructed with testing attitudes and norms and HIV/STI knowledge predicting intentions. Knowledge was examined as a direct contributor to intentions, but an indirect path via norms was also included based on modification indices. Men's magazine reading was examined as a contributor to attitudes, norms, and knowledge as well as to the intentional outcomes. Important demographic and media use controls were included (Table 2.38). The overall model (Figure 2.22) was a good fit for the data, $\chi^2(49, N = 174) = 49.34$, $p = .46$; CFI = 1.00, TLI = 1.01, RMSEA = .01. This model showed only limited support of TPB. Specifically, norms were positively associated with probability of asking partners to test, β = .36, $p < .001$, but attitudes and knowledge were not. There were no associations between attitudes, norms, or knowledge and probability of testing, suggesting TPB was not supported for HIV/STI testing in this population. Contrary to hypotheses, knowledge *negatively* contributed to norms, β = -.29, $p < .001$. This resulted in a significant negative indirect effect of knowledge on probability of asking partners to test via norms, β = -.11, $p < .01$, $CI_{.95}$ = -.18, -.03. However, there was no significant total effect of knowledge on probability of asking partners to test, indicating that direct effects cancelled out this negative indirect effect. Attitudes and norms were not associated with one another, but probability of testing and probability of asking partners to test were, β =

[17] Friend discussion had a significant indirect effect on probability of asking partners to test via norms, β = -.04, $p < .05$, $CI_{.95}$ = -.08, .00.

.34, $p < .001$. Men's magazine reading did not contribute to attitudes, norms, or knowledge, but was a marginal positive predictor of probability of testing, $\beta = .19$, $p = .08$. Between this direct effect and indirect effects, there was a significant total effect of men's magazine reading on probability of testing, $\beta = .20$, $p < .05$, $CI_{.95} = -.01, .41$.

Next, a model was constructed comparing men who had previously engaged in vaginal intercourse to those who had not. Prior to testing a multigroup structural model, we assured that the measurement model held for both groups of men. The measurement model was shown to be a good fit for sexually active men, $\chi^2(10, N = 95) = 3.98$, $p = .95$; CFI = 1.00, TLI = 1.11, RMSEA = .00, and a reasonable fit for men who had never had intercourse, $\chi^2(4, N = 77) = 15.07$, $p = .13$; CFI = .95, TLI = .87, RMSEA = .08. Again, important demographic and media use controls were included (Table 2.39). An initial model with all directional paths constrained was a good fit, $\chi^2(137, N = 77,95) = 142.90$, $p = .35$; CFI = 1.00, TLI = .98, RMSEA = .02. However, releasing four constraints significantly improved the fit, $\chi^2(4) = 23.23$, $p < .001$, suggesting that these paths differed for the two groups of men. The final model (Figure 2.23) fit the data very well, $\chi^2(133, N = 77,95) = 125.03$, $p = .68$; CFI = 1.00, TLI = 1.03, RMSEA = .00. The first path that differed based on sexual experience was the path from knowledge to norms. There was a significant negative association between STI/HIV knowledge and testing norms for sexually active men, $\beta = -.36$, $p < .001$, but not for men who had never engaged in intercourse. This resulted in a significant indirect effect of knowledge on probability of asking partners to test for sexually active men, $\beta = -.15$, $p < .01$, $CI_{.95} = -.25, -.03$; however, as was true for the entire sample, there was no total effect of knowledge on probability of asking partners to test. There were also differences in the correlations between attitudes and norms and between probability of testing and probability of asking partners to test. The correlation between attitudes and norms was significant for men who had never engaged in intercourse, $\beta = .38$, $p < .01$, but not for sexually active men. The association between probability of testing and probability of asking partners to test was stronger for sexually active men, $\beta = .39$, $p < .01$, than it was for those who had not engaged in intercourse, $\beta = .36$, $p < .05$, although it was positive and significant for both groups of men. Finally, the strength of the path from attitudes to probability of testing differed based on sexual experience, although it was not significant for either group. This

path was closer to significance for sexually active men, β = .18, p = .11, than for men who had never engaged in intercourse, β = -.08, p = .56. Men's magazine reading continued to predict probability of testing, β = .26, p = .07 for men who had never engaged in intercourse and β = .17, p = .08 for sexually active men, but did not predict any other testing variables.

Finally, a model was constructed looking at the associations between three different types of magazine involvement and HIV/STI testing outcomes. Prior to constructing a structural model, we tested a measurement model with all constructs correlated. This model was a reasonable fit, $\chi^2(14, N = 174) = 22.17$, p = .08; CFI = .98, TLI = .92, RMSEA = .06. A structural model was then constructed with magazine identification, sex reading motivation, and friend magazine discussion as predictors of attitudes, norms, knowledge, and intentions. Important demographic and media use controls were included (Table 2.40); men's magazine reading was also included as a control here. The overall model (Figure 2.24) was a reasonable fit for the data, $\chi^2(75, N = 174) = 89.37$, p = .12; CFI = .97, TLI = .94, RMSEA = .03. In line with hypotheses, sex reading motivation was positively associated with testing norms, β = .22, p < .01. There was also a significant indirect effect of sex reading motivation on probability of asking future partners to test via norms, β = .08, p < .01, $CI_{.95}$ = .02, .14, indicating the effect of sex reading motivation on probability of asking partners to test was fully mediated by testing norms. However, magazine identification was *negatively* associated with levels of STI/HIV knowledge, β = -.20, p < .05. Interestingly, given the negative association between knowledge and norms for men, this resulted in a *positive* indirect effect of magazine identification on testing norms via knowledge, β = .06, p < .05, $CI_{.95}$ = .00, .11, indicating that knowledge mediated associations between magazine identification and testing norms. There were no other associations between involvement variables and testing outcomes.

Discussion

This study sought to examine the associations between mainstream magazine use and first-year college students' safe sex outcomes using the Theory of Planned Behavior (Ajzen & Madden, 1986; Ajzen, 1991). Specifically, we examined connections between women's and men's magazine reading and involvement and women's and men's

attitudes, norms, self-efficacy, knowledge, and intentions in the arenas of condom use, safe sex discussion, and HIV/STI testing. Results showed a variety of associations between both reading and involvement and safe sex outcomes, especially for men and for young people who had not yet engaged in intercourse. Although all magazine reading effects were in the hypothesized direction, with reading associated with more positive outcomes, involvement had more complex connections with safe sex outcomes. Additionally, there were fewer associations between magazine use and outcomes than anticipated based on previous research (Walsh & Ward, 2009), perhaps indicating unique features of the current sample or the specific outcomes examined.

Magazine use and safe sex attitudes, norms, efficacy, knowledge, and intentions

There were a number of associations between reading and outcomes in line with our hypotheses. Women who read more women's magazines reported higher levels of condom use self-efficacy and marginally greater probability of getting tested for HIV and STIs in the near future. Men who read more men's magazines reported greater intentions to keep and carry condoms in the future, higher levels of negotiation self-efficacy, and marginally greater probability of getting tested for HIV and STIs in the future. Additionally, men who had never had intercourse had more positive condom attitudes and marginally higher levels of condom use self-efficacy when they read more men's magazines. Also in line with hypotheses, condom use self-efficacy mediated associations between magazine reading and condom use intentions for women and magazine reading and intentions to keep and carry condoms for men who had never had intercourse. Additionally, negotiation self-efficacy mediated associations between men's magazine reading and probability of discussion for men. In the case of men, there were more associations between reading and safe-sex outcomes for those who had never had sexual intercourse. Indeed, previous research has shown past safe sex behavior to be a strong predictor of future safe sex attitudes, norms, self-efficacy, intentions, and behavior (Godin et al., 2005; Reinecke et al., 1996; Rise, 1992; Sheeran & Taylor, 1999; Sutton, 1994), so it makes sense that those with little past experience might be more open to influence from the media.

These associations are encouraging, as is the lack of negative associations: magazine reading was not significantly negatively associated with any condom use, safe-

sex discussion, or HIV/STI testing variables for either women or men. In contrast, other media use, used as a control, was frequently negatively associated with condom use, safe sex discussion, and STI/HIV testing outcomes. However, previous research (Walsh & Ward, 2009) had led us to anticipate a larger number of associations, especially for women. Notably, reading was not associated with knowledge or norms for any group of participants or any category of safe-sex behavior. There are several potential reasons for this. First, our sample was younger than samples used in previous research. We chose to focus on first-year college students because we believed that media influence might be especially important in influencing safe sex attitudes, norms, and self-efficacy during the transition to college. We also anticipated that young people with less sexual experience of their own might be more shaped by media portrayals, which was supported by our findings showing more associations for men who had never had intercourse. However, it is possible that young people who have just left home are still quite close to socialization messages coming from their parents as well as from their high school sexual education classes. Indeed, this sample of new college students showed fairly high levels of sexual health knowledge overall (answering an additional four questions correctly in comparison to previous college samples, Walsh & Ward, 2009), and levels of knowledge were negatively correlated with week of entry into the study, $r(445) = -.10$, $p < .05$[18], potentially indicating that sexual health knowledge is high immediately after leaving high school but then fades. It is also possible that first-year college students receive sex education as part of their college orientation activities, temporarily increasing knowledge and awareness. If other socialization sources exert more influence early in college than later, this may serve as one explanation for the reduced number of magazine associations in this study.

A second potential explanation for the moderate number of associations in the current study is the large number of control variables included in our models. We controlled not only for important demographics, but for other forms of media use, socialization from other sources, and current involvement in a monogamous relationship. A particularly important demographic control in the current study was level of dating

[18] This partial correlation controls for other important demographics, including sex, subject pool, parental education, religiosity, and Asian ethnicity, given that these features might also have varied with week of entry.

experience. This variable was associated with both magazine reading and with many safe-sex outcomes; accounting for it minimized many magazine-safe sex associations. That a number of connections between magazine reading and outcomes remained even when accounting for so many other potential explanations is notable.

In addition to investigating the role of magazine reading, the current study investigated three types of magazine involvement: magazine identification, sex reading motivation, and friend magazine discussion. We hypothesized that, like reading, magazine involvement would be positively associated with safe sex outcomes. Indeed, this was shown to be the case some of the time: for women, magazine identification was positively associated with intentions to keep and carry condoms in the future, and friend magazine discussion was related to greater perceived probability of asking future partners to get tested for STIs and HIV. For men, friend magazine discussion was positively associated with condom attitudes, safe sex discussion attitudes, and negotiation self-efficacy, and greater sex reading motivation was related to more positive HIV/STI testing norms. However, a number of involvement associations went the other direction. Women's friend magazine discussion was negatively associated with their general sexual health knowledge and their HIV/STI testing norms, and identifying with magazines was negatively associated with probability of asking partners to get tested for HIV and STIs. Additionally, women with greater sex reading motivation reported marginally more negative HIV testing attitudes. Men who identified more strongly with men's magazines reported marginally more negative condom attitudes and lower levels of negotiation efficacy; they also had lower levels of general sexual health and STI/HIV knowledge. Finally, friend magazine discussion was negatively associated with intentions to keep and carry condoms in the future for men.

This complex pattern of associations makes the role of involvement difficult to generalize, especially for women. There seemed to be no consistent pattern of associations for women, with both identification and friend magazine discussion having both positive and negative effects. For men, friend magazine discussion was generally positive in its association with safe-sex outcomes, whereas identification was generally negative. Notably, involvement models controlled for reading levels, which were highly correlated with involvement—as would be anticipated, those who read more women's

and men's magazines identified more strongly with them, had stronger motivation to read for sex information (which is prevalent in these publications), and discussed these magazines more with their friends. Factoring out the influence of reading itself (which was found to be consistently positive), the involvement we examined can be thought of as the portion not consistent with reading levels. This procedure, which differed from previous research, helps to explain the variety of negative effects. For example, some level of identification comes naturally with the reading of men's magazines (as evidenced by the correlation between the two). However, interestingly, even those who reported no reading of men's magazines in the past year sometimes reported identifying with these magazines (e.g., 20.3% of men who had not read a single men's magazine in the past year were above the midpoint of the scale). If "excess" identification with men's magazines was due to perceiving similarity based on stereotypes rather than on exposure to actual content, this may have resulted in the negative associations with attitudes, efficacy, and knowledge detailed. In contrast, friend discussion of magazine content might inform even those who do not read themselves of some of the healthier messages contained in these magazines, contributing to the primarily positive associations with attitudes and efficacy for men. Ideally, future studies could aim for large sample sizes that would allow the consideration of readers alone when examining involvement. Additionally, future work should address better ways to handle reading and involvement simultaneously, considering the complex relationship between them and possible interaction effects, which are difficult to model in SEM when constructs are highly correlated. Experiments could also attempt to manipulate involvement to avoid some of the problems with the natural positive relationship between it and reading.

Contributions to the Theory of Planned Behavior

In addition to findings related to magazine reading and involvement, this study contributed to our knowledge of the Theory of Planned Behavior by looking at a variety of safe-sex behaviors rather than only condom use, by comparing the theory's paths for those who have and have not engaged in vaginal intercourse, and by examining the contributions of knowledge to theory constructs of attitudes, norms, and self-efficacy. Although in general we found support for the theory's hypothesized paths, many paths were not as strong or as consistent as we might have hypothesized based on past research

(Sheeran et al., 1999). Condom use intentions were primarily predicted by condom attitudes for both women and men, whereas intentions to keep and carry condoms in the future were predicted by attitudes, efficacy, and knowledge for women and primarily by efficacy for men. Probability of discussing safe sex with future partners was associated with attitudes, efficacy, and knowledge for women, but primarily with efficacy for men. In contrast, intentions of discussing safe sex *thoroughly* were predicted primarily by knowledge for women but by attitudes and norms for men. Finally, probability of testing for STIs and HIV was positively associated with attitudes for women, but not associated with any TPB constructs for men, whereas probability of asking future partners to get tested was associated with norms for both men and women.

From this pattern of associations, several important points can be made. First, it seems clear that not all TPB constructs are important for all safe sex intentions in this population. Although attitudes, norms, and self-efficacy were all associated with some intentional outcomes, none was associated with all outcomes. Second, women's and men's intentions often seem to relate to different TPB constructs, possibly indicating different decision-making paths based on gender in the heterosexual relationship context (in line with Munoz-Silva, Sanchez-Garcia, Nunes, & Martins, 2007). Third, perceived peer norms were rarely associated with intentional outcomes despite their role in TPB, and occasionally were *negatively* associated with intentions. Participants in this study were asked about their perceptions of other college students, but as early first year students, it is possible they had not yet developed clear perceptions or that these norms had not yet had time to shape them. Fourth, although not included in TPB, knowledge was shown to be frequently associated with intentions, especially for women. Additionally, it often had indirect associations with intentional outcomes via efficacy, as hypothesized. This finding is in line with previous research identifying links between knowledge and condom use (Ryan, Franzetta, & Manlove, 2007) as well as safe-sex discussion (Ryan, Franzetta, Manlove, & Holcombe, 2007), but is contrary to studies finding little or no role for knowledge (e.g., Winslow, Franzini, & Hwang, 1992).

A fifth observation from our analysis of TPB is that attitudes were more frequently associated with intentional outcomes for women than for men, with the exception being discussion intentions. This finding is in line with some previous research

showing attitudes were more predictive of intentions for women whereas norms and efficacy mattered more for men (Munoz-Silva et al., 2007), but conflicts with studies suggesting that attitudes exert more influence on men while norms are more predictive for women (Baker, Morrison, Carter, & Verdon, 1996). Finally, although we found more similarities than differences when comparing TPB for those who had and had not engaged in vaginal intercourse, our models demonstrated some interesting differences in the associations between efficacy and intentions based on sexual experience. Specifically, efficacy was more commonly associated with intentions for those women who had engaged in intercourse than for those who had not, possibly because self-efficacy is more immediately relevant to sexually active women, who have been in situations where knowing how to use a condom or how to negotiate may have been necessary. In contrast, women who have not engaged in intercourse may view themselves as having plenty of time to develop necessary condom use and negotiation skills prior to engaging in sex, and thus might not modify their future intentions based on how efficacious they currently feel. (Interestingly, the opposite pattern held for men.)

Limitations and future directions

The current study thus contributes to our knowledge of how magazine use relates to safe-sex outcomes and of how TPB functions in a young undergraduate population. However, there were several weaknesses of this study that can be improved upon in future research. First, the current study utilized online data collection. Although this has become a common method of collecting large amounts of data, online collection likely contributed to the relatively large number of unusable records in our data. Our screening was intended to improve data quality, but it is still possible that these data are not as reliable as data collected under supervision in a lab. Participants may have been distracted when filling out our survey and may also have been more tempted to lie given their lack of contact with any researchers. Related to this, data screening resulted in a smaller sample size than desired considering our complex models and large number of control variables. Future research should work to improve the quality and screening of online data, given the potential for this method of collection to yield large and diverse samples. Additionally, models developed in this study should be confirmed with different samples.

A second weakness of the current study is that a number of the safe-sex measures had very high or very low average scores, resulting in reduced variability. Participants in our sample had very positive condom attitudes, very high levels of efficacy, and very high condom use and discussion intentions. In contrast, very few participants thought there was any chance they would get tested for HIV or STIs. In modeling, we used an estimator that accounted for non-normality and were able to find associations despite the low variance, but future studies should consider alternative measures. Interestingly, we made use of measures evaluated to be some of the best in the field (e.g., Basen-Engquist et al., 1992, 1999), but these measures may not be the best-suited for a young college population. A final weakness of the current study is that, despite its size, the sample was not particularly diverse in terms of ethnicity, and all participants were college students. However, data were collected from two different universities with different enrollment numbers, locations, and student body compositions, contributing to socioeconomic and geographic diversity. Despite the fact that both were four-year schools located in the Midwest, we located a number of significant differences between the students from the two schools in terms of demographics, media use, sexual behavior, and safe-sex behavior, which emphasizes the importance of diversifying samples. Despite the difficulty of doing so, future studies should strive to include noncollege youth, as risk behavior may differ for those who do and do not attend college (Bailey, Fleming, Henson, Catalano, & Haggerty, 2008).

In addition to previous suggestions, future research with larger samples might attempt to consider these different safe-sex behaviors in the same model. Although condom use, safe sex discussion, and HIV/STI testing can all contribute to sexual health, zero-order correlations showed the three types of behavior to be fairly distinct, and we have little information on how attitudes, norms, self-efficacy, and intentions regarding one category of behavior may contribute to the others. For example, do intentions to use condoms decrease intentions to get tested for HIV/STI? Do positive attitudes regarding HIV/STI testing decrease condom use? Although we might anticipate positive connections between TPB constructs for different categories of behaviors, interference is also possible and should be explored. A second future direction should involve the further exploration of the impact of media use (and specifically magazine use) on the safe-sex

intentions of those who have never engaged in intercourse. For those with little sexual experience, intentions to practice safe sex might depend both upon attitudes, norms, self-efficacy, and knowledge regarding safe sex *and* upon intentions to initiate intercourse. Interestingly, media use may influence both components, and magazines, in particular, might both promote safe sex and promote sex itself. Future research should attempt to untangle the two. Finally, future research should make use of longitudinal data to attempt to infer causality in the connections between magazine reading and TPB constructs as well as between attitudes, norms, self-efficacy, knowledge, and intentions and actual safe-sex behaviors. This was the goal of Study 2.

Chapter 3

Study 2

Introduction and Hypotheses

Study 1 showed associations between women's and men's magazine reading and safe sex outcomes early in college, but data was collected at only one time point. In order to look at longitudinal associations between magazine reading and safe sex outcomes as well as to test the Theory of Planned Behavior over time, we conducted a longitudinal follow-up with Study 1 participants four months later in their first year of college. Using these data, we first tested to see whether Wave 1 attitudes, norms, self-efficacy, and knowledge predicted Wave 2 safe sex intentions, and whether Wave 1 attitudes, norms, self-efficacy, knowledge, and intentions predicted Wave 2 safe sex behaviors. We then tested to see whether intentions mediated associations between magazine reading and safe sex behaviors using longitudinal data. Finally, and most importantly, we used cross-lagged models to examine longitudinal connections between magazine reading and safe-sex intentions and behaviors. Based on the safe-sex content in mainstream women's and men's magazines, Study 2 hypotheses were as follows:

H_1: Wave 1 safe sex attitudes, norms, self-efficacy, and knowledge will predict Wave 2 safe sex intentions for all participants.

H_{1b}: Self-efficacy will mediate associations between Wave 1 knowledge and Wave 2 intentions.

H_2: Wave 1 safe sex attitudes, norms, self-efficacy, knowledge, and intentions will predict Wave 2 safe sex behaviors for sexually active participants.

H_{2b}: Intentions will mediate associations between Wave 1 attitudes, norms, and self-efficacy and Wave 2 safe sex behaviors.

H_3: Wave 1 intentions will mediate associations between Wave 1 women's and men's magazine reading and Wave 2 safe sex behaviors for sexually active participants.

H_4: Levels of women's and men's magazine reading at Wave 1 will positively predict safe sex attitudes, norms, self-efficacy, knowledge, and intentions at Wave 2 for all participants.

H_5: Levels of women's and men's magazine reading at Wave 1 will positively predict actual safe-sex behavior at Wave 2 for those who are sexually active.

Method

Participants and procedure

Participants were 175 first-year college students (65.1% female, M_{age}=19.03) who participated in Study 1 and expressed interest in completing a 4-month follow-up survey for pay. The majority of these participants (82.9%) self-identified as European American, but participants also identified as Asian or Asian American (12.0%), Black (2.3%), Middle Eastern (1.1%), mixed or multiracial (1.1%), and other races or ethnicities (0.6%). These participants had originally participated through School 1's subject pool (32.6%), School 1's paid pool (48.0%), and School 2's subject pool (19.4%). Of Wave 1 participants with quality data, 67.3% (N = 307) agreed to be recontacted. As shown in Table 3.1, those who agreed to be recontacted did not differ from those who refused in most respects. The only significant differences were that those who agreed to be recontacted were more likely to be from School 1's paid pool and less likely to be from either of the subject pools. Additionally, those who agreed to be recontacted were marginally more likely to be women and had marginally more dating experience.

Of those who agreed to be recontacted, all who met the following criteria were invited to participate in the Wave 2 survey: (1) started and finished the Wave 1 survey during the same week (three participants did not), (2) provided a valid email address, (four email addresses were invalid), and (3) completed all key Wave 1 measures[19] (four participants did not). This resulted in 295 participants being contacted via email 16 weeks after the week of their Wave 1 survey. Participants were initially contacted up to three times: an initial email informed them about the follow-up study and provided them with an individual ID number and a link to the survey; two reminder emails followed one

[19] Key measures for purposes of being recontacted included sex, intercourse status, magazine reading, age, and at least one attitude, one norm, and one efficacy measure.

week and two weeks later. Participants were given up to 16 days to complete the follow-up survey. Because funding allowed and males were underrepresented amongst respondents, men who initially failed to complete the follow-up survey within the 16 allotted days were recontacted one final time at the end of their second semester (between 18 and 29 weeks after their initial participation); however, this final follow-up resulted in only two additional men participating. Participants were compensated with a $10 or $15 gift card if they completed the Wave 2 survey. Wave 1 and Wave 2 responses were linked via a unique identification number.

Overall, 57.0% of participants who agreed to be recontacted (38.3% of the initial Study 1 sample) participated in the follow-up and provided both valid ID numbers to match their responses and valid data; this included 57.3% of the women and 56.5% of the men who agreed to be recontacted (40.3% and 35.1% of Study 1 participants respectively).[20] The follow-up survey was completed an average of 16.09 weeks after Wave 1 (*SD* = 1.05, range: 15 to 25 weeks). Study 1 participants who completed Wave 2 differed in several ways from those who did not (Table 3.2). As would be expected based on willingness to be recontacted, those who participated in Wave 2 were more likely to be from School 1's paid pool and less likely to be from School 2's subject pool. Additionally, those who participated in Wave 2 entered the initial study significantly earlier than those who did not. Those who participated also were lighter media users and reported receiving less sexual health information from parents, peers, schools, books, and the internet growing up as compared to those who did not. Finally, those who participated in Wave 2 were marginally less likely to have ever engaged in intercourse at Wave 1 and marginally more likely to identify as sexual minorities (homosexual, bisexual, or unsure) than those who did not.

Given some demographic differences between those who did and did not participate in our longitudinal follow-up, we tested to see whether associations between constructs of interest at Wave 1 were similar for those who did and did not continue in the study. If associations between constructs were equivalent regardless of follow-up

[20] Initially, 193 participants (62.9% of those who agreed to be recontacted; 42.2% of the Study 1 sample) provided some data at follow-up. However, one individual did not provide a valid ID number to allow matching with Wave 1, nine individuals provided too little data for their responses to be usable, and eight individuals provided inconsistent responses from Wave 1 to Wave 2 (reporting that they had never engaged in intercourse and/or oral sex at Wave 2 after saying they had done so at Wave 1).

status at Wave 1, we could be less concerned with attrition. To make comparisons, we used the Study 1 measurement models for condom use, safe sex discussion, and HIV/STI testing for women and men. We compared models in which all correlations between constructs were freely estimated with models in which all correlations were constrained to be equal for those who did and did not participate in Wave 2. If models with all paths constrained were not significantly worse fits to the data, it would indicate that associations between constructs did not significantly differ for the two groups. Indeed, chi-square difference tests showed constrained models fit the data equally well for the women's condom use measurement model, $\chi^2(21) = 19.83$, $p > .10$; the women's safe sex discussion measurement model, $\chi^2(21) = 24.43$, $p > .10$; the women's HIV/STI testing measurement model, $\chi^2(15) = 13.48$, $p > .10$; the men's condom use measurement model, $\chi^2(21) = 23.72$, $p > .10$; and the men's HIV/STI testing model, $\chi^2(15) = 17.89$, $p > .10$. However, the constrained men's safe sex discussion measurement model did not fit the data as well as a model with freely estimated parameters, $\chi^2(21) = 32.90$, $p < .05$. Follow-up analyses showed the significantly worse fit was due primarily to the correlation between probability of discussion and intentions of discussing safe sex thoroughly, which was positive and significant amongst those who did not participate in Wave 2 and non-significant amongst those who did participate. When this path alone was allowed to vary across groups, the constrained model was no longer a significantly worse fit, $\chi^2(20) = 26.29$, $p > .10$. Because this path was not of primary interest in any of our analyses, we were not overly concerned with this difference between the groups. Therefore, these analyses generally showed that, despite demographic differences, the associations between constructs of interest in our study were equivalent for those who did and did not participate in the follow-up survey.

Measures

Measures were equivalent to those in Study 1, except that the time frame for some questions (related to magazine reading and condom use) was limited only to the intervening 4 months since Wave 1. Additionally, one additional intentional measure and three behavioral measures, all completed at both Wave 1 and Wave 2, were considered as detailed below.

Probability of condom use. As a measure of condom use intentions, participants indicated their probability of always using condoms in the future with both committed and casual partners on a scale from 0% to 100%. They could also indicate that they did not intend to engage in intercourse with either type of partner. These two items were averaged to create a probability of condom use scale, with higher scores indicating a greater probability of use (α = .76). This measure was used in place of the Condom Use Questionnaire-Intended in cross-lagged models.[21]

Condom use. To assess actual condom use, participants who had engaged in intercourse completed two items. These items asked about the frequency of using condoms with casual and committed partners on a scale of 1 ("never") to 5 ("always"). Participants could also indicate that they had never engaged in intercourse with either type of partner. These two items were averaged to create a variable representing frequency of condom use (α = .51); this variable represented the average frequency of condom use with both types of partners for those who reported both committed and casual partners or the frequency of condom use with either type of partner for those who had only had committed or casual partners.

Safe-sex discussion. To assess safe-sex discussion, participants reported to what extent they had discussed two topics (condom use and STI or HIV testing) with their current or most recent dating partner on a scale of 1 ("we didn't discuss this at all") to 5 ("we discussed this thoroughly"). The two items were averaged to create an overall safe-sex discussion score (α = .65), with higher scores indicating more discussion had occurred. These new items were deemed more appropriate to assess safer-sex discussion than previous items that focused on the frequency of conversation (e.g., Troth & Peterson, 2000), since the content rather than the frequency of discussion is likely to impact actual behavior (Cline et al., 1990). Although all participants with a previous dating or sexual relationship partner reported on their safe sex discussion, this variable was utilized only for sexually active participants.

[21] This measure replaced the CUQ-I in models using both waves of data because the response options for the CUQ-I were slightly altered between waves, resulting in changes in both meaning and statistical properties. The added option at Wave 2 allowed participants to indicate that they would never engage in intercourse with a described partner and, if selected, resulted in the exclusion of that item from a participant's mean score. This made the use of the CUQ-I in cross-lagged models controlling for earlier scores on the measure inappropriate, thus the replacement with probability of condom use.

STI testing. Participants reported whether they had ever been tested for STIs (e.g., chlamydia, gonorrhea, syphilis, herpes, or HPV), with possible response options including "yes, more than once," "yes, once," "no, but I plan to be tested soon," and "no, and I don't plan to be tested soon." Response options were recoded to indicate whether or not a participant had ever been tested (0=no, 1=yes). Participants also indicated whether they had ever been tested for HIV, but testing was so infrequent in the current sample (with only 6.9% reporting testing) that only the item addressing STI testing was analyzed. Additionaly, because so few men indicated ever having been tested for STIs (4.9%), this item was used only in analyses with the sample as a whole or with women exclusively. Although all participants reported whether or not they had ever been tested, this variable was utilized only for sexually active participants.

Analysis plan

Models were tested using structural equation modeling in MPlus (MuthÈn & MuthÈn , 1998-2010) with the MLR estimator (Asparouhov & Muthén, 2005) as in Study 1.[22] Criterion for acceptable fit likewise mirrored those in Study 1. We performed three separate sets of analyses using the two waves of data:

(1) We tested whether TPB was supported by data from both Waves 1 and 2. Specifically, in two different models for each category of safe sex behavior, we included (1) Wave 1 attitudes, norms, efficacy, and knowledge and Wave 2 intentions (with all participants included) and (2) Wave 1 attitudes, norms, efficacy, knowledge, and intentions and Wave 2 behavior (with sexually active participants only), testing the overall fit and examining the strength of paths from Wave 1 constructs to Wave 2 intentions and behavior. Relevant demographic controls (those associated with intentions and/or behavior) were included in all models. Because of the complexity of these models and the relatively small sample size, all variables in these models were manifest.

(2) We tested whether Wave 1 magazine reading predicted Wave 2 safe sex behavior for those who were sexually active and, if so, whether Wave 1 safe sex intentions mediated any associations between magazine reading and behavior. Here, we

[22] An exception to our use of the MLR estimator occurred in the case of models with STI testing as the outcome. Because this outcome was a dichotomous, categorical variable, we made use of the WLSMV estimator in MPlus, a robust weighted least squares estimator that uses a diagonal weight matrix and allows for categorical outcomes (Muthén & Muthén , 1998-2010). In this case, we used procedures for chi-square difference testing outlined in the MPlus user's guide (Muthén & Muthén).

tested separate models for women and men due to the different magazine categories of interest. Relevant demographic controls (those associated with intentions and/or behavior) were included in all models. Because using only sexually active participants resulted in small sample sizes, all variables in these models were manifest.

(3) We examined the contribution of Wave 1 magazine use to Wave 2 sexual health outcomes, including attitudes, norms, self-efficacy, knowledge, intentions, and behaviors. Again, separate models were tested for women and men; additionally, separate models were run for each outcome of interest. Here, we tested cross-lagged models including Wave 1 and Wave 2 measures of both magazine reading and outcomes of interest. SEM allowed for statistical comparison of competing nested models: a model containing all cross-time paths (a) was compared to one containing only Wave 1 magazine reading predicting a Wave 2 safe sex construct (b), one containing only a Wave 1 safe sex construct predicting Wave 2 magazine reading (c), and one containing neither of these paths (d). Paths that were not included in (b), (c), and (d) were constrained to equal 0. In comparing (b), (c), and (d) to (a), a significant increase in the chi-square value led to rejection of the equal fit hypothesis (Kline, 2005), indicating oversimplification of the model and retention of the deleted path(s). Because models were fit with the MLR estimator, which yields Satorra-Bentler scaled (mean-adjusted) chi-square values, we used procedures for difference testing outlined by Satorra and Bentler (1999).

We tested a separate cross-lagged model for each safe sex construct of interest. We chose which outcomes to construct models for based on three criteria: (1) outcomes that were significantly correlated with magazine reading for women or men in Study 1 were included, (2) outcomes that demonstrated significant change between waves for women or men were included, and (3) outcomes that showed evidence of low stability over time (correlations less than .40) were included. Although we had the most reason to expect significant cross-wave paths for those outcomes correlated with reading at Wave 1, we also recognized that a number of outcomes were in flux (as evidenced by significant change and/or low correlations between waves) and thus might be associated with Wave 1 magazine reading at Wave 2 even if they were not at Wave 1. Once again, relevant demographic controls were included in all models. Due to our relatively small sample size, we opted to be conservative in the use of controls. In order for a control

variable to account for the cross-wave paths between magazine reading and outcomes we were most interested in, the variable would need to be associated with both Wave 1 reading and Wave 2 outcomes. Therefore, we controlled only for demographics significantly associated with Wave 1 reading, keeping controls consistent across all models. Some constructs were modeled as latent variables with multiple indicators as in Study 1 (including attitudes, self-efficacy, and condom use norms); other constructs were included as manifest variables. For those constructs that were modeled as latent variables, factor loadings were constrained to be equal across time and indicators were allowed to correlate with one another across time as is standard practice (Burkholder & Harlow, 2003).

Results

Preliminary results

Change in constructs over time. To get a sense of how safe sex attitudes, norms, self-efficacy, knowledge, intentions, and behavior as well as magazine reading and involvement change early in college, we initially examined changes in the constructs of interest from Wave 1 to Wave 2. We used chi-square and t-tests to do this for men and women separately. As shown in Tables 3.3 and 3.4, there were several significant changes over time. For women, changes in safe sex constructs were both positive and negative. Women felt more condom use self-efficacy at Wave 2 than at Wave 1; they also reported more positive attitudes toward HIV testing. However, they felt *less* negotiation self-efficacy and were less knowledgeable about STIs at Wave 2 than at Wave 1. In terms of magazine involvement, women reported lower levels of friend magazine discussion at Wave 2 as compared to Wave 1. For men, changes were all negative: men had lower intentions to keep and carry condoms in the future, more negative safe-sex discussion norms, and thought there was a lower probability they would discuss safe sex with future partners at Wave 2 as compared to Wave 1. There were no changes in magazine reading or involvement for men. Outcomes that exhibited significant change over time were examined in cross-lagged models.

Along with examining changes in constructs, we looked at correlations between Wave 1 and Wave 2 responses to assess stability in safe sex constructs and magazine use over the first semester of college. Correlations ranged from very low (.05) to very high

(.95), indicating less stability in some constructs than in others. For women, the least stable constructs were probability of condom use (r = .27, p < .01), negotiation self-efficacy (r = .34, p < .001), and STI knowledge (r = .38, p < .001). For men, the least stable constructs were STI knowledge (r = .11, p > .10), condom knowledge (r = .26, p < .05), probability of asking future partners to test (r = .29, p < .05), HIV testing norms (r = .33, p < .01), condom use self-efficacy (r = .36, p < .01), intentions of discussing safe sex thoroughly in the future (r = .36, p < .01), safe sex discussion norms (r = .38, p < .01), and probability of discussing safe sex with future partners (r = .38, p < .01). These low-stability outcomes were also examined in cross-lagged models.

In addition to examining safe-sex and magazine use variables across waves, we assessed changes in general sexual behavior from Wave 1 to Wave 2. At Wave 1, 52.3% of the sample had not engaged in vaginal intercourse; of these individuals, 4.4% (n = 4, 2.3% of the entire sample) initiated intercourse between waves. As a result, 50.0% of the sample had engaged in intercourse by Wave 2. Similarly, 4.6% of the sample (n = 8) both received and performed oral sex for the first time between waves, and 6.8% (n = 11) entered a monogamous sexual relationship. (Another 6.8% were in a monogamous relationship at Wave 1 but no longer in one at Wave 2.) Interestingly, participants' perceptions of their level of dating experience did not increase between Wave 1 (M = 3.75, SD = 2.52) and Wave 2 (M = 3.73, SD = 2.49), t(165) = .13, p = .90.

Correlations between different safe sex behaviors. We assessed three distinct safe sex behaviors—condom use, safe sex discussion, and STI testing. To assess whether these behaviors were related to one another, we examined zero-order correlations between the three for sexually active women and men. We found few associations between different behaviors. For women, there was a marginal negative correlation between condom use frequency and STI testing, r(52) = -.27, p < .10, indicating that women who used condoms less frequently were more likely to get tested for STIs (or, alternatively, that women who had been tested for STIs used condoms less frequently). For men, there was a marginal positive association between partner discussion and STI testing, r(32) = .31, p < .10, such that men who reported discussing safe sex more thoroughly with their last partner were more likely to have been tested. The low

correlations between different types of safe sex behavior showed these behaviors to be distinct.

Demographic correlates. We controlled for demographic and media use variables that were significantly correlated with intentions and/or behavior in both TPB models examining connections between Wave 1 attitudes, norms, self-efficacy, and knowledge and Wave 2 intentions and behaviors, as well as in models examining magazine reading, intentions, and behavior. To identify important controls, zero-order correlations were computed for the sample as a whole as well as separately for women and men and are detailed in Tables 3.5-3.10. In cross-lagged models examining associations between Wave 1 magazine reading and Wave 2 sexual health outcomes, we were more conservative in our use of demographic controls. Given our small sample size and the fact that we controlled for earlier behavior in these models, we included only those control variables that were correlated with Wave 1 reading. Zero-order correlations showed that, for women, only sexual minority status was correlated with Wave 1 magazine reading, $r = -.33$, $p < .001$. For men, week of entry into the study was the only correlate of magazine reading, $r = -.32$, $p < .05$. Given that these variables could thus account for any cross-time associations between reading and sexual health outcomes, we controlled for them in all cross-lagged models.

Primary research questions

Does the Theory of Planned Behavior longitudinally predict intentions and behavior in the domains of condom use, safe sex discussion, and HIV/STI testing? We tested our hypotheses about TPB's ability to explain our longitudinal data in two steps. We first examined whether Wave 1 attitudes, norms, self-efficacy, and knowledge predicted Wave 2 intentions. Because these models included the same constructs for women and men, they were tested for the sample as a whole, controlling for sex and other significant demographic variables (Tables 3.11-3.13). All models fit the data well. In general, the models showed support for some but not all aspects of TPB. Specifically, for condom use (Figure 3.1), Wave 1 attitudes and self-efficacy both predicted Wave 2 intentions to keep and carry condoms, $\beta = .13$, $p < .05$ and $\beta = .20$, $p < .01$, respectively, whereas attitudes predicted Wave 2 condom use intentions, $\beta = .20$, $p < .01$. Norms did not predict either intentional variable. As hypothesized, self-efficacy here mediated

associations between knowledge and intentions to keep and carry condoms, with the model showing a marginally significant indirect effect, β = .03, p = .06[23], and a significant total effect of knowledge on intentions to keep and carry condoms, β = .14, p < .05.[24] For safe sex discussion (Figure 3.2), Wave 1 discussion norms significantly predicted Wave 2 probability of discussing safe sex with future partners, β = .16, p < .05; attitudes were a marginal predictor, β = .17, p = .06. Wave 1 negotiation self-efficacy significantly predicted Wave 2 intentions of discussing safe sex thoroughly with future partners, β = .23, p < .01, but norms and attitudes did not. Knowledge had no direct or indirect effects. Finally, for HIV/STI testing (Figure 3.3), only Wave 1 testing norms significantly predicted Wave 2 probability of asking future partners to get tested for HIV and STIs, β = .22, p < .001. Neither attitudes nor norms at Wave 1 predicted Wave 2 probability of testing, which was primarily predicted by dating experience, β = .38, p < .001. Again, knowledge had no direct or indirect effects.

We next examined whether Wave 1 attitudes, norms, self-efficacy, knowledge and intentions predicted Wave 2 behavior for sexually active women and men. We again constructed models for the sample as a whole controlling for sex and other significant demographics (Tables 3.14-3.16). Given the small sample size when considering only sexually active participants, we opted to construct separate models for each intentional variable, resulting in two models each for condom use and safe sex discussion. Based on TPB, we would expect intentions to mediate associations between attitudes, norms, and self-efficacy and behavior. We found mixed support for this prediction. For condom use (Figure 3.4), Wave 1 intentions to keep and carry condoms were a significant predictor of Wave 2 condom use, β = .31, p < .01. As a result, intentions to keep and carry condoms did mediate associations between Wave 1 condom use self-efficacy and Wave 2 condom use frequency, with the model showing a marginal indirect effect of self-efficacy on frequency of condom use, β = .08, p = .06.[25] However, neither attitudes nor norms were associated with intentions to keep and carry condoms, and attitudes had a *direct* association with condom use, β = .26, p < .05. Wave 1 condom use intentions were only marginally associated with Wave 2 condom use, β = .18, p = .07, and had no associations

[23] Bootstrapped 95% confidence interval with 5,000 iterations, $CI_{.95}$ = .00,.07.
[24] Bootstrapped 95% confidence interval with 5,000 iterations, $CI_{.95}$ = .00,.29.
[25] Bootstrapped 95% confidence interval with 5,000 iterations, $CI_{.95}$ = -.01,.16.

with attitudes, norms, or self-efficacy. In both cases, models excluding direct paths from attitudes, norms, self-efficacy, and knowledge to behavior were good fits[26], but adding direct paths from attitudes to behavior significantly improved the fits, $\chi^2(1) = 5.54$, $p < .05$ and $\chi^2(1) = 5.05$, $p < .05$, respectively, indicating that associations between attitudes and behavior were not mediated by intentions.

For safe sex discussion (Figure 3.5), Wave 1 intentions to discuss safe sex thoroughly were a significant predictor of Wave 2 partner discussion, $\beta = .28$, $p < .01$. As a result, discussion intentions mediated associations between Wave 1 negotiation self-efficacy and Wave 2 partner discussion, with the model showing a marginal indirect effect of self-efficacy on levels of discussion, $\beta = .06$, $p = .07$, $CI_{.95} = -.01, .13$. Again, neither attitudes nor norms were associated with intentions, and attitudes again had a direct association with behavior, $\beta = .20$, $p < .05$. When examining probability of discussion as the potential mediator, the model showed only a marginal association between Wave 1 probability of discussion and Wave 2 partner discussion, $\beta = .23$, $p = .06$. Therefore, although both attitudes and self-efficacy were positively associated with probability of discussion, $\beta = .30$, $p < .01$ and $\beta = .24$, $p < .05$, respectively, there were no significant indirect effects. Again, in both cases, models excluding direct paths from attitudes, norms, self-efficacy, and knowledge to behavior were good fits[27], but adding direct paths from attitudes to behavior improved the fits, $\chi^2(1) = 4.79$, $p < .05$ and $\chi^2(1) = 2.97$, $p < .10$, respectively, indicating that associations between attitudes and behavior were not mediated by intentions.

Finally, for HIV/STI testing (Figure 3.6), Wave 1 probability of testing was a strong, significant predictor of Wave 2 STI testing, $\beta = .52$, $p < .001$. However, neither attitudes nor norms were significantly associated with probability of testing for this sexually active sample. Therefore, probability of testing did not serve as a mediator. Additionally, there was a direct, *negative* association between Wave 1 testing norms and Wave 2 STI testing, $\beta = -.41$, $p < .05$. Although a model excluding the direct paths from

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[26] For the model with intentions to keep and carry condoms: $\chi^2(14, N = 87) = 15.05$, $p = .37$, CFI = .98, TLI = .97, RMSEA = .03. For the model with condom use intentions: $\chi^2(14, N = 87) = 14.07$, $p = .44$, CFI = 1.00, TLI = 1.00, RMSEA = .01.

[27] For the model with discussion intentions: $\chi^2(19, N = 87) = 9.59$, $p = .96$, CFI = 1.00, TLI = 1.23, RMSEA = .00. For the model with probability of discussion: $\chi^2(20, N = 87) = 9.24$, $p = .98$, CFI = 1.00, TLI = 1.27, RMSEA = .00.

attitudes, norms, and knowledge to behavior was a good fit[28], adding a direct path from norms to behavior significantly improved the fit, $\chi^2(1) = 4.62$, $p < .05$, indicating that associations between norms and behavior were not mediated by probability of testing.

Do intentions mediate associations between magazine reading and safe sex behavior? To test our hypotheses about associations between Wave 1 magazine reading and Wave 2 safe sex behavior, we constructed models including Wave 1 magazine reading and safe sex intentions and Wave 2 behavior. We included only sexually active participants and constructed separate models for women and men given the different magazine categories of interest. Results partially supported our hypotheses, although only for women. Controlling for significant demographics (Table 3.17), for women, Wave 1 magazine reading was significantly positively associated with frequency of condom use as well as STI testing at Wave 2 (Figure 3.7). As hypothesized, associations between magazine reading and STI testing were partially mediated by Wave 1 intentions, with the model showing a significant indirect effect of reading on testing via estimated probability of testing, $\beta = .12$, $p < .05$, $CI_{.95} = -.55, .79$. However, there was also a significant direct effect of reading on testing, $\beta = .37$, $p < .01$. The direct and indirect effects resulted in a significant total effect of reading on testing, $\beta = .49$, $p < .001$, $CI_{.95} = .03, .96$. STI testing was the only behavior for which intentions served as a mediator; associations between reading and condom use were direct, $\beta = .27$, $p < .01$. There were no associations between magazine reading and safe sex discussion intentions or behavior.

Results for men did not support our hypotheses (Figure 3.8). Controlling for significant demographics (Table 3.18), men's magazine reading at Wave 1 was *negatively* associated with partner discussion at Wave 2, $\beta = -.24$, $p < .01$, although we had anticipated a positive relationship. Reading did not relate to frequency of condom use at Wave 2 or to either discussion or condom use intentions. Because so few men indicated ever having been tested for STIs, we did not construct a model for this behavior.

Does earlier magazine reading predict later behavior? To test our final two hypotheses regarding longitudinal associations between Wave 1 women's and men's magazine reading and Wave 2 safe sex outcomes, we tested a series of cross-lagged

[28] $\chi^2(9, N = 87) = 7.20$, $p = .62$, CFI = 1.00, TLI = 1.14, RMSEA = .00.

models. In contrast to earlier models, these cross-lagged models were used to discover whether magazine reading related to later behavior *even controlling for earlier behavior*. Due to the differing magazine categories of interest, these models were tested separately for women and men. Models including attitudes, norms, self-efficacy, knowledge, and intentions included all participants, whereas models including behaviors included only sexually active participants. As previously described, to reduce the number of cross-lagged models constructed, we tested these models for those outcomes that (1) were associated with reading in Study 1, (2) showed significant change over time (from Wave 1 to Wave 2), or (3) exhibited instability over time (as evidenced by low Wave 1-Wave 2 correlations). We also tested models for all behavioral outcomes. We therefore constructed models for the following outcomes: condom knowledge[29], condom use self-efficacy, intentions to keep and carry condoms, probability of condom use, and condom use frequency; discussion norms, negotiation self-efficacy, discussion intention, probability of discussion, and discussion with last partner; and HIV testing attitudes, testing norms, probability of asking partners to test, probability of testing, and STI testing. We discuss these outcomes below based on domain of safe sex behavior. Due to the large number of models constructed, in the text we discuss in detail only the paths of interest. Model fit statistics are included in Figures 3.9-3.23, and changes in chi-square values when cross paths were constrained to 0 are detailed in Tables 3.19-3.20. All women's models controlled for sexual minority status, and all men's models controlled for week of entry (Table 3.21); these were the factors shown to correlate significantly with Wave 1 magazine reading.

Condom use. We hypothesized that women's and men's magazine reading at Wave 1 would significantly predict condom use outcomes (including knowledge, self-efficacy, intentions to keep and carry, probability of use, and frequency of use) at Wave 2; we did not anticipate that Wave 1 condom use variables would predict Wave 2 magazine reading. Our hypotheses were partially supported. Specifically, for women, Wave 1 women's magazine reading did significantly predict Wave 2 condom knowledge ($\beta = .24$, $p < .001$), intentions to keep and carry condoms ($\beta = .12$, $p < .05$), and

[29] Although all three knowledge measures showed some instability over time, we opted to choose just one to test because we anticipated similar patterns for all three.

probability of condom use (β = .16, $p < .05$). Accounting for Wave 1 knowledge and intentions, women who read more magazines at Wave 1 were more knowledgeable and had greater intentions to keep and carry and to use condoms at Wave 2. However, contrary to hypotheses, women's Wave 1 condom use frequency positively predicted Wave 2 women's magazine reading, β = .20, $p < .05$, indicating that women who used condoms more often at Wave 1 read more women's magazines at Wave 2. There were no associations across time between magazine reading and condom use self-efficacy for women.

There was no support for our hypotheses for men in the domain of condom use, as men's magazine reading at Wave 1 did not predict any condom use outcomes at Wave 2. However, contrary to our hypothesis, those with more condom knowledge at Wave 1 read marginally more men's magazines at Wave 2, β = .17, $p < .10$. Similarly, men who felt more condom use self-efficacy at Wave 1 read more men's magazines at Wave 2, β = .17, $p < .05$. There were no cross-time associations for intentions to keep and carry condoms, probability of condom use, or condom use frequency for men.

Safe sex discussion. We hypothesized that women's and men's magazine reading at Wave 1 would significantly predict safe sex discussion outcomes (including discussion norms, negotiation self-efficacy, discussion intention, probability of discussion, and discussion with last partner) at Wave 2. Again, this hypothesis was partially supported for women but not for men. For women, Wave 1 women's magazine reading positively predicted Wave 2 safe sex discussion norms (β = .17, $p < .05$), intentions of discussing safe sex thoroughly (β = .17, $p < .05$), and probability of discussion (β = .29, $p < .001$), indicating that women who read more women's magazines at Wave 1 believed their peers felt more positively about safe sex discussion and intended to discuss safe sex more frequently and thoroughly themselves at Wave 2. However, contrary to our hypothesis, Wave 1 negotiation self-efficacy was marginally positively associated with Wave 2 women's magazine reading, β = .12, $p < .10$. Neither path was significant for actual discussion with most recent partners.

For men, there were few significant cross-time associations between magazine reading and discussion-related variables. Contrary to hypotheses, men's magazine reading at Wave 1 was *negatively* associated with level of discussion with most recent

partners for sexually active men, β = -.39, $p < .001$, indicating that those who read more men's magazines early in college discussed safe sex less thoroughly with their most recent partners later in college. Additionally, Wave 1 partner discussion was *positively* associated with Wave 2 men's magazine reading, β = .30, $p < .05$, indicating that those who discussed safe sex more thoroughly early in college read more men's magazines later in college.

HIV/STI testing. We hypothesized that women's and men's magazine reading at Wave 1 would significantly predict safe sex discussion outcomes (including HIV testing attitudes, testing norms, probability of asking partners to test, probability of testing, and STI testing) at Wave 2. Once again, our hypothesis was supported primarily for women. Wave 1 women's magazine reading positively predicted Wave 2 HIV testing attitudes (β = .15, $p = .07$), probability of asking future partners to test (β = .15, $p < .05$), and actual STI testing (β = .19, $p < .05$). Thus, women who read more women's magazines at Wave 1 had more positive attitudes toward HIV testing, were more likely to think they'd ask future sexual partners to get tested for STIs and HIV, and actually got tested for STIs more frequently by Wave 2. There were no cross-time associations with testing norms or probability of testing. Again, for men, there were no associations in the predicted direction. Indeed, for HIV/STI testing outcomes, there were no cross-time associations for men whatsoever, although, as noted earlier, STI testing could not be examined for men due to its infrequency.

Discussion

The current study extended our findings from Study 1 by collecting longitudinal data from a subset of participants later in their first year of college. Using two waves of data, we found a number of promising associations between earlier women's magazine reading and later safe sex outcomes for young women, along with some evidence that those who practice safer sex may seek out popular magazines. Additionally, we were able to show that intentions mediated some but not all longitudinal associations between magazine reading and safe sex behavior and to provide some support for the Theory of Planned Behavior (Ajzen & Madden, 1986; Ajzen, 1991) over time.

Longitudinal associations between magazine reading and safe sex outcomes

The primary significant finding of Study 2 is that a number of positive, longitudinal associations between earlier women's magazine reading and later safe sex outcomes exist for college women, even controlling for earlier behavior. Specifically, women's magazine reading at Wave 1 was shown to relate to condom use knowledge, intentions to keep and carry condoms, probability of condom use, safe sex discussion norms, intentions of discussing safe sex thoroughly, probability of discussion, HIV testing attitudes, probability of asking future partners to get tested for HIV and STIs, and actual STI testing for women. The multitude of longitudinal results provides stronger support for the idea that magazine reading may influence safe sex outcomes. Although we cannot infer causality, it seems possible that, given their sexual health content (Walsh-Childers et al., 1997), women's magazine may teach women about sexual health, improve their attitudes and normative perceptions, and especially increase their intentions to practice safe sex. This explanation would be in line with young people's reports that they use popular magazines as a source of sexual health information (Bielay & Herold, 1995; Duffy & Gotcher, 1996; Nonoyama et al., 2005).

Interestingly, although Study 1 cross-sectionally showed more positive associations between magazine reading and safe sex outcomes for men, these longitudinal results occurred exclusively for women. Indeed, the only longitudinal connection between earlier magazine reading and later outcomes for men was a *negative* association between men's magazine reading and probability of safe sex discussion, suggesting that men who read more men's magazines early in college later believe they are less likely to discuss safe sex with partners. This unique result is certainly troubling and should be explored in future research. Content analyses of men's magazines have suggested these magazines often portray women as sexual objects in both their content and feature photography (Krassas, Blauwkamp, & Wezzelink, 2003). This objectification, along with a privileging of male sexual pleasure, may discourage dialogue with female sexual partners, even if these magazines do address safe sex practices elsewhere in their content. The conflicting messages men may receive from these publications should be addressed in future research.

In addition to finding some support for our hypothesis that earlier women's magazine reading would relate to later safe sex outcomes, we also found some evidence a contrasting process at work for both women and men, in which early safe sex knowledge, self-efficacy, intentions, and behavior contributed to later magazine reading, even accounting for earlier reading. Findings in this direction were less frequent, but earlier condom use predicted later women's magazine reading for women, and earlier condom knowledge, condom use self-efficacy, and probability of discussion predicted later men's magazine reading for men. These results suggest possible reciprocal processes at work in which young people who are more accepting of safe sex seek out mainstream magazines even as magazines contribute to their later safe sex views and practices. Perhaps young people (especially young men) who anticipate increases in their sexual behavior both feel more positively toward safe sex and choose to begin seeking out sources of sexual information, such as men's magazines. Indeed, uses and gratifications theory (Katz, Blumler, & Gurevitch, 1974; Katz, Haas, & Gurevitch, 1973) suggests that different individuals will choose media based on their unique goals and motivations, and research has shown that adolescents seek out different media dependent upon their preferences and identity formation goals (Arnett, 1993; Steele & Brown, 1995).

A final set of results related to magazine reading showed that intentions mediated some associations between magazine reading and safe sex behavior for women, but only in the domain of HIV/STI testing. Contrary to our hypothesis, magazine reading showed several *direct* associations with safe sex behaviors for women—this was true for both condom use and STI testing. This suggests that TPB does not fully account for associations between magazine reading and safe sex behavior. For men, intentions served no mediating role when examining magazine reading and behavior, and the only direct association was a negative one: men's magazine reading was negatively correlated with safe sex discussion. This was true only prior to controlling for previous behavior, but is still a cause for some concern.

Although men's magazine reading showed several positive associations with safe sex outcomes in Study 1, these patterns did not hold for our longitudinal sample. One potential explanation for the dearth of positive findings for men in the current study is that many associations in Study 1 occurred for men who had never engaged in

intercourse. This study's small sample did not generally allow us to analyze men separately based on sexual experience, and, in the case of behavioral outcomes, we were considering only sexually active men. It is possible that a future study with a larger sample of men who had never engaged in intercourse could show more positive results.

Contributions to the Theory of Planned Behavior

In addition to our results related to magazine reading, Study 2 was able to address several hypotheses based on TPB across various domains of safe-sex behavior. Our longitudinal data showed that, in line with the theory, earlier attitudes, norms, and self-efficacy did contribute to later safe sex intentions. However, for no single intentional measure did all three of these constructs contribute simultaneously; therefore, our support was mixed. We found that attitudes and self-efficacy predicted intentions to keep and carry condoms, attitudes predicted condom use intentions, norms predicted probability of discussion with future partners, self-efficacy predicted intentions of discussing safe sex thoroughly, and norms predicted probability of asking future partners to test. Neither attitudes nor norms positively contributed to probability of testing for STIs and HIV. An additional hypothesis based on TPB was that intentions would mediate associations between attitudes, norms, and self-efficacy and later behavior. Again, we found only partial support for this aspect of the theory. Intentions to keep and carry condoms were shown to mediate associations between condom use self-efficacy and condom use frequency, and discussion intentions mediated associations between negotiation self-efficacy and partner discussion. However, there were also *direct* associations between attitudes and both condom use and safe sex discussion behaviors, as well as between norms and STI testing behavior.

TPB is generally well-supported (Sheeran & Taylor, 1998), so it is necessary to consider why some aspects of our findings are at odds with it. One explanation is the relative sexual inexperience of this young college sample. Nearly half of our participants had still not engaged in sexual intercourse, and their intentions to practice safe sex may not be especially well-developed. Additionally, even those with some sexual experience may not yet have established consistent patterns of safe (or unsafe) sex behavior. Finally, TPB may not consistently explain young people's safe sex behaviors due to the dyadic nature of sexual behavior (Amaro, 1995; Noar, Morokoff,& Harlow, 2002, 2004). Young

people's decisions about safe sex are likely to be determined not only by their own attitudes, norms, and sense of self-efficacy, but also by the views of their sexual partners and through joint decision-making processes. Relative sexual inexperience may make partner pressures all the more likely to influence safe-sex behaviors (Lear, 1995).

Limitations and future directions

Study 2 data addressed a variety of questions about both longitudinal associations between magazine reading and safe sex and the functioning of TPB across time. However, there were several weaknesses to the current study that can be improved upon in future research. First, as is common with longitudinal studies, the sample here was affected by attrition. Only one third (38.3%) of our Study 1 participants were successfully recontacted for a follow-up, and these participants differed demographically from those who did not stay in the study in several ways. Although we showed that associations between study variables were similar for those who did and did not provide longitudinal data, future research with larger and more complete samples is desired. In particular, the small sample size resulting from attrition did not generally allow us to construct separate models for those who had and had not engaged in intercourse, although a variety of differences based on sexual experience were shown in Study 1. A second weakness of the current study is that it made use of only two waves of longitudinal data. Given our hypotheses about magazine reading as well as the structure of TPB, three or more waves of data would be desirable. Additional data waves would allow for both a better test of intentions as a mediator in TPB and for more complex cross-lagged models. Additionally, different lags between waves should be tested, as alternative lag lengths may result in stronger or weaker associations (Kenny & Harackiewicz, 1979).

A third weakness of the current study is that it considers only magazine reading and not magazine involvement. Given the small sample size, we opted not to consider reading and involvement in the same models. Because of the large number of models discussed here, separate models for involvement variables were not included. However, data will allow the consideration of longitudinal associations between involvement and safe sex in future papers. A final weakness of the current study is that, although it contributes more to our understanding about the connection between magazine reading and safe sex outcomes, it does not allow us to infer causality. We now know that earlier

magazine reading predicts later safe sex outcomes for women even controlling for earlier safe sex attitudes, norms, self-efficacy, knowledge, or behavior, but we still do not know that magazine reading directly causes changes in any of the outcomes. Given the variety of positive cross-time associations between magazine reading and safe sex outcomes for women, Study 3 will attempt to provide stronger causal evidence that magazine reading can influence attitudes, norms, self-efficacy, and intentions through experimental manipulation.

Chapter 4

Study 3

Introduction and Hypotheses

Although previous research (Walsh & Ward, 2009) and Studies 1 and 2 suggest connections between regular magazine reading and involvement and safe-sex outcomes such as attitudes, norms, self-efficacy, and intentions, no previous studies have experimentally examined effects of magazine exposure on sexual health outcomes. Experimental data are necessary in order to determine causality: can content from mainstream magazines actually modify attitudes, norms, efficacy, and intentions, or are other variables responsible for these associations? Therefore, Study 3 assessed experimental effects of magazine exposure on safe-sex outcomes among college women, with the goal of answering three primary questions: (1) Does exposure to safe-sex content from women's magazine lead to more positive safe sex outcomes?; (2) Do experimental effects vary based on level of sexual experience and/or regular reading levels?; and (3) Do experimental effects vary based on personality characteristics and/or levels of identification with women's magazines?

In order to determine whether brief exposure to articles discussing safe sex could affect outcomes including attitudes, norms, self-efficacy, intentions, and assessments of risk, undergraduate women were randomly assigned to be exposed to either safe-sex-related content from the women's lifestyle magazine *Cosmopolitan* or to non-sex-related content from the same magazine. Following exposure, participants completed measures of safe-sex outcomes. Participants also had the opportunity to procure free condoms, and this served as another measure of safe-sex intentions. This study focused solely on women so that uniform stimuli (selected from women's magazines exclusively) could be used across participants. Hypotheses were as follows:

H_1: Women exposed to safe-sex-related content from women's lifestyle magazines will report more positive attitudes toward condoms, safe-sex discussion, and HIV testing than women exposed to control content.

H_2: Women exposed to safe-sex-related content from women's lifestyle magazines will report greater perceptions that their peers engage in safe-sex practices than women exposed to control content.

H_3: Women exposed to safe-sex-related content from women's lifestyle magazines will report higher levels of safe-sex self-efficacy than women exposed to control content.

H_4: Women exposed to safe-sex-related content from women's lifestyle magazines will report greater perceived risk of STI and HIV infection than women exposed to control content.

H_5: Women exposed to safe-sex-related content from women's lifestyle magazines will report greater intentions to practice safe sex (in terms of condom use intentions, intentions to keep and carry condoms, HIV/STI testing intentions, and safe-sex discussion intentions) than women exposed to control content.

H_6: Women exposed to safe-sex-related content from women's lifestyle magazines will demonstrate greater intentions to practice safe sex (by taking condoms that are made available) than women exposed to control content.

H_7: Exposure to safe-sex-related content may interact with regular use of women's lifestyle magazines such that effects differ based on regular reading levels.[30]

[30] There are two distinct possibilities in terms of the interaction between regular use and experimental exposure. First, women who read women's lifestyle magazine regularly might be primed by experimental exposure, and effects may thus be amplified for them. Alternatively, experimental exposure may matter little for women who are regular readers if their attitudes and norms are already positive and their self-efficacy and intentions already high. In this second case, non-readers may be more strongly influenced by experimental exposure.

H_8: Exposure to safe-sex-related content may interact with level of sexual experience such that effects are different for those who have and have not engaged in vaginal intercourse.[31]

H_9: Exposure to safe-sex related content may interact with magazine identification such that effects are greater for those high in identification.

H_{10}: Exposure to safe-sex related content may interact with personality characteristics including conscientiousness, shyness, and sexual self-schema. Specifically, effects may be greater for those high in conscientiousness and/or for those with positive sexual self-schemas, and effects may be reduced for those high in shyness.

Method

Participants

Participants were 95 undergraduate women (M_{age}=19.19, SD = .69) recruited from a psychology subject pool and compensated with partial course credit.[32] The majority of participants identified as White/European (74.7%), but participants also identified as Asian/Asian American/Pacific Islander (11.6%), African American (7.4%), Latina/South American (2.1%), Middle Eastern (2.1%), and multiracial (2.1%). In terms of sexual orientation, 82.1% of participants considered themselves exclusively heterosexual, while 15.8% identified as bisexual and 1.1% as predominantly homosexual. Slightly over half of the sample (54.3%) had engaged in vaginal intercourse.

Procedure

Participants were told they were participating in a study examining college student evaluations of popular magazines. After completing measures of their regular

[31] Two distinct potential interactions between experimental condition and sexual experience were anticipated. Although effects on attitudes, norms, efficacy, and reported intentions were expected to be strongest for women who were not yet sexually active based on results from Study 1, effects on perceived risk of infection and taking condoms were expected to be stronger for sexually active women.

[32] One hundred women were initially included in the sample. Two women were excluded because they were substantially older than all other participants (ages 26 and 27), one in the experimental and one in the control condition. Two other participants began the study but did not complete it, one in the experimental and one in the control condition. One final participant in the experimental condition was excluded because the internet failed as she was completing the survey and she had too little usable data. Notably, as part of a Psychology Subject Pool prescreening at the beginning of the semester, all participants had agreed to participate in studies involving deception.

magazine reading and involvement, they were randomly assigned to receive either sexual-health related content from *Cosmopolitan* or neutral content from the same magazine. These articles were pre-tested to assure they were equivalent in terms of interest and were also similar in length. Participants were led to believe they were randomly selecting one of four sets (A, B, C, or D) of related articles to avoid suspicion in the experimental condition. They then read and evaluated three articles on several characteristics that included interest level, personal relevance, visual appeal, and accuracy. They also answered two open-ended questions addressing something they liked or found interesting and something they disliked about each article. These questions were intended to encourage active reading. Participants completed these measures on a computer in a room with up to one other participant. Participants were separated from one another with a divider to protect privacy.

Participants were then asked to participate in a second, "unrelated" study of college student health beliefs and behaviors. They were directed to a separate room where they met a new researcher who was blind to their experimental condition. This researcher introduced them to the second study and gave them a new consent form to sign. During this part of the study, participants completed measures of safe-sex attitudes, norms, self-efficacy, and intentions, as well as a variety of distracter measures dealing with other health behaviors (e.g., alcohol and drug use, risky driving, exercise, and smoking) using a computer. To avoid suspicion, the first health measure presented to participants dealt with alcohol use. Participants completed these measures alone in a closed room where there were also health products (floss, cough drops, and condoms) available. These products were presented to all participants in the same way, with a bowl of cough drops on the far left, a bowl of 25 condoms in the middle, and a cup containing floss on the right. The products were positioned on tables just inside the doors of rooms, making them obvious when departing. A sign as well as text at the end of the survey invited them to help themselves to products as a thank you for participating in the study. Small bags to put these products in were available to protect participants' privacy, and they could take products before opening the door to exit the room. A question at the end of the survey allowed participants to express suspicion about the study's true purpose; no participants expressed suspicion there or to the researcher. Following completion of the study,

participants were fully debriefed. The researcher (blind to participant condition) counted the number of condoms remaining in the bowl following the departure of each participant; this allowed the number of condoms taken to be recorded. The bowl was then restocked prior to the arrival of the next participant.

Prescreening and presentation of stimuli

Potential magazine articles for the experimental and control conditions were selected from women's magazines published between the beginning of 2007 and the end of 2009. Initially, to identify potential articles for the experimental condition, searches of article titles and text in *Cosmopolitan*, *Marie Claire*, *Glamour*, *Self*, *Shape*, *Seventeen*, and *Essence* were conducted using library databases. Terms of interest included "condoms" or "condom use," "sexually transmitted diseases" or "STDs," "sexually transmitted infections" or "STIs," "HIV" or "AIDS," and "safe sex." It was desirable to select articles that filled at least one whole page of the magazine and contained positive messages about safe sex. An initial pool of 10 articles for the experimental condition was identified. Ten potential control articles were also selected from the same magazines and same time frame that the experimental articles came from; these articles dealt with topics such as health (e.g., tanning), work, finances, and beauty. These initial 20 articles were prescreened by volunteers, primarily female graduate and undergraduate students from a sex and gender lab; each potential article was read by at least nine individuals.

During prescreening, articles were rated on interest, relatability, visual appeal, and perceived accuracy; participants rated both how personally interesting and relatable they found the article and how interesting and relatable they thought the average undergraduate woman would find the article. Prescreeners were also invited to provide comments on the articles; these comments were used to identify any potential issues with articles in terms of content or presentation on the computer screen. Normalized mean ratings were calculated for each article, and experimental articles with the highest interest, relatability, and perceived accuracy scores were selected (provided they had not been flagged as being especially unappealing visually or problematic based on negative prescreener comments). Interestingly, all of the most positively evaluated experimental articles came from the magazine *Cosmopolitan*. Because this magazine had been shown to be so popular amongst undergraduate women in Studies 1 and 2 and because

evaluations were so positive, we opted to select all experimental and control stimuli from the same magazine. Therefore, based on the ratings and lengths of the experimental articles, control articles were selected from the *Cosmopolitan* articles prescreened to roughly match the experimental articles. The three experimental articles, combined, included 7 pages of text and 4,402 words; the three control articles combined included 6 pages of text and 3,752 words. More information on the stimuli used, including titles, authors, publication dates, and ratings are included in Table 4.1. Additionally, stimuli are included in the Appendix.

All articles were presented on a computer monitor in full color. Professional-quality digital images of the articles used were available online (General OneFile); this allowed for uniform quality of presentation across all stimuli. Images of each page, in order, were included in the survey; participants were reminded to scroll down to view the whole page prior to beginning reading to make sure they started at the beginning of the story. Other instructions told participants to attend to both the text and the images.

Measures

Prior to evaluating the magazine articles, participants completed measures of regular magazine reading, identification, and demographics similar to measures used in Studies 1 and 2. They also completed measures of social desirability, shyness, conscientiousness, and sexual self-schema. These measures were included for two purposes: (1) to assure that participants were equivalent in the control and experimental conditions and (2) to allow tests for interactions between these constructs and condition.

The following measures were completed during the first half of the study:

Magazine reading. Participants estimated the number of issues of 17 popular, mainstream monthly magazines aimed at women that they had read during the last year. Participants' answers could range from 0 to 12 issues for each monthly magazine. Factor analyses were previously used to cluster magazines into categories, and one category of magazines is of primary interest here: women's lifestyle magazines, including *Cosmopolitan, Glamour,* and *Marie Claire*. We summed the number of issues read of these three magazines to create a continuous measure (α = .57, M = 6.35, SD = 6.10). This variable had some outliers who indicated extremely high levels of reading and was also positively skewed. Therefore, we first capped the variable at two standard deviations

above the mean (19 issues) and then transformed it to normalize by adding 1 and taking the square root.

Magazine identification. As a measure of identification, participants rated how strongly they agreed with 6 statements concerning their identification with women's magazines (e.g., "I would really like to be like the women written about in women's magazines" or "I am similar to the average reader of women's magazines"; Walsh & Ward, 2009). Responses were made on a 6-point scale anchored by 1 (strongly disagree) and 6 (strongly agree). After relevant items were reverse-scored, a mean identification score was created, with higher scores indicating greater identification (α = .86, M = 3.30, SD = .91).

Social desirability. Although attempts were made to disguise the purpose of the study, it was necessary to assure that social desirability concerns were not influencing reports of safe-sex attitudes, norms, efficacy, and intentions for those in the experimental condition. To measure social desirability, participants completed a short form of the Marlowe-Crowne Social Desirability Scale (Strahan & Gerbasi, 1972). This scale contained 10 items (e.g., "You are always willing to admit it when you make a mistake") that participants responded true or false to; the number of items they chose the socially desirable response to was their social desirability score, with higher scores indicating greater concern with social desirability (α = .40, M = 4.46, SD = 1.68). This short form has been found to be one of the best (Fischer & Fick, 1993).

Shyness. Shyness was considered an important trait because more shy participants might feel more embarrassed reading sexual articles and/or taking condoms; shyness might also affect intentions to perform safe-sex behaviors requiring assertiveness (e.g., discussing safe sex with a partner or getting the results of an HIV test from a doctor). To measure shyness, participants completed the 13-item Revised Cheek and Buss Shyness Scale (Cheek, 1983; Cheek & Buss, 1981). Participants responded to statements (e.g., "I feel tense when I'm with people I don't know well") using a scale of 1 (strongly disagree) to 5 (strongly agree). Items were averaged to create an overall shyness score, with higher scores indicating greater shyness (α = .85, M = 2.49, SD = .58).

Conscientiousness. Because participants were allowed to read articles at their own pace, we hypothesized that more conscientious participants might attend to the articles

more carefully and therefore that effects of exposure to the experimental articles might be stronger for those high in conscientiousness. To measure conscientiousness, we made use of the nine items assessing conscientiousness in the Big Five Inventory (John, Donahue, & Kentle, 1991). These items require participants to decide how much various characteristics (e.g., "does a thorough job") apply to them on a scale from 1 (disagree strongly) to 5 (agree strongly). Some items are reverse-scored, and scores are then averaged to create an overall conscientiousness score, with higher scores indicating greater conscientiousness ($\alpha = .81$, $M = 3.87$, $SD = .59$).

Sexual self-schema. A final personality trait of interest was sexual self-schema. Women with a positive sexual schema (Andersen & Cyranowski, 1994) are open to sexual and romantic experiences and emotions and low in conservatism and embarrassment regarding sexuality. We believed that women with positive sexual schemas might be more open to the articles presented in the experimental condition and thus experience larger effects. We measured sexual self-schema using a reduced version of Andersen and Cyranowski's (1994) measure, in which participants evaluate how descriptive a variety of adjectives are of them on a scale of 0 (not at all descriptive) to 6 (very descriptive). The original measure contains 50 adjectives; due to length concerns, we utilized 40 of these, including all adjectives that form the sexual schema scale. Items are averaged to form three factors, one representing an inclination to experience passionate-romantic emotions (10 items, $\alpha = .74$), one representing a behavioral openness to sexual experience (8 items, $\alpha = .76$), and one representing embarrassment or conservatism (7 items, $\alpha = .68$). These factors are combined into an overall score by adding the first two factors and subtracting the third ($M = 5.16$, $SD = .51$).

Magazine articles evaluations. Participants responded to several questions concerning each of the three articles presented. They rated their interest in the article, how personally relevant they found it, how visually appealing the presentation was, and how accurate they thought it was from 1 (not at all) to 5 (extremely). Interest, relevance, visual appeal, and accuracy scores were averaged for the three articles ($\alpha = .51$, .68, .61, and .54 respectively) and compared for the experimental and control conditions. Participants also answered two brief open-ended questions, indicating something specific

about the article they liked or found interesting and something specific about the article they disliked.

In conjunction with the second, supposedly unrelated study, participants completed measures related to safe sex and sexual behavior. These included measures of condom use, discussion, and HIV testing attitudes; peer norms; condom use, negotiation, and HIV testing self-efficacy; condom use, discussion, and HIV/STI testing intentions; perceived risk of STI and HIV infection; and levels of sexual behavior/dating experience, many of which are equivalent to measures used in Studies 1 and 2.

Sexual health attitudes: Condom use. Participants completed three items from the Pleasure subscale of the UCLA Multidimensional Condom Attitudes Scale (Helweg-Larsen & Collins, 1994).[33] These items assess participants' attitudes about the effect of condoms on pleasure and fun (e.g., "The use of condoms can make sex more stimulating"). Response options range from 1 (strongly disagree) to 7 (strongly agree), and some items are reverse-coded. The items were averaged to create a scale, with higher scores indicating more positive attitudes (α = .46, M = 4.02, SD = .83).

Sexual health attitudes: Discussion. To assess attitudes toward safe-sex discussion with partners, participants completed Troth and Peterson's (2000) measure of comfort in discussing AIDS and safe-sex precautions. This scale consists of seven items that participants rate on a scale from 1 (totally disagree) to 6 (totally agree). A sample item is "Sexual partners need to be open and honest about previous sexual experiences." A mean attitudes toward safe-sex discussion score was calculated, with higher scores indicating more positive attitudes (α = .73, M = 5.13, SD = .55).

Sexual health attitudes: Testing. To assess attitudes toward STI and HIV testing, participants completed 10 items from Boshamer and Bruce's (1999) HIV-Antibody Testing Attitude Scale dealing with friend and family concerns about HIV testing, concerns about public opinion of HIV testing, and concerns about confidentiality of HIV testing.[34] A sample item is "I would be embarrassed if my friends found out I had decided to have an HIV test." Participants responded to items using a scale from 1 (strongly

[33] To minimize scale length, only the three highest-loading items from each of the subscales of the Condom Attitudes Scale were included in this study.
[34] These items were the same ones that composed the short version of the scale developed and used in Studies 1 and 2.

disagree) to 5 (strongly agree). A mean score was calculated, with higher scores representing more positive attitudes (α = .82, *M* = 3.59, *SD* = .73).

Perceptions of peer norms. With no formal measure of peer safe-sex norms in existence, participants completed a combination of items from previous studies examining peer norms (Basen-Engquist et al., 1999; Kelly, St. Lawrence, Brasfield, Stevenson, Diaz, & Hauth, 1990; Whitaker & Miller, 2000). These 10 items required participants to evaluate whether their friends hold certain beliefs and engage in certain behaviors (e.g., "My friends think it is too much trouble to use condoms") on a scale of 1 (definitely no) to 4 (definitely yes). Scores were averaged across the 10 items, with higher scores indicating perceptions of more positive peer norms regarding safe sex (α = .79, *M* = 3.23, *SD* = .44).

Condom use and negotiation self-efficacy. To assess condom use and safe-sex negotiation self-efficacy, participants completed six self-efficacy items from Basen-Engquist and colleagues' (1992, 1999) Sexual Risk Beliefs and Self-Efficacy scale. For this scale, participants imagined themselves in six scenarios and assessed how confident they were that they could do described behaviors, including communicating about condom use and using and buying condoms, on a scale from 1 (not at all confident) to 9 (totally confident). The two subscales of interest here were those dealing with self-efficacy for buying and using condoms (3 items, α = .77) and self-efficacy for negotiating condom use (3 items, α = .71). Mean scores were calculated for these two scales, with higher scores indicating greater self-efficacy (for using condoms: *M* = 6.75, *SD* = 1.75; for negotiation: *M* = 7.92, *SD* = 1.16). Scores were negatively skewed, with most participants indicating high levels of efficacy, so a log transformation was used to make the distribution more normal.[35]

HIV testing self-efficacy. To measure HIV testing self-efficacy, participants completed a 5-item scale (Vermeer, Bos, Mbwambo, Kaaya, & Schaalma, 2009) assessing their perceived ability to get tested and to get the results of a test. A sample item is "I could easily arrange to have an HIV test if I wanted to." The items were

[35] With *x* indicating the original score and *y* the transformed score, the transformation used was *y* = ln(*x**-1+10)*-1+max(ln(*x**-1+10)).

averaged to create an overall efficacy score, with higher scores indicating greater feelings of efficacy regarding HIV testing (α = .73, *M* = 3.81, *SD* = .73).

Risk of STI and HIV infection. Participants responded to two items assessing their perceived risk of STI and HIV infection. These items asked them to consider all the different factors that may contribute to STIs (or HIV/AIDS) and to indicate what their chances were of getting an STI (or getting HIV/AIDS) from 1 (extremely unlikely) to 7 (extremely likely). The two items were averaged to create an overall measure of chances of infection, with higher scores indicating a greater perceived likelihood of getting an STI or HIV/AIDS (α = .92, *M* = 2.09, *SD* = 1.17). This variable was positively skewed, with most participants indicating a low probability of infection; it was thus normalized using a log transformation.

Keeping and carrying condoms. To assess intentions to keep and carry condoms in the future, participants completed two items from the four-item Condom Use Questionnaire-Prelim (CUQ-P) scale (Sacco et al., 1993). These items assessed participants' intentions to carry and keep condoms in the future (e.g., "Do you intend to keep condoms in your room/apartment/home in the future?"). Responses range from 1 (never) to 7 (always) and are averaged to create an overall score, with higher scores indicating greater intentions to keep and carry condoms in the future (α = .72, *M* = 3.62, *SD* = 1.67).

Probability of future condom use. Participants evaluated their probability of always using condoms with future committed partners until both partners had been tested for STIs and HIV on an 11-point scale from 0% to 100% (*M* = 82.56, *SD* = 24.46). Participants could also indicate that they did not plan to have any future committed partners; these participants had missing data for this item. This variable was negatively skewed, with most participants indicating a high probability of always using condoms, and a transformation was utilized to normalize it.[36]

Probability of STI/HIV testing. Participants indicated the probability that they would get tested for STIs and HIV during the next six months using 11-point scales from 0% to 100%. Participants could also indicate that they had already been tested; these

[36] With *x* indicating the original score and *y* the transformed score, the transformation used was *y* = ln(*x**-1+101)*-1+max(ln(*x**-1+101)).

participants had missing data for the item. The two items were averaged to create a variable representing the overall probability of testing (α = .87). The majority of participants (52.3%) indicated that there was no chance (0%) that they would get tested. Due to extreme non-normality, we opted to treat this variable as categorical (0=no chance of testing, 1=some chance of testing).

Probability of asking partners to test. Participants indicated their probability of asking future sexual partners to get tested for STIs and HIV prior to engaging in sexual intercourse from 0% to 100% (*M* = 59.57, *SD* = 30.19).

Probability of discussing safe-sex with future partners. Participants reported the probability that they would discuss safer sex with future casual and committed partners on scales from 0% to 100%. These two items were averaged to create a scale, with higher scores indicating greater probability of discussion (α = .84, *M* = 86.91, *SD* = 18.40). This variable was negatively skewed, with most participants indicating a high probability of discussion, and a transformation was utilized to normalize it.[37]

Condoms taken. As part of the study, participants were offered the chance to help themselves to health products including condoms. The number of condoms taken by each participant was counted and ranged from 0 to 11 (*M* = .78, *SD* = 1.61). Because the majority of participants (69.5%) did not take any condoms, this variable was recoded to be categorical (0=didn't take any condoms, 1=took some condoms).

Levels of dating and sexual experience. Participants reported their current level of experience with dating and sexual relationships on a 10-point scale from 1 (just starting out) to 10 (several sexual relationships). Participants had low to moderate experience (*M* = 3.77, *SD* = 2.33). Participants also reported whether they had ever engaged in vaginal intercourse (0=no, 1=yes); as noted previously, 54.3% were sexually active.

Additional measures, spread across the two halves of the study, assessed participant demographics.

Religiosity. To assess religiosity, three questions were used, all measured on 5-point scales: (a) "How religious are you?" (from *not at all* to *very*), (b) "How often do you attend religious services?" (from *never* to *very regularly, more than once a week*),

[37] With *x* indicating the original score and *y* the transformed score, the transformation used was $y = \ln(x^{*}-1+101)^{*}-1+\max(\ln(x^{*}-1+101))$.

and (c) "How often do you pray?" (from *never* to *very regularly, at least once a day*). Responses to each question were scored from 1 to 5 and averaged to create a religiosity score for each participant (α = .88, *M* = 3.02, *SD* = 1.11).

Additional demographics. Participants also self-reported their age in years and months[38], their racial/ethnic identification, their sexual orientation (from exclusively heterosexual to exclusively homosexual), and their mother's and father's highest levels of education (from 1=a few years of high school or less to 7=Ph.D.). For analyses, ethnic/racial identification was coded using two dummy variables with a score of "1" assigned to respondents who identified as Black/African/African American and Asian/Asian American/Pacific Islander respectively; these two racial/ethnic categories along with White/European were the only ones with substantial representation (more than 5%) in our sample. Sexual orientation was recoded to indicate sexual minority status (0=exclusively or predominantly heterosexual, 1=bisexual, predominantly or exclusively homosexual, or unsure). Mother's and father's highest levels of education were averaged to create a parental education score; this variable represented average parental education for participants who provided data on both mothers and fathers and either mother of father education for those participants who provided data on only one parent (α = .74, *M* = 4.43, *SD* = 1.14).

Analysis Plan

Preliminary analyses included comparing ratings of stimuli in the control and experimental conditions; comparing the randomly-assigned experimental and control groups to assure they did not significantly differ in terms of demographic, sexual experience, or personality factors; and examining demographic correlates of safe-sex outcome variables so that significant correlates of outcomes could be accounted for in future analyses. MANCOVAs, ANCOVAs, and logistic regressions were then used to test for differences in sexual health outcomes (attitudes, norms, self-efficacy, perceived risk, and intentions) based on condition (experimental vs. control), and for interactions between regular magazine reading and experimental exposure, between sexual experience and experimental exposure, between personality characteristics and experimental

[38] A precise current age was calculated by multiplying the number of years by 12, adding the number of months, and then dividing by 12.

exposure, and between magazine identification and experimental exposure. The precise procedure for conducting these tests is described in more detail below.

Results

Preliminary analyses

Comparisons of control and experimental stimuli. In selecting stimuli, attempts were made to select control and experimental articles that were roughly equivalent in interest, personal relevance, visual appeal, and accuracy. We compared participants' average article ratings in the control and experimental conditions using t-tests (Table 4.2). Although articles did not differ in terms of interest, participants in the control condition found their articles more personally relevant (M = 3.29, SD = .72) than did those in the experimental condition (M = 2.09, SD = .72), $t(93) = 8.17$, $p < .001$, $d = 1.69$, which is perhaps not surprising given that experimental articles discussed safe-sex-related topics and nearly half of the sample was not yet sexually active. In contrast, participants in the experimental condition perceived their articles as more accurate (M = 3.52, SD = .62) than did those in the control condition (M = 3.22, SD = .60), $t(93) = -2.40$, $p < .05$, d = .50. Overall, assessments were slightly more positive in the control condition (M = 3.26, SD = .52) than in the experimental condition (M = 2.98, SD = .47), $t(93) = 2.79$, $p < .01$, d = .58. However, both groups' average ratings were very near the middle of the scale.

Comparisons between experimental and control participants. Participants were randomly assigned to the experimental and control conditions. To assure that this random assignment effectively equalized characteristics of the two groups, we used t-tests and chi-square tests to compare the conditions in terms of demographics (age, religiosity, parental education, sexual minority status, and ethnicity); sexual experience levels (dating experience and percentage who had engaged in intercourse); and personality characteristics (social desirability, conscientiousness, sexual self-schema, and shyness). As shown in Table 4.3, there were no significant differences between women in the two conditions on any of these variables (all p's > .20).

Demographic correlates of safe-sex outcomes. It was desirable to include important demographic and personality characteristics as covariates in MANCOVAs, ANCOVAs, and logistic regressions. Therefore, we examined zero-order correlations

between these variables and all outcomes. Results are shown in Table 4.4; we included all significant demographic and personality variables as covariates in future models.

Primary research questions

To test our hypotheses, we used MANCOVAs and ANCOVAs (in the case of continuous outcomes) and logistic regressions (in the case of dichotomous outcomes) to test for significant differences between experimental and control participants as well as for interactions between (1) experimental condition and regular reading levels, (2) experimental condition and sexual experience, (3) experimental condition and personality variables, and (4) experimental condition and magazine identification. Because many outcome variables were related to one another, we used MANCOVAs when possible. MANOVA is most appropriate when variables are moderately correlated, so we selected four related sets of variables for these analyses: (1) condom attitudes, intentions to keep and carry condoms, and probability of future condom use; (2) condom use and safe-sex negotiation efficacy; (3) safe-sex discussion attitudes, probability of discussion, and probability of asking partners to get tested for STIs/HIV; and (4) HIV testing attitudes and efficacy. Additionally, several variables were analyzed separately in ANCOVAs: (1) perceptions of peer norms, which dealt with safe-sex norms in general and thus were not appropriate for any of the MANCOVAs and (2) chances of HIV/STI infection, which also did not correlate with any set of MANCOVA variables. Finally, two outcomes were dichotomous and thus were analyzed with logistic regressions: (1) whether or not there is any chance of STI/HIV testing in the next six months and (2) whether or not any provided condoms were taken.

For each outcome or set of outcomes, we tested three models. We opted to include different predictors in different models for the sake of parsimony. An initial (M)ANOVA/regression tested the effect of condition alone. The second model, a (M)ANCOVA/regression, began with the following variables included: (1) experimental condition (condit; 0=control, 1=experimental) and sexual experience (vint; 0=has never had intercourse, 1=has had intercourse) as predictors; (2) regular reading of women's magazines (regread; measured continuously) as a covariate; and (3) significant demographic correlates of any outcome variables as covariates. The initial model was

demographics + condit + vint + regread + condit*vint + condit*regread + vint*regread.

This model thus tested for main effects and interactions between the three main variables of interest, controlling for demographics. Interactions between condition and intercourse or regular reading status would indicate that response to the experimental articles depended on whether or not a participant was sexually active and/or how much a participant regularly read women's magazines. A third model, also a (M)ANCOVA/regression, tested for interactions between condition and personality characteristics as well as magazine identification. This model began with the following variables included: (1) experimental condition (condit; 0=control, 1=experimental) as a predictor; (2) social desirability (socdes), sexual self-schema (sss), conscientiousness (consc), and shyness as covariates; (3) magazine identification (magid) as a covariate; and (4) significant demographic correlates of any outcome variables as covariates (including intercourse status if it was associated with any outcome). The initial model was

> demographics + condit + socdes + sss + shyness + consc + magid + condit*socdes + condit*sss + condit*shyness + condit*consc + condit*magid.

Interactions between condition and any of the personality variables would indicate that certain characteristics made a response to the experimental articles more or less likely. We were especially concerned with any interaction between experimental condition and social desirability, as that interaction would indicate that reports of more positive safe-sex outcomes in the experimental condition may not be genuine. An interaction between condition and magazine identification would indicate that overall identification with women's magazines made a response to the experimental articles more or less likely.

Models 2 and 3, initially quite complex, were then refined by dropping terms that did not contribute in explaining outcomes (p's > .25). In the case of MANCOVAs, we based the inclusion or exclusion of predictor terms on the overall significance tests. Lower-order terms could not be dropped before higher-order terms (e.g., no 2-way interactions remained in the model unless both of the terms involved did), and demographic controls were always maintained. Due to our relatively small sample size, we discuss both significant and marginally significant effects. Additionally, in the case of MANCOVAs, multivariate tests of significance were considered the strongest indicators of effects, but we also discuss significant univariate tests.

MANOVA and ANOVA are sensitive to extreme violations of normality assumptions, and therefore we transformed several variables to normalize them as detailed in discussion of measures. Although transformed variables are used in all (M)ANOVAs, t-tests, and correlations, reported means and figures make use of the original scales for sake of interpretation. Additionally, when including interaction terms involving continuous measures, multicollinearity becomes a concern; we therefore utilized centered continuous measures in all models involving interaction terms. Properties of final models are indicated in Tables 4.5 and 4.6.

Condom attitudes and intentions. Three models were used to test the effects of experimental condition, intercourse status, and regular reading level on condom attitudes regarding pleasure, intentions of keeping and carrying condoms in the future, and probability of always using condoms in the future. An initial MANOVA looked at the effects of experimental condition alone and showed a significant main effect, $F(3,82) = 2.78$, $p < .05$, $\eta^2 = .09$. Specifically, those in the experimental condition had greater intentions to keep and carry condoms in the future, $F(1,84) = 5.69$, $p < .05$, $\eta^2 = .06$, and marginally more positive attitudes toward condoms, $F(1,84) = 2.78$, $p < .10$, $\eta^2 = .03$, than those in the control condition. Condition alone explained 3.2% of the variance in condom attitudes and 6.3% of the variance in intentions to keep and carry condoms (adjusted R^2s = .02 and .05 respectively).

A more complex MANCOVA was then constructed including demographic controls, intercourse status, regular reading, and interaction terms in addition to condition. Demographic controls included as covariates were sexual minority status, religiosity, shyness, conscientiousness, and sexual self-schema. The final model explained 20.9% of the variance in condom attitudes, 37.2% of the variance in intentions to keep and carry condoms, and 18.4% of the variance in probability of condom use (with adjusted R^2s of .11, .37, and .09 respectively). There was a significant main effect of experimental condition in the expected direction, $F(3,73) = 3.39$, $p < .05$, $\eta^2 = .12$. Specifically, those in the experimental condition reported more positive condom attitudes, $F(1,75) = 2.74$, $p < .05$, $\eta^2 = .06$, and greater intentions to keep and carry condoms in the future, $F(1,75) = 5.87$, $p < .05$, $\eta^2 = .07$, than those in the control condition. There was also a significant main effect of regular women's magazine reading,

$F(3,73) = 2.66$, $p \leq .05$, $\eta^2 = .10$, such that regular women's magazine reading was positively associated with intentions to keep and carry condoms in the future, $F(1,75) = 7.03$, $p \leq .01$, $\eta^2 = .09$.

Additionally, there was a significant interaction between experimental condition and intercourse status, $F(3,73) = 3.12$, $p < .05$, $\eta^2 = .11$. This interaction was such that effects on safe-sex outcomes were stronger for those who had never had intercourse than they were for those who were sexually active. This interaction effect occurred for condom attitudes, $F(1,75) = 4.26$, $p < .05$, $\eta^2 = .05$, and for participants' evaluations of their probability of always using condoms in the future, $F(1,75) = 5.18$, $p < .05$, $\eta^2 = .07$. Although the univariate test was not significant, the pattern was also the same for intentions of keeping and carrying condoms, $F(1,75) = 2.20$, $p = .14$, $\eta^2 = .03$. T-tests confirmed that for those who had never had intercourse, women in the experimental condition indicated more positive attitudes, $t(41) = -3.20$, $p < .01$, $d = .50$, , $d = 1.00$, and marginally greater intentions of keeping and carrying condoms, $t(41) = -1.97$, $p = .06$, $d = .62$, relative to those in the control condition, whereas no differences between conditions were significant for sexually active women. In the case of probability of using condoms in the future, this same trend was apparent, with non-active women in the experimental condition reporting a higher probability of always using condoms ($M = 88.95$, $SD = 23.55$) than those in the control condition ($M = 80.53$, $SD = 25.49$), although the difference was not significant, $t(36) = -1.35$, $p = .19$, $d = .45$. These interactions are depicted in Figures 4.1, 4.2, and 4.3. Significant demographic variables included shyness, $F(3,73) = 11.18$, $p < .001$, $\eta^2 = .32$, and sexual self-schema, $F(3,73) = 6.11$, $p < .001$, $\eta^2 = .20$, both of which were positively associated with all outcome variables.

A final model examined interactions between experimental condition and personality characteristics as well as identification. This model showed no significant interactions between condition and conscientiousness, social desirability, shyness, sexual self-schema, or magazine identification, indicating that experimental effects did not depend upon any of these constructs.

Condom use and negotiation self-efficacy. Because condom use and negotiation self-efficacy items came from the same scale (Basen-Engquist et al., 1992, 1999) and were highly correlated, $r(95) = .49$, $p < .001$, they were analyzed together. Three models

were used to test the effects of experimental condition, intercourse status, and regular reading level on condom use self-efficacy and safe-sex negotiation self-efficacy. An initial MANOVA showed no main effect of experimental condition, $F(2,92) = .19$, $p = .82$, $\eta^2 = .004$.

A more complex MANCOVA was constructed including demographic controls, intercourse status, regular reading, and interaction terms in addition to condition. Demographic controls included as covariates were parental education and sexual self-schema. The final model explained 36.8% of the variance in condom use self-efficacy and 21.9% of the variance in negotiation self-efficacy (with adjusted R^2s of .32 and .16 respectively). Although there was no main effect of condition, there was a main effect of intercourse status, $F(2,85) = 3.85$, $p < .05$, $\eta^2 = .08$. Specifically, those who had engaged in intercourse reported higher levels of condom use self-efficacy than those who had not, $F(1,86) = 7.69$, $p < .01$, $\eta^2 = .08$. There was also a significant interaction between experimental condition and intercourse status, $F(2,85) = 3.29$, $p < .05$, $\eta^2 = .07$. This interaction was such that experimental effects on safe-sex outcomes were more positive for those who had never had intercourse than they were for those who were sexually active. This interaction effect occurred for both condom use self-efficacy, $F(1,86) = 4.32$, $p < .05$, $\eta^2 = .05$, and negotiation self-efficacy, $F(1,86) = 4.70$, $p < .05$, $\eta^2 = .05$. These interactions, depicted in Figures 4.4 and 4.5, were such that those who hadn't had intercourse tended to have *higher* scores and those who had engaged in intercourse tended to have *lower* scores in the experimental versus control condition, although t-tests comparing conditions were not significant for either sexual experience group. Although the multivariate test was not significant, $F(2,85) = 1.70$, $p = .19$, $\eta^2 = .04$, the univariate test for negotiation self-efficacy also showed a marginal interaction between condition and regular women's magazine reading, $F(1,86) = 3.43$, $p = .07$, $\eta^2 = .04$. There was a trend toward regular reading being positively associated with negotiation efficacy in the experimental but not the control condition, as shown in Figure 4.6.[39] Sexual self-schema

[39] When a mean split was performed on regular magazine reading, an ANCOVA accounting for sexual self-schema, parental education, and intercourse status as covariates showed a main effect of experimental condition on negotiation self-efficacy for those high in regular reading, $F(1,39) = 5.34$, $p < .05$, $\eta^2 = .12$, but not for those low in regular reading, $F(1,44) = .56$, $p = .46$, $\eta^2 = .01$. This effect was such that, among high regular readers, those in the experimental condition reported higher levels of negotiation self-efficacy than those in the control condition.

was the only significant demographic variable, $F(2,85) = 12.01$, $p < .001$, $\eta^2 = .22$; it was positively associated with both outcome variables.

A final model examined interactions between experimental condition and personality characteristics as well as identification. This model showed no significant interactions, indicating that experimental effects did not depend upon conscientiousness, shyness, sexual self-schema, social desirability, or magazine identification.

Safe-sex discussion attitudes and intentions. Three models were used to test the effects of experimental condition, intercourse status, and regular reading level on safe-sex discussion attitudes, probability of discussing safe sex with future partners, and probability of asking future partners to get tested for STIs or HIV. An initial MANOVA looked at the effects of experimental condition alone. This model showed a marginally significant effect of condition, $F(3,89) = 2.60$, $p = .06$, $\eta^2 = .08$. Specifically, those in the experimental condition reported more positive safe sex attitudes, $F(1,91) = 5.22$, $p < .05$, $\eta^2 = .05$, and marginally higher probability of asking future partners to test, $F(1,91) = 2.71$, $p \leq .10$, $\eta^2 = .03$, than did those in the control condition. Condition alone explained 5.4% of the variance in discussion attitudes (adjusted $R^2 = .04$) and 2.9% of the variance in probability of asking future partners to test (adjusted $R^2 = .02$).

A more complex MANCOVA was then constructed including demographic controls, intercourse status, regular reading, and interaction terms in addition to condition. Demographic controls included as covariates were conscientiousness and sexual self-schema. The final model explained 17.0% of the variance in discussion attitudes, 16.7% of the variance in probability of discussion with future partners, and 12.6% of the variance in probability of asking future partners to test (with adjusted R^2s of .11, .11, and .07 respectively). There was a marginally significant main effect of experimental condition in the expected direction, $F(3,83) = 2.60$, $p = .06$, $\eta^2 = .09$. Specifically, those in the experimental condition reported more positive discussion attitudes, $F(1,85) = 6.14$, $p < .05$, $\eta^2 = .07$, and marginally higher probability of asking future partners to get tested, $F(1,85) = 2.99$, $p = .09$, $\eta^2 = .03$, than did those in the control condition. There were also marginally significant main effects of regular women's magazine reading, $F(3,83) = 2.40$, $p = .07$, $\eta^2 = .08$, and of intercourse status, $F(3,83) = 2.11$, $p = .10$, $\eta^2 = .07$. Regular women's magazine reading was specifically positively

associated with probability of discussing safe sex with future partners, $F(1,85) = 5.75$, $p < .05$, $\eta^2 = .06$. Although no univariate tests were significant, there was a trend toward those who had engaged in intercourse reporting more positive discussion attitudes than those who had not, $F(1,85) = 2.23$, $p = .14$, $\eta^2 = .03$, and a zero-order correlation showed a positive association between intercourse status and safe-sex discussion attitudes, $r(94) = .21$, $p < .05$.

Additionally, there was a marginally significant interaction between experimental condition and intercourse status, $F(3,83) = 2.19$, $p = .10$, $\eta^2 = .07$. This interaction was such that effects on safe-sex outcomes primarily occurred for those who had never had intercourse. This interaction effect occurred for participants' evaluations of their probability of discussing safe sex with future partners, $F(1,85) = 5.59$, $p < .05$, $\eta^2 = .06$, and was marginal for discussion attitudes, $F(1,85) = 3.38$, $p = .07$, $\eta^2 = .04$. Among those who had never had intercourse, women in the experimental condition indicated more positive attitudes, $t(41) = -3.06$, $p < .01$, $d = .96$, and an increased probability of discussing safe-sex with future partners, $t(41) = -2.05$, $p < .05$, $d = .64$, relative to those in the control condition, whereas no differences between conditions were apparent for sexually active women.[40] Women who had never engaged in intercourse were significantly lower than those who had in terms of both attitudes, $t(45) = -3.03$, $p < .01$, $d = .90$, and probability of discussion, $t(45) = -2.39$, $p < .05$, $d = .71$, in the control condition, but women did not differ based on experience in the experimental condition.[41] These interactions are depicted in Figures 4.7 and 4.8. There were no demographics significant at the multivariate level.

A final model examined interactions between experimental condition and personality characteristics as well as magazine identification. This model showed a significant interaction between condition and conscientiousness, $F(3,82) = 5.38$, $p < .01$, $\eta^2 = .16$. This interaction specifically occurred for safe-sex discussion attitudes, $F(1,84) = 15.33$, $p < .001$, $\eta^2 = .15$, such that conscientiousness was positively associated with discussion attitudes in the experimental condition, $r(47) = .38$, $p < .01$, but not in the

[40] For discussion attitudes: $t(49) = -.58$, $p = .56$, $d = .17$; for probability of discussion: $t(48) = 1.27$, $p = .21$, $d = .37$.
[41] For discussion attitudes: $t(45) = -.09$, $p = .93$, $d = .50$, $d = .03$; for probability of discussion: $t(44) = .96$, $p = .35$, $d = .29$.

control condition, $r(48) = -.23$, $p = .12$.[42] Additionally, the model showed a significant main effect of magazine identification, $F(3,82) = 5.38$, $p < .05$, $\eta^2 = .10$, that was qualified by a marginal interaction between experimental condition and identification, $F(3,82) = 2.12$, $p = .10$, $\eta^2 = .07$. Univariate tests showed this interaction was significant for both discussion attitudes, $F(1,84) = 4.33$, $p < .05$, $\eta^2 = .05$, and probability of discussion, $F(1,84) = 4.65$, $p < .05$, $\eta^2 = .05$.[43] This interaction was such that magazine identification was *negatively* associated with both outcomes in the experimental condition but not in the control condition. Thus, women in the experimental condition who identified more strongly with women's magazines reported more negative attitudes toward discussion, $r(41) = -.40$, $p < .01$, and a lower probability of discussing safe sex with future partners, $r(41) = -.47$, $p < .001$, whereas there was no association between identification and either discussion attitudes, $r(42) = -.06$, $p = .71$, or probability of discussion, $r(42) = -.08$, $p = .60$, in the control condition.[44] There were no interactions between social desirability, sexual self-schema, or shyness and condition.

Peer norms. Three models were used to test the effects of experimental condition, intercourse status, and regular reading level on safe-sex peer norms. An initial ANOVA looked at the effects of experimental condition alone. This model showed no main effect of condition, $F(1,93) = .10$, $p = .75$, $\eta^2 = .001$. Condition alone did not explain any of the variance in safe-sex peer norms.

A more complex ANCOVA was then constructed including demographic controls, intercourse status, regular reading, and interaction terms in addition to condition. Demographic controls included as covariates were age, social desirability, and conscientiousness. The final model explained 14.9% of the variance in peer norms (adjusted $R^2 = .08$). However, there were no significant main effects of or interactions

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[42] When a mean split was performed on conscientiousness scores, t-tests confirmed that there were significant differences based on experimental condition for those high in conscientiousness, $t(48) = -3.67$, $p < .001$, $d = 1.06$, but not for those low in conscientiousness, $t(43) = .39$, $p = .70$, $d = .12$. For those high in conscientiousness, those in the experimental condition had significantly more positive attitudes (M=5.35, SD = .52) than those in the control condition (M=4.80, SD = .54). On the other hand, conscientiousness was positively associated with probability of discussion and with probability of asking partners to test for both control and experimental participants, $r(94) = .17$, $p = .10$ and $r(94) = .28$, $p < .01$ respectively.

[43] The main effect was also significant for both discussion attitudes, $F(1,84) = 4.25$, $p < .05$, $\eta^2 = .05$, and probability of discussion, $F(1,84) = 6.40$, $p \leq .01$, $\eta^2 = .07$.

[44] The correlations reported are partial correlations controlling for significant demographic correlates (conscientiousness and sexual self-schema) included in the MANCOVA as well as for intercourse status, which is correlated with identification.

between condition, intercourse status, and regular reading levels. The only significant demographic control was age, $F(1,86) = 6.88$, $p < .01$, $\eta^2 = .07$; older participants indicated more positive perceptions of peer safe-sex norms.

A final model examined interactions between experimental condition and personality characteristics as well as magazine identification. This model showed a significant interaction between condition and conscientiousness, $F(1,87) = 4.04$, $p < .05$, $\eta^2 = .04$. This interaction was such that conscientiousness was positively associated with safe-sex peer norms in the experimental condition, $r(42) = .30$, $p < .05$, but not in the control condition, $r(43) = -.10$, $p = .54$.[45] The model also showed a marginally significant interaction between condition and social desirability, $F(1,87) = 2.79$, $p = .10$, $\eta^2 = .03$. Here, social desirability was positively associated with reports of peer safe-sex norms in the control condition, $r(43) = .36$, $p \leq .01$, but not in the experimental condition, $r(42) = -.05$, $p = .75$.[46] There were no interactions between sexual self-schema, shyness, or magazine identification and condition.

HIV testing attitudes and self-efficacy. Three models were used to test the effects of experimental condition, intercourse status, and regular reading level on HIV testing attitudes and HIV testing self-efficacy. An initial MANOVA looked at the effects of experimental condition alone. This model showed no main effect of condition, $F(2,92) = 1.28$, $p = .28$, $\eta^2 = .03$. Condition alone explained 2.6% of the variance in testing self-efficacy (adjusted $R^2 = .02$), but did not explain any of the variance in HIV testing attitudes.

A more complex MANCOVA was then constructed including demographic controls, intercourse status, regular reading, and interaction terms in addition to

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[45] These are partial correlations controlling for model demographics, including age, social desirability, and sexual self-schema; zero-order correlations show the same pattern: $r(47) = .33$, $p < .05$ for the experimental condition and $r(48) = .07$, $p = .62$ for the control condition. Interestingly, when a mean split was performed on conscientiousness scores, t-tests showed that there was a marginally significant difference based on experimental condition for those low in conscientiousness, $t(49) = 1.74$, $p = .09$, $d = .50$, but not for those high in conscientiousness, $t(48) = -1.07$, $p = .29$, $d = .31$. For those low in conscientiousness, those in the control condition reported significantly more positive peer norms (M=3.29, SD = .37) than those in the control condition (M=3.07, SD = .45). However, ANCOVAs with age and social desirability as covariates showed that for those high in conscientiousness, those in the experimental condition had marginally more positive norms than those in the control condition, $F(1,45) = 2.84$, $p = .10$, $\eta^2 = .06$.

[46] These are partial correlations controlling for model demographics, including age, conscientiousness, and sexual self-schema; zero-order correlations show the same pattern: $r(48) = .36$, $p \leq .01$ for the control condition and $r(47) = .08$, $p = .59$ for the experimental condition.

condition. Demographic controls included as covariates were religiosity, shyness, and sexual self-schema. The final model explained 22.3% of the variance in testing attitudes and 21.3% of the variance in testing self-efficacy (with adjusted R^2s of .15 and .14 respectively). This model showed a marginally significant main effect of regular women's magazine reading, $F(2,84) = 2.54$, $p = .08$, $\eta^2 = .06$. Regular women's magazine reading was specifically positively associated with HIV testing self-efficacy, $F(1,85) = 5.03$, $p < .05$, $\eta^2 = .06$.[47] There was also a marginally significant interaction between intercourse status and regular women's magazine reading, $F(2,84) = 2.81$, $p = .07$, $\eta^2 = .06$. Although no univariate tests were significant, there was a trend toward women's magazine reading being positively associated with HIV testing self-efficacy for those who had never had intercourse but not for those who had, $F(1,85) = 2.04$, $p = .16$, $\eta^2 = .02$. Partial correlations controlling for significant demographics (including religiosity, shyness, and sexual self-schema) showed a positive association between magazine reading and HIV testing self-efficacy for those who had never engaged in intercourse, $r(38) = .48$, $p < .01$; there was no such association for sexually active women, $r(46) = .07$, $p = .62$. Significant demographic controls included religiosity, $F(2,84) = 3.61$, $p < .05$, $\eta^2 = .08$, which was negatively associated with HIV testing attitudes, and sexual self-schema, $F(2,84) = 4.60$, $p \leq .01$, $\eta^2 = .10$, which was positively associated with both HIV testing attitudes and HIV testing self-efficacy. There were no main effects of or interactions involving experimental condition.

A final model examined interactions between experimental condition and personality characteristics as well as magazine identification. This model showed a marginally significant interaction between condition and conscientiousness, $F(2,87) = 2.64$, $p = .08$, $\eta^2 = .06$. This interaction specifically occurred for HIV testing self-efficacy, $F(1,88) = 5.30$, $p < .05$, $\eta^2 = .06$, such that conscientiousness was positively associated with testing efficacy in the experimental condition, $r(42) = .40$, $p < .01$, but not in the control condition, $r(43) = -.07$, $p = .64$.[48] There were no interactions between social desirability, sexual self-schema, shyness, or magazine identification and condition.

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[47] A partial correlation controlling for religiosity, sexual self-schema, shyness, and intercourse status confirmed this association, $r(88) = .23$, $p < .05$.

[48] These are partial correlations controlling for model demographics, including religiosity, shyness, and sexual self-schema; zero-order correlations show the same pattern: $r(47) = .35$, $p < .05$ for the experimental

Chances of STI/HIV infection. Three models were used to test the effects of experimental condition, intercourse status, and regular reading level on participants' perceptions of their chances of getting an STI or HIV. An initial ANOVA looked at the effects of experimental condition alone. This model showed a marginal main effect of condition in the expected direction, $F(1,93) = 2.85$, $p = .09$, $\eta^2 = .03$. Those in the experimental condition perceived themselves as being at greater risk for infection ($M = 2.33$, $SD = 1.30$) than did those in the control condition ($M = 1.86$, $SD = .99$). Condition alone explained 3.0% of the variance in perceptions of chances of infection (adjusted $R^2 = .02$).

A more complex ANCOVA was then constructed including demographic controls, intercourse status, regular reading, and interaction terms in addition to condition. The demographic control included as a covariate was Asian ethnicity. The final model explained 9.5% of the variance in perceived chances of infection (adjusted $R^2 = .05$). Although this model continued to show a marginal main effect of condition as described above, $F(1,88) = 3.18$, $p = .08$, $\eta^2 = .04$, there were no other main effects or interactions, indicating that perceptions of chances of infection did not depend upon regular reading levels, intercourse status, or interactions between these variables and experimental exposure. Asian ethnicity was a significant demographic control, $F(1,88) = 4.58$, $p < .05$, $\eta^2 = .05$; those who identified as Asian/Asian American/Pacific Islander perceived themselves as being at greater risk for infection ($M = 2.73$, $SD = 1.33$) than those who did not ($M = 2.01$, $SD = 1.13$).

A final model examined interactions between experimental condition and personality characteristics as well as magazine identification. This model showed a significant main effect of magazine identification, $F(1,87) = 9.34$, $p < .01$, $\eta^2 = .10$. A partial correlation controlling for demographics (Asian ethnicity) showed that identification was strongly positively associated with perceived chances of infection, $r(92) = .28$, $p < .01$. This association occurred regardless of experimental condition.

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condition and $r(48) = -.05$, $p = .74$ for the control condition. Additionally, when a mean split was performed on conscientiousness scores, t-tests confirmed that there were significant differences based on experimental condition for those high in conscientiousness, $t(48) = -2.41$, $p < .05$, $d = .70$, but not for those low in conscientiousness, $t(43) = .40$, $p = .69$, $d = .12$. For those high in conscientiousness, those in the experimental condition had significantly higher levels of efficacy (M=4.09, $SD = .79$) than those in the control condition (M=3.58, $SD = .79$).

There were no interactions between experimental condition and any of the characteristics examined.

HIV/STI testing intentions. Participants also indicated the probability that they would get tested for STIs and HIV in the next six months. Because the majority of participants indicated that there was no chance they would get tested, this variable was treated as binary. We therefore utilized logistic regression rather than ANCOVA. Aside from this distinction, the strategy for constructing models was the same as outlined above. An initial logistic regression looked at the effects of experimental condition alone and showed no effect of condition, $\beta = .36$ ($SE = .43$), Exp(β) = 1.43, $p = .40$. This model showed little improvement in classification rate over a baseline model (54.5% vs. 52.3%), and pseudo R^2 values suggested that condition alone was not an important predictor (Cox & Snell $R^2 = .01$; Nagelkerke $R^2 = .01$).

A more complex logistic regression was then constructed including intercourse status, regular reading, and interaction terms in addition to condition (there were no significant demographic correlates). The final model correctly classified 66.7% of cases (as compared to 51.7% at baseline; Cox & Snell $R^2 = .12$; Nagelkerke $R^2 = .16$). This model showed a significant main effect of intercourse status, $\beta = .47$ ($SE = .23$), Exp(β) = 1.60, $p < .05$. As would be expected, those who were sexually active were more likely to indicate that there was some chance of them getting tested in the next 6 months than those who were not. Additionally, this model showed a marginal interaction between intercourse status and experimental condition, $\beta = .42$ ($SE = .23$), Exp(β) = 1.52, $p = .07$. Sexually active experimental participants indicated an increased chance of getting tested for STIs/HIV relative to control participants, $\chi^2(1) = 2.91$, $p = .09$, whereas there was no difference across conditions for those who were not sexually active, $\chi^2(1) = .54$, $p = .46$.

The final model examined interactions between experimental condition and personality characteristics as well as identification.[49] This model showed a significant main effect of identification, $\beta = .85$ ($SE = .32$), Exp(β) = 2.34, $p < .01$, such that those who identified more strongly with magazines were more likely to indicate some probability of testing. Additionally, there was a marginally significant interaction

[49] Correct classification percentage: 64.4%, vs. 51.7% at baseline. Cox & Snell $R^2 = .19$; Nagelkerke $R^2 = .25$.

between experimental condition and conscientiousness, β = -.89 (*SE* = .48), Exp(β) = .41, p = .06. This interaction was such that conscientiousness was *negatively* associated with chance of testing in the experimental condition, $r(39)$ = -.27, p = .09, but not associated with chance of testing in the control condition, $r(42)$ = .00, p = .98.[50] There were no interactions between experimental condition and social desirability, sexual self-schema, shyness, or magazine identification, indicating that these variables were not important in explaining experimental effects.

Taking condoms. One other categorical variable was examined separately: whether or not participants took any of the free condoms provided. Since this outcome variable was binary, we again utilized logistic regression rather than ANCOVA. An initial logistic regression looked at the effects of experimental condition alone and showed no effect of condition, β = .13 (*SE* = .45), Exp(β) = 1.14, p = .77. This model showed no improvement in classification rate over a baseline model (69.5% for both), and pseudo R^2 values suggested that condition alone was not an important predictor (Cox & Snell R^2 = .001; Nagelkerke R^2 = .001).

A more complex logistic regression was then constructed including demographic controls, intercourse status, regular reading, and interaction terms in addition to condition. Demographic controls included were sexual self-schema and conscientiousness. The final model correctly classified 80.9% of cases (as compared to 69.1% at baseline; Cox & Snell R^2 = .23; Nagelkerke R^2 = .32). This model showed a significant main effect of intercourse status, β=1.02 (*SE* = .31), Exp(β) = 2.78, p < .001. As would be expected, those who were sexually active were much more likely to take condoms than those who were not. Additionally, this model showed a marginal interaction between regular reading levels and experimental condition, β = .47 (*SE* = .27), Exp(β) = 1.60, p = .09. This interaction, depicted in Figure 4.9, was such that regular reading was positively associated with taking condoms in the experimental condition, $r(47)$ = .31, p < .05, but not in the control condition, $r(48)$ = .04, p = .81. Conscientiousness was significant as a demographic control, β = .99 (*SE* = .47), Exp(β) =

[50] These are partial correlations controlling for intercourse status; zero-order correlations show the same general pattern: $r(42)$ = -.25, p = .12 in the experimental condition and $r(46)$ = -.03, p = .85 in the control condition.

2.69, $p < .05$, such that higher levels of conscientious were associated with an increased likelihood of taking condoms.

The final model examining interactions between experimental condition and personality characteristics and identification showed no significant interactions.[51] This indicated that social desirability, sexual self-schema, shyness, conscientiousness, and magazine identification were not important in explaining experimental effects.

Summary of Results

Results for all outcomes are summarized in Table 4.7. We found some support for nearly all hypotheses (Table 4.8), with overall experimental effects apparent for condom attitudes, intentions of keeping and carrying condoms in the future, discussion attitudes, probability of asking partners to test, and perceptions of chances of STI/HIV infection. Many of these effects were moderated by intercourse status in line with H_8; effects were most often stronger for women who had not yet engaged in intercourse. In addition to these effects, we found effects of experimental exposure on probability of safe-sex discussion for non-active women and for testing intentions for active women. There was also some evidence of experimental effects on negotiation self-efficacy and on taking condoms for heavy magazine readers and on peer norms and HIV testing self-efficacy for women high in conscientiousness.

Discussion

We hypothesized that brief exposure to women's lifestyle magazine articles addressing safe-sex topics would lead to more positive attitudes toward condoms, safe-sex discussion, and HIV testing; more positive perceptions of peer norms; higher levels of condom use, negotiation, and HIV testing self-efficacy; increased perceptions of risk of contracting STIs and HIV; greater intentions to keep and carry condoms in the future; and increased perceptions of probability of using condoms and discussing safe sex with future partners, asking future partners to test, and getting tested for STIs and HIV compared to exposure to neutral articles. We indeed found that exposure to safe-sex articles led to more positive condom and discussion attitudes, greater intentions to keep and carry condoms in the future, an increased probability of asking future partners to test,

[51] Correct classification percentage: 78.7%, vs. 69.1% at baseline. Cox & Snell $R^2 = .24$; Nagelkerke $R^2 = .33$.

and increased perceptions of risk of STI and HIV infection. Additionally, there were effects on nearly all studied variables for at least some subgroups of women—in particular, for those who had never engaged in sexual intercourse.

This study is the first experiment to show effects of magazine exposure on safe-sex outcomes. Although women read only three articles, effects spanned a variety of different outcomes and were consistently positive. These effects are in line with associations in previous correlational studies (Walsh & Ward, 2009) and suggest that magazine reading has the potential to positively influence young women by improving their attitudes, informing them of the risks of STI and HIV infection, and increasing their intentions to practice safe sex behavior. Most previous experimental work involving magazines has focused on negative effects on body image (e.g., Cameron & Ferraro, 2004; Tiggemann & McGill, 2004) and on sex and gender attitudes (e.g., Lanis & Covell, 1995); the current study provides initial evidence regarding the benefits of magazine reading.

Notably, effects of exposure to safe-sex magazine articles seemed to occur more strongly for some outcomes than for others. Specifically, although there were a variety of effects for condom use and discussion-related outcomes, there were fewer effects on HIV/STI testing outcomes or on peer norms. This may relate to the contents of the articles chosen for the experimental condition. One article was quite specifically pro-condom, instructing readers on how to "maximize pleasure while using protection" and stressing that "rolling one on doesn't have to ruin the mood" (Gilbert, 2008, p. 105). Another article also provided instruction on the correct use of condoms (Stork, 2009). A third article did address STIs quite extensively, but may have done more to improve attitudes toward those afflicted with STIs and HIV than to change attitudes about testing. In fact, one woman profiled does get tested and asks a partner to test, but later is infected with herpes despite this. A second woman visits a doctor with symptoms and feels the doctor is judging her for having become infected. These stories may have stressed the seriousness of STIs (and the importance of communicating with sexual partners) more than testing itself. However, several text boxes included in the article did stress the importance of testing for STIs (e.g., "Half of all sexually active women ages 25 and under have not been screened for chlamydia. Yet women in this age group should be

tested annually" [p. 209]). It is possible that women did not carefully read these text boxes since they were separated from the main story, or perhaps women did not generalize from STIs to HIV. Future studies should vary the specific contents of articles to test whether it is possible to have stronger effects on HIV-related outcomes.

In addition to overall experimental effects, an important finding was that positive outcomes seemed to occur primarily for women who had never engaged in intercourse. There are a variety of potential reasons for this. First, women who have less sexual experience may have few personal experiences upon which to base their safe-sex attitudes or their sense of efficacy; this may make them more open to influence from the media. Many studies (e.g., Godin et al., 2005; Reinecke et al., 1996; Rise, 1992; Sheeran & Taylor, 1999; Sutton, 1994) have found that past safe-sex behavior is one of the best predictors of future safe-sex behavior (as well as attitudes, norms, efficacy, and intentions); the result may be that women with established patterns of safe (or unsafe) sexual behavior are less open to influence. Additionally, for some outcomes, effects may have occurred primarily for women with less sexual experience due to ceiling effects for women with more experience. In general, women in the sample reported high levels of efficacy and high probabilities of using condoms and discussing safe sex in the future; this was especially true for sexually active women (for example, active women in the control condition averaged 8.24 and 7.63 out of 9 on condom use and negotiation self-efficacy scales, indicating a high level of confidence in their abilities). Research with samples lower in efficacy and safe-sex intentions might show additional effects for active women.

The positive effects of magazine exposure for women who have not had intercourse are encouraging—as noted, past behavior is found to be one of the best predictors of future sexual behavior. If exposure to safe sex content in magazines can influence young women's safe-sex attitudes, efficacy, and intentions before they become sexually active, they may be more likely to decide to practice safe sex initially. Given that condom use at first intercourse has been shown to relate to later condom use (Richard & van der Pligt, 1991), establishing good habits early on is certainly important. There was one exception to the general trend of greater effects for less experienced women—only women who had engaged in intercourse reported greater probability of

getting tested following exposure to safe-sex magazine articles. This finding makes sense, as women who have had intercourse are at the greatest risk of having been exposed to STIs or HIV, and the experimental articles may have brought this to their attention. Women who had never had intercourse in fact showed a (non-significant) trend toward being less likely to believe there was any chance of them getting tested in the next six months if they were exposed to the safe-sex articles; this could result from these women being more likely to believe they would abstain from intercourse or practice safe sex were they to become active.

In addition to interactions between experimental exposure and intercourse status, we located some interactions between exposure and regular reading. However, although there were several positive main effects of regular reading—those who read women's magazines more frequently reported greater intentions to keep and carry condoms in the future, greater probability of discussing safe sex with future partners, and higher levels of HIV testing self-efficacy—there were fewer interactions between regular reading and experimental exposure than anticipated. Although we predicted that women who were more familiar with content in women's magazines might respond differently than those who were less familiar, we found only two marginal interactions, for negotiation self-efficacy and for taking condoms. In both cases, higher levels of regular reading were positively associated with outcomes in the experimental but not the control condition, indicating that experimental effects were stronger for regular readers. Therefore, although regular reading along with experimental exposure is associated with positive safe-sex outcomes, for the most part experimental effects occur regardless of regular reading level. This suggests that women need not be interested in women's magazines to the extent that they regularly seek them out to be influenced by their contents.

Magazine identification also operated differently than we anticipated. Although main effects of magazine identification were in the direction we expected—greater identification with magazines was associated with higher levels of HIV testing self-efficacy and greater perceptions of risk of infection with STIs and HIV—interactions between experimental exposure and magazine identification were not. We anticipated that there would be stronger effects of experimental exposure for women who identified with magazines the most, since these women should see the material as being particularly

applicable to them. Instead, we found that identification was negatively associated with both discussion attitudes and probability of discussion with future partners in the experimental condition only, suggesting that positive experimental effects were diminished for those who identified strongly. One reason this pattern may have occurred is because women completed the measure of magazine identification prior to exposure to the experimental articles. Women who said they strongly identified with the types of women portrayed in women's magazines and then read articles about women becoming infected with STIs might have responded negatively. Perhaps women who identified strongly and read the safe-sex articles saw themselves as very similar to the women portrayed, who experienced poor sexual health outcomes. The negative effects of identification were specific to discussion attitudes and intentions. Because some of the women portrayed in the experimental articles did not benefit from discussion (e.g., one woman's partner told her he had been tested for STIs but then cheated on her and infected her with herpes), women who identified strongly may have put themselves in the shoes of those specific women and thus reported more negative discussion attitudes and intentions.

Finally, the current study showed some interactions between experimental exposure and personality characteristics, especially conscientiousness. In general, higher levels of conscientiousness were associated with more positive outcomes in the experimental condition, possibly because more conscientious people read the articles more carefully and took the task of evaluating them more seriously. Conscientiousness has consistently been found to be associated with academic and job performance; this connection is often attributed to higher task motivation (e.g., Chamorro-Premuzic & Furnham, 2003). This careful attention could lead certain women to absorb the safe-sex messages more completely. Alternatively, these women might have learned from the articles that careful women should be concerned about safe sex and, given their perceptions of themselves as conscientious, been more likely to modify their attitudes and intentions. Magnified effects for women high in conscientiousness occurred for safe-sex discussion attitudes, HIV testing self-efficacy, and safe-sex peer norms. Although we cannot be sure of the causes of these interactions, if they were due to attention, attempts to increase women's focus on articles could increase effects of safe-sex content. This could be done in the lab context by telling women they will be quizzed on article

contents. In everyday contexts, increased attention is likely to occur if women feel articles are applicable to them; attention might also be drawn to articles through the use of humor (e.g., Madden & Weinberger, 1982) or through the use images or large text (Pieters & Wedel, 2004). Notably, interactions between other personality characteristics assessed and experimental exposure were rare.

Limitations and future directions

The current study had several limitations that can be addressed by future research. First, this study involved participants reading specially-selected articles in an artificial setting. In the real world, magazine readers select which magazines and which stories they will read, and safe-sex content in magazines is generally not delivered in such large doses. Additionally, readers may process content differently in the real world than they did in this lab setting. For example, when naturally reading, it is doubtful that most readers explicitly evaluate articles as they did here. Additionally, young women may discuss material they read with their peers, modifying their processing of it. Now that we know that magazine exposure can affect safe-sex outcomes under controlled circumstances, future studies can make strives to "naturalize" lab exposure. For example, future studies could allow participants to select amongst different articles or to discuss what they read with other participants.

A second flaw of the current study is that measures of safe-sex outcomes occurred very shortly after exposure to articles and primarily relied on self-report. Thus, from the current study, we cannot conclude how long positive effects of exposure will last or whether effects will extend to actual behavior. Future studies should attempt a longer delay between exposure and assessment of outcomes; they might also follow-up to assess actual behaviors. Our concrete measure of safe-sex intentions, whether or not women took condoms that were provided, was affected by magazine exposure only in very limited ways. Our failure to find a main effect of exposure on this outcome measure is likely partially attributable to the low prevalence of taking condoms in general—only 30.5% of women in the study took any condoms at all. This low prevalence may be due to the fact that only half of the women in this study were sexually active, but might also relate to women's discomfort taking condoms in the lab context. We attempted to put participants at ease by making sure they had the opportunity to help themselves to

condoms privately, but young women might still feel uncomfortable taking condoms in the research setting or carrying condoms with them as they continue on to classes or other activities. Finding other ways to measure safe-sex intentions without relying entirely on self-report is desirable.

A final flaw of the current study is the small sample size and limited diversity of the sample. A larger sample of women would have allowed for more power when examining interaction effects. Additionally, the current sample was primarily European-American, making it difficult to determine whether effects would generalize to more ethnically diverse populations. The articles used in the current study came from only one magazine, and *Cosmopolitan* may be primarily read by White women. Future studies with more ethnically diverse participants that make use of material from a broader range of magazines (e.g., *Essence*, a title aimed primarily at African American women that also contains safe-sex-related content) are of interest. The current sample is also fairly low-risk in terms of their sexual behavior—only half of the sample was sexually active, and nearly two-thirds of those who were (61.2%) had used a condom the most recent time they had sex. Testing the effects of magazine exposure on safe-sex outcomes in riskier populations would strengthen conclusions.

Chapter 5

Conclusion

Adolescence and emerging adulthood are times of great sexual risk, with more than half of all new HIV infections occurring in people under the age of 25 (CDC, 2003). However, as young people are just beginning their sexual decision-making during this developmental stage, we should view it not only as a time of risk but also as a period during which healthy patterns of behavior can be established. Indeed, early decision-making can lead to sexually transmitted infections and unplanned pregnancy, but young people may also learn to protect themselves from these dangers. Although the high rates of STIs and unplanned pregnancy among America's youth have made explaining their sexual decision making a research priority, we are still far from understanding the myriad of influences on safe sex behaviors. This dissertation has aimed to contribute insight on one potential contributor to emerging adults' safe sex attitudes, norms, self-efficacy, knowledge, intentions, and behavior previously ignored by research: mainstream magazines.

The current work makes a contribution to the literature in four important ways: by examining the frequently-neglected medium of mainstream magazines, by looking at these magazines' contributions to a variety of different safe sex outcomes, by exploring the pathways through which these contributions may occur, and by addressing the role that magazine involvement as well as reading itself may serve. In addition to the novel topic of research, one of the greatest strengths of this work is its use of multiple methods, as we explored connections between magazines and safe sex using cross-sectional and longitudinal data, and via both experimental and survey-based approaches.

Magazine reading and safe sex in emerging adulthood

Young people today continue to read magazines despite competition from other media forms: in our samples, over three-fourths of women and over half of men read mainstream women's and men's lifestyle magazines, respectively. These magazines are easily accessible, contain large amounts of sexual health information, and are frequently

cited by young people as a source of sexual health information, making them a logical choice to examine as a contributor to sexual health outcomes.

The current work examined how these magazines were related to young people's attitudes, norms, self-efficacy, knowledge, intentions, and behavior, looking at both reading levels and involvement. This series of three studies does in fact suggest that magazines can contribute to more positive sexual health outcomes. Looking across the studies, it is clear that levels of magazine reading relate to a variety of outcomes, both within and across time, and that experimental exposure to safe sex content from women's magazines positively affects many of these outcomes as well. These relationships were found to be especially strong for those with little sexual experience.

Magazine use and the Theory of Planned Behavior

To explore associations between magazine reading and safe sex outcomes, this dissertation used as its guide the Theory of Planned Behavior (Ajzen & Madden, 1986; Ajzen, 1991), one of the best-established theories of health behavior. TPB suggests that attitudes, norms, and self-efficacy serve as contributors to intentions, and that intentions in turn lead to behavior. Notably, few studies have looked at forces that contribute to establishing the attitudes, norms, and self-efficacy constructs that are so central to this theory. Addressing this gap, we here hypothesized that attitudes, norms, and self-efficacy might serve as mediators of the associations between magazine use and safe sex intentions, and that intentions might mediate associations between magazine reading and safe sex behavior.

Indeed, Studies 1 and 2 provided some limited support for this hypothesis, with self-efficacy mediating associations between magazine reading and both condom use and safe sex discussion intentions, and with HIV/STI testing intentions mediating associations between reading and STI testing for women. However, attitudes and norms did not serve as mediators, and there were some direct associations between magazine use and both intentions and behavior, suggesting there may be other pathways through which magazine reading is associated with these outcomes.

Aside from our findings regarding magazine reading, the current studies showed that for students early in their first year of college, TPB constructs explained a relatively modest proportion of the variance in behaviors. For example, in longitudinal models

looking at contributions of Wave 1 attitudes, norms, self-efficacy, and intentions to Wave 2 behavior, only 25% of the variance in condom use, 38% of the variance in safe sex discussion, and 57% of the variance in STI testing was explained, even with demographic controls included. This confirms, as others have suggested (Zimmerman et al., 2007), that TPB does not entirely explain young people's safe sex behaviors.

This unexplained variance is likely due in great part to (1) the dyadic nature of sexual decision-making (Finkelstein & Brannick, 2000; Hogben et al., 2006), (2) the roles of affect and arousal (Ariely & Lowewnstein, 2006), and (3) characteristics of emerging adulthood (Schulenberg & Zarrett, 2006; Shanahan, 2000). First, when young people make the decisions about safe sex—for example, the decision to use or not to use a condom—they do not decide alone, but rather with a sexual partner. In the case of an 18-year-old who is potentially quite inexperienced, this joint decision-making may be especially difficult to navigate comfortably. Sexual partners' views on safe sex almost certainly play a role in determining whether or not safer sex occurs, and research should aspire to include partner variables—ideally, data from partners directly.

Here, magazine reading was shown to relate to many safe sex outcomes, but the dyadic nature of sexual behavior means that it is likely that contributions come not only from an individual's socialization experiences, but also from their partners' experiences. The developmental stage of emerging adulthood may make dyadic study especially difficult, given that relationships are just forming and frequently changing. However, what makes these relationships hard to study is also what makes studying them important, as frequent partner transitions are a major contributing factor to risk.

Second, TPB assumes that sexual decision making is rational (Kippax & Crawford, 1993), although research has suggested that emotion as well as sexual arousal can affect this decision making (Ariely & Lowewnstein, 2006; Boldero, Moore, & Rosenthal, 1992). We know little about the roles of emotion and arousal, and still less about how socialization may impact their associations with safe sex outcomes. Addressing these elements in health research is difficult, but likely necessary if we hope to fully explain safe sex behavior.

Finally, TPB might be less useful in explaining safe sex behavior during emerging adulthood than during other life stages. Emerging adulthood is a time of extreme

transition for most (Arnett, 2000), often involving simultaneous personal, contextual, and social role changes (Schulenberg & Zarrett, 2006) as well as a loss of institutional structure (Aseltine & Gore, 1993; Shanahan, 2000). These features of emerging adulthood may result in a scrambling of individual differences, and thus in weaker and less stable relationships between variables in a rational model such as TPB. Additionally, a key task in emerging adulthood is to establish intimate relationships (Arnett, 2000; Erikson, 1959). Because romantic relationships play such a key role in this life stage, the dyadic and emotional aspects of decision-making mentioned above may overshadow more individual, rational ones, leading emerging adults to emphasize relationship maintenance over the practice of safe sex.

Implications for research and practice

Mainstream women's and men's magazines are only one of a myriad of potential influences on safe sex behaviors, but there is good reason to care about their role in sexual decision-making and to be encouraged by the results of the current studies. As noted, magazines are widely accessible and widely read by young people, with 83% of the college students in the current survey sample reading at least some magazines. Previous studies have shown that young people use magazines as a source of sexual health information (Bielay & Herold, 1995; Duffy & Gotcher, 1996; Nonoyama et al., 2005), and the current studies, in particular the experiment, suggest that these magazines present safe sex information in an accessible way.

Our experiment showed that young women could absorb positive safe sex messages from brief exposure to women's magazine articles. After reading only three articles, women in our study reported more positive attitudes as well as greater intentions to practice safe sex. At a time when school systems may be failing to provide young people with adequate sexual education (e.g., Hauser, 2004), it is certainly encouraging to know that media can have positive effects in this arena.

The success of the experiment also suggests a format of presentation of sexual health information that is appealing to young people and has results. Examining features of sexual health content in mainstream magazines could provide guidelines for designing intervention materials, given that youth are attracted to this content and that our experiment shows attitudes, intentions, and self-efficacy are influenced by it. For

example, magazine content often involves first person accounts of experiences or use of the question and answer format. Additionally, magazines present sexual health information using a casual tone and attract readers through the use of photos and large, colorful text. Future research could attempt to discern which of these presentation or content features contribute to absorption and acceptance of safe sex messages and attempt to utilize this information to design safe sex materials that will appeal to adolescents and emerging adults.

The current studies' results should also ease the minds of those who worry about the negative influence of media on young people. Although we certainly cannot rule out all negative effects of mainstream magazines, these studies show nearly no evidence of negative associations between reading itself and safe sex outcomes. This is notable given the many negative associations between other types of media use and safe sex outcomes. Although the sexual content in these magazines concerns many (as evidenced by supermarkets' "hiding" of *Cosmopolitan*'s cover in their aisles), some of this content seems to be beneficial for young people.

Along the same lines, the magazine industry should take note of their potential to have a positive impact in this arena. We know from content analyses that whereas sexual content is extremely prevalent in these publications, safe sex content specifically makes up a smaller share of what is published (Walsh-Childers et al., 1997). Given their potential to positively influence young women and men, magazines should seek to increase the integration of safe sex information into the sexual content they already present.

Directions for future research

The current series of studies suggests several directions for future research. First, Study 2 showed that earlier magazine reading related to later sexual health outcomes for college women but rarely for men. However, these findings were based on only two waves of longitudinal data, and more waves (ideally beginning earlier in adolescence) may be most useful in untangling reciprocal relationships between reading and safe sex. Additionally, a small sample size prevented us from considering any subgroups of men and women separately. In particular, Study 1 suggested that magazine reading may be more strongly related to safe sex outcomes for those with less sexual experience. If future

studies collect data from larger samples or focus specifically on collecting data from adolescents or emerging adults who are not yet sexually active, it may be possible to identify more associations between magazine reading and sexual health for men. Safe sex behaviors have been shown to be strongly influenced by established patterns of behavior, so explorations of outside influences on attitudes, norms, self-efficacy, and intentions may be most productive when conducted with those just beginning their sexual decision-making.

Second, Study 3 showed that brief experimental exposure to safe sex content from women's magazines has the ability to affect a variety of safe sex outcomes, including attitudes, self-efficacy, and intentions. This was an important first step, given that no previous research had shown a causal role when examining magazine content and safe sex outcomes. The next step is to expand on this experiment by working to "naturalize" magazine exposure in the experimental context and by conducting longer-term follow-ups to see whether brief exposure has any lasting effects.

Finally, through use of the Theory of Planned Behavior, these studies were able to explain a modest portion of variance in young people's safe sex behaviors. These studies were some of the first to look at how constructs in TPB predicted emerging adults' intentions and behaviors in the arenas of safe sex discussion and HIV/STI testing in addition to condom use. Although TPB constructs generally did contribute to both intentions and behavior, a portion of the variance remained unexplained, suggesting other unexplored influences may be at work. These influences may include a variety of contextual factors, gender attitudes and beliefs, and pressure from sexual partners, among other things. Thus, as suggested by theories such as the multiple domain model of adolescent condom use (Zimmerman et al., 2007), there may be alternative influences on safe sex behavior outside the domain of traditional social psychological models. These provide additional pathways through which magazine reading may influence safe sex intentions and behaviors that should be explored in future research.

Conclusion

This series of studies for the first time addresses the potential impact of magazine reading on safe sex outcomes using the framework of the Theory of Planned Behavior. Additionally, this research marks the first time that such associations have been examined

longitudinally or experimentally. We have shown that magazine reading has the potential to contribute to more positive safe sex attitudes, a stronger sense of self-efficacy, and greater intentions to practice safe sex in the arenas of condom use, safe sex discussion, and HIV/STI testing. Although they are but one of many potential influences on young people's safe sex behavior, mainstream magazines' popularity with young people makes them a powerful vehicle through which to share sexual health information and endorse safe sex behavior. Future research should continue to investigate the potential for these magazines to serve a positive role in influencing young people's sexual decision making.

Table 2.1

Categories of Magazines, Individual Titles Included, Reliabilities, and Reading Levels

			% Reading		Average Number Read		Range	
Category	Magazines Included	α	Women	Men	Women	Men	Women	Men
Women's Lifestyle	*Cosmopolitan*, *Glamour*, *Marie Claire*	.52	77.5%	25.6%	6.11 (6.18)	.90 (2.22)	0-36	0-12
Men's Lifestyle	*GQ*, *Maxim*, *Men's Fitness*, *Men's Health*, *Men's Journal*, *Playboy*	.69	17.9%	55.4%	.60 (2.18)	4.21 (7.47)	0-27	0-55
Any Magazines	N = 30		93.6%	64.9%	21.44 (21.00)	6.74 (11.29)	0-121	0-84

Table 2.2

Correlations Between Condom Attitude Subscales for Women and Men

Women				
	Pleasure	ID Stigma	Embarr – Use	Embarr – Purch
Reliability	.24***	.21***	.27***	.12^{+}
Pleasure	--	.49***	.30***	.16*
ID Stigma		--	.45***	.19**
Embarr – Use			--	.39***
Men				
	Pleasure	ID Stigma	Embarr – Use	Embarr – Purch
Reliability	.23*	.51***	.40***	.18*
Pleasure	--	.37**	.24*	.30**
ID Stigma		--	.62***	.24*
Embarr – Use			--	.43***

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 2.3

Reliabilities and Connections to Intentions of Condom Attitude Subscales

		Women		Men	
Subscale	α	CUQ-I	Keep/Carry	CUQ-I	Keep/Carry
Reliability and Effectiveness	.82				.34**
Pleasure	.66	.26**	.16**	.23**	
Identity Stigma	.81	.22**	$.14^{+}$	.46**	
Embarrassment: Use	.87				.28*
Embarrassment: Purchase	.82		.18**	-.28**	

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Standardized beta weights from a structural equation model including all condom attitude subscales as correlated latent variables and intentional outcomes (condom use intentions, measured via the Condom Use Questionnaire—Intended, and intentions to keep and carry condoms in the future, measured via items from the Condom Use Questionnaire—Preliminary), as correlated manifest variables are reported. Women's model fit: $\chi^2(42, N = 283) = 65.97$, $p = .01$; CFI = .93, TLI = .96, RMSEA = .05. Men's model fit: $\chi^2(34, N = 174) = 67.54$, $p = .001$; CFI = .79, TLI = .91, RMSEA = .08.

Table 2.4

Paired T-Tests Examining Differences in Perceptions of Male and Female Peer Norms for Women and Men

Women					
	Male Peers	Female Peers	Mean Difference (SD)	df	t
Condom Use	5.25	6.39	-1.14 (1.24)	281	-15.41***
Discussion	3.64	5.17	-1.53 (2.17)	278	-11.83***
Testing	2.33	3.72	-1.39 (2.11)	280	-11.02***
Men					
	Male Peers	Female Peers	Mean Difference (SD)	df	t
Condom Use	5.85	6.64	-.79 (1.11)	173	-9.34***
Discussion	4.20	4.72	-.52 (2.30)	173	-2.97**
Testing	2.17	3.34	-1.17 (2.01)	172	-7.68***

*** $p < .001$ ** $p < .01$

Table 2.5

Correlations Between Perceptions of Norms Amongst Female and Male Peers for Women and Men

	Women	Men
Condom Use Norms	.69***	.64***
Discussion Norms	.44***	.42***
STI/HIV Testing Norms	.44***	.42***

*** $p < .001$

Table 2.6.1

ANOVAs and Chi-Square Tests Examining Differences Between Women and Men in Demographics, Sexual Behavior, and Study Predictors and Outcomes

	Women (N = 283)	Men (N = 174)	Difference	df	t/χ^2
Demographic Variables					
Age	18.67 (.47)	18.82 (.54)	.15	455	3.12**
% Asian	6.7%	14.9%	8.2%	1	8.22**
% Black	3.5%	1.1%	-2.4%	1	2.40
Parental Ed.	3.80 (1.11)	3.89 (1.10)	.09	455	.83
Religiosity	3.15 (1.17)	2.95 (1.22)	-.20	455	-1.73^{+}
% Sexual Min.	13.9%	9.2%	-4.7%	1	2.16
School 1 Paid Pool	19.4%	34.5%	15.1%	1	12.96***
School 2 Pool	42.4%	30.5%	-11.9%	1	6.53*
Entry Week	5.72 (2.60)	6.89 (3.07)	1.16	321.64	2.54*
Sex. Health Info	3.55 (.61)	3.48 (.62)	-.07	455	-1.23
Sexual Experience					
Dating Exp.	3.70 (2.46)	4.13 (2.53)	.43	440	1.76^{+}
Monog. Rel.	38.5%	31.1%	-7.4%	1	2.45
Ever Had Interc.?	52.7%	55.2%	2.5%	1	.29
Ever Hooked Up?	42.8%	45.4%	2.6%	1	.31
Ever Rec. Oral?	65.4%	63.6%	-1.8%	1	.15
Ever Perf. Oral?	65.4%	57.2%	-8.2%	1	3.03^{+}
Media Use					
Magazine ID	3.57 (.87)	3.06 (.81)	-.51	452	-6.23***
Sex Reading Mot.	3.68 (1.17)	3.39 (1.12)	-.28	454	-2.55*
Friend Discussion	3.13 (.90)	2.41 (.86)	-.72	455	-8.40***
Media Use	-.06 (.66)	.09 (.65)	.15	455	2.29*
Reading	-.10 (.75)	.16 (.88)	.25	322.56	3.16**

Table 2.6.2

ANOVAs and Chi-Square Tests Examining Differences Between Women and Men in Demographics, Sexual Behavior, and Study Predictors and Outcomes: Continued.

	Women	Men	Difference	df	t/χ^2
Condom Use Model Variables					
Attitudes	6.42 (.68)	5.94 (.79)	-.48	455	-6.96***
Male Norms	5.25 (1.66)	5.85 (1.41)	.60	410.81	4.11***
Female Norms	6.39 (1.43)	6.64 (1.19)	.25	415.24	2.04*
Self-Efficacy	6.54 (1.07)	7.02 (1.72)	.48	455	2.71**
Knowledge	3.90 (1.07)	3.80 (1.08)	-.10	451	-.93
CUQ-I	6.17 (1.57)	5.84 (1.55)	-.33	454	-2.14*
Keep & Carry	3.60 (1.67)	4.40 (1.68)	.80	453	4.98***
Use Last Sex	64.9%	72.3%	7.4%	1	1.47
Discussion Model Variables					
Attitudes	5.02 (.66)	4.51 (.65)	-.51	447	-7.98***
Male Norms	3.64 (2.00)	4.20 (2.17)	.56	452	2.84**
Female Norms	5.16 (2.08)	4.72 (2.10)	-.44	454	-2.21*
Self-Efficacy	7.89 (1.26)	7.05 (1.46)	-.84	327.10	-6.29***
Knowledge	28.99 (3.44)	28.10 (4.28)	-.88	308.23	-2.30*
Intentions	3.90 (1.14)	3.18 (1.18)	-.72	455	-6.48***
Probability	8.58 (2.06)	7.00 (2.57)	-1.58	293.36	6.69***
Last Partner	2.61 (1.53)	2.22 (1.37)	-.39	455	-2.82**
Testing Model Variables					
Attitudes	3.29 (.81)	3.24 (.76)	-.05	455	-.70
Male Norms	2.33 (1.69)	2.17 (1.72)	-.16	453	-.99
Female Norms	3.73 (2.23)	3.36 (2.00)	-.38	454	-1.83^{+}
Knowledge	17.84 (2.15)	17.15 (3.06)	-.69	278.74	-2.60**
Prob. Testing	1.67 (2.95)	.95 (1.97)	-.72	446.72	3.11**
Prob. Ask Test	5.87 (3.18)	3.40 (2.78)	-2.46	392.40	-8.56***
Ever Test HIV	9.6%	7.4%	-2.2%	1	.33
Ever Test STIs	28.8%	5.4%	-23.4%	1	19.68***

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 2.7.1

ANOVAs and Chi-Square Tests Examining Differences in Demographics, Sexual Behavior, and Study Predictors and Outcomes for Women in Three Subject Pools

	Sch. 1 SP (N = 108)	Sch. 1 Paid (N = 55)	Sch. 2 SP (N = 120)	df	F/χ^2
Demographic Variables					
Age	18.61 (.59)	18.62 (.43)	18.74 (.36)	2,280	2.39^{+}
% Asian	11.1%^{a}	12.7%^{a}	0.0%^{b}	2	15.15***
% Black	5.6%^{a}	7.3%^{a}	0.0%^{b}	2	7.95*
Parental Ed.	4.09 (1.12)^{a}	3.96 (1.14)^{a}	3.46 (1.02)^{b}	2,280	10.49***
Religiosity	2.99 (1.14)	3.10 (1.25)	3.32 (1.14)	2,280	2.25
% Sexual Min.	13.9%	18.5%	11.8%	2	1.42
Entry Week	4.21 (2.11)^{a}	4.96 (1.75)^{a}	7.43 (2.32)^{b}	2,280	68.61***
Sex. Health Info	3.54 (.62)	3.52 (.64)	3.58 (.59)	2,280	.18
Sexual Experience					
Dating Exp.	3.72 (2.38)^{ab}	3.02 (2.43)^{a}	4.01 (2.49)^{b}	2,270	3.04*
Monog. Rel.	42.9%^{a}	23.5%^{b}	41.2%^{a}	2	6.03*
Ever Had Interc.?	50.9%^{a}	32.7%^{b}	63.3%^{a}	2	14.38***
Ever Hooked Up?	50.0%	34.5%	40.0%	2	4.20
Ever Rec. Oral?	66.7%	56.4%	68.3%	2	2.52
Ever Perf. Oral?	67.6%^{a}	47.3%^{b}	71.7%^{a}	2	10.30**
Media Use					
Wom's Mag. Read.	5.58 (5.76)	5.40 (5.51)	6.54 (5.69)	2,277	1.11
Magazine ID	3.55 (.89)	3.37 (.93)	3.67 (.80)	2,279	2.25
Sex Reading Mot.	3.55 (1.23)	3.55 (1.26)	3.85 (1.05)	2,280	2.21
Friend Discussion	3.01 (.93)	3.10 (.90)	3.25 (.87)	2,280	2.00
Media Use	-.28 (.58)^{a}	-.30 (.43)^{a}	.26 (.69)^{b}	2,280	27.79***
Reading	-.07 (.77)	-.16 (.69)	-.09 (.77)	2,280	.29

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$ *Note:* Different superscripts indicate significant differences at the $p < .05$ level.

Table 2.7.2

ANOVAs and Chi-Square Tests Examining Differences in Demographics, Sexual Behavior, and Study Predictors and Outcomes for Women in Three Subject Pools: Cont.

	Sch. 1 SP	Sch. 1 Paid	Sch. 2 SP	df	F/χ^2
Condom Use Model Variables					
Attitudes	6.44 (.66)	6.44 (.68)	6.40 (.70)	2,280	.13
Male Norms	5.77 (1.53)[a]	5.50 (1.74)[a]	4.66 (1.55)[b]	2,279	14.76***
Female Norms	6.88 (1.27)[a]	6.50 (1.54)[a]	5.89 (1.35)[b]	2,280	15.52***
Self-Efficacy	6.65 (1.99)	6.23 (1.90)	6.57 (1.89)	2,280	.92
Knowledge	3.92 (1.15)	3.89 (1.12)	3.88 (.97)	2,277	.05
CUQ-I	6.41 (1.38)	5.98 (1.80)	6.03 (1.61)	2,279	2.11
Keep & Carry	3.44 (1.54)[ab]	3.16 (1.64)[a]	3.93 (1.73)[b]	2,278	4.81**
Use Last Sex	74.5%[a]	72.2%[ab]	56.0%[b]	2	5.28[+]
Discussion Model Variables					
Attitudes	5.07 (.63)	5.04 (.74)	4.96 (.65)	2,275	.89
Male Norms	3.74 (2.18)	3.33 (1.84)	3.68 (1.89)	2,277	.79
Female Norms	5.13 (2.05)[ab]	4.47 (2.19)[a]	5.51 (1.99)[b]	2,279	4.81**
Self-Efficacy	8.10 (1.16)	7.85 (1.30)	7.71 (1.32)	2,280	2.75[+]
Knowledge	29.32 (3.56)	29.53 (3.02)	28.44 (3.46)	2,279	2.71[+]
Intentions	3.81 (1.21)	3.94 (1.15)	3.96 (1.06)	2,280	.55
Probability	8.74 (1.95)	8.47 (2.11)	8.58 (2.06)	2,267	.55
Last Partner	3.71 (.93)[a]	3.14 (.98)[a]	3.24 (1.23)[a]	2,146	3.45*
Testing Model Variables					
Attitudes	3.24 (.82)	3.46 (.82)	3.26 (.79)	2,280	1.54
Male Norms	2.20 (1.62)	2.20 (1.76)	2.50 (1.71)	2,279	1.10
Female Norms	3.70 (2.27)[ab]	2.89 (1.80)[a]	4.14 (2.27)[b]	2,279	6.12**
Knowledge	18.09 (2.11)[a]	18.35 (1.92)[a]	17.38 (2.21)[b]	2,268	5.22**
Prob. Testing	.53 (.77)	.45 (.77)	.69 (.82)	2,275	2.10
Prob. Ask Test	6.41 (3.11)	5.64 (3.34)	5.51 (3.14)	2,268	2.36[+]
Ever Test HIV	9.4%	11.1%	9.3%	2	.06
Ever Test STIs	26.4%	27.8%	30.7%	2	.28

*** $p < .001$ ** $p < .01$ * $p < .05$ [+] $p < .10$

Table 2.8.1

ANOVAs and Chi-Square Tests Examining Differences in Demographics, Sexual Behavior, and Study Predictors and Outcomes for Men in Three Subject Pools

	Sch. 1 SP (N = 61)	Sch. 1 Paid (N = 60)	Sch. 2 SP (N = 53)	df	F/χ^2
Demographics					
Age	18.78 (.62)	18.85 (.57)	18.82 (.38)	2,171	.27
% Asian	24.6%[a]	15.0%[a]	3.8%[b]	2	9.67**
% Black	3.3%	0.0%	0.0%	2	3.75
Parental Ed.	3.91 (1.17)[ab]	4.20 (1.04)[a]	3.50 (.97)[b]	2,171	6.08**
Religiosity	2.76 (1.28)	3.03 (1.35)	3.08 (.98)	2,171	1.18
% Sexual Min.	9.8%	8.3%	9.6%	2	.09
Entry Week	6.16 (3.29)	7.27 (3.37)	7.30 (2.22)	2,171	2.69[+]
Sex. Health Info	3.44 (.61)	3.48 (.61)	3.53 (.64)	2,171	.27
Sexual Experience					
Dating Exp.	3.53 (2.49)	4.22 (2.48)	4.69 (2.52)	2,166	3.01[+]
Monog. Rel.	27.1%	28.6%	38.5%	2	1.92
Ever Had Interc.?	44.1%[a]	53.3%[ab]	69.8%[b]	2	7.62*
Ever Hooked Up?	52.5%	35.0%	49.1%	2	4.13
Ever Rec. Oral?	56.7%	63.3%	71.7%	2	2.75
Ever Perf. Oral?	48.3%	56.7%	67.9%	2	4.42
Media Use					
Men's Mag. Read.	3.64 (4.83)	3.81 (5.72)	3.66 (5.52)	2,165	.02
Magazine ID	2.99 (.78)	3.11 (.85)	3.07 (.80)	2,169	.34
Sex Reading Mot.	3.34 (.86)	3.39 (1.31)	3.46 (1.18)	2,170	.18
Friend Discussion	2.32 (.86)	2.51 (.89)	2.42 (.82)	2,171	.73
Media Use	.01 (.63)[a]	-.09 (.54)[a]	.38 (.71)[b]	2,171	8.76***
Reading	.30 (.89)[a]	.37 (.92)[a]	-.25 (.71)[b]	2,171	8.78***

*** $p < .001$ ** $p < .01$ * $p < .05$ [+] $p < .10$ *Note:* Different superscripts indicate significant differences at the $p < .05$ level.

Table 2.8.2

ANOVAs and Chi-Square Tests Examining Differences in Demographics, Sexual Behavior, and Study Predictors and Outcomes for Men in Three Subject Pools: Cont.

	Sch. 1 SP	Sch. 1 Paid	Sch. 2 SP	df	F/χ^2
Condom Use Model Variables					
Attitudes	5.88 (.76)	6.05 (.85)	5.88 (.74)	2,171	.90
Male Norms	6.16 (1.21)[a]	6.18 (1.23)[a]	5.11 (1.54)[b]	2,171	11.82***
Female Norms	6.77 (1.17)[a]	6.91 (1.23)[a]	6.18 (1.05)[b]	2,171	6.11**
Self-Efficacy	6.64 (1.68)[a]	7.03 (1.85)[ab]	7.45 (1.54)[b]	2,171	3.20*
Knowledge	3.70 (1.19)	3.95 (.96)	3.75 (1.06)	2,170	.87
CUQ-I	5.92 (1.45)	5.97 (1.70)	5.61 (1.49)	2,171	.88
Keep & Carry	4.35 (1.56)	4.09 (1.87)	4.80 (1.53)	2,171	2.59[+]
Use Last Sex	72.0%	71.9%	73.0%	2	.01
Discussion Model Variables					
Attitudes	4.36 (.64)[ab]	4.80 (.55)[a]	4.33 (.66)[b]	2,168	10.85***
Male Norms	4.13 (1.88)	4.50 (2.45)	3.94 (2.14)	2,171	.98
Female Norms	4.38 (2.06)	5.07 (2.30)	4.72 (1.88)	2,171	1.64
Self-Efficacy	6.83 (1.52)	7.28 (1.38)	7.03 (1.46)	2,171	1.42
Knowledge	27.52 (4.93)	29.12 (3.71)	27.62 (3.95)	2,171	2.62[+]
Intentions	3.32 (1.19)	3.05 (1.26)	3.15 (1.08)	2,171	.80
Probability	7.15 (2.67)	7.39 (2.47)	6.39 (2.51)	2,163	2.23
Last Partner	3.29 (1.04)	2.95 (1.03)	2.81 (.96)	2,92	1.76
Testing Model Variables					
Attitudes	4.36 (.66)	4.76 (.60)	4.31 (.66)	2,171	.84
Male Norms	2.18 (1.66)	2.12 (1.94)	2.21 (1.54)	2,170	.05
Female Norms	3.26 (1.95)	3.18 (1.94)	3.66 (2.14)	2,171	.90
Knowledge	16.84 (3.76)	17.77 (2.51)	16.81 (2.63)	2,171	1.89
Prob. Testing	.52 (.70)	.43 (.59)	.42 (.60)	2,170	.42
Prob. Ask Test	4.01 (2.95)	3.07 (2.59)	3.11 (2.72)	2,166	2.14
Ever Test HIV	20.0%[a]	6.3%[ab]	0.0%[b]	2	8.76*
Ever Test STIs	12.5%	6.3%	0.0%	2	4.54

*** $p < .001$ ** $p < .01$ * $p < .05$ [+] $p < .10$

Table 2.9.1

T-tests and Chi-Square Tests Examining Differences in Demographics, Sexual Behavior, and Study Predictors and Outcomes between Women Based on Sexual Experience

	Non-Active (*N* = 134)	Active (*N* = 149)	Difference	df	t/χ^2
Demographic Variables					
Age	18.66 (.49)	18.68 (.46)	-.02	281	-.33
% Asian	7.5%	6.0%	1.50%	1	.23
% Black	4.5%	2.7%	1.80%	1	.67
Parental Ed.	3.83 (1.13)	3.77 (1.10)	.07	281	.50
Religiosity	3.40 (1.19)	2.93 (1.11)	.47	281	3.45***
% Sexual Min.	11.3%	16.2%	-4.90%	1	1.43
School 1 Paid Pool	27.6%	12.1%	15.50%	1	10.87***
School 2 Pool	32.8%	51.0%	-18.20%	1	9.54**
Entry Week	5.51 (2.50)	5.92 (2.69)	-.42	281	-1.33
Sex. Health Info	3.59 (.62)	3.52 (.60)	.07	281	1.03
Sexual Experience					
Dating Exp.	1.97 (1.48)	5.26 (2.09)	-3.29	258.06	-14.84***
Monog. Rel.	6.4%	66.2%	-59.80%	1	101.39***
Ever Had Interc.?	30.6%	53.7%	-23.10%	1	15.37***
Ever Hooked Up?	34.3%	93.3%	-59.00%	1	108.34***
Ever Rec. Oral?	32.1%	95.3%	-63.20%	1	124.53***
Media Use					
Wom's Mag. Read.	5.20 (5.74)	6.63 (5.57)	-1.43	278	-2.11*
Magazine ID	3.48 (.94)	3.65 (.79)	-.17	280	-1.61
Sex Reading Mot.	3.46 (1.16)	3.87 (1.14)	-.40	281	-2.95**
Friend Discussion	3.07 (.96)	3.18 (.85)	-.11	281	-.99
Media Use	-.07 (.56)	-.04 (.74)	-.03	273.84	-.38
Reading	.02 (.79)	-.20 (.71)	.22	281	2.37*

Table 2.9.2

T-tests and Chi-Square Tests Examining Differences in Demographics, Sexual Behavior, and Study Predictors and Outcomes between Women Based on Sexual Experience: Cont.

	Non-Active	Active	Difference	df	t/χ^2
Condom Use Model Variables					
Attitudes	6.28 (.72)	6.55 (.62)	-.27	263.35	-3.36***
Male Norms	5.52 (1.69)	5.01 (1.59)	.52	280	2.64**
Female Norms	6.56 (1.46)	6.23 (1.38)	.33	281	1.98*
Self-Efficacy	5.91 (2.11)	7.10 (1.55)	-1.19	242.22	-5.36***
Knowledge	3.57 (1.16)	4.20 (.88)	-.63	242.58	-5.06***
CUQ-I	6.11 (1.80)	6.22 (1.34)	-.11	244.34	-.60
Keep & Carry	3.36 (1.66)	3.80 (1.65)	-.43	279	-2.22*
Discussion Model Variables					
Attitudes	5.02 (.64)	5.01 (.68)	.00	276	.04
Male Norms	3.32 (1.91)	3.93 (2.03)	-.61	278	-2.58*
Female Norms	4.95 (2.17)	5.36 (1.99)	-.41	280	-1.65^{+}
Self-Efficacy	7.92 (1.19)	7.86 (1.33)	.06	281	.41
Knowledge	28.47 (3.36)	29.45 (3.46)	-.98	280	-2.42*
Intentions	3.76 (1.26)	4.02 (1.00)	-.26	253.81	-1.87
Probability	8.56 (2.15)	8.59 (1.99)	-.03	268	-.08
Testing Model Variables					
Attitudes	3.20 (.80)	3.37 (.81)	-.17	281	-1.79^{+}
Male Norms	2.27 (1.70)	2.39 (1.67)	-.12	280	-.58
Female Norms	3.56 (2.14)	3.89 (2.30)	-.34	280	-1.26
Knowledge	17.84 (2.01)	17.83 (2.27)	.01	280	.04
Prob. Testing	.22 (.50)	.92 (.87)	-.71	233.22	-8.41***
Prob. Ask Test	6.48 (3.15)	5.32 (3.12)	1.16	269	3.03**
Ever Test HIV	0.0%	9.6%	-9.60%	1	13.43***
Ever Test STIs	2.3%	28.8%	-26.50%	1	35.87***

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$ *Note:* Non-active indicates those who have never engaged in vaginal intercourse; active indicates those who have.

Table 2.10.1

T-tests and Chi-Square Tests Examining Differences in Demographics, Sexual Behavior, and Study Predictors and Outcomes Between Men Based on Sexual Experience

	Non-Active (N = 77)	Active (N = 95)	Difference	df	t/χ^2
Demographic Variables					
Age	18.76 (.53)	18.85 (.53)	-.09	170	-1.13
% Asian	19.5%	11.6%	7.90%	1	2.07
% Black	1.3%	1.1%	0.20%	1	.02
Parental Ed.	3.99 (1.10)	3.81 (1.10)	.19	170	1.11
Religiosity	3.38 (1.13)	2.58 (1.19)	.80	170	4.46***
% Sexual Min.	7.8%	10.6%	-2.80%	1	.40
School 1 Paid Pool	36.4%	33.7%	2.70%	1	.13
School 2 Pool	20.8%	38.9%	-18.10%	1	6.59**
Entry Week	6.62 (3.16)	7.17 (2.99)	-.55	170	-1.16
Sex. Health Info	3.42 (.62)	3.55 (.60)	-.13	170	-1.35
Sexual Experience					
Dating Exp.	2.36 (1.57)	5.68 (2.17)	-3.31	160.90	-11.15***
Monog. Rel.	5.6%	51.6%	-46.00%	1	39.87***
Ever Had Interc.?	32.5%	55.8%	-23.30%	1	9.33**
Ever Hooked Up?	22.1%	86.3%	-64.20%	1	71.84***
Ever Rec. Oral?	27.3%	93.7%	-66.40%	1	81.37***
Media Use					
Men's Mag. Read.	3.47 (5.01)	3.99 (5.64)	-.52	164	-.62
Magazine ID	3.05 (.76)	3.06 (.85)	-.01	168	-.07
Sex Reading Mot.	3.40 (.95)	3.38 (1.26)	.02	169	.11
Friend Discussion	2.28 (.76)	3.99 (5.64)	-.25	170	-1.93^{+}
Media Use	.00 (.63)	.18 (.66)	-.18	170	-1.82^{+}
Reading	.14 (.82)	.17 (.94)	-.04	170	-1.35

Table 2.10.2

T-tests and Chi-Square Tests Examining Differences in Demographics, Sexual Behavior, and Study Predictors and Outcomes Between Men Based on Sexual Experience: Cont.

	Non-Active	Active	Difference	df	t/χ^2
Condom Use Model Variables					
Attitudes	5.69 (.82)	6.14 (.71)	-.44	170	-3.77***
Male Norms	6.05 (1.32)	5.67 (1.47)	.37	170	1.73^{+}
Female Norms	6.84 (1.24)	6.46 (1.12)	.38	170	2.07*
Self-Efficacy	6.40 (1.79)	7.53 (1.50)	-1.14	148.16	-4.44***
Knowledge	3.59 (1.07)	3.98 (1.06)	-.39	169	-2.36*
CUQ-I	5.75 (1.85)	5.94 (1.27)	-.19	129.89	-.76
Keep & Carry	3.70 (1.91)	4.97 (1.24)	-1.27	124.84	-5.03***
Discussion Model Variables					
Attitudes	4.43 (.63)	4.57 (.66)	-.15	167	-1.48
Male Norms	3.87 (2.05)	4.52 (2.22)	-.65	170	-1.96^{+}
Female Norms	4.30 (1.92)	5.04 (2.20)	-.74	170	-2.33*
Self-Efficacy	6.96 (1.57)	7.11 (1.37)	-.15	170	-.68
Knowledge	27.52 (4.73)	28.53 (3.88)	-1.01	170	-1.53
Intentions	2.81 (1.22)	3.52 (1.01)	-.72	170	-4.22***
Probability	6.82 (2.85)	7.12 (2.37)	-.30	162	-.75
Testing Model Variables					
Attitudes	3.07 (.72)	3.37 (.77)	-.30	170	-2.60**
Male Norms	2.00 (1.44)	2.31 (1.92)	-.31	168.33	-1.19
Female Norms	3.29 (1.85)	3.39 (2.11)	-.10	170	-.34
Knowledge	17.13 (3.13)	17.13 (3.03)	.00	160.34	.01
Prob. Testing	.22 (.45)	.65 (.70)	-.43	160.34	-4.85***
Prob. Ask Test	3.07 (2.66)	3.63 (2.87)	-.56	165	-1.29
Ever Test HIV	0.0%	7.4%	-7.40%	1	5.98*
Ever Test STIs	0.0%	5.4%	-5.40%	1	4.27*

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 2.11

Involvement Variable Comparisons Between Readers and Non-Readers

Women						
	Range	Overall (*N* = 280)	Non-Readers (*N* = 63)	Readers (*N* = 217)	df	t
Mag ID	1-6	3.06 (.81)	3.02 (.97)	3.73 (.77)	85.97	-5.38***
Sex Read. Mot.	1-6	3.39 (1.12)	2.88 (1.25)	3.93 (1.02)	87.59	-6.11***
Friend Discussion	1-5	3.13 (.90)	2.44 (.89)	3.35 (.79)	278	-7.72***
Men						
	Range	Overall (*N* = 168)	Non-Readers (*N* = 75)	Readers (*N* = 93)	df	T
Mag ID	1-6	3.06 (.81)	2.76 (.83)	3.32 (.71)	164	-4.65***
Sex Read. Mot.	1-6	3.39 (1.12)	3.13 (1.21)	3.64 (1.01)	141.58	-2.94**
Friend Discussion	1-5	2.41 (.86)	2.08 (.76)	2.66 (.86)	166	-4.55***

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 2.12

Correlations Between Safe Sex Intention Variables for Women and Men

Women (N = 283)					
	Con. Intent	Dis. Intent	Prob. Dis.	Prob. Test	Prob. Ask
Keeping & Carrying Condom Use Intent	--	.19***	.23***	.12*	.11^{+}
Discussion Intent		--		.12*	.33***
Prob. of Discussion			--		.48***
Prob. of Testing				--	
Men (N = 174)					
	Con. Intent	Dis. Intent	Prob. Dis.	Prob. Test	Prob. Ask
Keeping & Carrying Condom Use Intent	.36***	.32***	.21**		.18*
Discussion Intent	--	--	.38***		.34***
Prob. of Discussion			--		.39***
Prob. of Testing				--	.30***

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 2.13

Zero-Order Correlations between Demographic and Media Use Controls and Women's Condom Use and Magazine Variables

	Attitudes	Norms	Self-Eff.	Know.	Intent	Keep	Mags	ID	Sex Mot	Friend
Age										
Relig.	-.20***				-.18**	-.16**				
Par. Ed.		.21***								
Dat. Exp.[52]	.17**		.26***	.23***		.16**	.13*		.15*	
Monog.[53]		.15*	.23***	.17**					.15*	
Asian										
Paid Pool						-.13*				
School 2		-.30***				.17**			.13*	
Entry		-.16**				.17**	.16**	.17**		.15*
Sex. Min.[54]							-.17**	-.21***		-.13*
Media[55]		-.27***								
Reading[56]				-.15*					-.16**	
Sex. Info[57]							.13*			.13*

*** $p < .001$ ** $p < .01$ * $p < .05$

[52] Dating experience.
[53] Current involvement in monogamous sexual relationship (0=no, 1=yes).
[54] Self-identified as bisexual, homosexual, or unsure (0=no, 1=yes).
[55] Media use: television, music, movies, and internet.
[56] Newspaper and book reading.
[57] Amount of information on sexual health received from parents, peers, school, books, and the internet.

Table 2.14

Zero-Order Correlations between Demographic and Media Use Controls and Women's Discussion and Testing Variables

	Discussion Variables						Testing Variables				
	Att.	Norm	Eff.	Know.	Prob. Dis.	Int. Dis.	Att.	Norm	Know.	Prob. Test	Prob. Ask
Age											
Relig.				-.14*			-.17**	.12*		-.24***	.17**
Par. Ed.											
Dat. Exp.				.17**			.20***			.49***	-.27***
Monog.				.15*	.14*	.13*				.23***	
Asian					-.13*		-.15*				
Paid Pool		-.16**						-.19**	.12*		
School 2		.14*	-.12*	-.14*				.16**	-.19**		
Entry				-.15*					-.19***		
Sex. Min.		-.14*									
Media			-.12*	-.12*							
Reading					.12*						.18**
Sex. Info											

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 2.15

Zero-Order Correlations between Demographic and Media Use Controls and Women's Condom Use and Magazine Variables (by Sexual Status)

	Active							Non-Active						
	Att.	Norms	Eff.	Know.	Intent	Keep	Mags	Att.	Norms	Eff.	Know.	Intent	Keep	Mags
Age														
Relig.					-.17*			-.22**				-.19*	-.23**	
Par. Ed.	.20*	.28***					.18*	-.21*						
Dat. Exp.		-.20*							.18*					
Monog.		-.17*												
Asian								-.21*						
Paid Pool														
School 2	-.23**	-.33***	-.18*			.18*			-.24**					
Entry	-.25**		-.20*				.22**		-.17*				.19*	
Sex. Min.														
Media	-.22**	-.25**			-.18*				-.29***					
Reading	-.17*										-.24**			
Sex. Info														

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 2.16

Zero-Order Correlations between Demographic and Media Use Controls and Women's Discussion Variables (by Sexual Status)

	Active						Non-Active					
	Att.	Norm	Eff.	Know.	Pr. Dis.	Int. Dis.	Att.	Norm	Eff.	Know.	Pr. Dis.	Int. Dis.
Age												
Relig.												
Par. Ed.												
Dat. Exp.					-.24**							
Monog.					.18*							
Asian												
Paid Pool								-.18*				
School 2	-.19*		-.18*	-.29***				.20*				.19*
Entry				-.24**								
Sex. Min.					-.16*							
Media				-.24**								
Reading						.19*						
Sex. Info												

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 2.17

Zero-Order Correlations between Demographic and Media Use Controls and Women's Testing Variables (by Sexual Status)

	Active					Non-Active				
	Att.	Norms	Know.	Prob. Test	Prob. Ask	Att.	Norms	Know.	Prob. Test	Prob. Ask
Age										-.18*
Relig.	-.20*			-.26**			.23**			
Par. Ed.										
Dat. Exp.	.21*			.33***						-.25**
Monog.										
Asian	-.18*									
Paid Pool		-.24**				.23**				
School 2			-.31***				.19*			
Entry			-.27***							
Sex. Min.						.18*				
Media			-.23**							
Reading				.20*	.17*					
Sex. Info										

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 2.18

Zero-Order Correlations between Demographic and Media Use Controls and Men's Condom Use and Magazine Variables

	Attitudes	Norms	Self-Eff.	Know.	Intent	Keep	Mags	ID	Sex Mot	Friend
Age										
Relig.	-.21**					-.29***				
Par. Ed.	-.24**		-.16*					-.20**		
Dat. Exp.	.30***	-.16*	.41***	.16*	.15*	.33***				
Monog.	.29***		.22**			.17*				
Asian										
Paid Pool		.17*								
School 2		-.35***	.17*			.16*				
Entry										
Sex. Min.										
Media		-.33***				.22**				
Reading										
Sex. Info			.21**			.17*	.18*			.19*

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 2.19

Zero-Order Correlations between Demographic, Socialization, and Media Use Controls and Men's Discussion and Testing Variables

	Discussion Variables						Testing Variables				
	Att.	Norm	Eff.	Know.	Prob. Dis.	Int. Dis.	Att.	Norm	Know.	Prob. Test	Prob. Ask
Age											
Relig.		-.18*				-.20**	-.15*			-.23**	
Par. Ed.											
Dat. Exp.	.23**	.20**		.17*		.17*	.24***			.24**	
Monog.	.25***					.33***					
Asian											.16*
Paid Pool	.34***										
School 2	-.18*				-.16*						
Entry											
Sex. Min.										.19*	
Media	-.16*							.17*	-.18*	.20**	
Reading											
Sex. Info						.15*					

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 2.20

Zero-Order Correlations between Demographic and Media Use Controls and Men's Condom Use and Magazine Variables (by Sexual Status)

	Active							Non-Active						
	Att.	Norms	Eff.	Know.	Intent	Keep	Mags	Att.	Norms	Eff.	Know.	Intent	Keep	Mags
Age														
Relig.													-.31**	
Par. Ed.				-.24*				-.29**						
Dat. Exp.			.29**							.29*		.26*		
Monog.	.29**								.26*					
Asian													.24*	
Paid Pool	.22*	.27**			.30**									
School 2		-.33***							-.32**					
Entry							-.21*							
Sex. Min.														
Media		-.28**							-.35**				.27*	.24*
Reading			-.26*			-.21*								
Sex. Info							.22*			.32**				

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 2.21

Zero-Order Correlations between Demographic and Media Use Controls and Men's Discussion Variables (by Sexual Status)

	Active						Non-Active					
	Att.	Norm	Eff.	Know.	Pr. Dis.	Int. Dis.	Att.	Norm	Eff.	Know.	Pr. Dis.	Int. Dis.
Age						.22*	-.24*					
Relig.												-.25*
Par. Ed.												
Dat. Exp.												
Monog.	.27**				.24*	.30**						
Asian												
Paid Pool	.38***	.25*		.25*			.31**					
School 2		-.25*					-.33**					
Entry							-.31**					
Sex. Min.		-.30**										
Media	-.21*		-.24*									
Reading							.23*					
Sex. Info												

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 2.22

Zero-Order Correlations between Demographic and Media Use Controls and Men's Testing Variables (by Sexual Status)

	Active					Non-Active				
	Att.	Norms	Know.	Prob. Test	Prob. Ask	Att.	Norms	Know.	Prob. Test	Prob. Ask
Age										
Relig.										
Par. Ed.										
Dat. Exp.						.25*				
Monog.										
Asian					.27**					
Paid Pool										
School 2									.29*	
Entry										
Sex. Min.										
Media			-.26*						.37***	
Reading		.30**	-.26*							
Sex. Info			-.22*							

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 2.23

Control Variables Included in Women's Condom Use Model

	Mags	Att	Norms	Eff	Know	Intent	Keep
Age							
Relig.		-.16**				-.13*	-.12^{+}
Par. Ed.			.15**				
Dat. Exp.	.17*	.15*		.18**	.18**		
Monog.			-.18**	.13*	.09		
Asian							
Paid Pool			-.15*				-.10
School 2			-.32***				.20**
Entry	.21**	-.14*	.09				
Sex. Min.							
Media			-.20***				
Reading					-.12*		
Sex. Info	.11						

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.24

Control Variables Included in Condom Use Model Comparing Women Based on Sexual Status

	Non-Active							Active						
	Mags	Att	Norms	Eff	Know	Intent	Keep	Mags	Att	Norms	Eff	Know	Intent	Keep
Age														
Relig.	.26*	-.23**				-.13	-.21*						-.18*	
Par. Ed.		-.25**						.33***	.09	.18*				
Dat. Exp.		.17*	.19**							-.25***				
Monog.									-.17*	-.29***			-.14*	
Asian		-.19*									-.16^{+}			
Paid Pool														
School 2			-.17^{+}							-.26**				.27**
Entry							.21*	.47***	-.26**		-.34***			
Sex. Min.														
Media			-.25**					-.22^{+}	-.16	-.15^{+}				
Reading	.23^{+}	.25***			-.24***					-.15*	.18**			
Sex. Info														

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.25

Control Variables Included in Model of Women's Magazine Involvement and Condom Use

	Mag ID	Sex Mot	Friend Beh	Att	Norms	Eff	Know	Intent	Keep
Age									
Relig.				-.17**				-.13*	-.14*
Par. Ed.			.10*		.17**				
Dat. Exp.				.16*			.18**		
Monog.		.11*			-.17**	.16	.09		
Asian						.16*			
Paid Pool									
School 2		.08^{+}			-.24***				.13^{+}
Entry	.07		.08^{+}	-.13*	.06				.13^{+}
Sex. Min.	-.13**		-.08						
Media					-.19***				
Reading	-.09^{+}	-.15**					-.11^{+}		
Sex. Info			.05						
Mag Read	.47***	.39***	.50***	.05	.04	.07	-.02	-.07	-.04

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.26

Control Variables Included in Men's Condom Use Model

	Mags	Att	Norms	Eff	Know	Intent	Keep
Age							
Relig.		-.13^{+}					-.25***
Par. Ed.	-.17^{+}	-.24**			-.15*	.15*	
Dat. Exp.		.22**	-.12	.36***	.13^{+}		
Monog.		.25***		.07		-.17*	
Asian							
Paid Pool		.11					
School 2		-.12	-.32***	.12^{+}			
Entry							
Sex. Min.							
Media			-.24**				.17*
Reading	.15						-.19**
Sex. Info	.24**			.13^{+}	.16*		

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.27

Control Variables Included in Condom Use Model Comparing Men Based on Sexual Status

	Non-Active							Active						
	Mags	Att	Norms	Eff	Know	Intent	Keep	Mags	Att	Norms	Eff	Know	Intent	Keep
Age														
Relig.							-.31**							
Par. Ed.		-.22						-.21^{+}				-.27**		
Dat. Exp.				.19***		.12^{+}			.22*		.30***			
Monog.			.25**	-.16^{+}					.26**					
Asian	.20													
Paid Pool									.24*		.40***		.22*	
School 2			-.33**							-.33**	.36**			
Entry					-.22*			-.22*			-.22*			
Sex. Min.														
Media	.33*		-.23*					.21^{+}		-.21*			-.12	
Reading											-.09			-.20^{+}
Sex. Info				.26*				.21^{+}						

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.28

Control Variables Included in Model of Men's Magazine Involvement and Condom Use

	Mag ID	Sex Mot	Friend Beh	Att	Norms	Eff	Know	Intent	Keep
Age									
Relig.		-.12*		-.15^{+}					-.23**
Par. Ed.	-.13*						-.16*	.12^{+}	
Dat. Exp.				.24**	-.13^{+}	.38***	.12		
Monog.				.18**				-.16*	
Asian									
Paid Pool									
School 2				-.17*	-.27***	.12^{+}			
Entry									
Sex. Min.									
Media					-.23**				.17*
Reading		-.14*			-.16^{+}				-.18*
Sex. Info			.13*			.15*	.15*		
Mag Read	.41***	.35***	.25***	.11	-.03	.09	-.07	.12	.18*

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.29

Control Variables Included in Women's Safe Sex Discussion Model

	Mags	Att	Norms	Eff	Know	Intent	Prob
Age							
Relig.					-.08		.13**
Par. Ed.							
Dat. Exp.	.16^{+}				.13^{+}		-.13^{+}
Monog.					.08	.10	.15**
Asian							-.15***
Paid Pool			-.11^{+}				
School 2			.09	-.06	-.07		
Entry	.21**				-.09	.15*	
Sex. Min.			-.12*				
Media				-.08	-.06		
Reading						.15**	.12**
Sex. Info	.10						

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.30

Control Variables Included in Safe Sex Discussion Model Comparing Women Based on Sexual Status

	Non-Active							Active						
	Mags	Att	Norms	Eff	Know	Intent	Prob	Mags	Att	Norms	Eff	Know	Intent	Prob
Age														
Relig.														
Par. Ed.		-.16						.33***						
Dat. Exp.														-.18**
Monog.														.12^{+}
Asian														
Paid Pool			-.14^{+}			.19^{+}								
School 2			.14			.27***			-.14		-.20*	-.18^{+}		
Entry								.46***				-.09		
Sex. Min.				.16**										-.12
Media								-.20^{+}				-.14^{+}		
Reading			-.18*										.25**	.15*
Sex. Info														

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.31

Control Variables Included in Model of Women's Magazine Involvement and Safe Sex Discussion

	Mag ID	Sex Mot	Friend Beh	Att	Norms	Eff	Know	Intent	Prob
Age									
Relig.							-.09^{+}		.13**
Par. Ed.									
Dat. Exp.							.12^{+}		-.12^{+}
Monog.		.11**					.07	.11	.15**
Asian									-.16**
Paid Pool	-.09*				-.11				
School 2		.10*			.09	-.07	-.09		
Entry	.07		.07				-.09	.15**	
Sex. Min.	-.13**		-.08		-.11^{+}				
Media						-.08			
Reading	-.10*	-.16**						.14*	.12*
Sex. Info			.06						
Mag Read	.45***	.39***	.50***	-.09	-.01	-.07	.02	.00	.03

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.32

Control Variables Included in Men's Safe Sex Discussion Model

	Mags	Att	Norms	Eff	Know	Intent	Prob
Age							
Relig.			-.17*			-.15^{+}	
Par. Ed.							
Dat. Exp.		.16^{+}	.15*		.17**		
Monog.		.24**				.23**	
Asian							
Paid Pool		.27**			.17*	-.21*	
School 2		-.14					-.11
Entry							
Sex. Min.							
Media							
Reading							
Sex. Info	.24***					.13^{+}	

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.33

Control Variables Included in Safe Sex Discussion Model Comparing Men Based on Sexual Status

	Non-Active							Active						
	Mags	Att	Norms	Eff	Know	Intent	Prob	Mags	Att	Norms	Eff	Know	Intent	Prob
Age		-.13											.42***	
Relig.						-.26*								.25**
Par. Ed.								-.20		.14				
Dat. Exp.		.15*							.22*				-.33**	
Monog.		.23*							.24*				.31*	.10
Asian														
Paid Pool		.26**							.25**			.32***	.30*	-.34**
School 2		-.30**								-.21*				-.39***
Entry		-.25*						-.24**	.19^{+}					.23*
Sex. Min.		-.20**								-.29***		.22*		
Media	.26										-.13			
Reading								.23*			-.13	-.24*		
Sex. Info														

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.34

Control Variables Included in Model of Men's Magazine Involvement and Safe Sex Discussion

	Mag ID	Sex Mot	Friend Beh	Att	Norms	Eff	Know	Intent	Prob
Age									
Relig.		-.12^{+}			-.19**			-.16^{+}	
Par. Ed.	-.13*								
Dat. Exp.				.14	.14^{+}		.16*		
Monog.				.22**				.23**	
Asian									
Paid Pool				.26**			.17**	-.20*	
School 2				-.14					-.11
Entry									
Sex. Min.									
Media									
Reading									
Sex. Info			.13*					.13^{+}	
Mag Read	.41***	.32***	.26***	-.11	.12	.23**	.02	.06	.03

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.35

Control Variables Included in Women's HIV/STI Testing Model

	Mags	Att	Norms	Know	Prob Test	Prob Ask Test
Age						
Relig.		-.15*			-.13*	.14*
Par. Ed.						
Dat. Exp.	.17*	.21***		.06	.43***	-.26***
Monog.						
Asian	-.08	-.17**				
Paid Pool		$.12^{+}$	-.15**	$.10^{+}$		$-.11^{+}$
School 2			.10			-.17**
Entry	.20*			-.19**		
Sex. Min.						
Media						
Reading						
Sex. Info						

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.36

Control Variables Included in HIV/STI Testing Model Comparing Women Based on Sexual Status

	Non-Active						Active					
	Mags	Att	Norms	Know	Pr. Test	Pr. Ask	Mags	Att	Norms	Know	Pr. Test	Pr. Ask
Age			-.15*			-.16^{+}						
Relig.	.25*		.25***					-.19**			-.20**	.22**
Par. Ed.							.32***				-.18*	
Dat. Exp.		.19*				-.22*		.20*			.25**	
Monog.												
Asian								-.19*				
Paid Pool		.16^{+}							-.24***			-.16*
School 2			.18*							-.19*		-.29***
Entry							.45***			-.13		
Sex. Min.		.17*										
Media	.24*						-.21^{+}			-.11		
Reading								.21**	.16^{+}		.16^{+}	.14^{+}
Sex. Info												

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.37

Control Variables Included in Model of Women's Magazine Involvement and HIV/STI Testing

	Mag ID	Sex Mot	Friend Beh	Att	Norms	Know	Prob Test	Prob Ask
Age								
Relig.				-.13*	.10^{+}		-.13*	.16**
Par. Ed.								
Dat. Exp.				.21***			.45***	-.23***
Monog.		.11*						
Asian				-.16**				
Paid Pool	-.09*				-.16**			-.14*
School 2		.10*			.10	-.11		-.28***
Entry	.07		.07			.13^{+}		.16*
Sex. Min.	-.13**		-.08					
Media								
Reading	-.10*	-.16**						.10^{+}
Sex. Info			.06					
Mag Read	.45***	.38***	.50***	-.06	.01	.02	.19**	-.02

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.38

Control Variables Included in Men's HIV/STI Testing Model

	Mags	Att	Norms	Know	Prob Test	Prob Ask Test
Age						
Relig.		-.13			-.18**	
Par. Ed.						
Dat. Exp.		.25**			.16^{+}	
Monog.						
Asian						.16*
Paid Pool						
School 2						
Entry						
Sex. Min.					.21**	
Media			.13	-.17^{+}	.17*	
Reading						
Sex. Info	.25***					

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.39

Control Variables Included in HIV/STI Testing Model Comparing Men Based on Sexual Status

	Non-Active						Active					
	Mags	Att	Norms	Know	Pr. Test	Pr. Ask	Mags	Att	Norms	Know	Pr. Test	Pr. Ask
Age												
Relig.												
Par. Ed.												
Dat. Exp.		.36**										
Monog.												
Asian												.28**
Paid Pool												
School 2					.29*							
Entry							-.23*					
Sex. Min.												
Media	.30^{+}	-.28**			.34**					-.20^{+}		
Reading								.21*	.21*	-.19*		
Sex. Info							.25**	.19^{+}		-.16^{+}		

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 2.40

Control Variables Included in Model of Men's Magazine Involvement and HIV/STI Testing

	Mag ID	Sex Mot	Friend Beh	Att	Norms	Know	Prob Test	Prob Ask
Age								
Relig.				-.14^{+}			-.17*	
Par. Ed.	-.13^{+}							
Dat. Exp.				.24**			.17^{+}	
Monog.								
Asian								.15^{+}
Paid Pool								
School 2								
Entry								
Sex. Min.							.20**	
Media					.13	-.15^{+}	.17*	
Reading								
Sex. Info			.13*					
Mag Read	.41***	.31***	.26***	.06	-.08	.05	.13	.11

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Coefficients without symbols indicate control variables that were included in model based on zero-order correlations but were not significant.

Table 3.1

Comparison of Participants Who Did and Did Not Agree to be Recontacted

	Agreed	Declined	df	T/χ^2
Percent Male	35.2%	44.3%	1	3.53^{+}
Age	18.74 (.51)	18.71 (.50)	454	-.57
Religiosity	3.02 (1.20)	3.17 (1.18)	454	1.26
Parental Education	3.80 (1.12)	3.88 (1.09)	454	.70
Dating Experience	4.01 (2.50)	3.57 (2.46)	439	-1.74^{+}
Monogamous Rel.	37.1%	33.1%	1	.66
Ever Had Intercourse?	54.1%	52.4%	1	.11
Asian	9.4%	10.7%	1	.19
School 1 SP	29.6%	51.7%	1	20.93***
School 1 Paid	35.5%	4.0%	1	52.71***
School 2 SP	34.9%	44.3%	1	3.80*
Entry Week	6.27 (2.96)	5.97 (2.57)	333.10	-1.11
Percent Sexual Min.	13.8%	8.8%	1	2.32
Avg. Media Use	-.02 (.64)	.04 (.71)	454	.87
Avg. Reading	.02 (.81)	-.04 (.79)	454	-.73
Avg. Sex. Health Info	3.51 (.61)	3.56 (.60)	454	.82

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 3.2

Comparison of Study 1 Participants Who Did and Did Not Participate in Wave 2

	Participated	Did Not Participate	df	T/χ^2
Percent Male	34.9%	40.1%	1	1.25
Age	18.73 (.54)	18.72 (.48)	455	.17
Religiosity	3.00 (1.24)	3.12 (1.17)	455	-1.04
Parental Education	3.88 (1.06)	3.80 (1.14)	455	.75
Dating Experience	3.73 (2.50)	3.95 (2.48)	440	-.91
Monogamous Rel.	33.9%	36.8%	1	.36
Ever Had Intercourse?	48.0%	57.1%	1	3.62^{+}
Asian	12.0%	8.5%	1	1.48
School 1 SP	32.6%	39.7%	1	2.37
School 1 Paid	48.0%	11.0%	1	78.53***
School 2 SP	19.4%	49.3%	1	40.93***
Entry Week	5.69 (2.94)	6.46 (2.75)	455	-2.85**
Percent Sexual Min.	15.5%	10.0%	1	3.06^{+}
Avg. Media Use	-.10 (.58)	.06 (.69)	417.39	-2.65**
Avg. Reading	-.01 (.81)	.00 (.80)	455	-.12
Avg. Sex. Health Info	3.45 (.64)	3.57 (.59)	455	-1.95*

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 3.3

Differences and Correlations between Wave 1 and Wave 2 Variables for Women

	Wave 1	Wave 2	*r*	df	t
Women's Mag. Reading	2.08 (1.93)	2.37 (2.51)	.59***	109	-1.49
Magazine ID	3.54 (.88)	3.53 (.84)	.75***	108	.13
Sex. Read. Motivation	3.85 (1.21)	3.79 (1.19)	.66***	111	.58
Friend Mag. Discussion	3.14 (.90)	2.88 (.95)	.72***	112	3.98***
Condom Attitudes	6.52 (.58)	6.44 (.73)	.47***	113	1.24
Condom Norms	34.29 (13.66)	36.51 (13.33)	.49***	112	-1.73^{+}
Condom Efficacy	6.44 (1.93)	6.81 (1.69)	.54***	113	-2.28*
Condom Know.	3.95 (1.09)	4.00 (1.09)	.52***	111	-.53
Keeping & Carrying	3.58 (1.77)	3.59 (1.71)	.74***	110	-.15
Prob. Condom Use	89.02 (21.85)	83.15 (27.19)	.27**	91	1.88^{+}
Condom Use. Freq.	4.04 (1.17)	3.83 (1.31)	.62***	45	1.36
Discussion Attitudes	5.05 (.69)	5.01 (.73)	.55***	111	.60
Discussion Norms	40.18 (21.39)	47.77 (20.17)	.45***	111	1.04
Negotiation Efficacy	7.87 (1.22)	7.53 (1.58)	.34***	113	2.17*
Knowledge	2.98 (.31)	2.97 (.45)	.48***	111	.21
Discussion Intent	3.92 (1.09)	3.87 (1.06)	.52***	112	.45
Prob. Discussion	85.54 (21.22)	82.92 (25.62)	.49***	100	1.10
Last Partner Discussion	2.65 (1.51)	2.76 (1.27)	.64***	111	-.95
HIV Test Attitudes	3.37 (.77)	3.58 (.91)	.67***	113	-3.27***
Testing Norms	35.41 (20.75)	32.75 (19.38)	.52***	108	1.41
STI Knowledge	18.44 (1.73)	17.87 (2.93)	.38***	111	2.18*
Prob. Testing	14.82 (30.27)	16.77 (31.05)	.67***	112	-.83
Prob. Ask Partner Test	57.89 (32.49)	55.50 (33.18)	.57***	108	.82
Ever Test STIs	.12 (.33)	.12 (.33)	.67***	112	.00

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Because Wave 1 women's magazine reading levels were originally reported as number of issues in the past year, we divided Wave 1 reading by 3 prior to cross-wave comparisons. This put it on a 4-month scale equivalent to that used in Wave 2.

Table 3.4
Differences and Correlations between Wave 1 and Wave 2 Variables for Men

	Wave 1	Wave 2	*r*	df	t
Men's Mag. Reading	1.13 (1.95)	1.00 (1.74)	.68***	56	.68
Magazine ID	3.03 (.80)	2.99 (.77)	.65***	58	.48
Sex. Read. Motivation	3.35 (1.29)	3.17 (1.27)	.60***	59	1.22
Friend Mag. Discussion	2.43 (.87)	2.28 (1.03)	.26*	59	1.06
Condom Attitudes	6.17 (.73)	6.11 (.76)	.47***	60	.67
Condom Norms	40.41 (15.98)	39.80 (14.51)	.59***	60	.35
Condom Efficacy	7.17 (1.77)	7.15 (1.61)	.36**	60	.09
Condom Know.	4.10 (.94)	3.93 (1.00)	.26*	60	1.08
Keeping & Carrying	4.71 (1.60)	4.16 (1.74)	.63***	60	2.97**
Prob. Condom Use	76.59 (33.13)	74.75 (28.12)	.52***	58	.21
Condom Use. Freq.	4.43 (1.02)	4.12 (1.11)	.62***	28	1.80^{+}
Discussion Attitudes	4.73 (.48)	4.79 (.59)	.54***	58	-.94
Discussion Norms	45.90 (22.61)	37.05 (21.78)	.38**	60	2.79**
Negotiation Efficacy	7.30 (1.31)	7.09 (1.52)	.41***	60	1.07
Knowledge	2.96 (.34)	2.87 (.48)	.18	60	1.29
Discussion Intent	3.24 (1.04)	2.98 (1.09)	.36**	59	1.67^{+}
Prob. Discussion	77.88 (21.05)	70.84 (24.85)	.38**	58	2.11*
Last Partner Discussion	2.18 (1.27)	2.11 (1.12)	.43***	58	.41
HIV Test Attitudes	3.27 (.80)	3.41 (.79)	.64***	60	-1.60
Testing Norms	21.48 (17.50)	24.59 (19.71)	.33**	60	-1.13
STI Knowledge	18.07 (2.24)	17.34 (3.26)	.11	60	1.50
Prob. Testing	8.03 (20.07)	8.52 (20.86)	.94***	60	-.53
Prob. Ask Partner Test	35.83 (26.51)	35.83 (28.24)	.29*	60	.00
Ever Test STIs	.03 (.18)	.05 (.22)	.81***	60	-1.00

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Because Wave 1 men's magazine reading levels were originally reported as number of issues in the past year, we divided Wave 1 reading by 3 prior to cross-wave comparisons. This put it on a 4-month scale equivalent to that used in Wave 2.

Table 3.5

Zero-Order Correlations between Demographic and Media Use Controls and Women's Time 2 Intention and Behavior Variables

	Condom Use			Safe Sex Discussion			HIV/STI Testing		
	Keeping	Intent	Freq. Use	Intent Dis.	Prob. Dis.	Last Part.	Prob. Test	Prob. Ask	Ever Tested
Age					-.21*				
Par. Ed.								-.19*	
Asian	-.23*								
Sch.1 Paid	-.24*								
School 2	.33***								
Entry									
Sex. Info				.24*	.20*				
Relig.		-.35***					-.25**		-.28*
Dat. Exp.		.36***					.45***		.36**
Monog.						.44***			
Sex Min.			-.31*	-.19*	-.21**				
Media			.32*						
Reading								.25**	

*** $p < .001$ ** $p < .01$ * $p < .05$

Note: Correlations with frequency of condom use, last partner discussion, and ever having been tested for HIV/STIs are for sexually active participants only.

Table 3.6

Zero-Order Correlations between Demographic and Media Use Controls and Sexually Active Women's Time 1 Magazine Reading and Intention Variables

		Condom Use Intentions		Discussion Intentions		HIV/STI Testing Intentions	
	Mag. Read.	Keeping	Intent	Intent Dis.	Prob. Dis.	Prob. Test	Prob. Ask
Age							
Par. Ed.							
Asian							
Sch.1 Paid							
School 2		.37**					
Entry							
Sex. Info						.27*	
Relig.						-.39**	
Dat. Exp.						.51***	
Monog.					.28*		
Sex Min.	-.38**				-.32*		
Media	-.29*		.32*				
Reading				.27*		.40**	

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 3.7

Zero-Order Correlations between Demographic and Media Use Controls and Men's Time 2 Intention and Behavior Variables

	Condom Use			Safe Sex Discussion			HIV/STI Testing		
	Keeping	Prob. Use	Freq. Use	Intent Dis.	Prob. Dis.	Last Part.	Prob. Test	Prob. Ask	Ever Tested
Age									
Par. Ed.									
Asian					-.27*				
Sch.1 Paid	-.29*								
School 2									
Entry				.28*					
Sex. Info								.27*	
Relig.	-.53***								
Dat. Exp.	.41***								
Monog.			-.38*						
Sex Min.									
Media		.36**		.26*		.63***			
Reading	-.40***	-.31*	-.45*						

*** $p < .001$ ** $p < .01$ * $p < .05$

Note: Correlations with frequency of condom use, last partner discussion, and ever having been tested for HIV/STIs are for sexually active participants only.

Table 3.8

Zero-Order Correlations between Demographic and Media Use Controls and Sexually Active Men's Time 1 Magazine Reading and Intention Variables

		Condom Use Intentions		Discussion Intentions		HIV/STI Testing Intentions	
	Mag. Read.	Keeping	Prob. Use	Intent Dis.	Prob. Dis.	Prob. Test	Prob. Ask
Age							
Par. Ed.							
Asian						-.36*	
Sch.1 Paid							
School 2							
Entry							
Sex. Info							
Relig.							
Dat. Exp.							
Monog.							
Sex Min.							
Media							
Reading							

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 3.9

Zero-Order Correlations between Demographic and Media Use Controls and Time 2 Intention and Behavior Variables for Men and Women Combined

	Condom Use			Safe Sex Discussion			HIV/STI Testing		
	Keeping	Prob. Use	Freq. Use	Intent Dis.	Prob. Dis.	Last Part.	Prob. Test	Prob. Ask	Ever Tested
Age				-.16*	-.18*				
Par. Ed.									
Asian					-.26***				
Sch.1 Paid	-.19*					-.36***			
School 2	.24***								.22*
Entry									
Sex. Info				.17*				.18*	
Relig.	-.26***	-.43***							
Dat. Exp.	.24**	.35***					.26***	-.18*	
Monog.			-.30**			.39***			
Sex Min.					-.17*				
Media	.22**								
Reading					-.18*				
Sex	-.15*	-.25***		.37***	.25**	.37***		.27***	

*** $p < .001$ ** $p < .01$ * $p < .05$

Note: Correlations with frequency of condom use, last partner discussion, and ever having been tested for HIV/STIs are for sexually active participants only. For sex variable, 1 = male and 2 = female.

Table 3.10

Zero-Order Correlations between Demographic Controls and Sexually Active Participants' Time 1 Intention Variables

	Condom Use		Safe Sex Discussion		HIV/STI Testing	
	Keeping	Prob. Use	Intent Dis.	Prob. Dis.	Prob. Test	Prob. Ask
Age						
Par. Ed.						
Asian					-.22*	
Sch.1 Paid						-.23*
School 2						
Entry	.27*					
Sex. Info						
Relig.				.24*	-.23*	
Dat. Exp.					.26*	
Monog.			.24*	.23*		
Sex Min.						
Media						
Reading						
Sex	-.44***		.33**			.24*

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 3.11

Control Variables Included in Model of Condom Use Intentions

	Attitudes	Norms	Self-Eff.	Knowledge	Keeping	Intent
Age						
Par. Ed.						
Asian						
Sch.1 Paid			-.11^{+}	-.10	-.09	
School 2	.09	-.16*			.17**	
Entry						
Sex. Info						
Relig.	-.18**			-.11	-.18**	-.31***
Dat. Exp.	.20**		.41***	.11		.24***
Monog.						
Sex Min.						
Media		-.11		-.11	.19**	
Reading						
Sex	.28***	.21**	-.19**	-.09	-.17**	-.26***

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 3.12

Control Variables Included in Model of Safe Sex Discussion Intentions

	Attitudes	Norms	Self-Eff.	Knowledge	Dis. Int.	Prob. Dis.
Age						
Par. Ed.						
Asian	-.11^{+}			-.09		-.25**
Sch.1 Paid						
School 2						
Entry						
Sex. Info	.12^{+}		.09		.09	
Relig.						
Dat. Exp.						
Monog.						
Sex Min.						
Media						
Reading		.07	.11			-.20**
Sex	.22***	.11	.23**		.26***	

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 3.13

Control Variables Included in Model of HIV/STI Testing Intentions

	Attitudes	Norms	Knowledge	Prob. Test	Prob. Ask
Age					
Par. Ed.					
Asian					
Sch.1 Paid					
School 2					
Entry					
Sex. Info			-.17*		.20**
Relig.					
Dat. Exp.	.12^{+}	-.11	.11	.38***	-.17*
Monog.					
Sex Min.					
Media					
Reading					
Sex		.31***	.10		.18**

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 3.14

Control Variables Included in Models of Condom Use Behavior

	Model with Intentions to Keep and Carry Condoms						Model with Condom Use Intentions					
	Attitudes	Norms	Self-Eff.	Know.	Keeping	Freq. Use	Attitudes	Norms	Self-Eff.	Know.	Intent	Freq. Use
Age												
Par. Ed.												
Asian												
Sch.1 Paid												
School 2												
Entry												
Sex. Info												
Relig.												
Dat. Exp.												
Monog.						-.25**					-.15	-.27**
Sex Min.												
Media												
Reading												
Sex	.22*	.23*	-.29**		-.38***		.22*	.23*	-.29**			

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 3.15

Control Variables Included in Models of Safe Sex Discussion Behavior

	Model with Intentions of Discussing Thoroughly						Model with Probability of Discussion					
	Attitudes	Norms	Self-Eff.	Know.	Intent.	Last Pt.	Attitudes	Norms	Self-Eff.	Know.	Prob.	Last Pt.
Age												
Par. Ed.												
Asian												
Sch.1 Paid						-.26***						-.30***
School 2												
Entry												
Sex. Info												
Relig.												
Dat. Exp.												
Monog.					.15	.28***					$.18^{+}$	.30***
Sex Min.												
Media												
Reading												
Sex	.22*		.16		.22*		.22*		.16			

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 3.16

Control Variables Included in Model of HIV/STI Testing Behavior

	Attitudes	Norms	Know.	Prob. Test	Ever Test
Age					
Par. Ed.					
Asian					
Sch.1 Paid					
School 2			-.21*		.24^{+}
Entry					
Sex. Info					
Relig.					
Dat. Exp.					
Monog.					
Sex Min.					
Media					
Reading					
Sex		.34**			.38*

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 3.17

Control Variables Included in Women's Magazine Reading, Intentions, and Behavior Models

	Condom Use				Safe Sex Discussion				HIV/STI Testing		
	Mag. Rd.	Keeping	Intent	Freq. Use	Mag. Rd.	Intent	Pr. Dis.	Last Part.	Mag. Rd.	Pr. Test	Ever Test
Age											
Par. Ed.											
Asian											
Sch.1 Paid											
School 2	.22^{+}	.37***									
Entry											
Sex. Info											
Relig.										-.21	
Dat. Exp.										.33*	.35
Monog.							.25*	.38***			
Sex Min.					-.38***		-.29^{+}		-.24		
Media			.32***	.25*	-.29**				-.29^{+}		
Reading						.22**				.24	

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 3.18

Control Variables Included in Men's Magazine Reading, Intentions, and Behavior Models

	Condom Use				Safe Sex Discussion			
	Mag. Read.	Keeping	Intent	Freq. Use	Mag. Read.	Intent Dis.	Prob. Dis.	Last Part.
Age								
Par. Ed.								
Asian								
Sch.1 Paid								
School 2								
Entry								
Sex. Info								
Relig.								
Dat. Exp.								
Monog.		.28^{+}		-.32*				
Sex Min.								
Media					-.28*			.53***
Reading				-.45***				

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 3.19

Change in Chi-Square Values in Women's Cross-Lagged Models when Cross-Time Paths from Wave 1 Magazine Reading to Wave 2 Safe Sex Constructs or from Wave 1 Safe Sex Constructs to Wave 2 Magazine Reading are Constrained to 0

	Change in χ^2 Value with 1 df	
	W1 Mag. Read.→W2 Safe Sex	W1 Safe Sex→W2 Mag. Read.
Condom Knowledge	8.83**	.37
Condom Use Efficacy	.03	2.08
Keeping & Carrying	4.31*	.28
Prob. Condom Use	5.00*	2.05
Condom Use Freq.	1.45	4.39*
Discussion Norms	4.67*	.11
Negotiation Efficacy	.02	4.43*
Discussion Intent	79.25***	.24
Prob. of Discussion	50.20***	.51
Last Partner Discussion	.69	.00
HIV Testing Attitudes	3.51^{+}	.22
Testing Norms	.01	.00
Prob. of Testing	.39	1.11
Prob. Ask Partner Test	3.93*	.88
STI Testing	12.99***	.10

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Significant chi-square values indicate that excluding a particular path decreases the model fit, meaning the specified path should be included in the model.

Table 3.20

Change in Chi-Square Values in Men's Cross-Lagged Models when Cross-Time Paths from Wave 1 Magazine Reading to Wave 2 Safe Sex Constructs or from Wave 1 Safe Sex Constructs to Wave 2 Magazine Reading are Constrained to 0

	Change in χ^2 Value with 1 df	
	W1 Mag. Read.→W2 Safe Sex	W1 Safe Sex→W2 Mag. Read.
Condom Knowledge	3.00^{+}	1.39
Condom Use Efficacy	.53	5.23*
Keeping & Carrying	.12	1.65
Prob. Condom Use	.00	.24
Condom Use Freq.	.29	.97
Discussion Norms	.85	2.59
Negotiation Efficacy	.11	.00
Discussion Intent	1.93	1.09
Prob. of Discussion	.25	2.53
Last Partner Discussion	4.69*	1.65
HIV Testing Attitudes	.06	.41
Testing Norms	.42	2.64
Prob. of Testing	.68	.05
Prob. Ask Partner Test	.11	.83

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Significant chi-square values indicate that excluding a particular path decreases the model fit, meaning the specified path should be included in the model.

Table 3.21

Control Variables Included in Cross-Lagged Models for Women and Men

	Women's Models – Sexual Minority Status Control				Men's Models – Week of Entry Control			
	W1 Read.	W1 Safe Sex	W2 Read.	W2 Safe Sex	W1 Read.	W1 Safe Sex	W2 Read.	W2 Safe Sex
Condom Knowledge	-.32***			.26***	-.32***			
Condom Use Efficacy	-.33***				-.32***			
Keeping & Carrying	-.32***			.10^{+}	-.31***			
Prob. Condom Use	-.32***				-.29***			
Condom Use Freq.	-.37***	-.25^{+}			-.27**			
Discussion Norms	-.32***	-.19*			-.32***			
Negotiation Efficacy	-.33***				-.32***			
Discussion Intent	-.33***				-.32***			.19
Prob. of Discussion	-.32***	-.24*			-.32***			
Last Partner Discussion	-.38***	-.28^{+}			-.29***	.24^{+}		-.02
HIV Testing Attitudes	-.32***				-.31***			-.37***
Testing Norms	-.32***				-.32***	-.19^{+}		
Prob. of Testing	-.33***				-.28**			
Prob. Ask Partner Test	-.34***				-.30***			
STI Testing	-.37***	.02			--	--	--	--

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 4.1

Descriptive Information on Experimental and Control Stimuli from Cosmopolitan *Magazine*

Experimental Articles								
Title	Author	Date/Page	Pages	Words	Interest	Relevance	Visual	Accuracy
"How to Make Condoms More Fun"	Gilbert, Laura	Jan. 2008, p. 104	1	756	3.29 (.82)	2.31 (1.12)	3.35 (.90)	3.08 (.93)
"Sex 911: The ER Doctor is In"	Stork, Travis	Oct. 2009, p. 136	2	1203	3.45 (.89)	1.88 (.86)	2.65 (.93)	3.67 (.80)
"I Have an STD – Now What?"	O'Connor, Gail	Dec. 2007, p. 206	4	2443	3.49 (1.02)	2.08 (1.02)	2.80 (.82)	3.77 (.75)
Control Articles								
Title	Author	Date/Page	Pages	Words	Interest	Relevance	Visual	Accuracy
"Sneaky Health Hazards"	Lucia, Victoria	Jan. 2008, p. 180	1	433	3.57 (.68)	3.71 (.91)	3.24 (.86)	3.35 (.66)
"Why it's Smart to be an Early Riser"	Ruderman, Zoe	Oct. 2009, p. 166	1	437	3.35 (1.19)	3.17 (1.17)	3.27 (.94)	2.98 (.92)
"45 Cosmo Girl Crises – Solved Instantly!"	Eagleson, Holly	Dec. 2008, p. 162	3	2882	3.18 (1.11)	3.00 (1.08)	3.02 (.92)	3.37 (.83)

Note: Count of pages includes pages with text only and not full-page photos included in articles.

Table 4.2

T-Tests Comparing Average Interest, Relevance, Visual Appeal, and Perceived Accuracy Ratings for Magazine Articles in the Control and Experimental Conditions

	Control (*N*=48)	Experimental (*N*=47)	Diff	df	t
Interest	3.36 (.72)	3.38 (.66)	-.02	93	-.15
Personal Relevance	3.29 (.72)	2.09 (.72)	1.20	93	8.17***
Visual Appeal	3.19 (.64)	2.93 (.69)	.26	93	1.89^{+}
Perceived Accuracy	3.22 (.60)	3.52 (.62)	-.30	93	-2.40*
Overall Assessment	3.26 (.52)	2.98 (.47)	.28	93	2.79**

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Table 4.3

T-Tests and Chi-Square Tests for Differences in Demographics, Sexual Experience, and Personality Characteristics between Control and Experimental Participants

	Control (*N* = 48)	Experimental (*N* = 47)	Diff	df	t
Age	19.17 (.75)	19.21 (.63)	-.04	93	-.29
Religiosity	3.10 (1.07)	2.94 (1.15)	.16	93	1.25
Parental Education	4.35 (1.12)	4.30 (1.16)	.05	93	.24
Sex. Min.	14.9%	19.1%	4.2%	1	.30
Asian Ethnicity	14.6%	8.5%	6.1%	1	.86
Black Ethnicity	4.2%	10.6%	6.4%	1	1.46
Dating Experience	3.93 (2.53)	3.59 (2.12)	.34	88	.70
Ever Had Intercourse	53.2%	55.3%	2.1%	1	.04
Social Desirability	4.25 (1.84)	4.68 (1.49)	-.43	93	-1.62
Conscientiousness	3.88 (.56)	3.87 (.61)	.01	93	.05
Sexual Self-Schema	4.97 (1.56)	5.36 (1.51)	-.39	93	-1.23
Shyness	2.50 (.61)	2.47 (.56)	.03	93	.28

*** $p < .001$ ** $p < .01$ * $p < .05$ $^{+}$ $p < .10$

Note: Some reports of dating experience are missing for both control and experimental participants.

Table 4.4

Demographic Correlates of Safe-Sex Outcomes

	Cond. Att.	Keep/ Carry	Prob. Cond.	Cond. Eff.	Negot. Eff.	Dis. Att.	Prob. Discuss	Ask Test	Peer Norms	Test Att.	Test Eff.	Chance Infect.	Chance Test	Took Cond.
Age									-.26*					
Relig.										-.26**				
Par. Ed.														
Sex.Min.		.22*												
Asian														
Black														
Interc.				.40***		.21*							.24*	.38***
Soc.Des.									.20*					
Consc.								.28**	.22*					
SSS		.23*		.50***	.30**	.21*				.33***	.32***			.22*
Shyness		.26*									-.23*			

*** $p < .001$ ** $p < .01$ * $p < .05$

Note: Relig. = religiosity, Par. Ed. = parental education, Sex. Min. = sexual minority status, Interc. = intercourse status (ever had intercourse), Soc. Des. = social desirability, Consc. = conscientiousness, SSS = sexual self-schema.

Table 4.5

Summary of Models Including Experimental Condition, Intercourse Status, and Regular Reading Levels

MANCOVAS/ANCOVAS			
Outcome	Model	R^2	Adj. R^2
Condom Attitudes	Intercept + orient + relig + sss + shyness + consc + condit + vint + regread + condit*vint	.21	.11
Keeping and Carrying		.37	.30
Prob. of Condom Use		.18	.09
Condom Use Self-Efficacy	Intercept + pared + sss + condit + vint + regread + condit*vint + condit*regread	.37	.32
Negotiation Self-Efficacy		.22	.16
Discussion Attitudes	Intercept + sss + consc + condit + vint + regread + condit*vint	.17	.11
Prob. of Discussion		.17	.11
Prob. Ask Partners Test		.13	.07
HIV Testing Attitudes	Intercept + relig + sss + shyness + condit + vint + regread + condit*regread + vint*regread	.22	.15
HIV Testing Self-Efficacy		.21	.14
Peer Norms	Intercept + age + socdes + consc + condit + vint + regread + vint*regread	.15	.08
Chances of Infection	Intercept + asian + condit + vint + regread + vint*regread	.10	.05
Logistic Regressions			
Outcome	Model	R^2	C. Rate
Testing Intentions	Intercept + condit + vint + regread + condit*vint	.16	66.7%
Taking Condoms	Intercept + sss + consc + condit + vint + regread + vint*regread	.32	80.9%

Note: orient = sexual minority status, relig = religiosity, pared = parental education, sss = sexual self-schema, consc = conscientiousness, socdes = social desirability, condit = experimental condition, vint = intercourse status, regread = regular reading level. For logistic regressions, R^2=Nagelkerke pseudo R^2, C. Rate = correct classification rate.

Table 4.6.

Summary of Models Including Experimental Condition, Personality Characteristics, and Magazine Identification

MANCOVAS/ANCOVAS			
Outcome	Model	R^2	Adj. R^2
Condom Attitudes	Intercept + orient + relig + condit + sss + consc + shyness + condit*sss	.15	.07
Keeping and Carrying		.32	.26
Prob. of Condom Use		.12	.05
Condom Use Self-Efficacy	Intercept + pared + vint + condit + sss + consc + shyness + magid + condit*consc	.40	.34
Negotiation Self-Efficacy		.22	.14
Discussion Attitudes	Intercept + vint + condit + magid + sss + consc + condit*consc + condit*magid	.32	.26
Prob. of Discussion		.18	.11
Prob. Ask Partners Test		.13	.06
HIV Testing Attitudes	Intercept + relig + vint + condit + sss + shyness + consc + condit*consc	.21	.14
HIV Testing Self-Efficacy		.22	.15
Peer Norms	Intercept + age + vint + condit + sss + consc + socdes + condit*consc + condit*socdes	.21	.13
Chances of Infection	Intercept + asian + condit + sss + consc + magid + condit*sss + condit*consc	.19	.12
Logistic Regressions			
Outcome	Model	R^2	C. Rate
Testing Intentions	Intercept + vint + condit + consc + magid + condit*consc + condit*magid	.25	64.4%
Taking Condoms	Intercept + vint + condit + consc + sss + socdes + condit*consc + condit*socdes	.33	78.7%

Note: orient = sexual minority status, relig = religiosity, pared = parental education, vint = intercourse status, sss = sexual self-schema, consc = conscientiousness, socdes = social desirability, condit = experimental condition, magid = magazine identification. For logistic regressions, R^2=Nagelkerke pseudo R^2, C. Rate = correct classification rate.

Table 4.7.

Summary of Study 3 Results

Outcome	Condit	Vint	Regread	Condit*Vint	Condit*Regread	Personality	ID
Condom Attitudes	* (+)			* (+ for NA)			
Keep & Carry	* (+)		** (+)				
Prob. Cond. Use				* (+ for NA)			
Condom Self-Eff.		** (+)		* (+ for NA)			
Neg. Self-Eff.				* (+ for NA)	+ (+ in EC only)		
Discuss. Atts.	* (+)			+ (+ for NA)		*** (CON + in EC only)	* (- in EC only)
Prob. Discuss.			* (+)	* (+ for NA)			* (- in EC only)
Prob. Ask Test	+ (+)						
Peer Norms						* (CON + in EC only)	
						+ (SD + in CC only)	
Testing Atts.							
Testing Self-Eff.			* (+)			* (CON + in EC only)	
Chances Infection	+ (+)						** (+)
Testing Intent		* (+)		+ (+ for A)		+ (CON - in EC only)	** (+)
Taking Condoms		*** (+)			+ (+ in EC only)		

*** $p < .001$ ** $p < .01$ * $p < .05$ + $p < .10$

Note: Symbols outside of parentheses indicate strength of association; symbols in parentheses indicate direction of association. Condit = experimental condition, vint = intercourse status, regread = regular reading level, ID = magazine identification, + = positive association, - = negative association, EC = experimental condition; CC = control condition, A = active (participants who have engaged in intercourse), NA = non-active (participants who have not engaged in intercourse), CON = conscientiousness, SD = social desirability.

Table 4.8.1

Summary of Support for Study 3 Hypotheses

Hypothesis	Support
H_1: EP will report more positive attitudes toward condoms, safe-sex discussion, and HIV testing than CP.	Supported for condom and discussion attitudes, especially for NA women; not supported for HIV testing attitudes.
H_2: EP will report greater perceptions that their peers engage in safe-sex practices than CP.	Not supported, although some evidence of support for women high in conscientiousness.
H_3: EP will report higher levels of safe-sex self-efficacy than CP.	Some evidence of support for NA women.
H_4: EP will report greater perceived risk of STI/HIV infection than CP.	Marginally supported.
H_5: EP will report greater intentions to practice safe sex than CP.	Supported for intentions of keeping and carrying condoms; marginally supported for asking future partners to test. Supported for condom use and discussion only for NA women; marginally supported for testing intentions only for A women.
H_6: EP will be more likely to take condoms that are made available than CP.	Not supported, although some evidence of support for women who are heavy regular readers of women's magazines.
H_7: Experimental condition may interact with regular use of women's lifestyle magazines.	Very weak support; marginal interactions occurred only for negotiation self-efficacy and taking condoms such that regular readers experienced stronger effects.
H_8: Experimental condition may interact with level of sexual experience.	Strong support; many effects occurred only or primarily for NA women. Testing intentions were marginally affected only for A women.
H_9: Experimental condition may interact with magazine identification.	Weak support; interactions occurred in only two cases (for discussion attitudes and probability of discussion) and were opposite the direction hypothesized.
H_{10}: Experimental condition may interact with personality characteristics.	Strong support for conscientiousness; effects were stronger for those high in conscientiousness. Weak support for other characteristics.

Note: Table continued from previous page. EP = experimental participants, CP = control participants, NA = non-active (women who haven't engaged in intercourse), A = active (women who have engaged in intercourse).

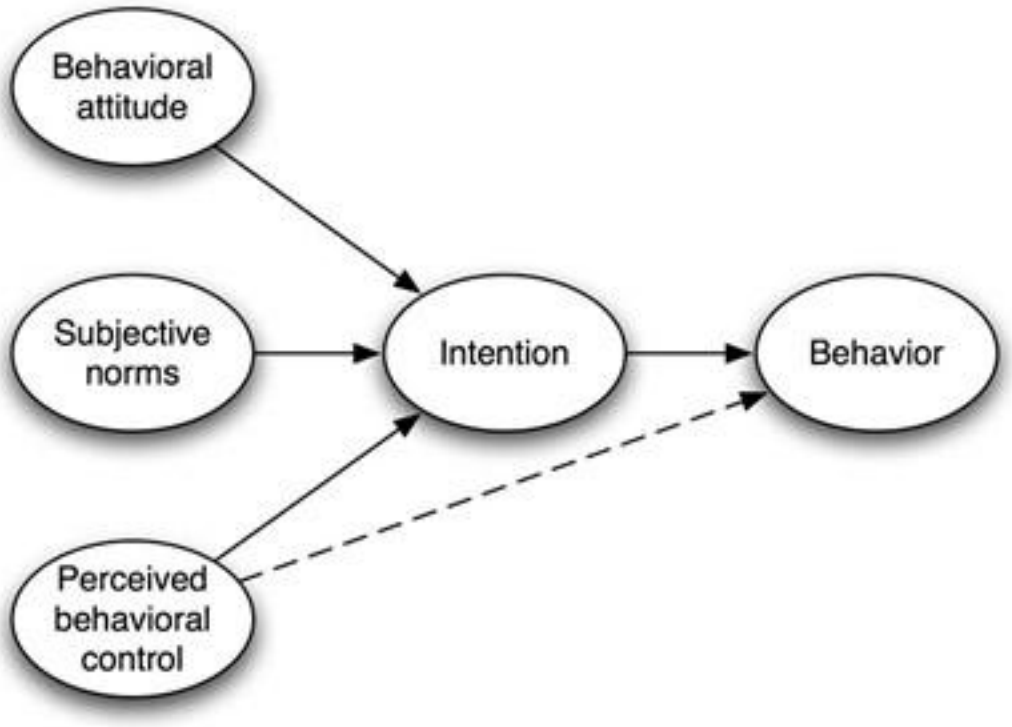


Figure 1.1. The Theory of Planned Behavior (Ajzen, 1991). "Perceived behavioral control" is also known as self-efficacy.

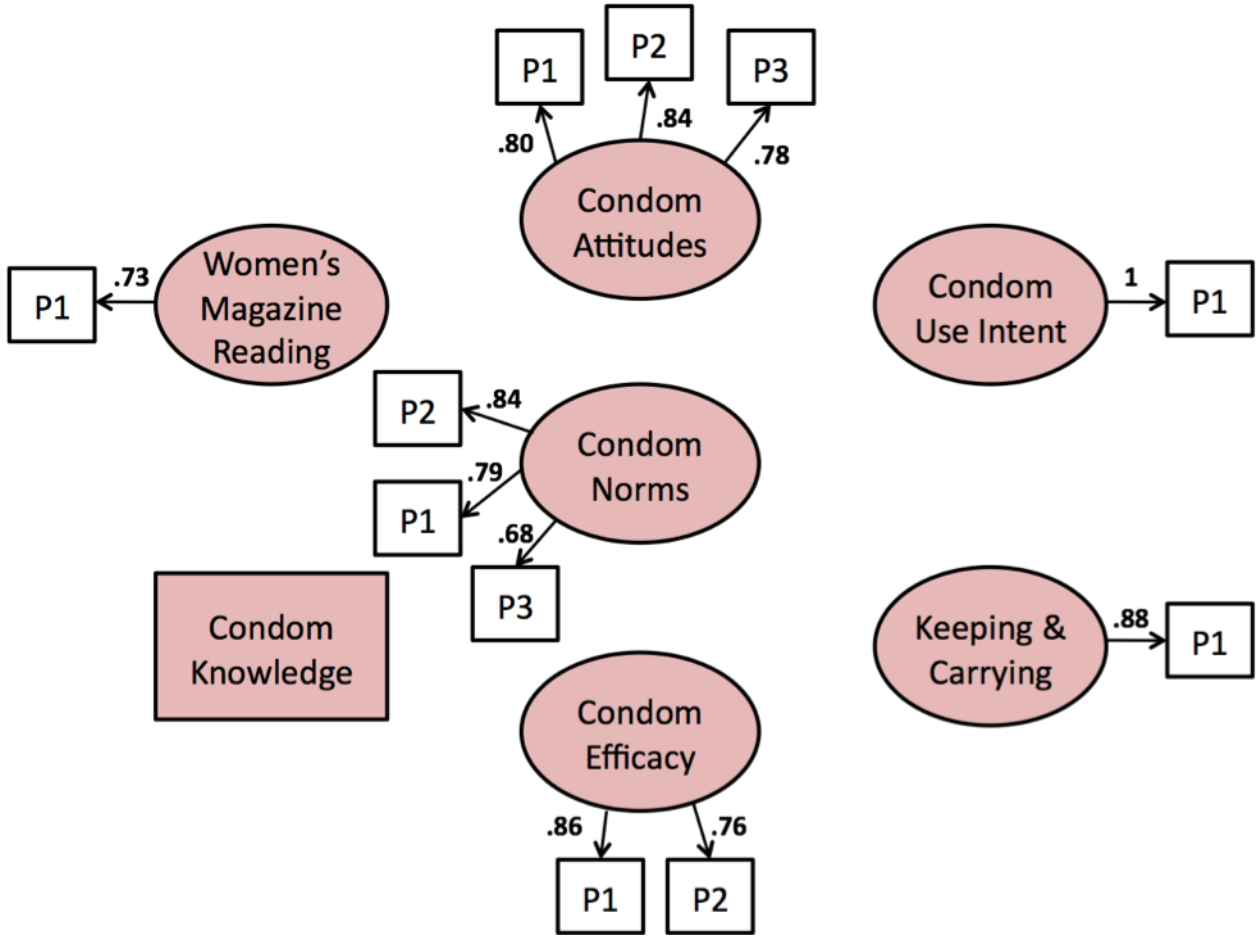


Figure 2.1. Women's condom use measurement model fit using MLR estimator in MPlus. All factors were allowed to correlate with one another (not depicted). $\chi^2(37, N = 283) = 39.98$, $p = .27$; CFI = 1.00, TLI = .99, RMSEA = .02.

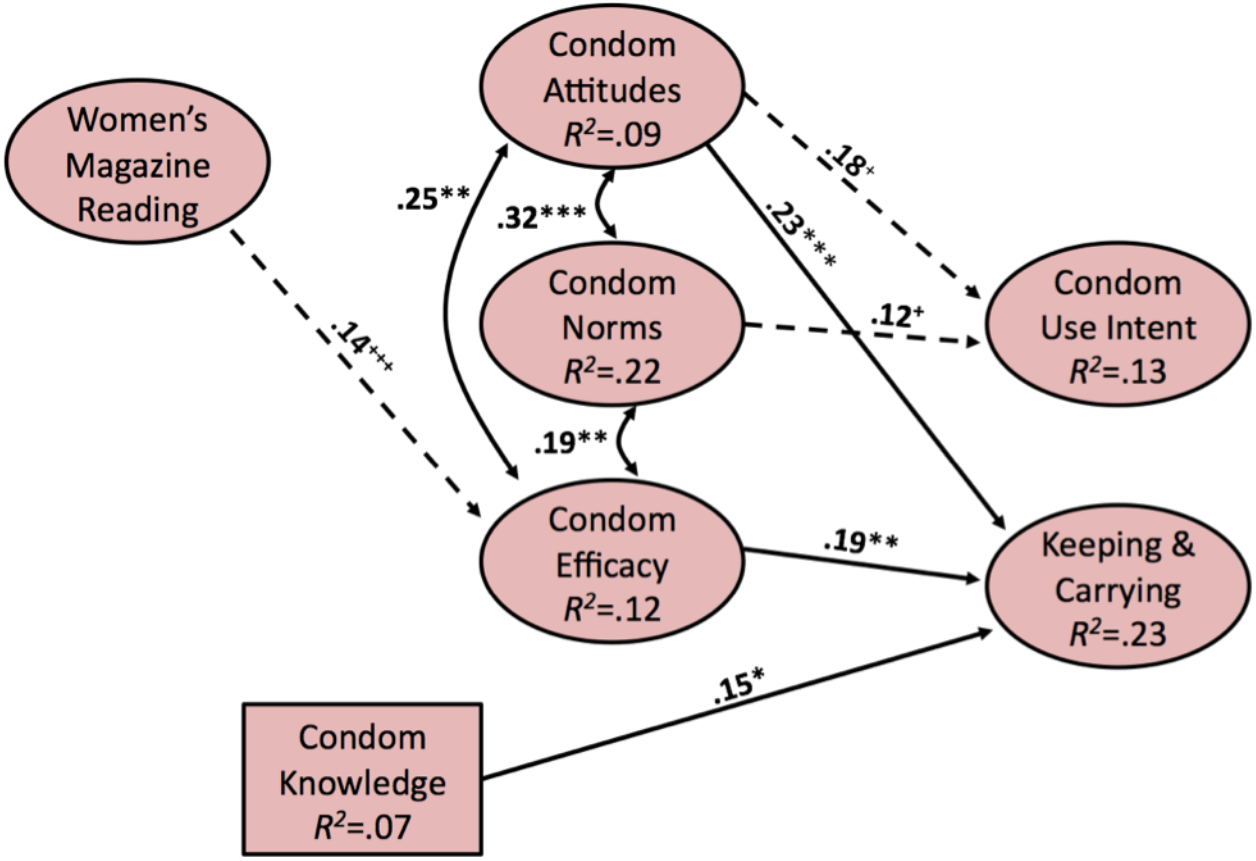
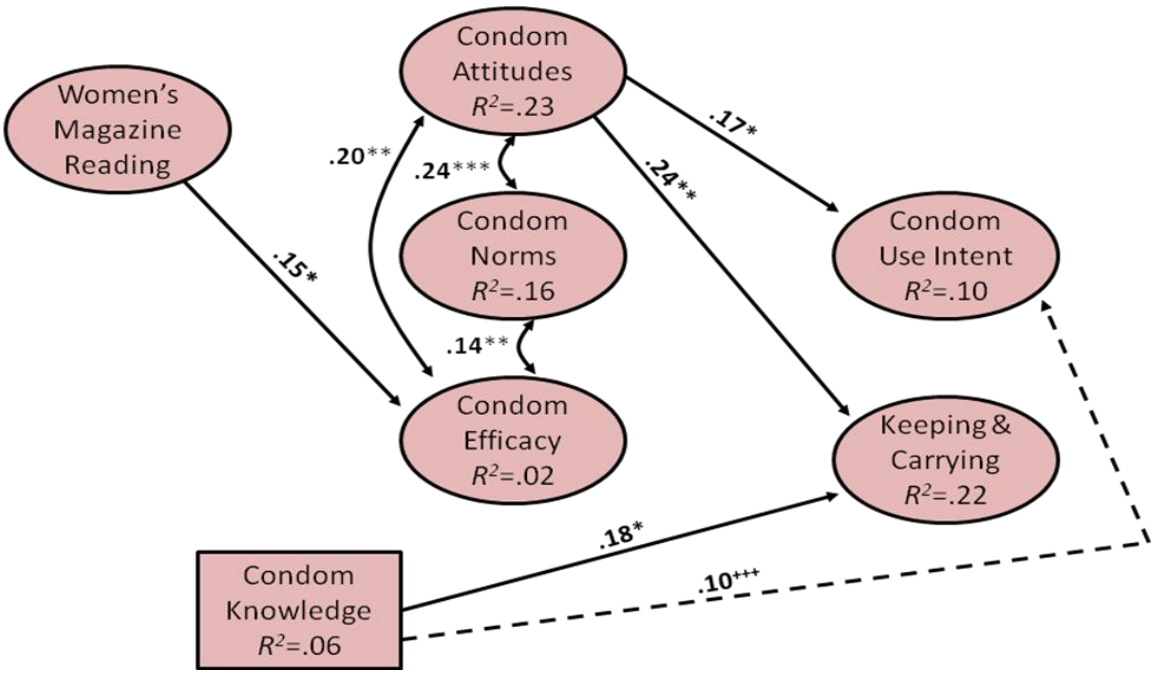


Figure 2.2. Women's condom use model fit using MLR estimator in MPlus. $\chi^2(139, N = 283) = 114.48$, $p = .94$; CFI = 1.00, TLI = 1.04, RMSEA = .00. Demographic control variables are indicated in Table 2.22. ***p<.001 **p<.01 *p<.05 ^{+}p<.06 ^{++}p<.075 ^{+++}p<.10.

Women Who Have Not Engaged in Intercourse



Sexually Active Women

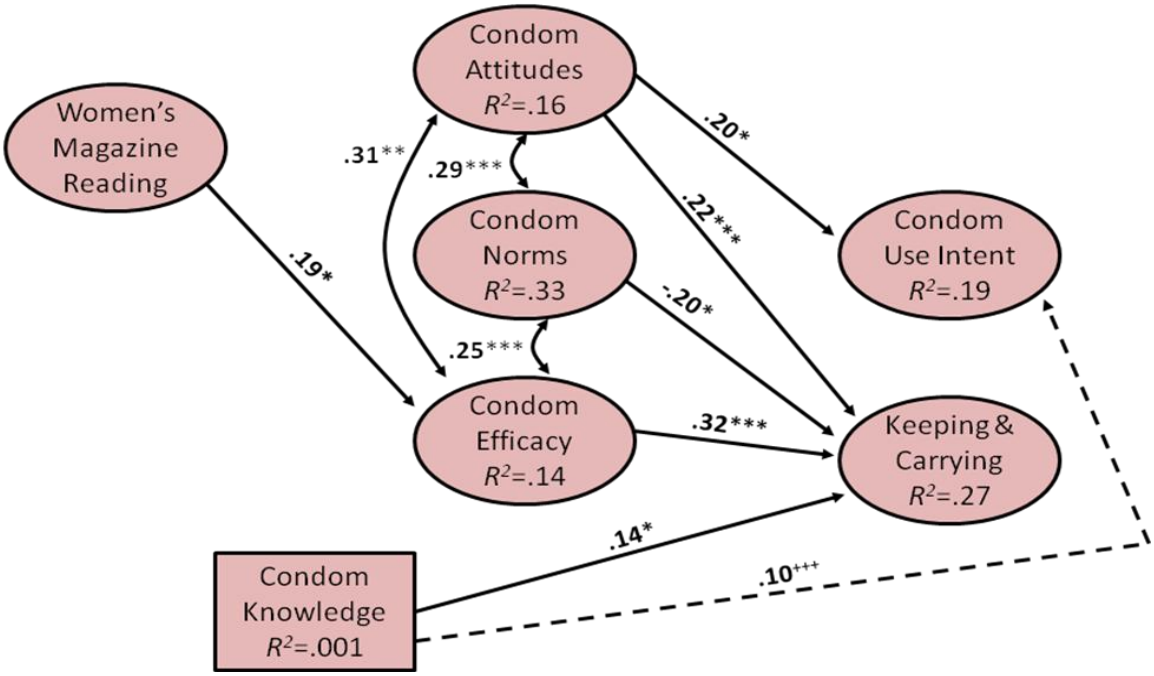


Figure 2.3. Condom use model comparing women who have and have not had intercourse. $\chi^2(289, N = 134{,}149) = 272.36$, $p = .75$; CFI = 1.00, TLI = 1.02, RMSEA = .00. Demographic control variables are indicated in Table 2.23. ***p<.001 **p<.01 *p<.05 ^{+}p<.06 ^{++}p<.075 ^{+++}p<.10.

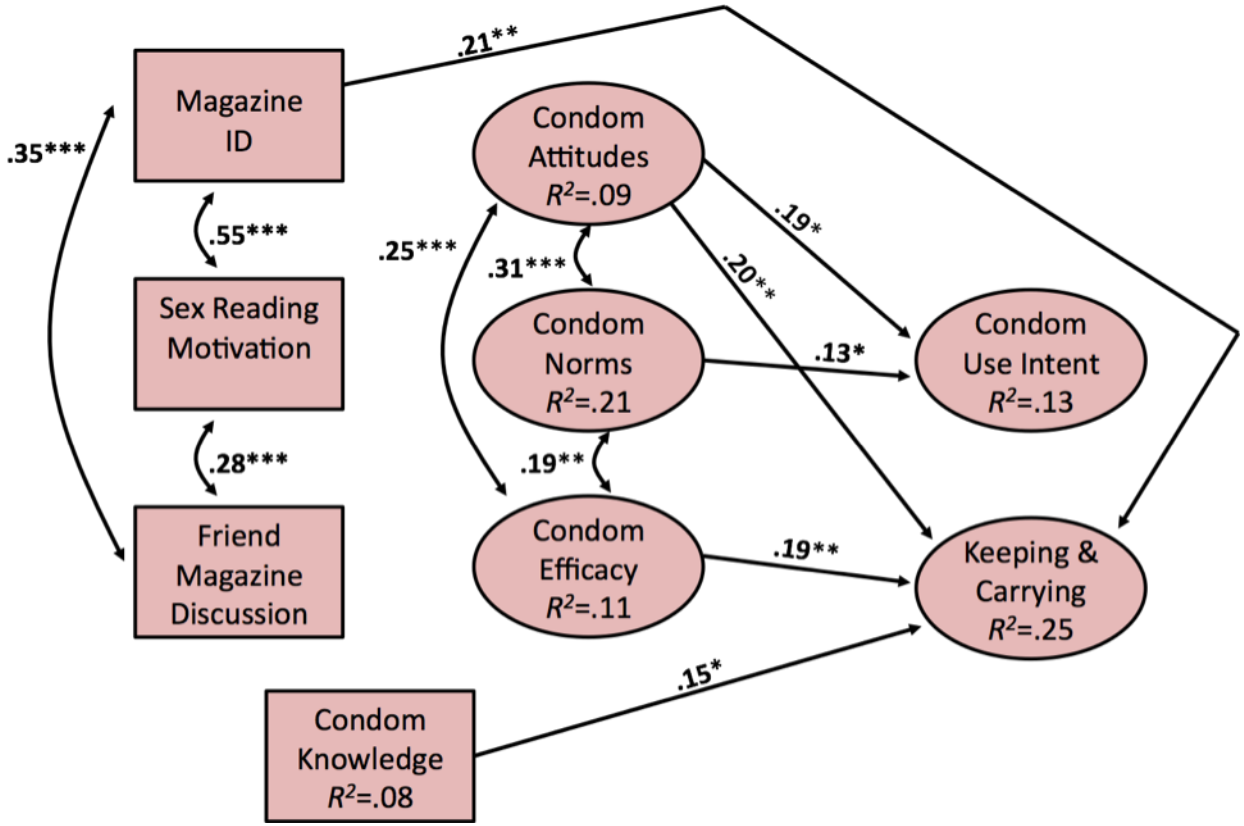


Figure 2.4. Women's magazine involvement and condom use model fit using MLR estimator in MPlus. $\chi^2(168, N = 283) = 167.36$, $p = .50$; CFI = 1.00, TLI = 1.00, RMSEA = .00. Demographic control variables are indicated in Table 2.24. ***$p<.001$ **$p<.01$ *$p<.05$ $^{+}p<.06$ $^{++}p<.075$ $^{+++}p<.10$.

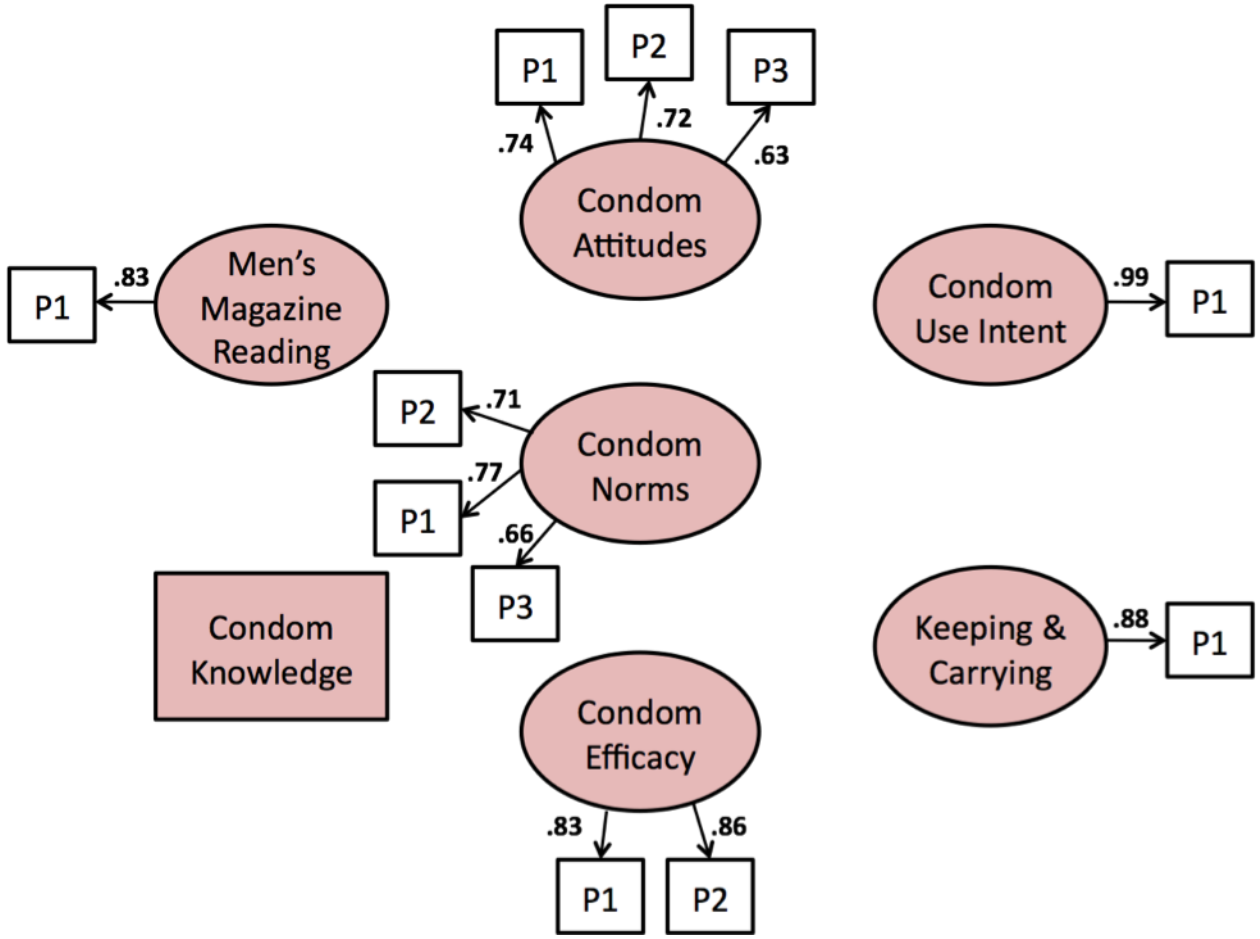


Figure 2.5. Men's condom use measurement model fit using MLR estimator in MPlus. All factors were allowed to correlate with one another (not depicted). $\chi^2(37, N = 174) = 28.92$, $p = .83$; CFI = 1.00, TLI = 1.03, RMSEA = .00.

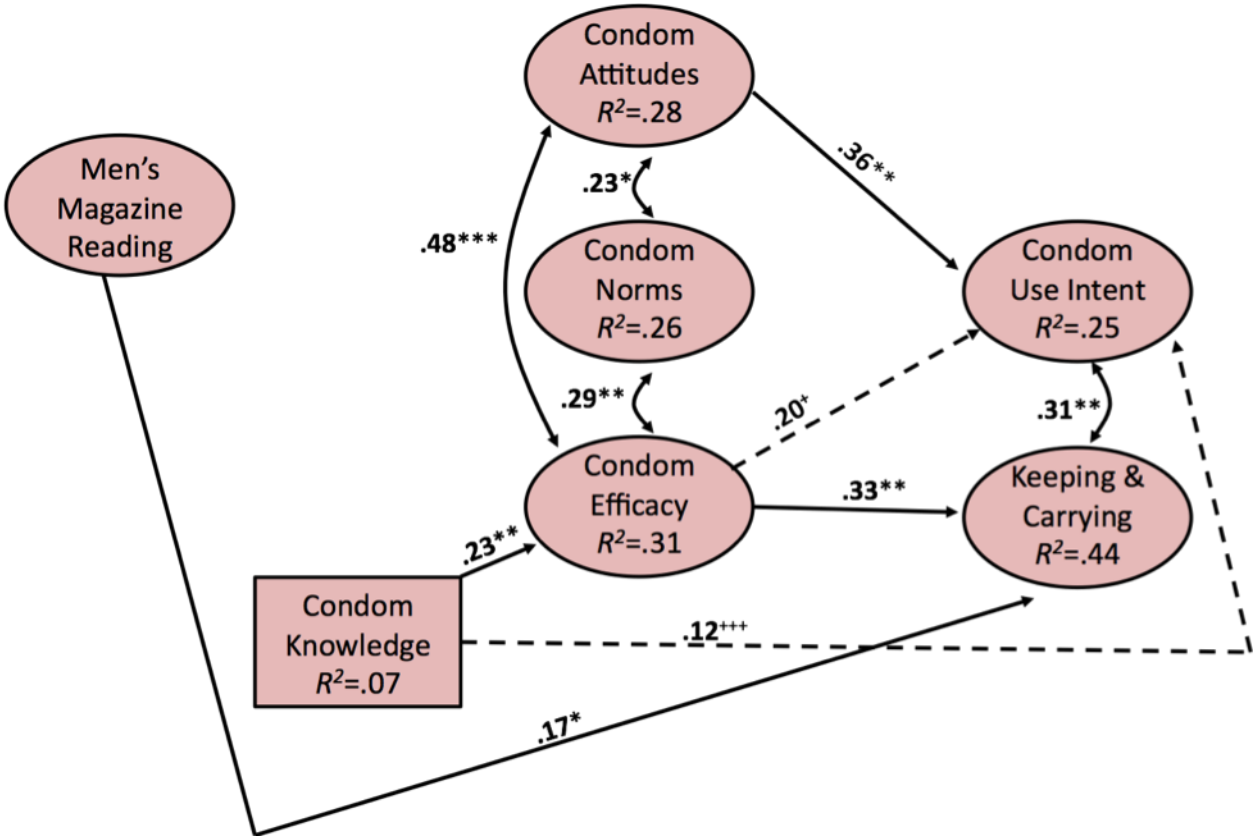
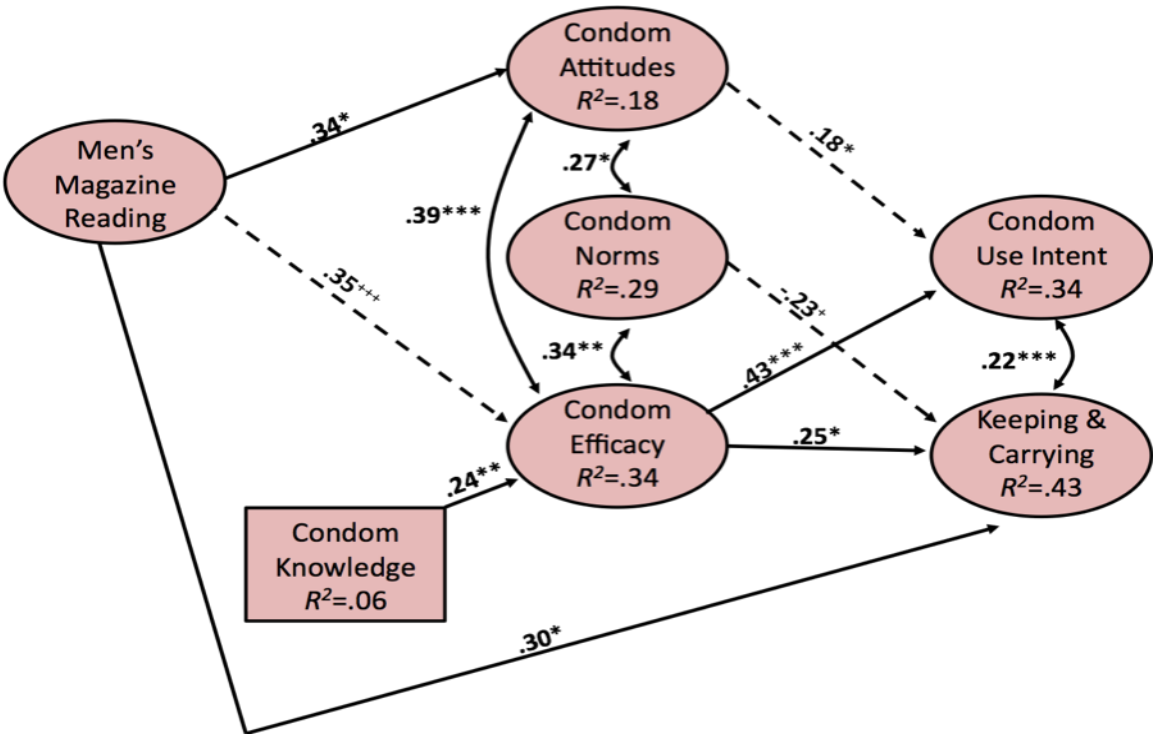


Figure 2.6. Men's condom use model fit using MLR estimator in MPlus. $\chi^2(34, N = 174) = 23.864$, $p = .90$; CFI = 1.00, TLI = 1.09, RMSEA = .00. Demographic control variables are indicated in Table 2.25. ***$p<.001$ **$p<.01$ *$p<.05$ $^{+}p<.06$ $^{++}p<.075$ $^{+++}p<.10$.

Men Who Have Not Engaged in Intercourse



Sexually Active Men

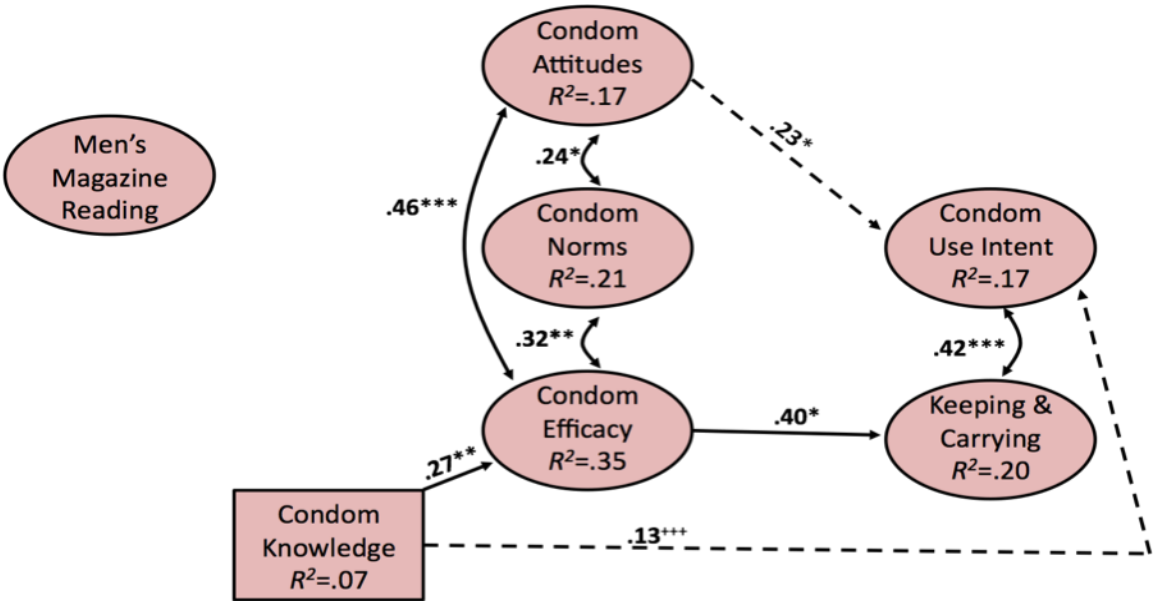


Figure 2.7. Condom use model comparing men who have and have not had intercourse. $\chi^2(337, N = 77{,}95) = 361.95$, $p = .17$; CFI = .96, TLI = .95, RMSEA = .03. Demographic control variables are indicated in Table 2.26. ***p<.001 **p<.01 *p<.05 ^{+}p<.06 ^{++}p<.075 ^{+++}p<.10.

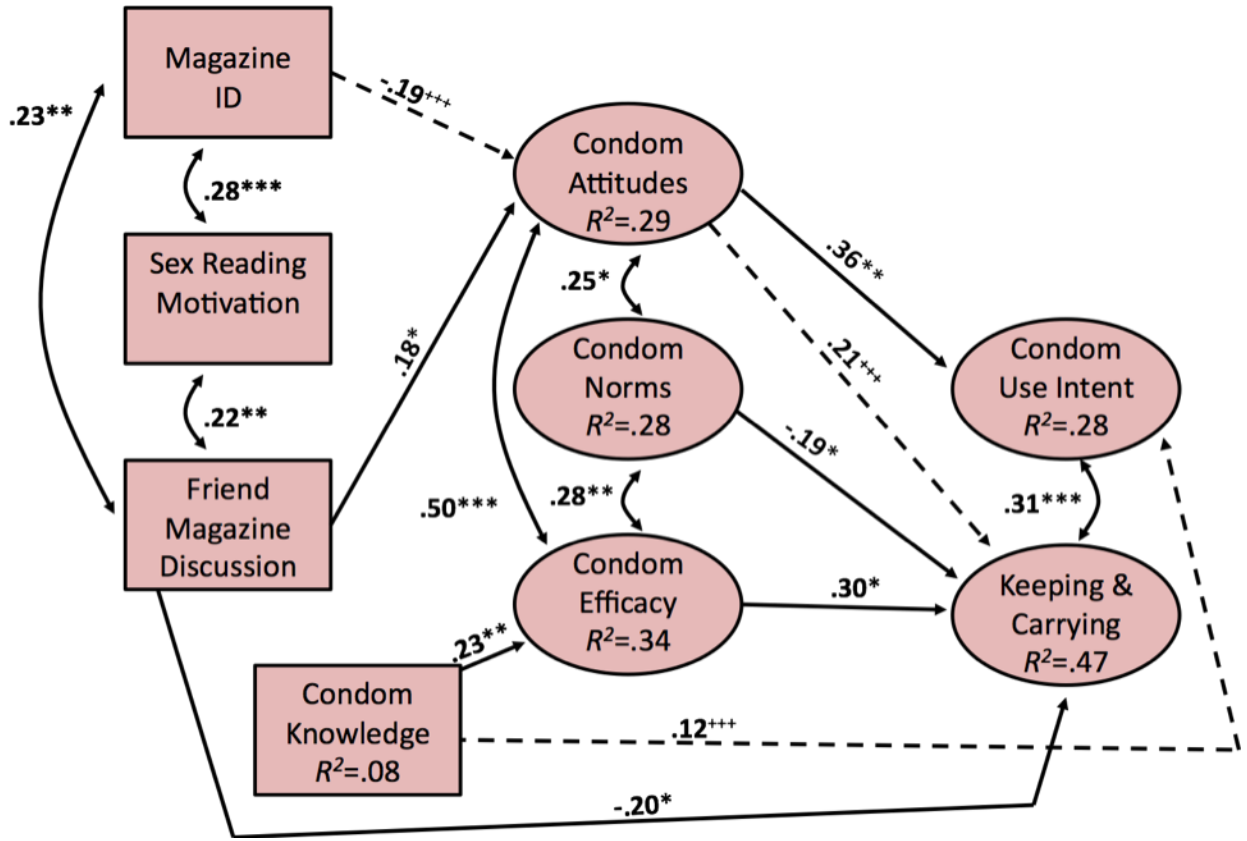


Figure 2.8. Men's magazine involvement and condom use model fit using MLR estimator in MPlus. $\chi^2(142, N = 174) = 163.61$, $p = .10$; CFI = .97, TLI = .95, RMSEA = .03. Demographic control variables are indicated in Table 2.27. ***$p<.001$ **$p<.01$ *$p<.05$ $^{+}p<.06$ $^{++}p<.075$ $^{+++}p<.10$.

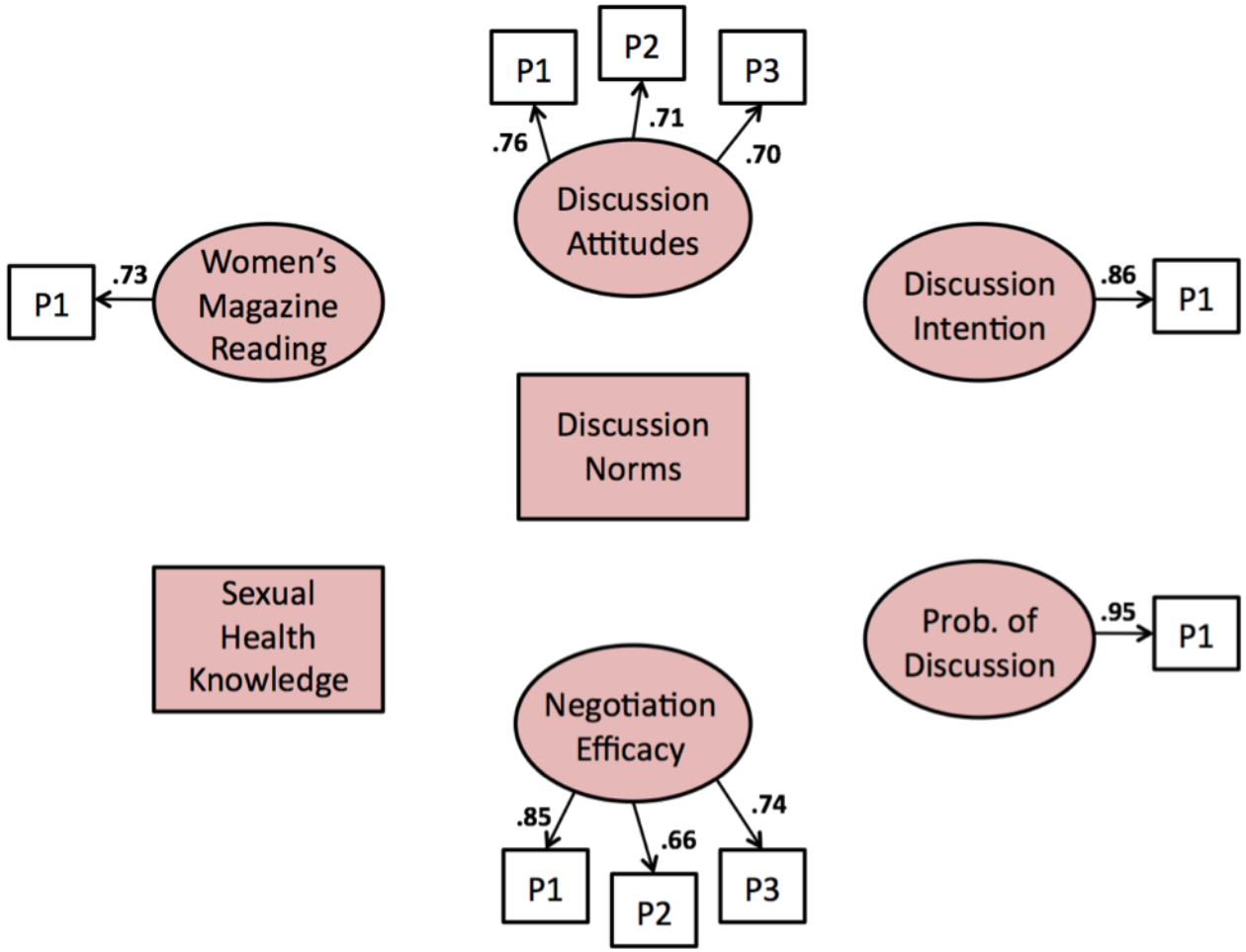


Figure 2.9. Women's safe sex discussion measurement model fit using MLR estimator in MPlus. All factors were allowed to correlate with one another (not depicted). $\chi^2(28, N = 283) = 27.87$, $p = .47$; CFI = 1.00, TLI = 1.00, RMSEA = .00.

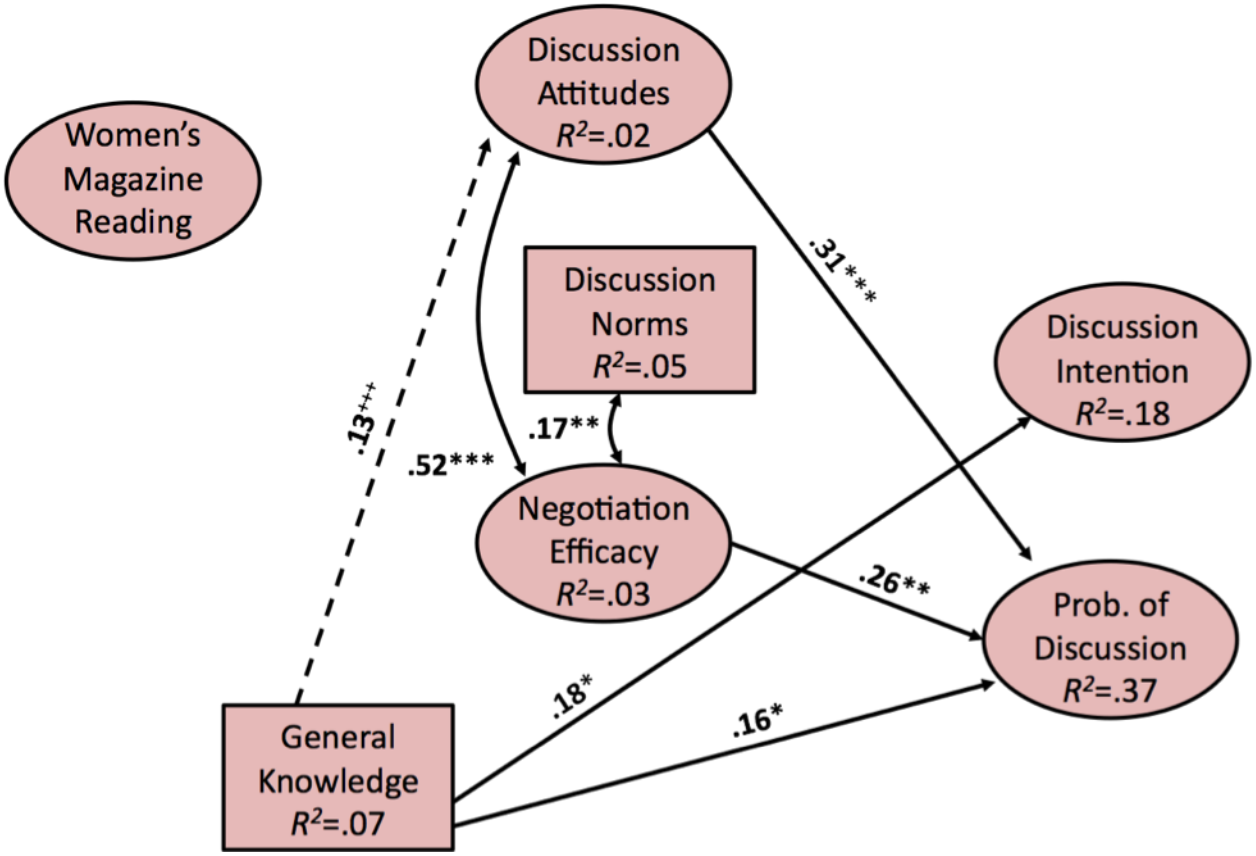
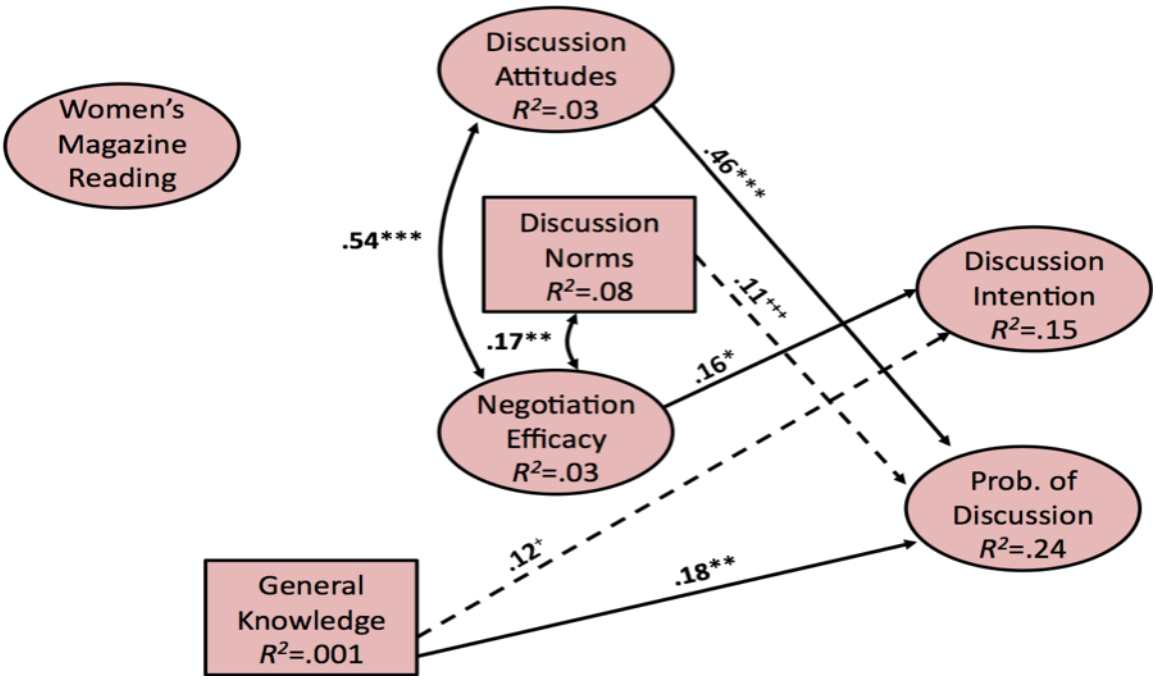


Figure 2.10. Women's safe sex discussion model fit using MLR estimator in MPlus. $\chi^2(129, N = 283) = 124.31$ $p = .60$; CFI = 1.00, TLI = 1.01, RMSEA = .00. Demographic control variables are indicated in Table 2.28. ***p<.001 **p<.01 *p<.05 ^{+}p<.06 ^{++}p<.075 ^{+++}p<.10.

Women Who Have Not Engaged in Intercourse



Sexually Active Women

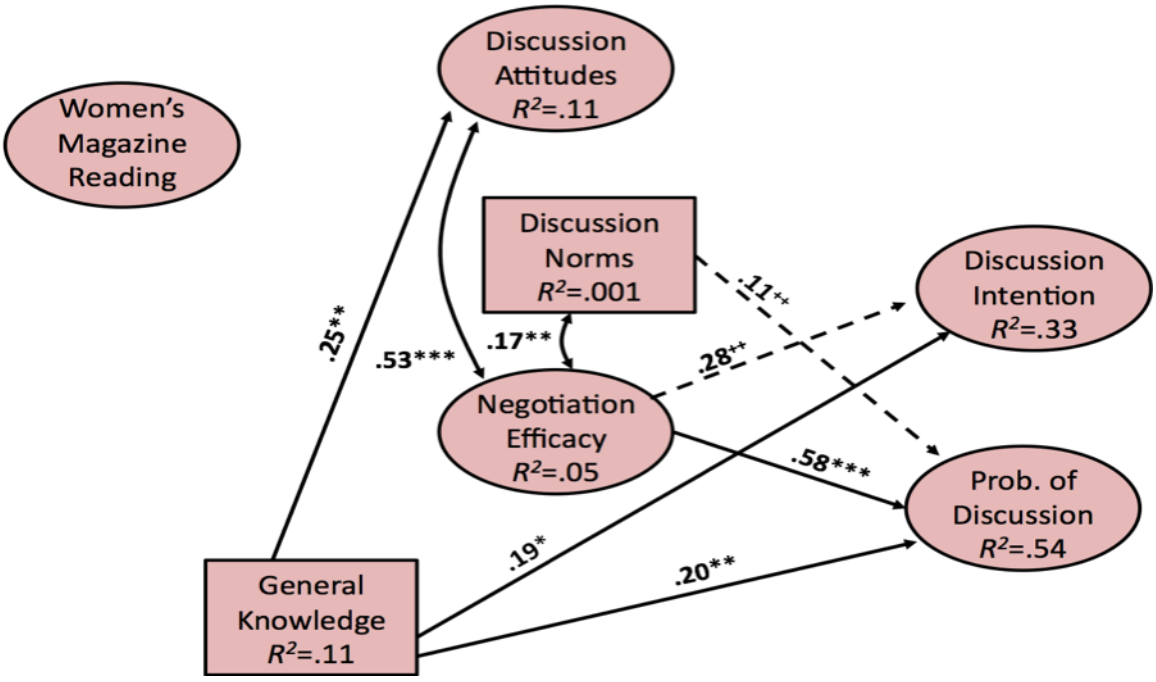


Figure 2.11. Safe sex discussion model comparing women who have and have not had intercourse. $\chi^2(261, N = 134{,}149) = 252.57$, $p = .63$; CFI = 1.00, TLI = 1.02, RMSEA = .00. Demographic control variables are indicated in Table 2.29. ***p<.001 **p<.01 *p<.05 ^{+}p<.06 ^{++}p<.075 ^{+++}p<.10

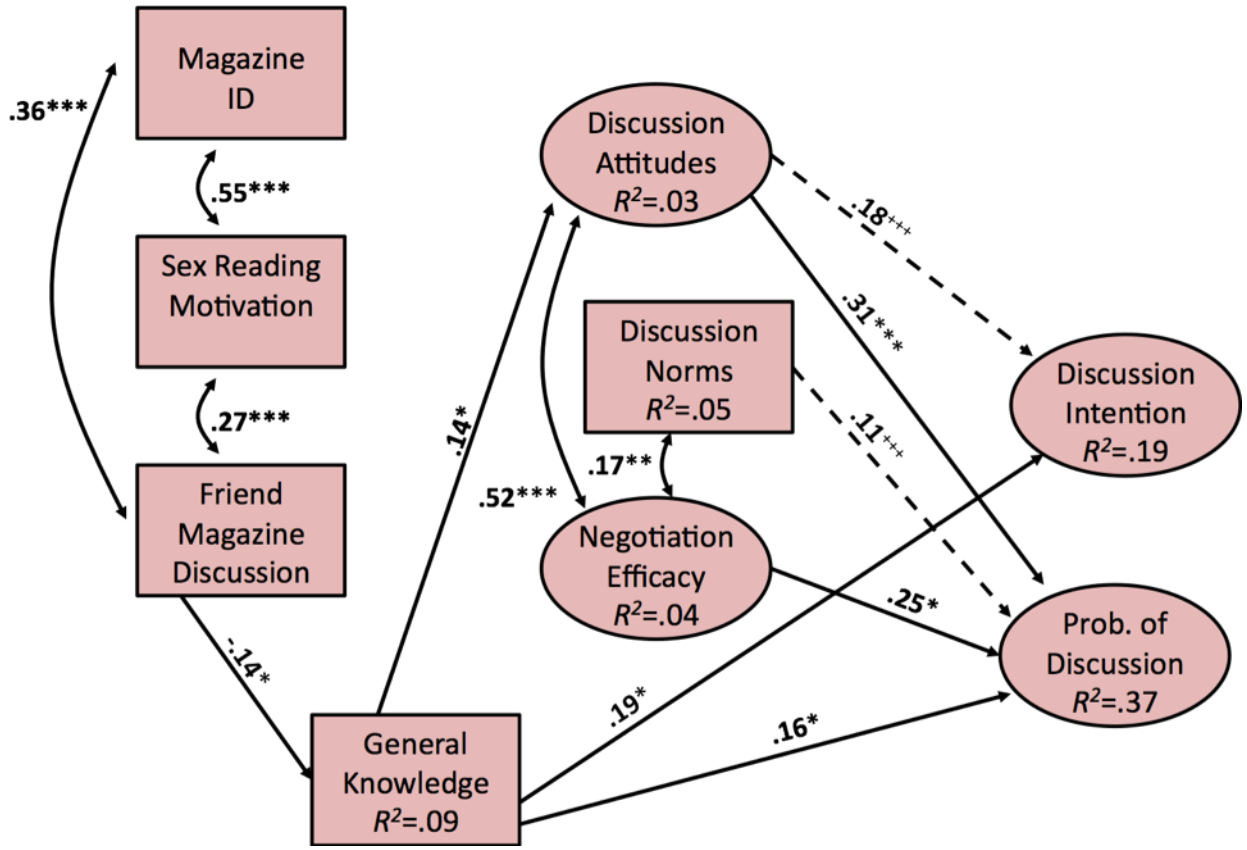


Figure 2.12. Women's involvement and safe-sex discussion model fit using MLR estimator in MPlus. $\chi^2(157, N = 283) = 149.24$, $p = .66$; CFI = 1.00, TLI = 1.01, RMSEA = .00. Demographic control variables are indicated in Table 2.30. ***$p<.001$ **$p<.01$ *$p<.05$ $^{+}p<.06$ $^{++}p<.075$ $^{+++}p<.10$.

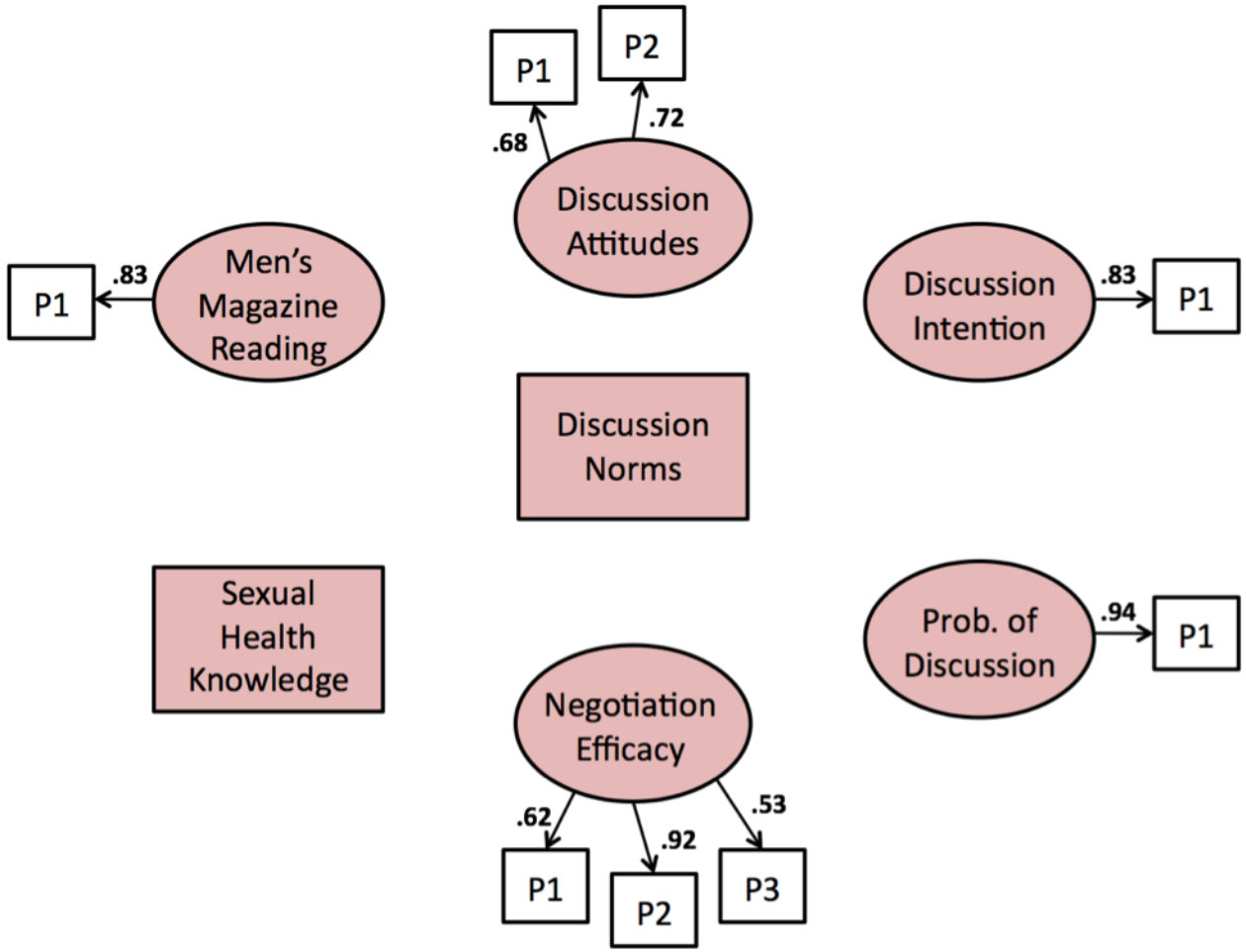


Figure 2.13. Men's safe sex discussion measurement model fit using MLR estimator in MPlus. All factors were correlated with one another (not depicted). $\chi^2(19, N = 174) = 20.48$, $p = .37$; CFI = .99, TLI = .99, RMSEA = .02.

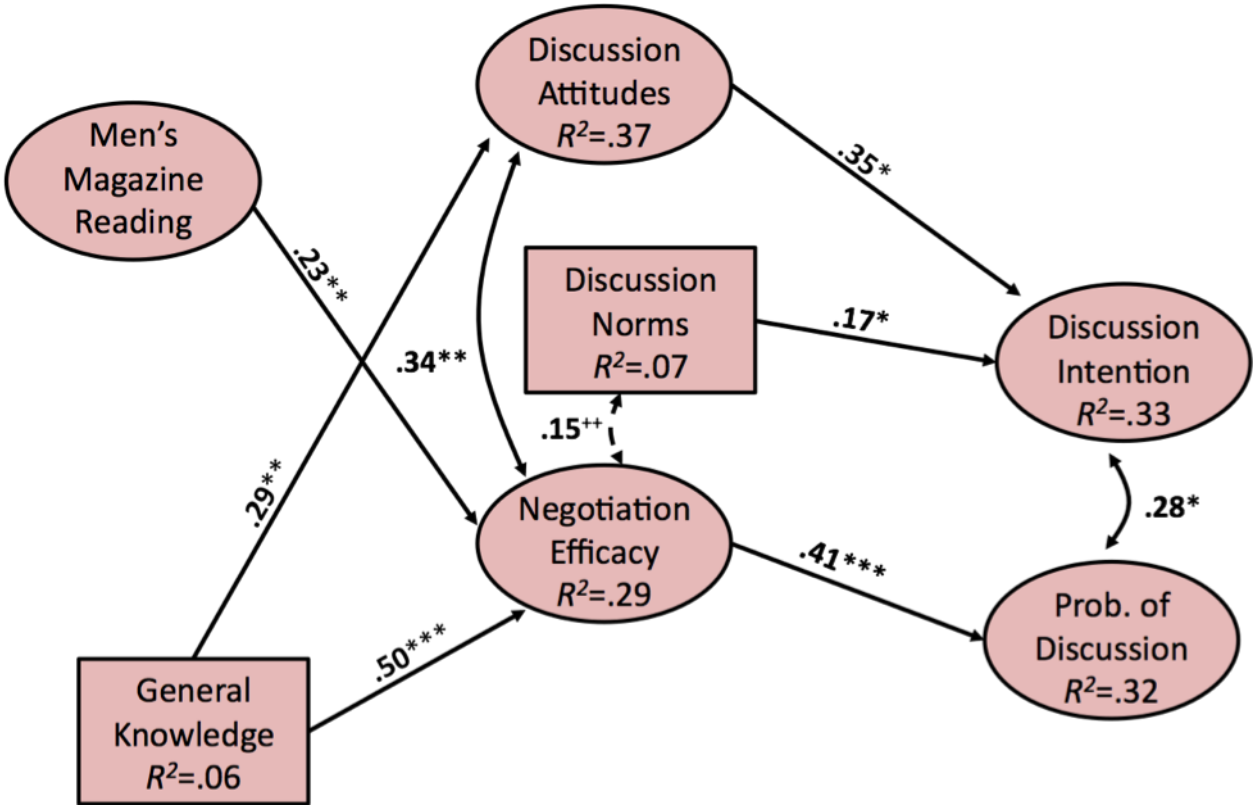
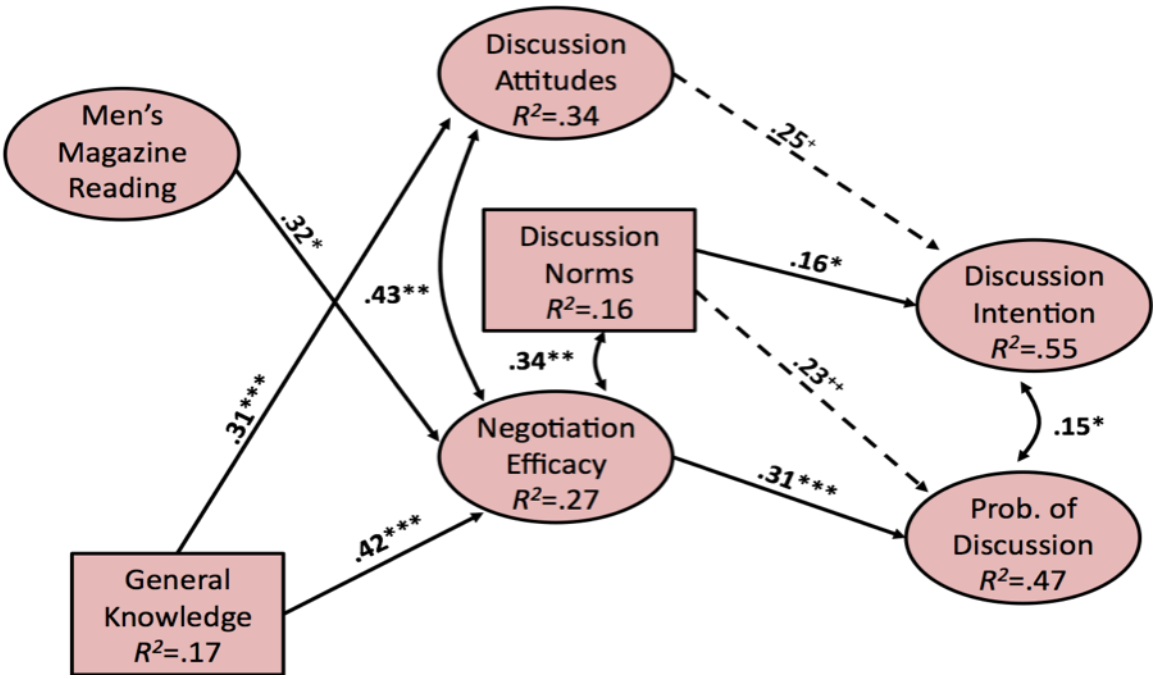


Figure 2.14. Safe sex discussion model fit using MLR estimator in MPlus. $\chi^2(66, N = 174) = 73.62$, $p = .24$; CFI = .98, TLI = .97, RMSEA = .03. Demographic control variables are indicated in Table 2.31. ***p<.001 **p<.01 *p<.05 ^{+}p<.06 ^{++}p<.075 ^{+++}p<.10.

Men Who Have Not Engaged in Intercourse



Sexually Active Men

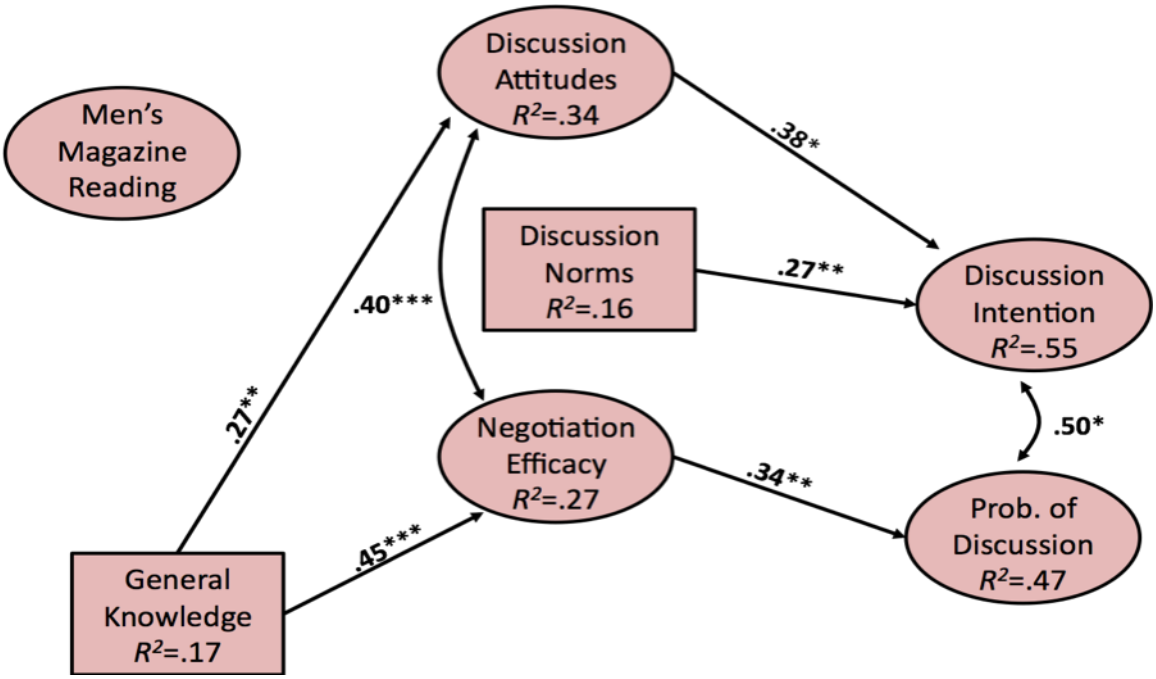


Figure 2.15. Safe sex discussion model comparing men who have and have not had intercourse. $\chi^2(211, N = 77,95) = 206.00$, $p = .58$; CFI = 1.00, TLI = 1.02, RMSEA = .00. Demographic control variables are indicated in Table 2.32. ***p<.001 **p<.01 *p<.05 ^{+}p<.06 ^{++}p<.075 ^{+++}p<.10

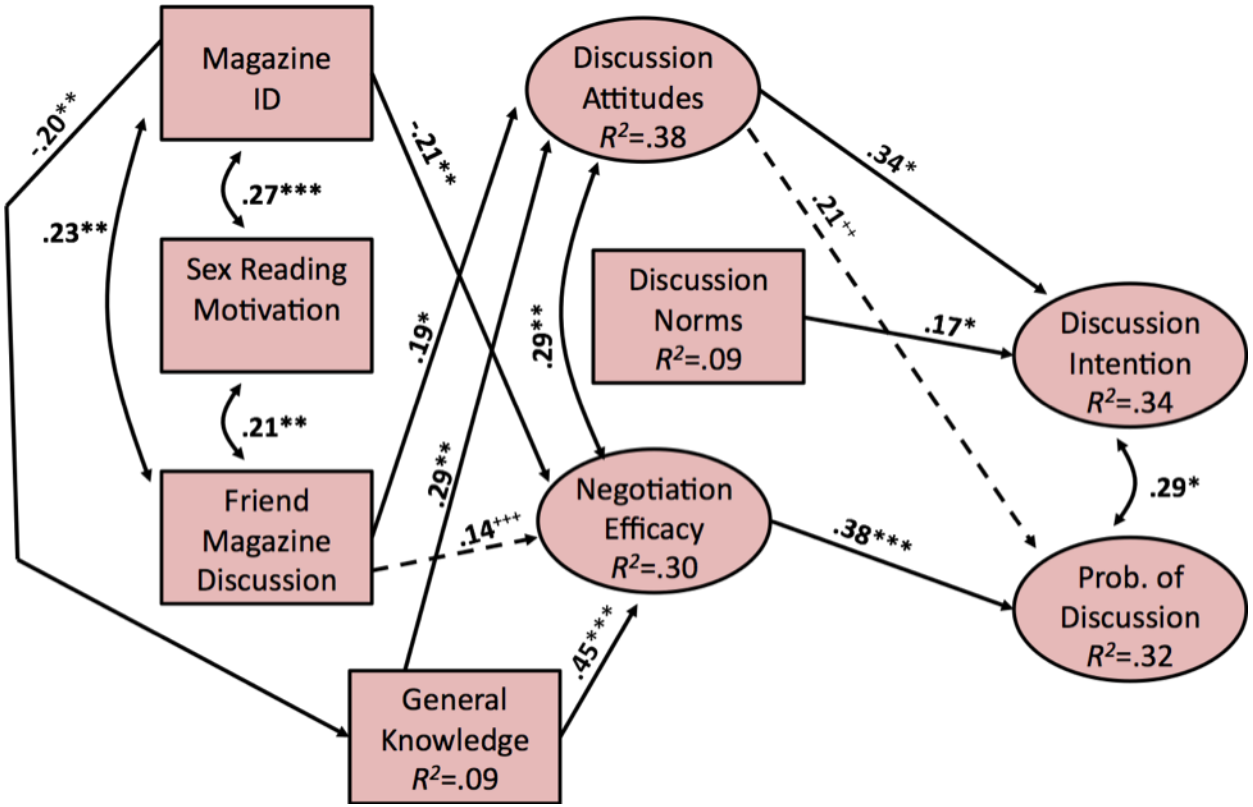


Figure 2.16. Men's involvement and safe sex discussion model fit using MLR estimator in MPlus. $\chi^2(97, N = 174) = 111.62$, $p = .15$; CFI = .97, TLI = .95, RMSEA = .03. Demographic control variables are indicated in Table 2.33. ***p<.001 **p<.01 *p<.05 ^{+}p<.06 ^{++}p<.075 ^{+++}p<.10.

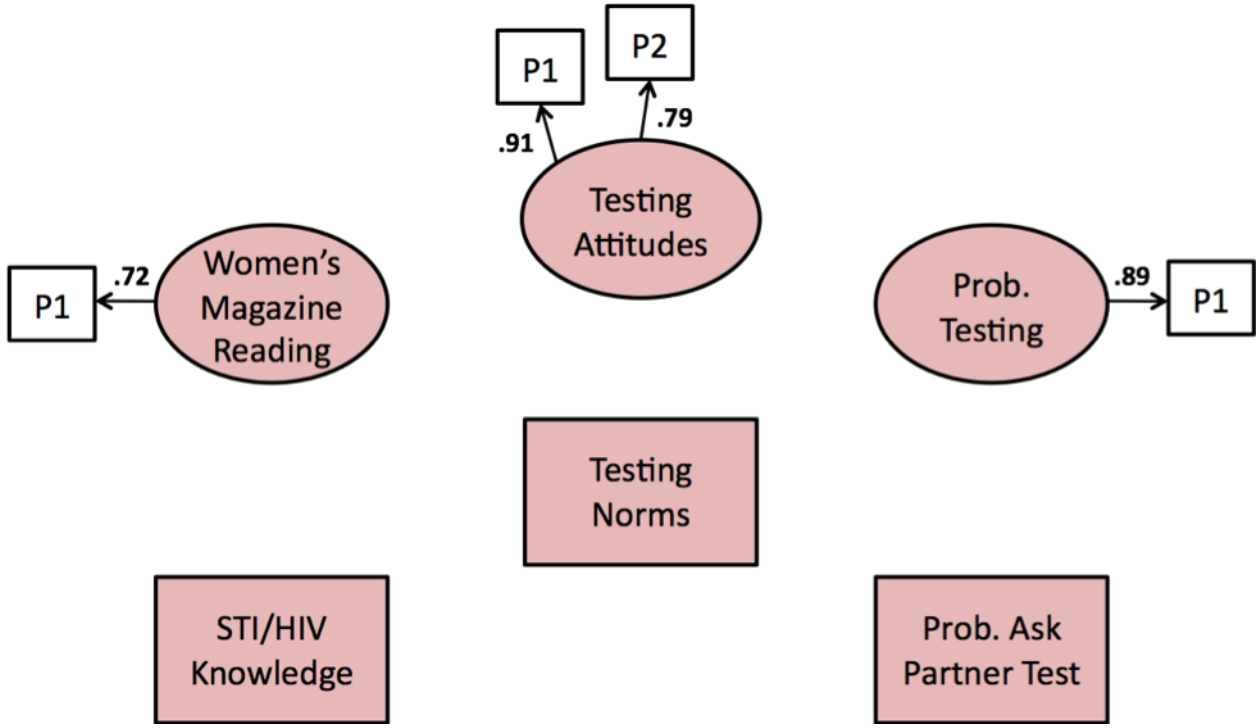


Figure 2.17. Women's HIV/STI testing measurement model fit using MLR estimator in MPlus. All factors were allowed to correlate with one another (not depicted). $\chi^2(4, N = 283) = 1.38$, $p = .96$; CFI = 1.00, TLI = 1.05, RMSEA = .00.

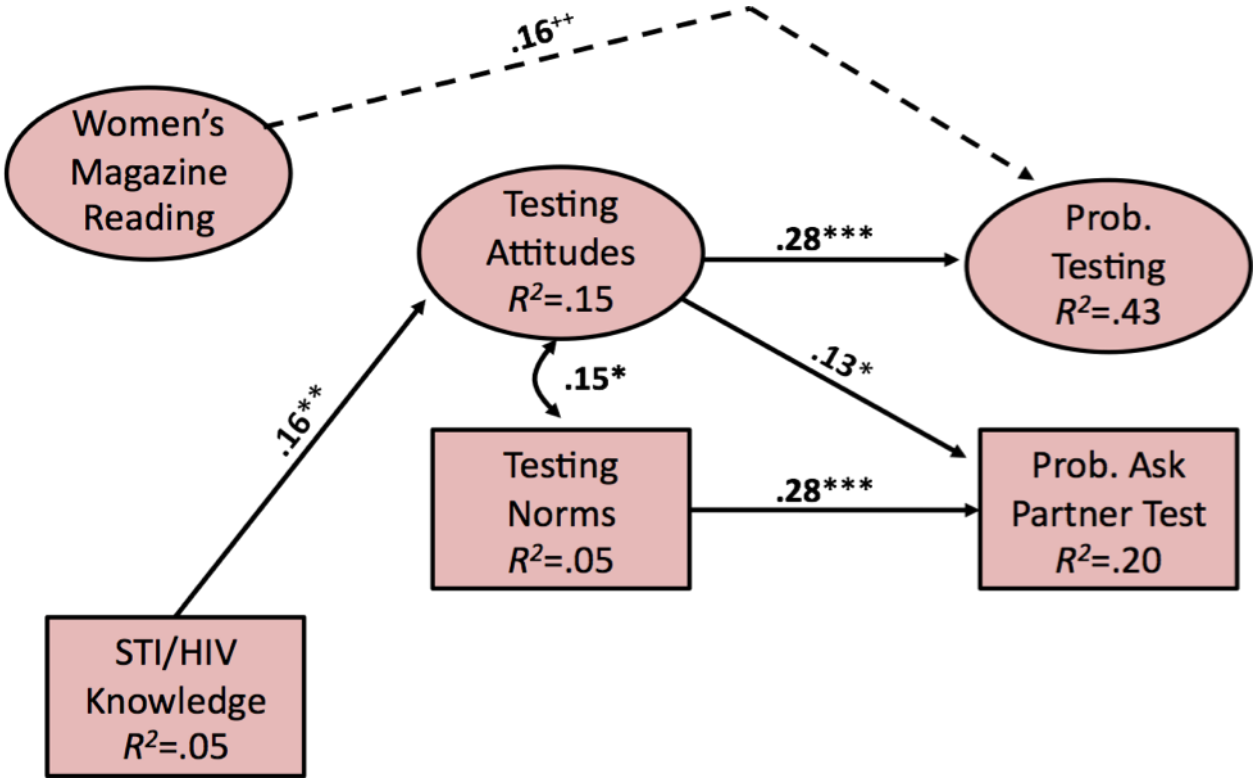
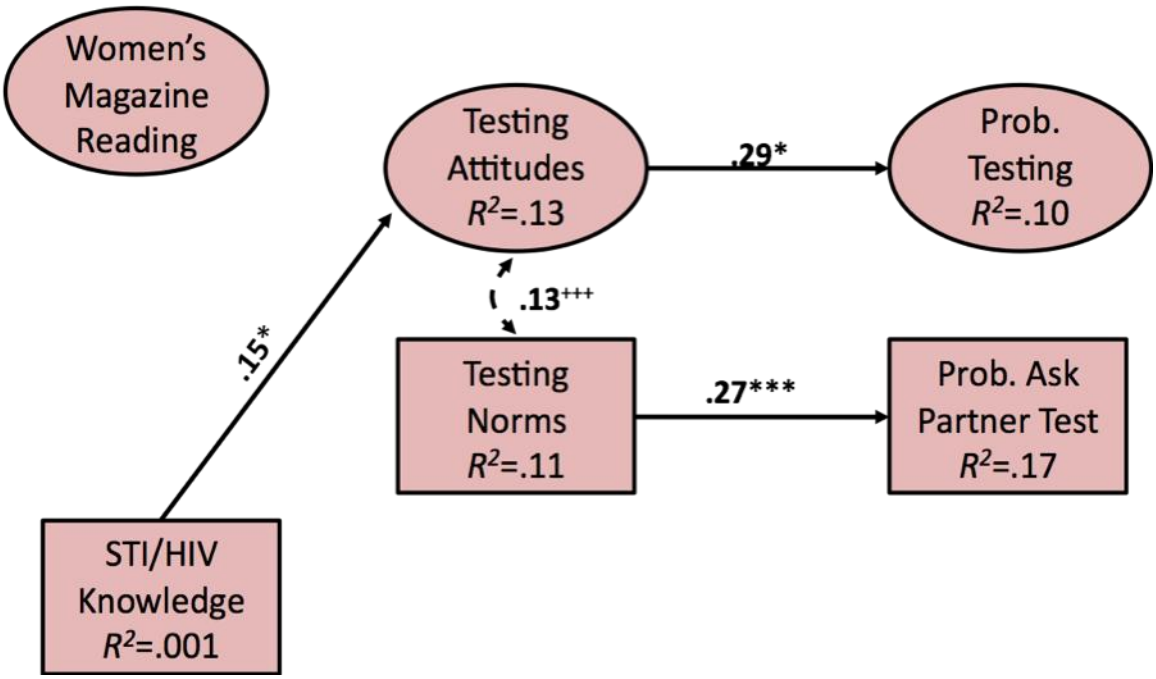


Figure 2.18. Women's HIV/STI testing model fit using MLR estimator in MPlus. $\chi^2(30, N = 283) = 27.50$, $p = .60$; CFI = 1.00, TLI = 1.01, RMSEA = .00. Demographic control variables are indicated in Table 2.34. ***$p<.001$ **$p<.01$ *$p<.05$ $^{+}p<.06$ $^{++}p<.075$ $^{+++}p<.10$.

Women Who Have Not Engaged in Intercourse



Sexually Active Women

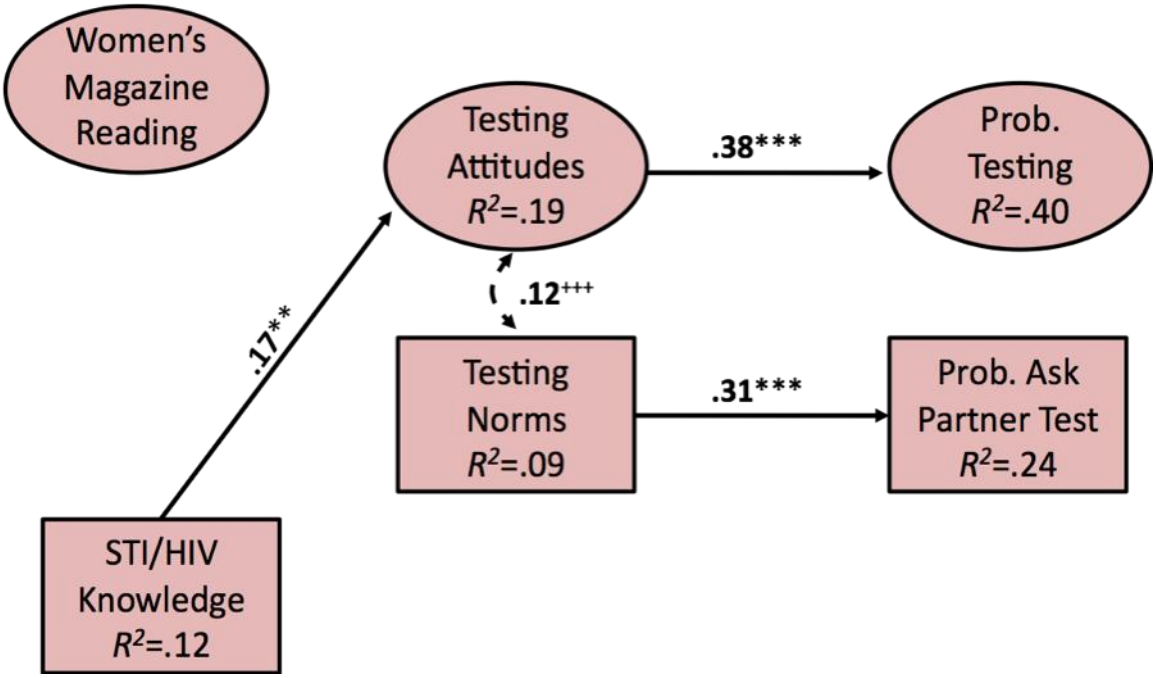


Figure 2.19. HIV/STI testing model comparing women who have and have not had intercourse. $\chi^2(150, N = 134{,}149) = 154.74$, $p = .39$; CFI = .99, TLI = .99, RMSEA = .02. Demographic control variables are indicated in Table 2.35. ***p<.001 **p<.01 *p<.05 ^{+}p<.06 ^{++}p<.075 ^{+++}p<.10.

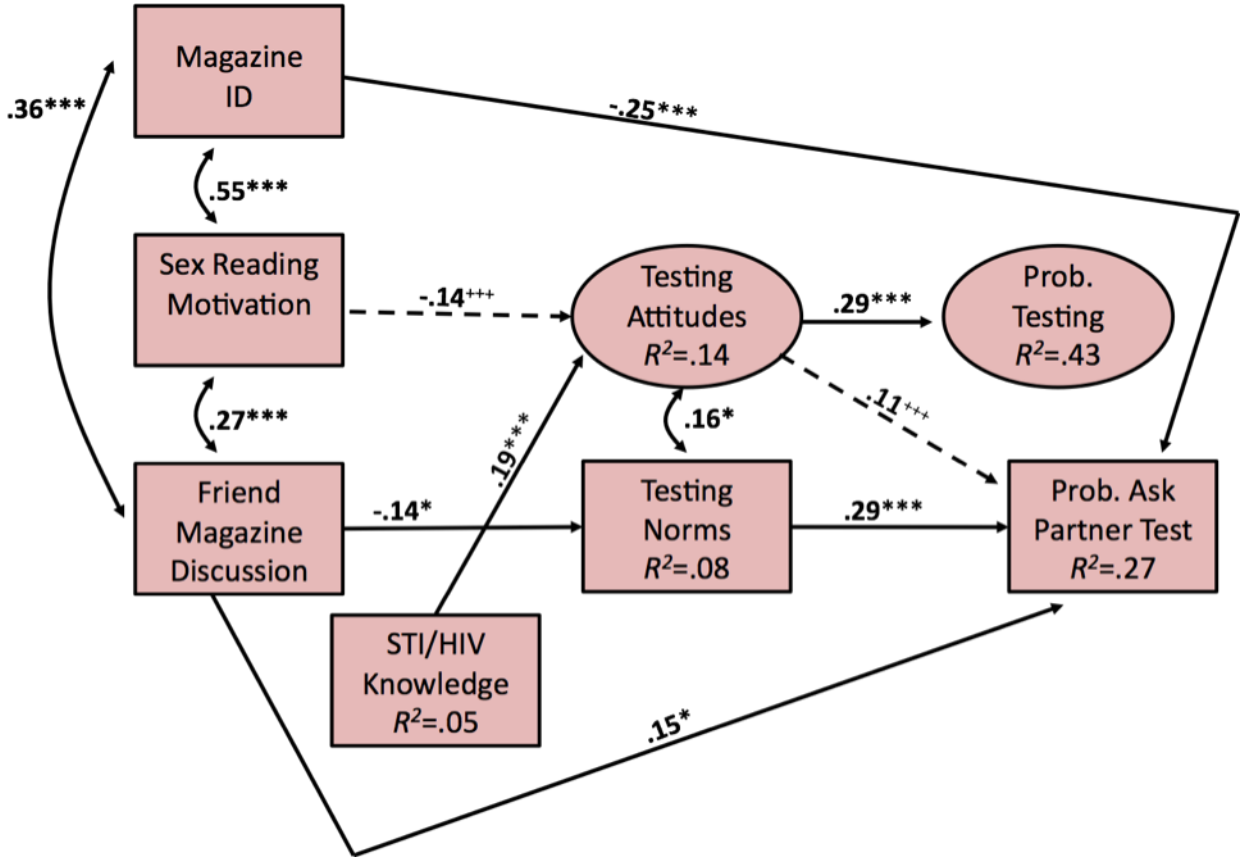


Figure 2.20. Women's involvement and HIV/STI testing model fit using MLR estimator in MPlus. $\chi^2(73, N = 283) = 64.33$, $p = .76$; CFI = 1.00, TLI = 1.02, RMSEA = .00. Demographic control variables are indicated in Table 2.36. ***p<.001 **p<.01 *p<.05 ^{+}p<.06 ^{++}p<.075 ^{+++}p<.10.

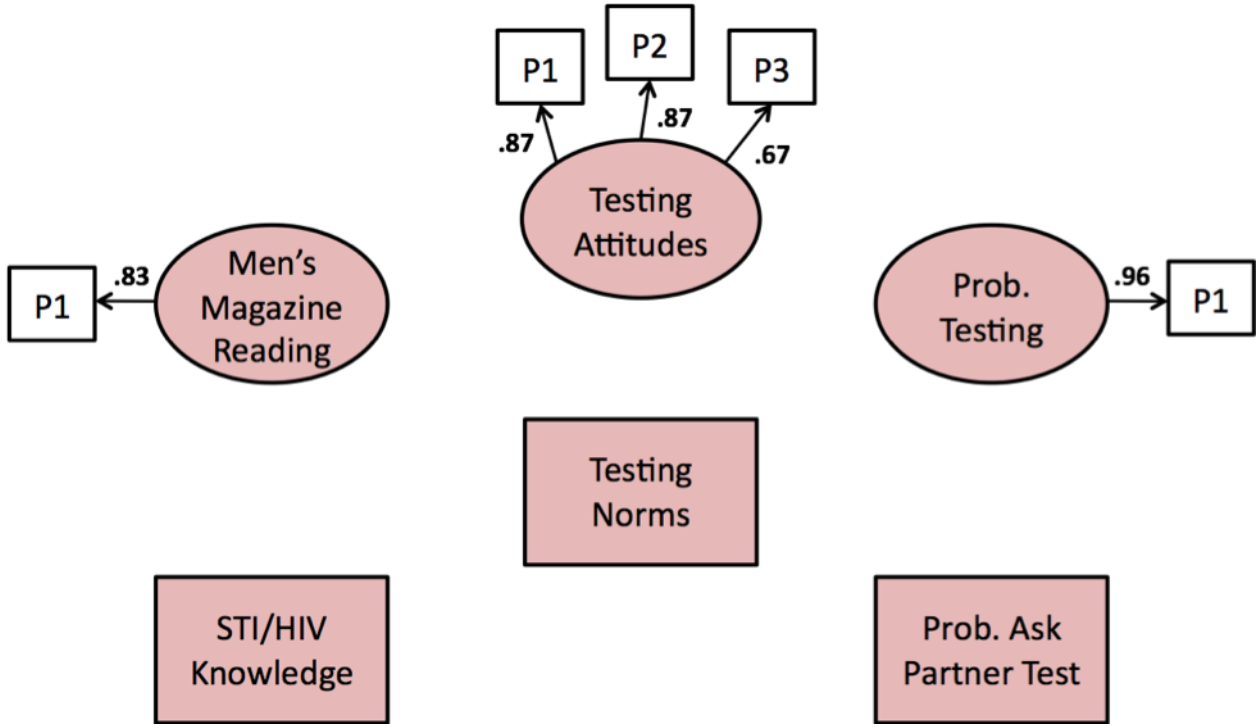


Figure 2.21. Men's HIV/STI testing measurement model fit using MLR estimator in MPlus. All factors were allowed to correlate with one another (not depicted). $\chi^2(10, N = 174) = 8.90$, $p = .54$; CFI = 1.00, TLI = 1.01, RMSEA = .00.

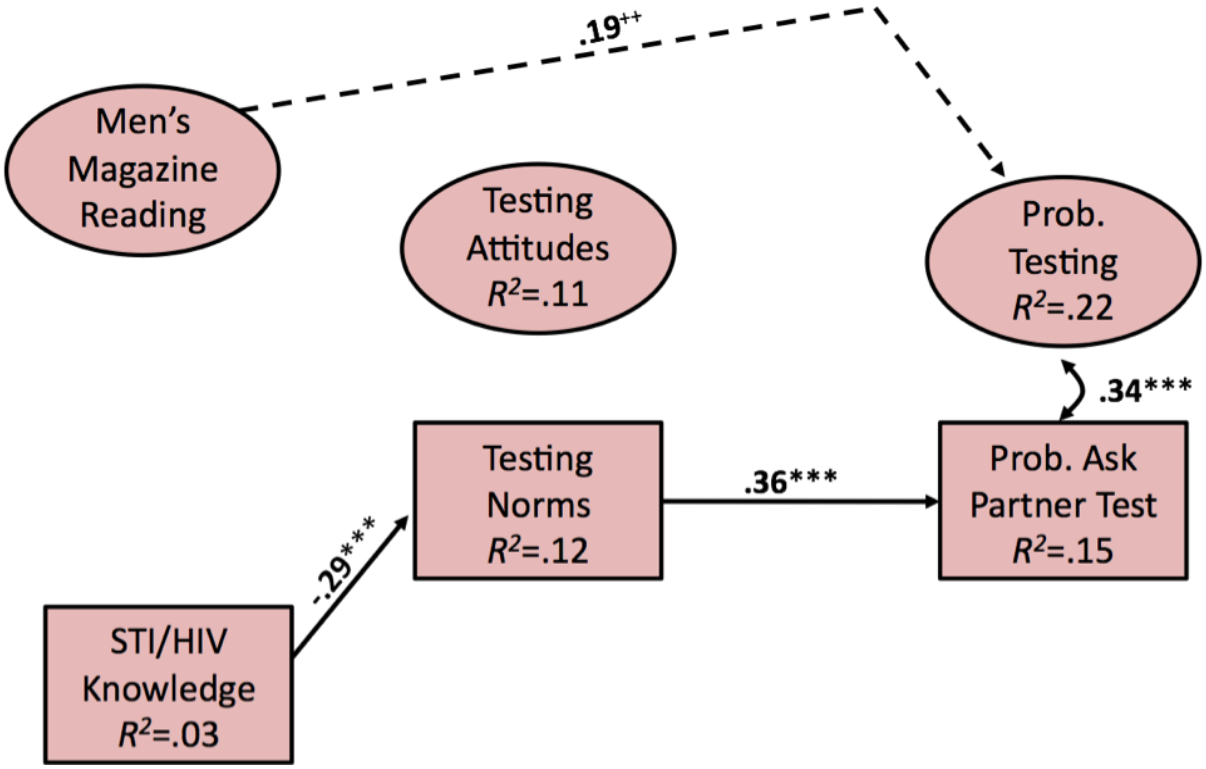
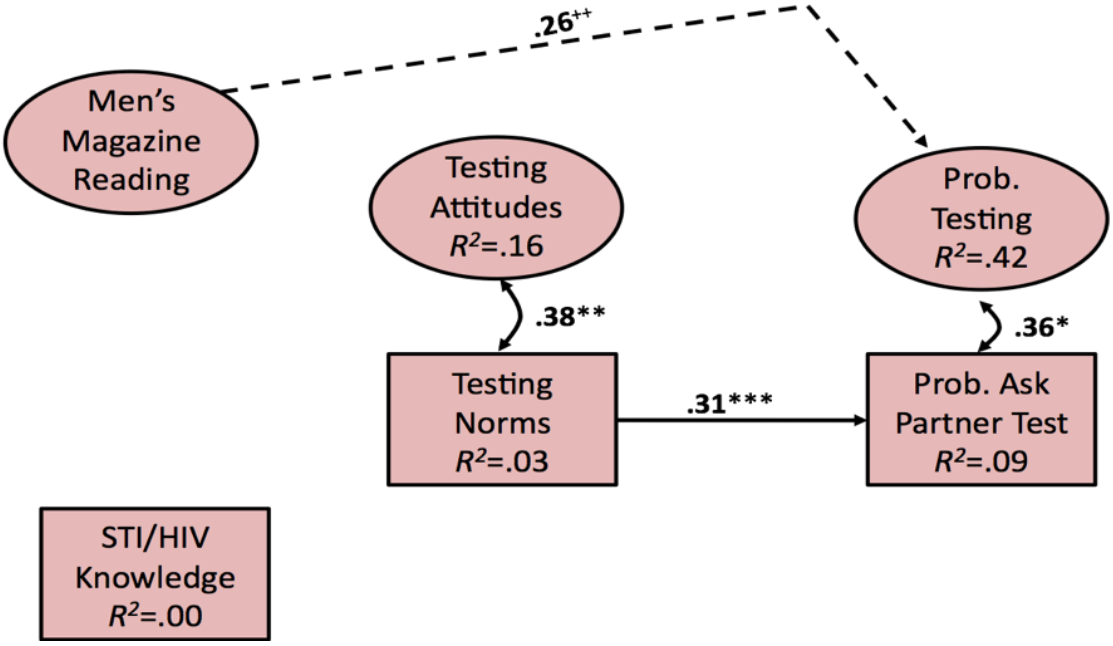


Figure 2.22. Men's HIV/STI testing model fit using MLR estimator in MPlus. $\chi^2(49, N = 174) = 49.34$, $p = .46$; CFI = 1.00, TLI = 1.00, RMSEA = .01. Demographic control variables are indicated in Table 2.37. ***p<.001 **p<.01 *p<.05 ^{+}p<.06 ^{++}p<.075 ^{+++}p<.10.

Men Who Have Not Engaged in Intercourse



Sexually Active Men

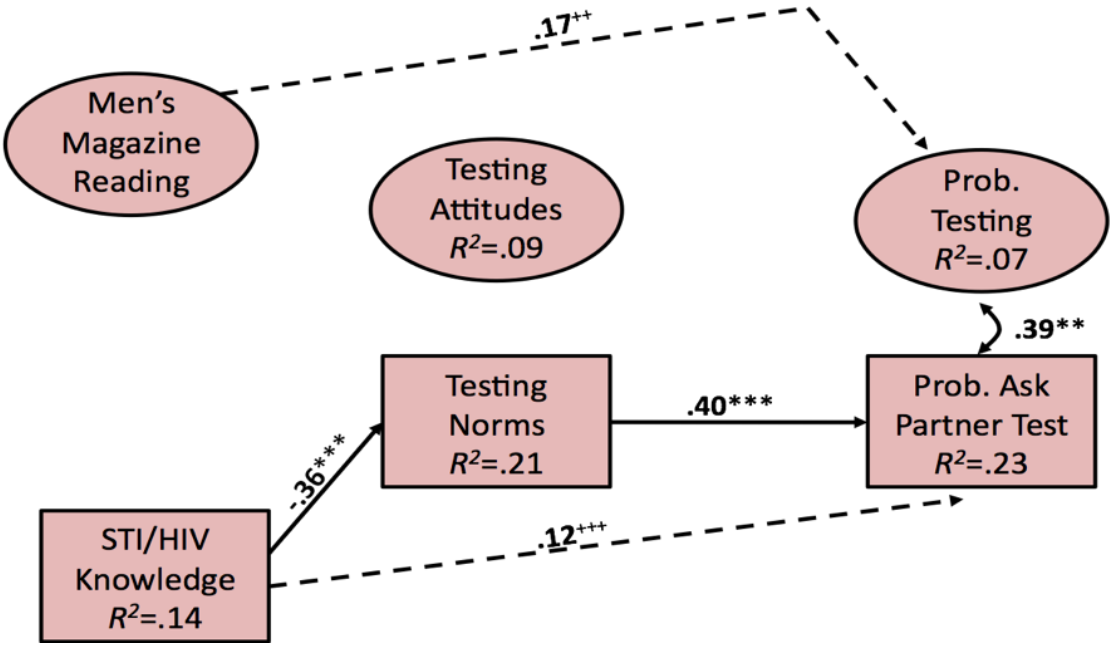


Figure 2.23. HIV/STI testing model comparing women who have and have not had intercourse. $\chi^2(133, N = 77,95) = 125.03$, $p = .68$; CFI = 1.00, TLI = 1.03, RMSEA = .00. Demographic control variables are indicated in Table 2.38. ***p<.001 **p<.01 *p<.05 ^{+}p<.06 ^{++}p<.075 ^{+++}p<.10.

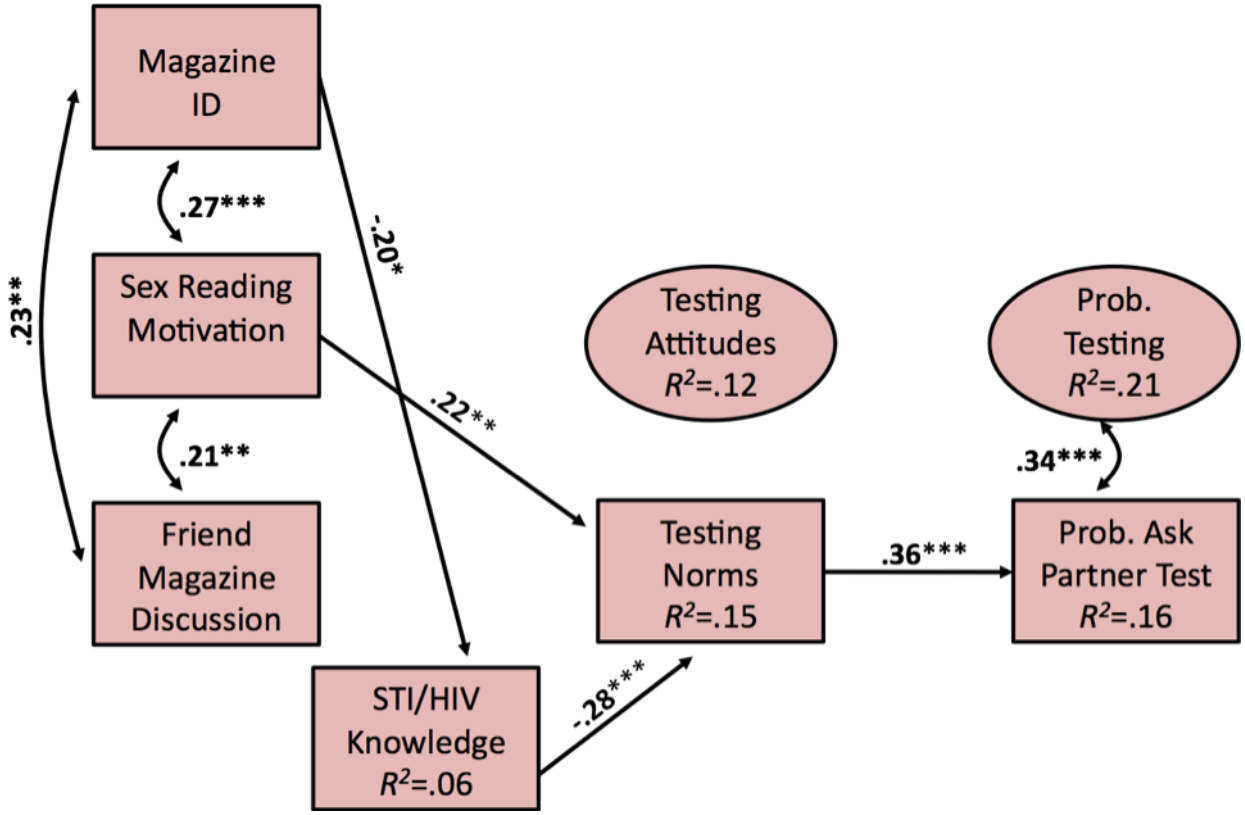


Figure 2.24. Men's involvement and HIV/STI testing model fit using MLR estimator in MPlus. $\chi^2(75, N = 174) = 89.37$, $p = .12$; CFI = .97, TLI = .94, RMSEA = .03. Demographic control variables are indicated in Table 2.39. ***$p<.001$ **$p<.01$ *$p<.05$ $^{+}p<.06$ $^{++}p<.075$ $^{+++}p<.10$.

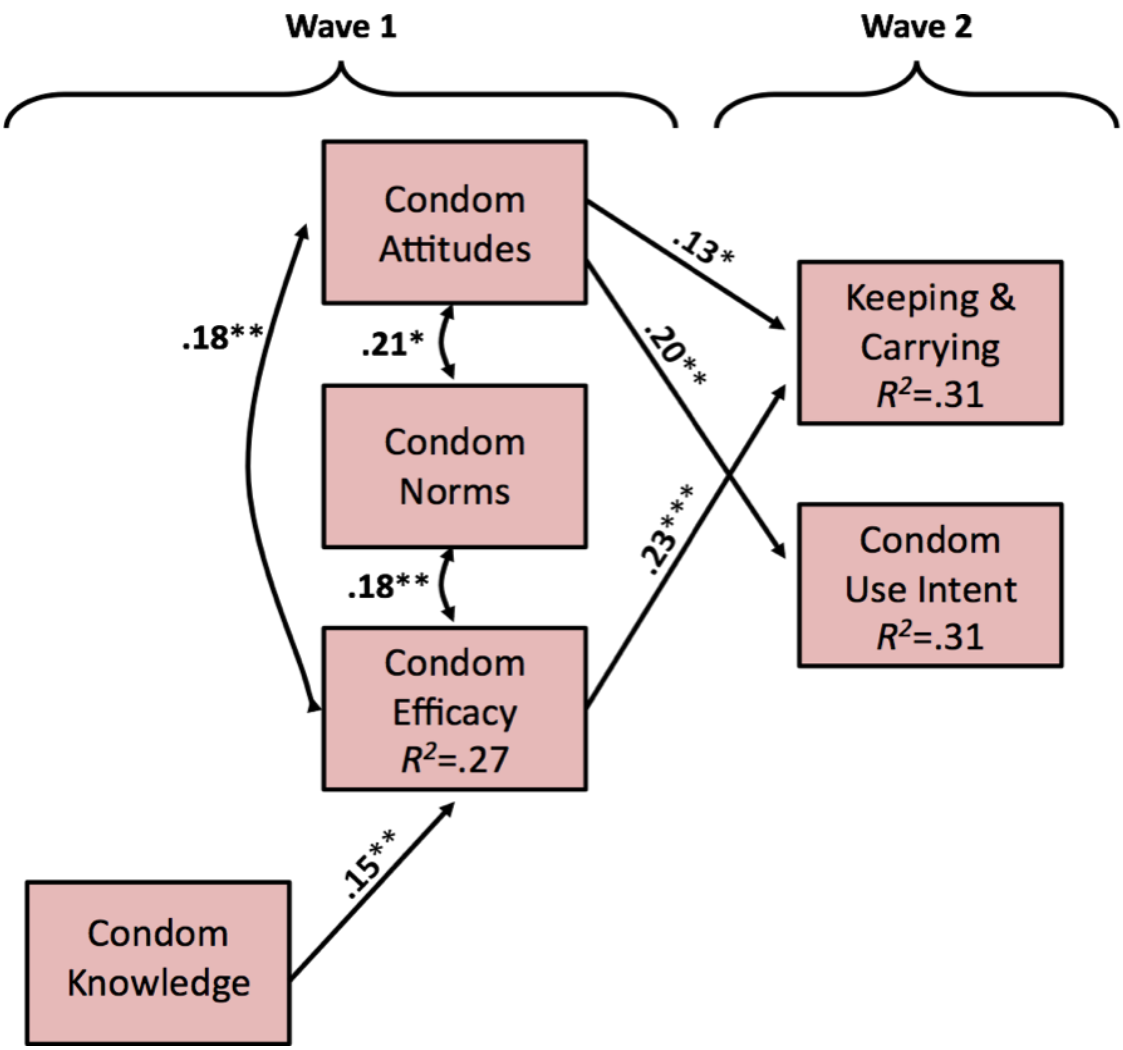


Figure 3.1. Model showing associations between Wave 1 condom attitudes, norms, self-efficacy, and knowledge and Wave 2 condom use intentions. $\chi^2(15, N = 175) = 5.78$, $p = .98$, CFI = 1.00, TLI = 1.15, RMSEA = .00. Demographic control variables are indicated in Table 3.11. ***$p<.001$ **$p<.01$ *$p<.05$.

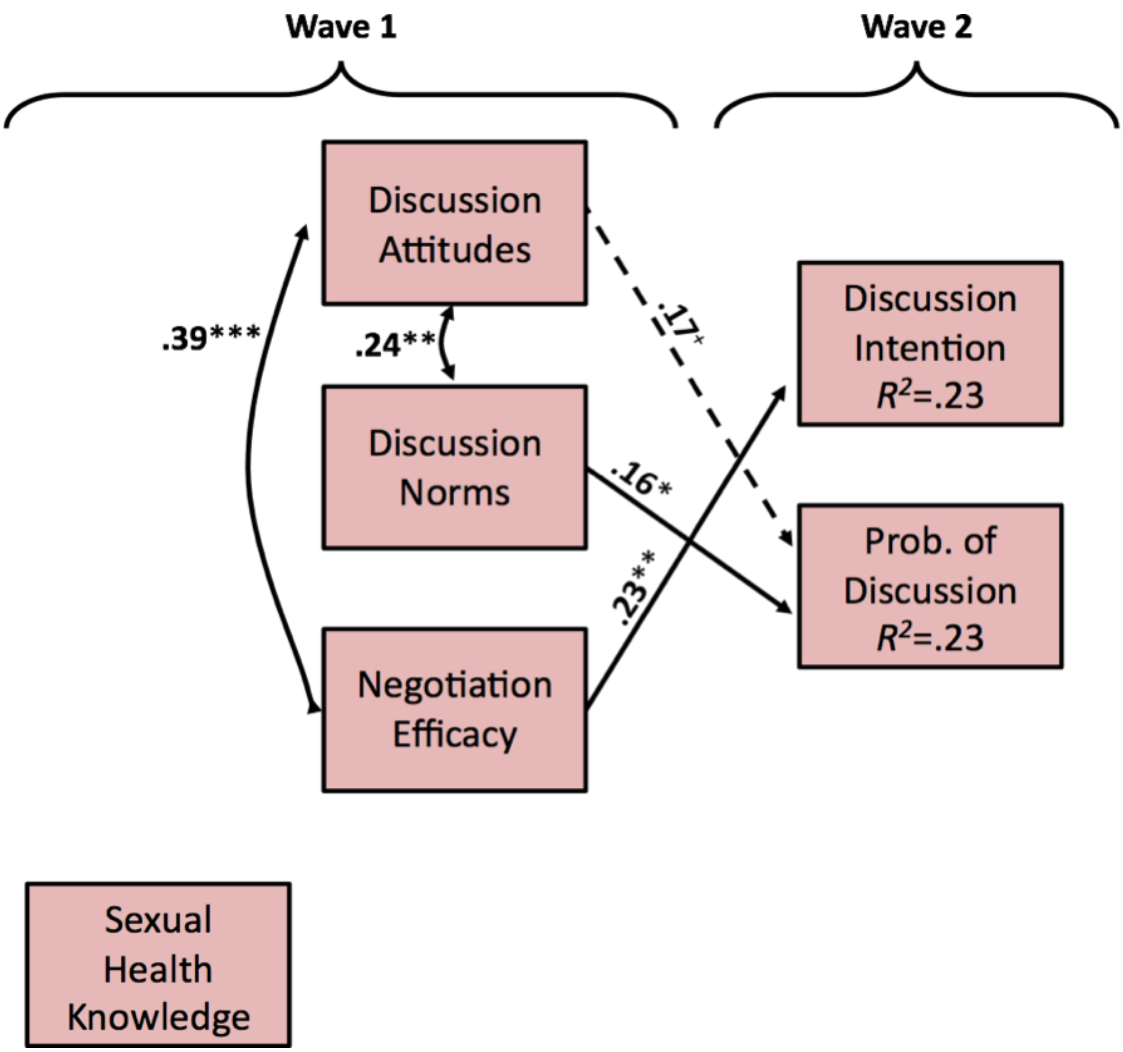


Figure 3.2. Model showing associations between Wave 1 safe sex discussion attitudes, norms, self-efficacy, and knowledge and Wave 2 discussion intentions. $\chi^2(13, N = 175) = 6.26$, $p = .94$, CFI = 1.00, TLI = 1.17, RMSEA = .00. Demographic control variables are indicated in Table 3.12. ***$p<.001$ **$p<.01$ *$p<.05$ $^{+}$ $p<.06$.

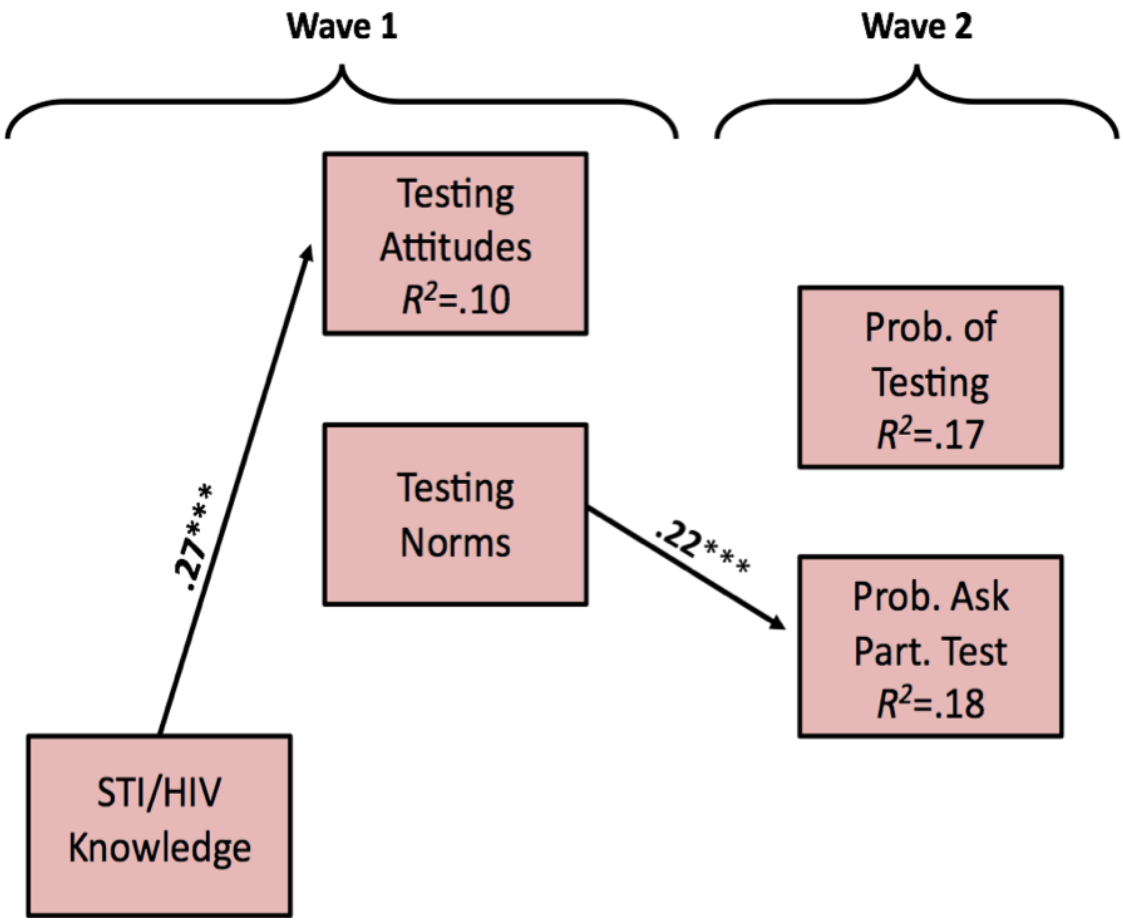


Figure 3.3. Model showing associations between Wave 1 HIV/STI testing attitudes, norms, and knowledge and Wave 2 testing intentions. $\chi^2(7, N = 175) = 2.51$, $p = .93$, CFI = 1.00, TLI = 1.18, RMSEA = .00. Demographic control variables are indicated in Table 3.13. ***p<.001 **p<.01 *p<.05.

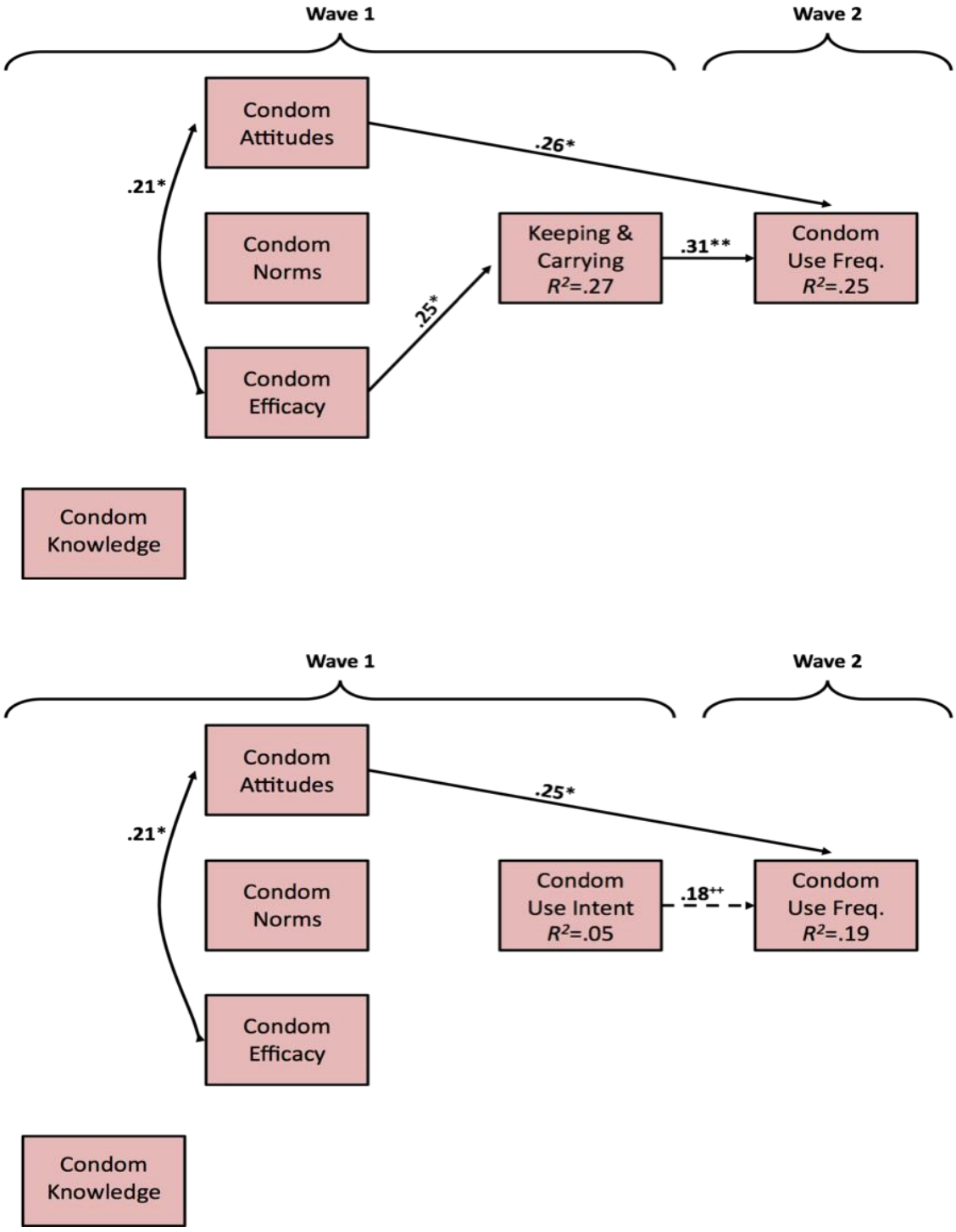


Figure 3.4. Model showing associations between Wave 1 condom use attitudes, norms, self-efficacy, knowledge, and intentions and Wave 2 condom use. Keeping and carrying: $\chi^2(13, N = 87) = 8.48$, $p = .81$, CFI = 1.00, TLI = 1.16, RMSEA = .00. Condom use intent: $\chi^2(13, N = 87) = 7.93$, $p = .85$, CFI = 1.00, TLI = 1.35, RMSEA = .00. Demographic control variables are indicated in Table 3.14. ***p<.001 **p<.01 *p<.05.

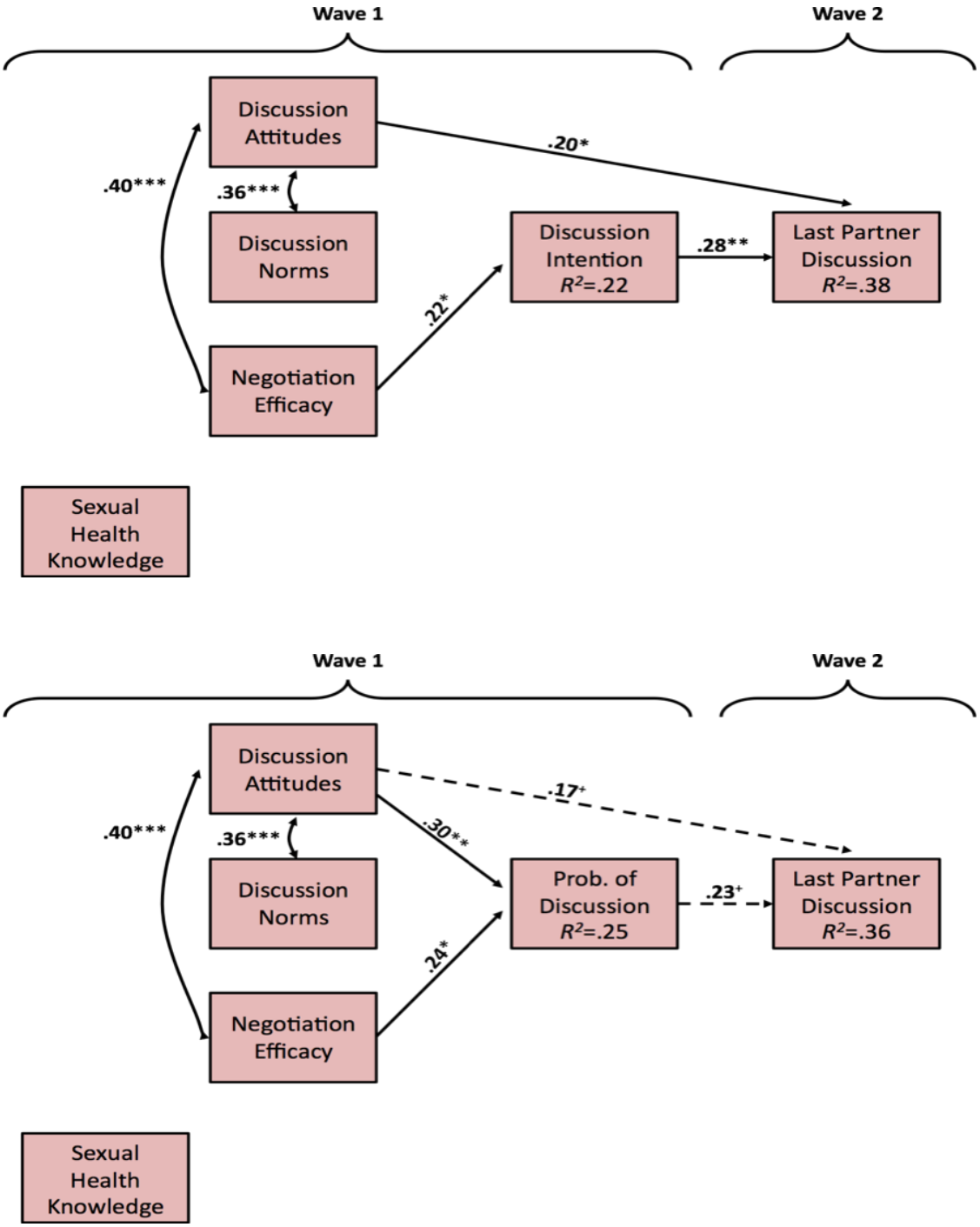


Figure 3.5. Model showing associations between Wave 1 safe sex discussion attitudes, norms, self-efficacy, knowledge, and intentions and Wave 2 discussion. Discussion intention: $\chi^2(18, N = 87) = 4.79$, $p = 1.00$, CFI = 1.00, TLI = 1.34, RMSEA = .00. Probability of discussion: $\chi^2(19, N = 87) = 6.27$, $p = 1.00$, CFI = 1.00, TLI = 1.34, RMSEA = .00. Demographic control variables are indicated in Table 3.15. ***p<.001 **p<.01 *p<.05.

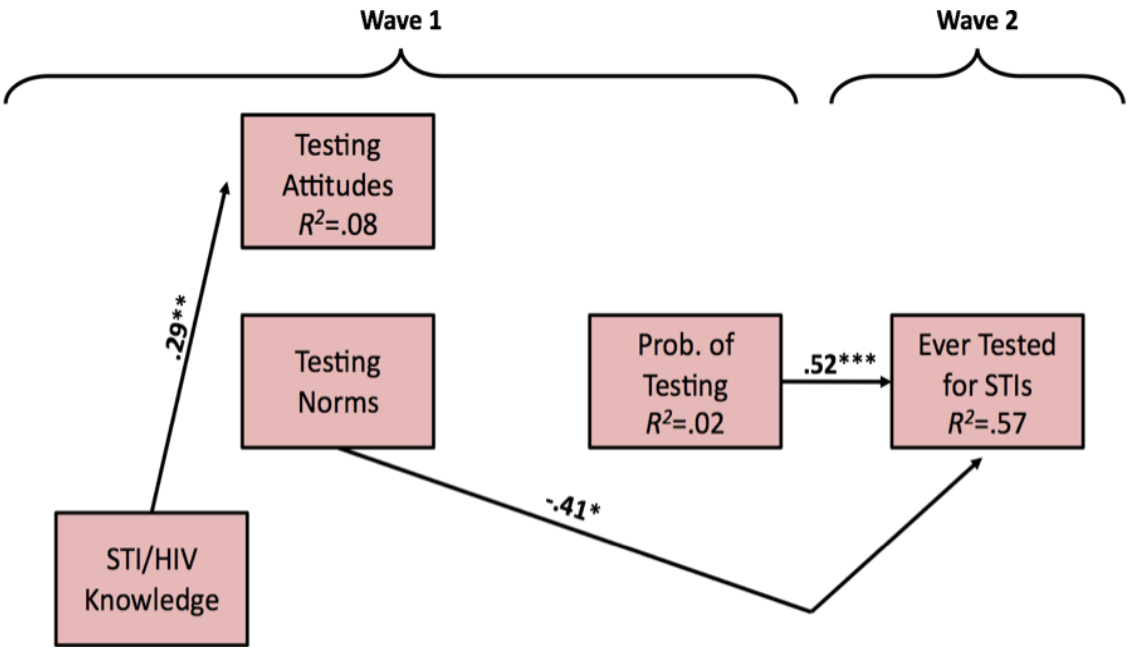


Figure 3.6. Model showing associations between Wave 1 HIV/STI testing attitudes, norms, knowledge, and intentions and Wave 2 STI testing. $\chi^2(8, N = 87) = 3.91$, $p = .87$, CFI = 1.00, TLI = 1.36, RMSEA = .00. Demographic control variables are indicated in Table 3.16. ***p<.001 **p<.01 *p<.05.

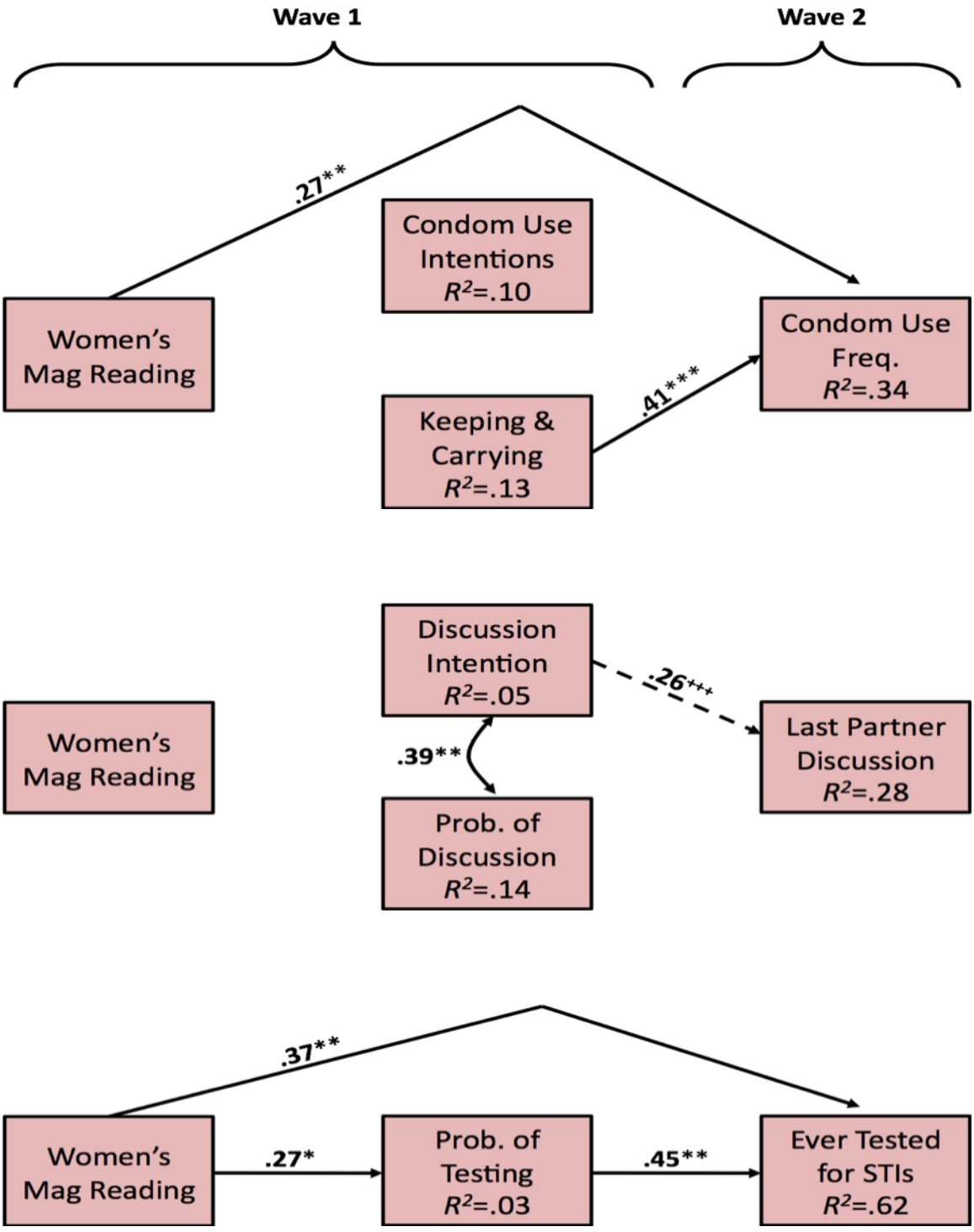


Figure 3.7. Models showing associations between Wave 1 magazine reading and intentions and Wave 2 behavior for sexually active women. Condom use: $\chi^2(4, N = 55) = 1.21$, $p = .88$, CFI = 1.00, TLI = 1.28, RMSEA = .00. Discussion: $\chi^2(10, N = 55) = 8.55$, $p = .58$, CFI = 1.00, TLI = 1.07, RMSEA = .00. Testing: $\chi^2(7, N = 54) = 7.24$, $p = .40$, CFI = .99, TLI = .98, RMSEA = .03. Demographic control variables are indicated in Table 3.17. ***p<.001 **p<.01 *p<.05 ^{+++}p<.10.

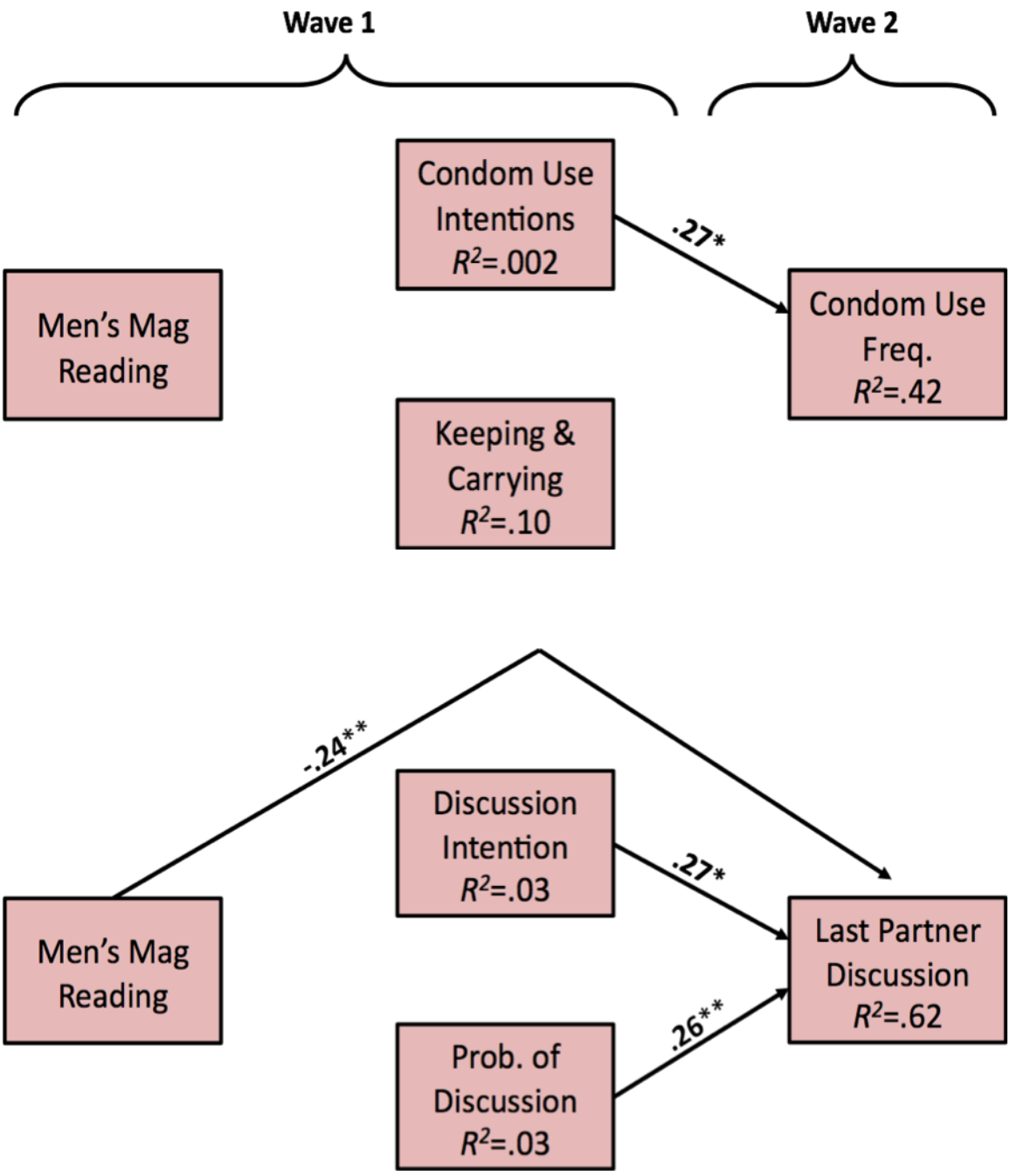


Figure 3.8. Models showing associations between Wave 1 magazine reading and intentions and Wave 2 behavior for sexually active men. Condom use: $\chi^2(4, N = 35) = 5.76$, $p = .22$, CFI = .87, TLI = .62, RMSEA = .12. Discussion: $\chi^2(3, N = 35) = .71$, $p = .87$, CFI = 1.00, TLI = 1.25, RMSEA = .00. Demographic control variables are indicated in Table 3.18. ***p<.001 **p<.01 *p<.05.

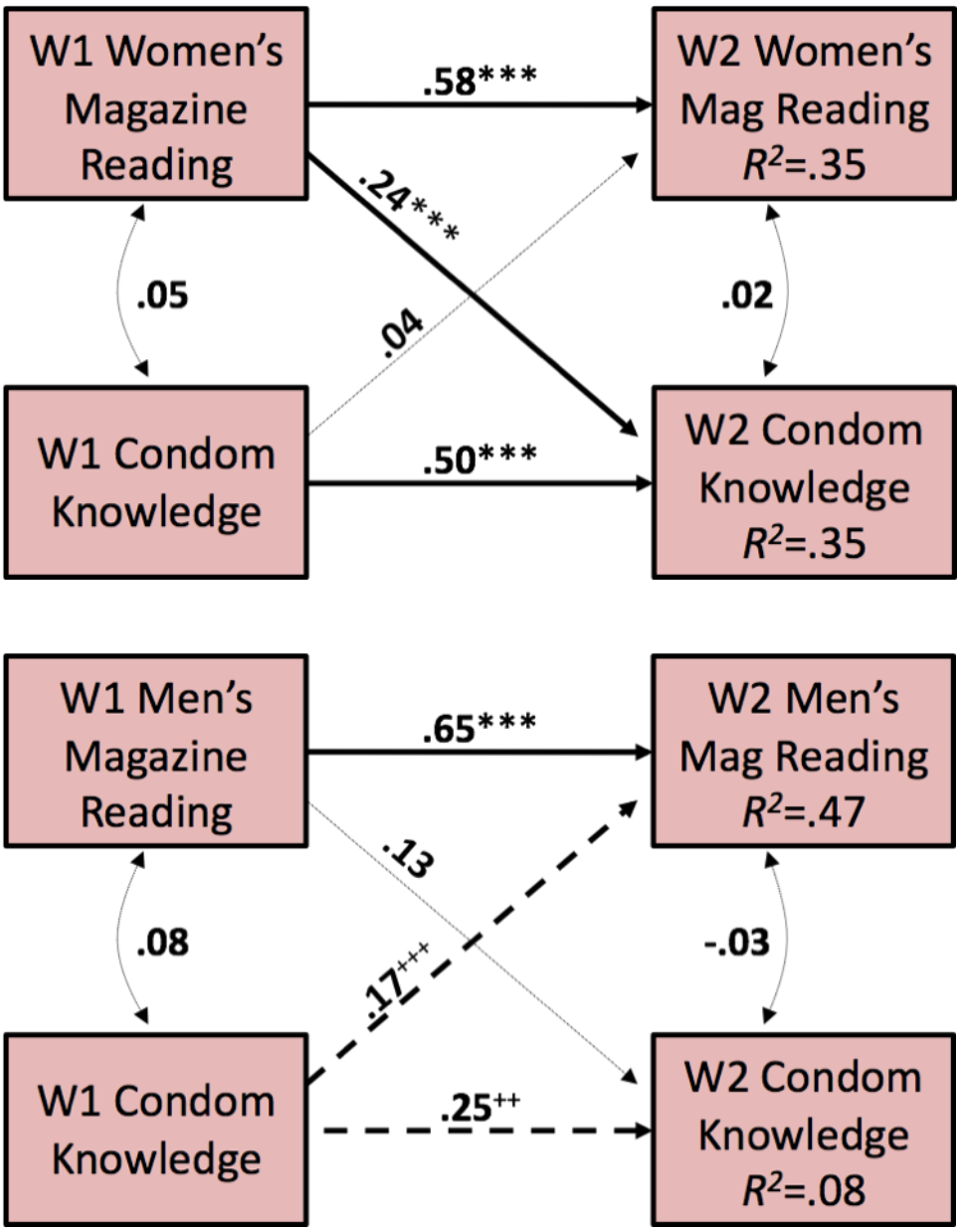


Figure 3.9. Cross-lagged models examining Wave 1 and Wave 2 magazine reading and condom knowledge for women (top) and men (bottom). Women: $\chi^2(2, N = 114) = .47$, $p = .79$, CFI = 1.00, TLI = 1.08, RMSEA = .00. Men: $\chi^2(3, N = 61) = 1.90$, $p = .59$, CFI = 1.00, TLI = 1.10, RMSEA = .00. Demographic control variables are indicated in Table 3.21. ***p<.001 **p<.01 *p<.05 $^{+}p < .06$ $^{++}p < .075$ $^{+++}p < .10$.

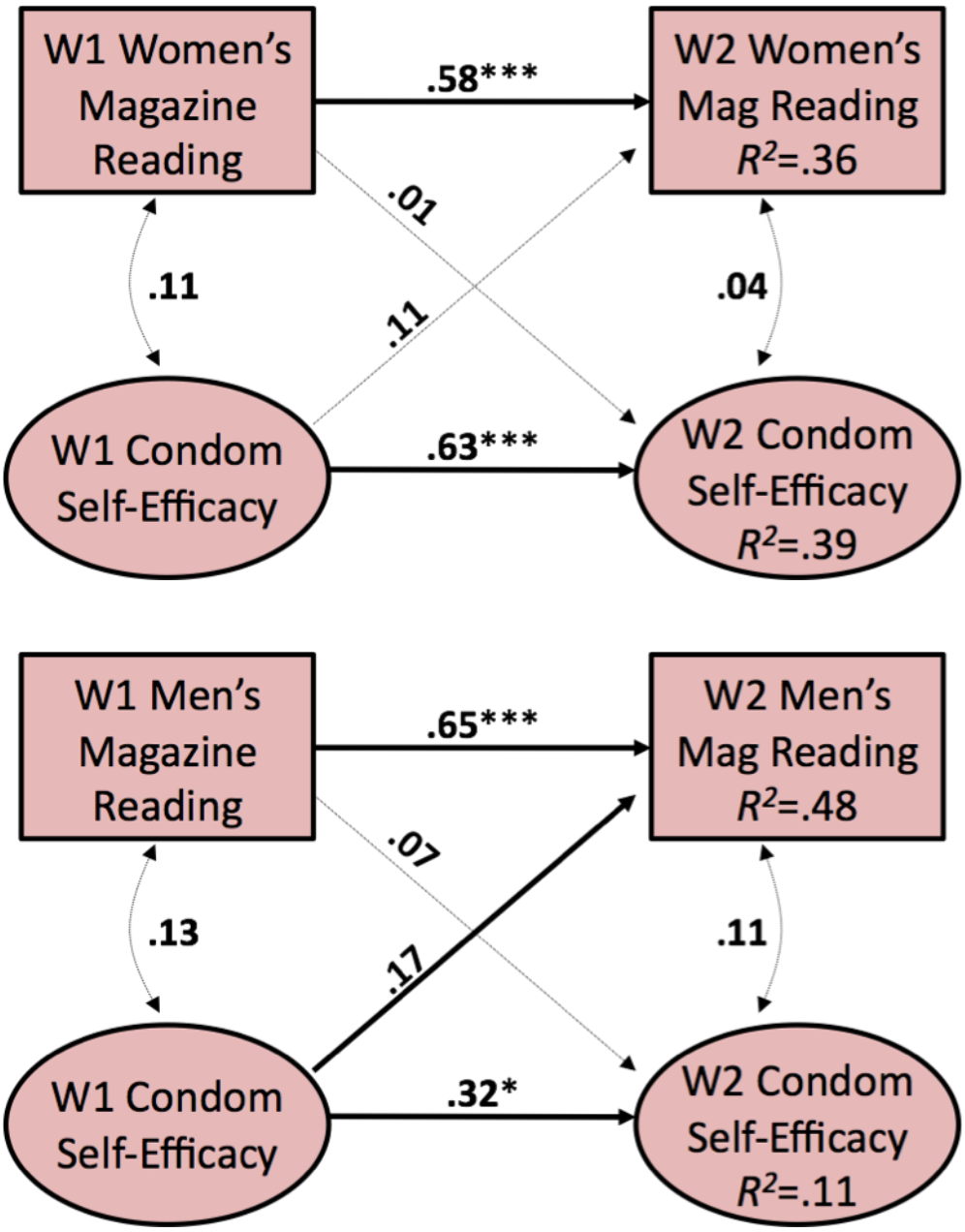


Figure 3.10. Cross-lagged models examining Wave 1 and Wave 2 magazine reading and condom use self-efficacy for women (top) and men (bottom). Women: $\chi^2(22, N = 114) = 17.36$, $p = .74$, CFI = 1.00, TLI = 1.04, RMSEA = .00. Men: $\chi^2(22, N = 87) = 15.77$, $p = .93$, CFI = 1.00, TLI = 1.06, RMSEA = .00. Demographic control variables are indicated in Table 3.21. ***p<.001 **p<.01 *p<.05 $^{+}p < .06$ $^{++}p < .075$ $^{+++}p < .10$.

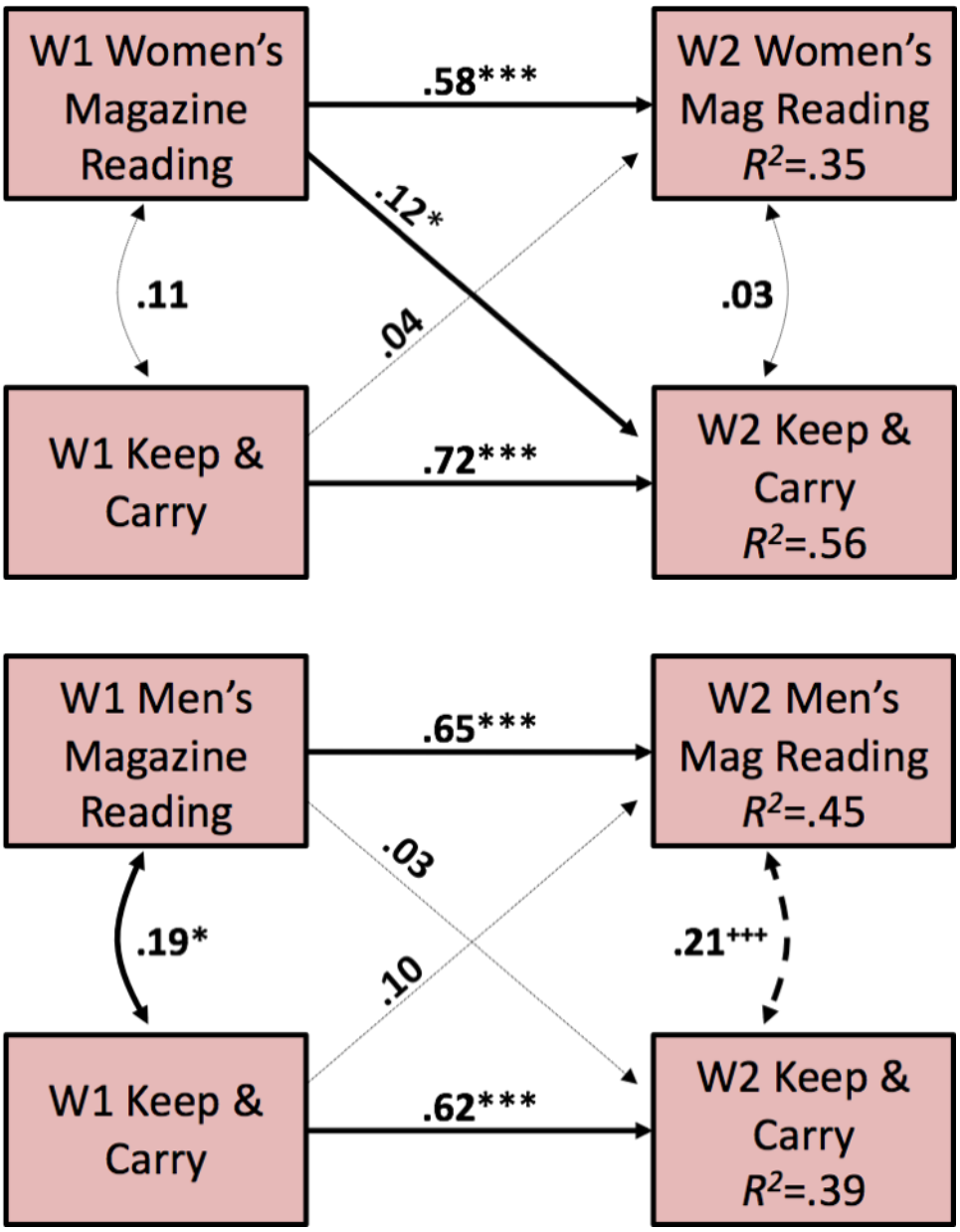


Figure 3.11. Cross-lagged models examining Wave 1 and Wave 2 magazine reading and intentions to keep and carry condoms for women (top) and men (bottom). Women: $\chi^2(2, N = 114) = .58$, $p = .75$, CFI = 1.00, TLI = 1.05, RMSEA = .00. Men: $\chi^2(3, N = 61) = .70$, $p = .87$, CFI = 1.00, TLI = 1.08, RMSEA = .00. Demographic control variables are indicated in Table 3.21. ***p<.001 **p<.01 *p<.05 $^{+}p < .06$ $^{++}p < .075$ $^{+++}p < .10$.

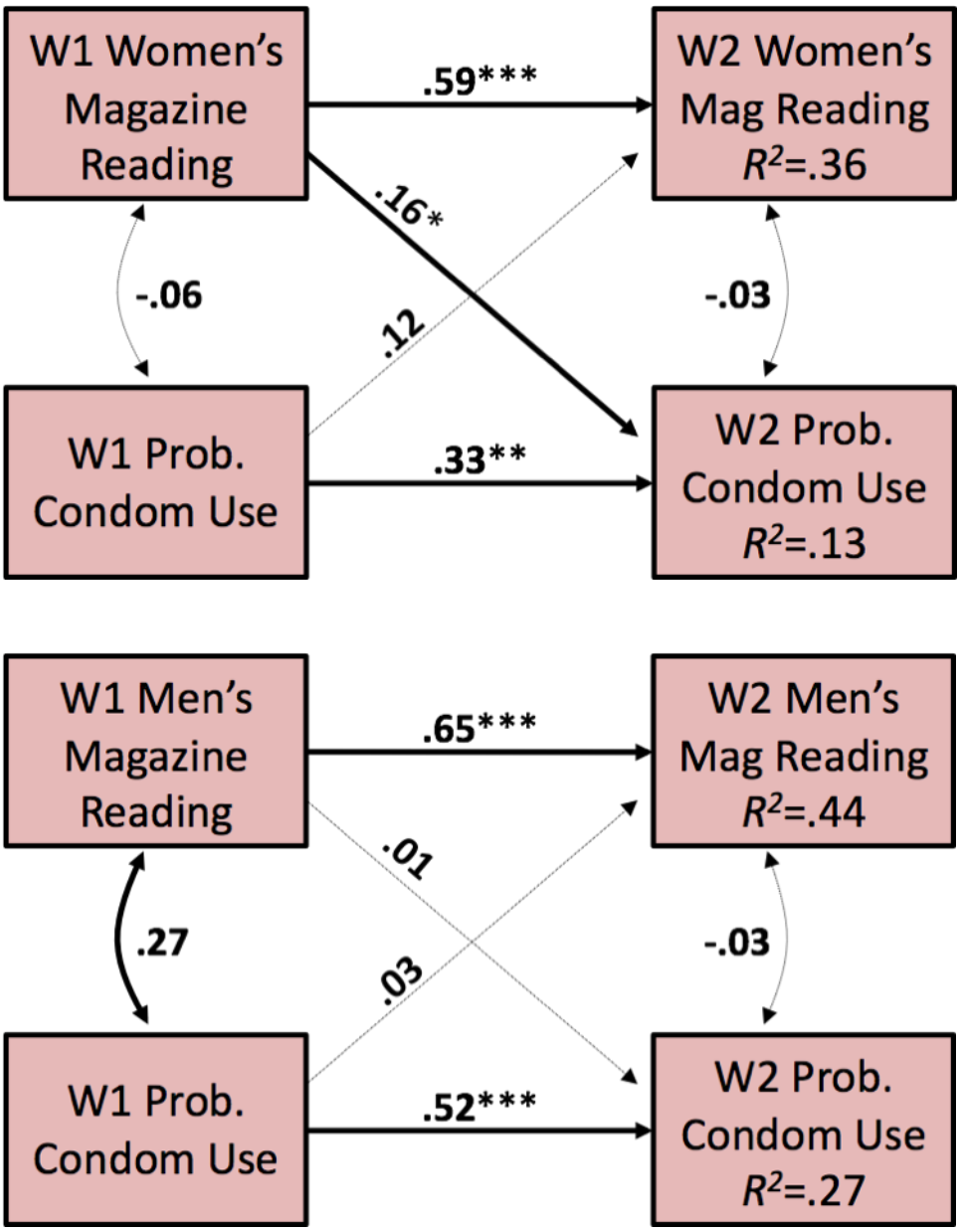


Figure 3.12. Cross-lagged models examining Wave 1 and Wave 2 magazine reading and probability of condom use for women (top) and men (bottom). Women: $\chi^2(3, N = 114) = 1.27$, $p = .74$, CFI = 1.00, TLI = 1.09, RMSEA = .00. Men: $\chi^2(3, N = 61) = 1.35$, $p = .72$, CFI = 1.00, TLI = 1.09, RMSEA = .00. Demographic control variables are indicated in Table 3.21. ***p<.001 **p<.01 *p<.05 $^{+}p < .06$ $^{++}p < .075$ $^{+++}p < .10$.

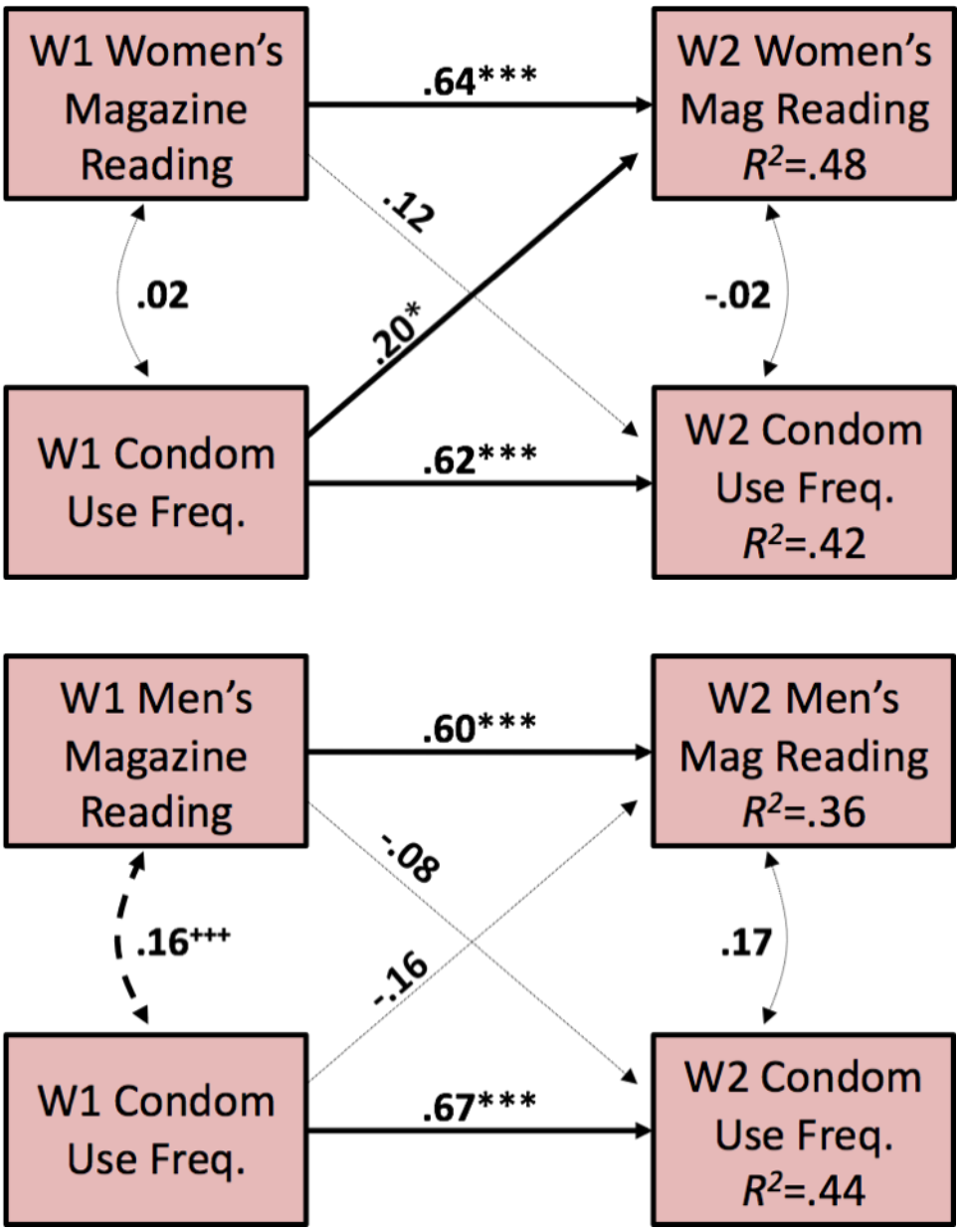


Figure 3.13. Cross-lagged models examining Wave 1 and Wave 2 magazine reading and condom use frequency for sexually active women (top) and men (bottom). Women: $\chi^2(2, N = 52) = .97$, $p = .62$, CFI = 1.00, TLI = 1.09, RMSEA = .00. Men: $\chi^2(3, N = 32) = 1.66$, $p = .65$, CFI = 1.00, TLI = 1.19, RMSEA = .00. Demographic control variables are indicated in Table 3.21. ***p<.001 **p<.01 *p<.05 $^{+}p < .06$ $^{++}p < .075$ $^{+++}p < .10$.

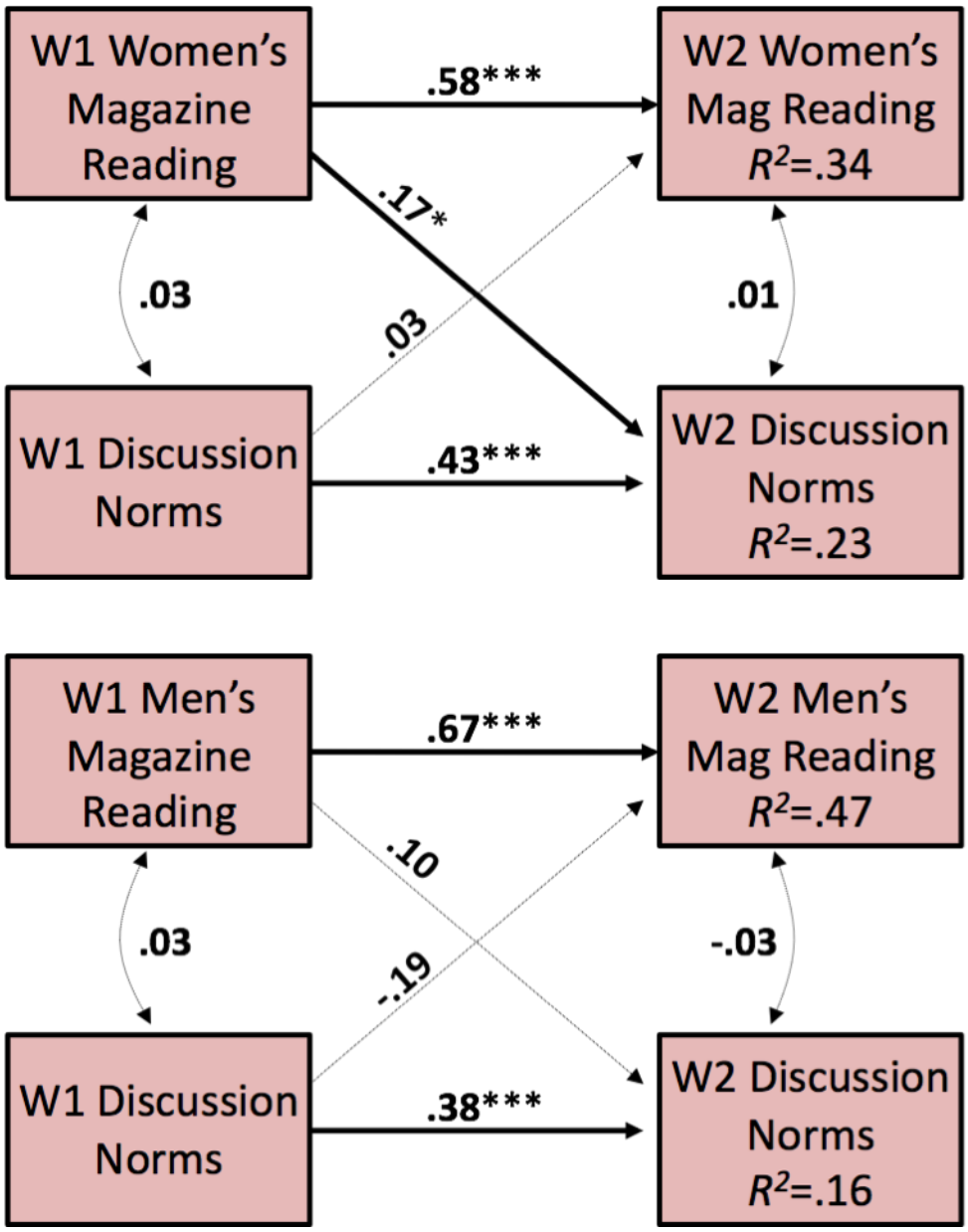


Figure 3.14. Cross-lagged models examining Wave 1 and Wave 2 magazine reading and discussion norms for women (top) and men (bottom). Women: $\chi^2(2, N = 114) = .70$, $p = .70$, CFI = 1.00, TLI = 1.09, RMSEA = .00. Men: $\chi^2(2, N = 61) = 2.49$, $p = .48$, CFI = 1.00, TLI = 1.04, RMSEA = .00. Demographic control variables are indicated in Table 3.21. ***p<.001 **p<.01 *p<.05 $^{+}p < .06$ $^{++}p < .075$ $^{+++}p < .10$.

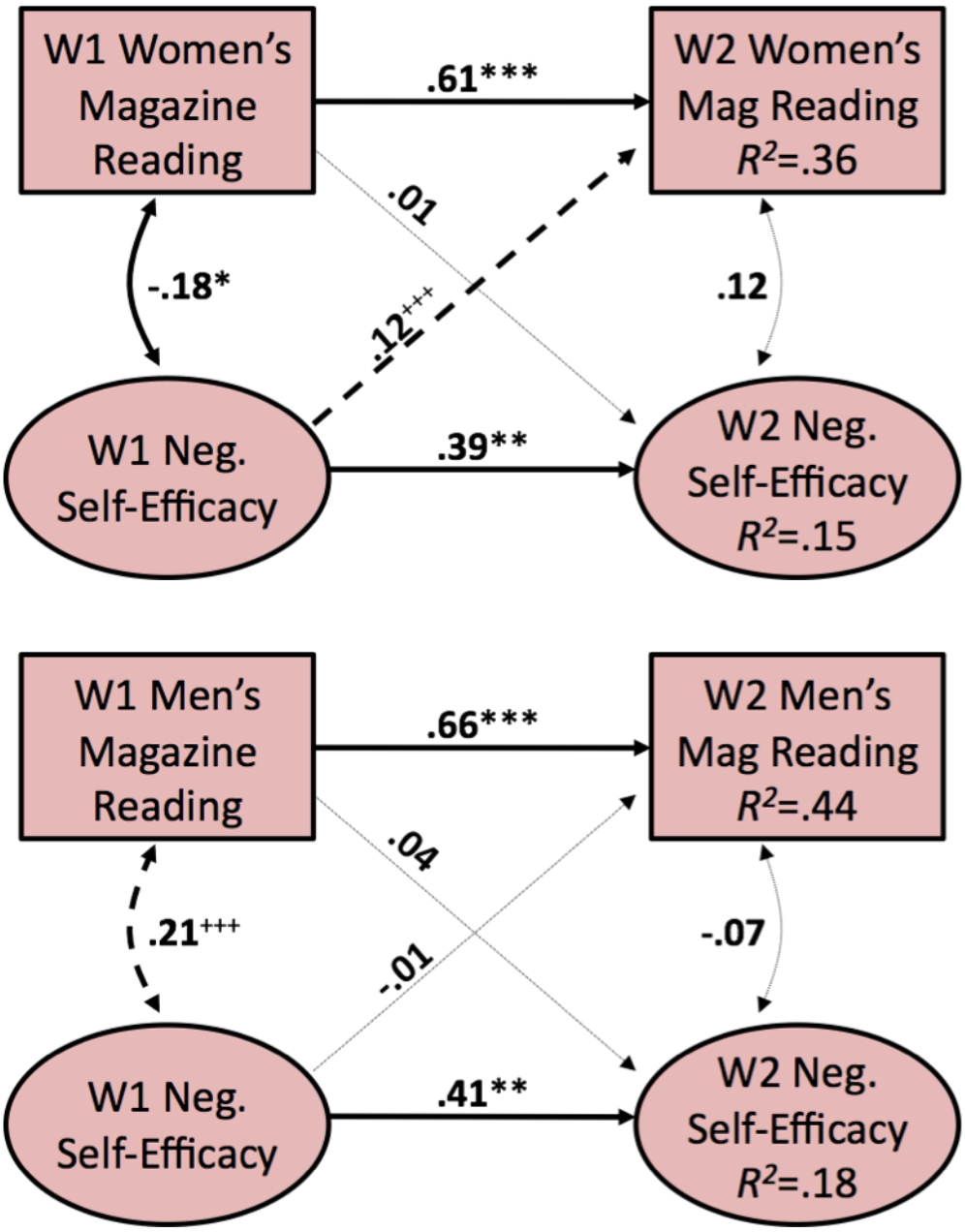


Figure 3.15. Cross-lagged models examining Wave 1 and Wave 2 magazine reading and negotiation self-efficacy for women (top) and men (bottom). Women: $\chi^2(22, N = 114) = 23.28$, $p = .39$, CFI = 1.00, TLI = .99, RMSEA = .02. Men: $\chi^2(21, N = 61) = 31.56$, $p = .09$, CFI = .93, TLI = .88, RMSEA = .08. Demographic control variables are indicated in Table 3.21. ***p<.001 **p<.01 *p<.05 $^{+}p < .06$ $^{++}p < .075$ $^{+++}p < .10$.

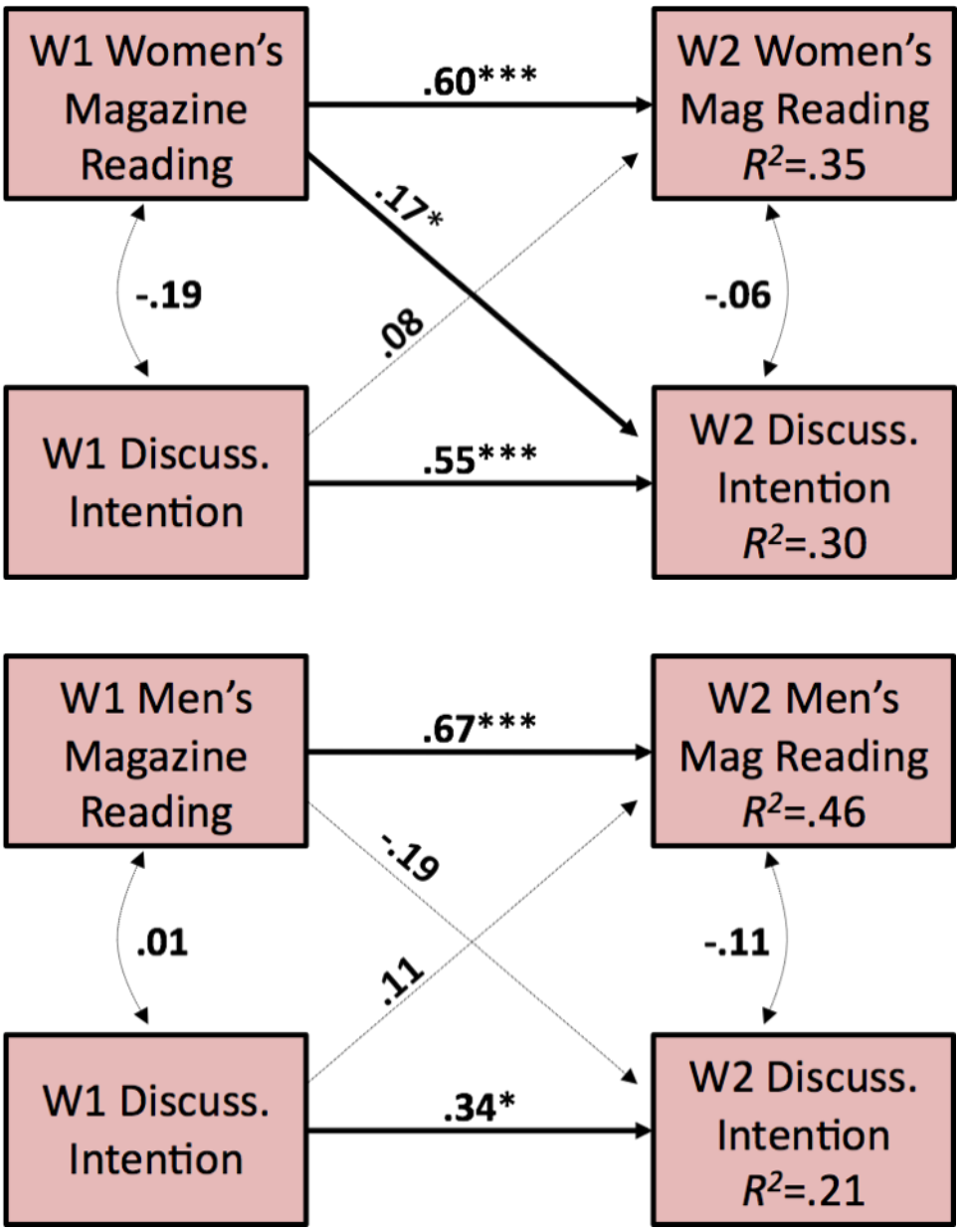


Figure 3.16. Cross-lagged models examining Wave 1 and Wave 2 magazine reading and safe-sex discussion intentions for women (top) and men (bottom). Women: $\chi^2(3, N = 114) = 2.47$, $p = .48$, CFI = 1.00, TLI = 1.03, RMSEA = .00. Men: $\chi^2(2, N = 61) = .73$, $p = .69$, CFI = 1.00, TLI = 1.15, RMSEA = .00. Demographic control variables are indicated in Table 3.21. ***p<.001 **p<.01 *p<.05 $^{+}p < .06$ $^{++}p < .075$ $^{+++}p < .10$.

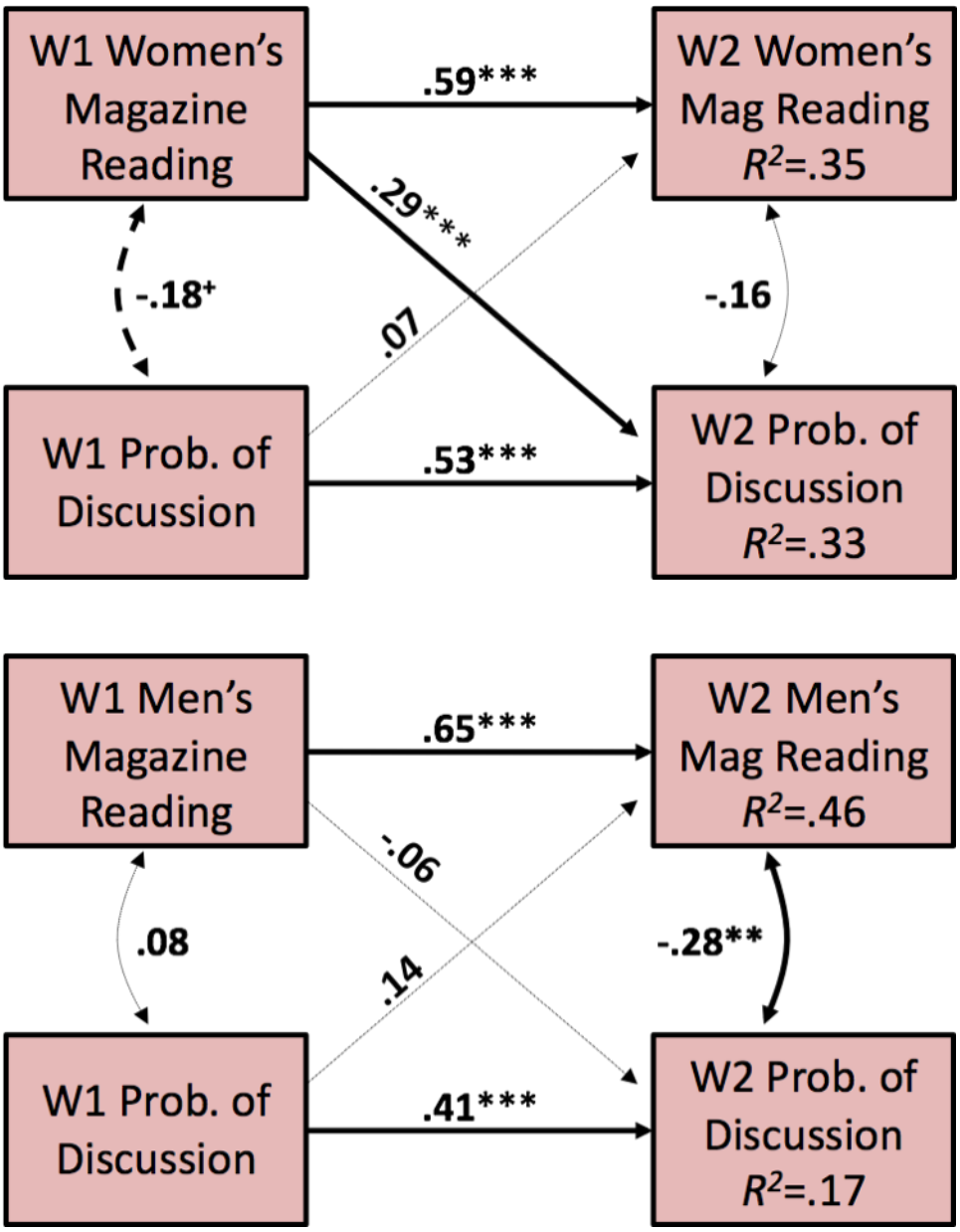


Figure 3.17. Cross-lagged models examining Wave 1 and Wave 2 magazine reading and probability of safe-sex discussion for women (top) and men (bottom). Women: $\chi^2(2, N = 114) = 1.72$, $p = .42$, CFI = 1.00, TLI = 1.02, RMSEA = .00. Men: $\chi^2(3, N = 61) = .42$, $p = .94$, CFI = 1.00, TLI = 1.20, RMSEA = .00. Demographic control variables are indicated in Table 3.21. ***p<.001 **p<.01 *p<.05 $^{+}p < .06$ $^{++}p < .075$ $^{+++}p < .10$.

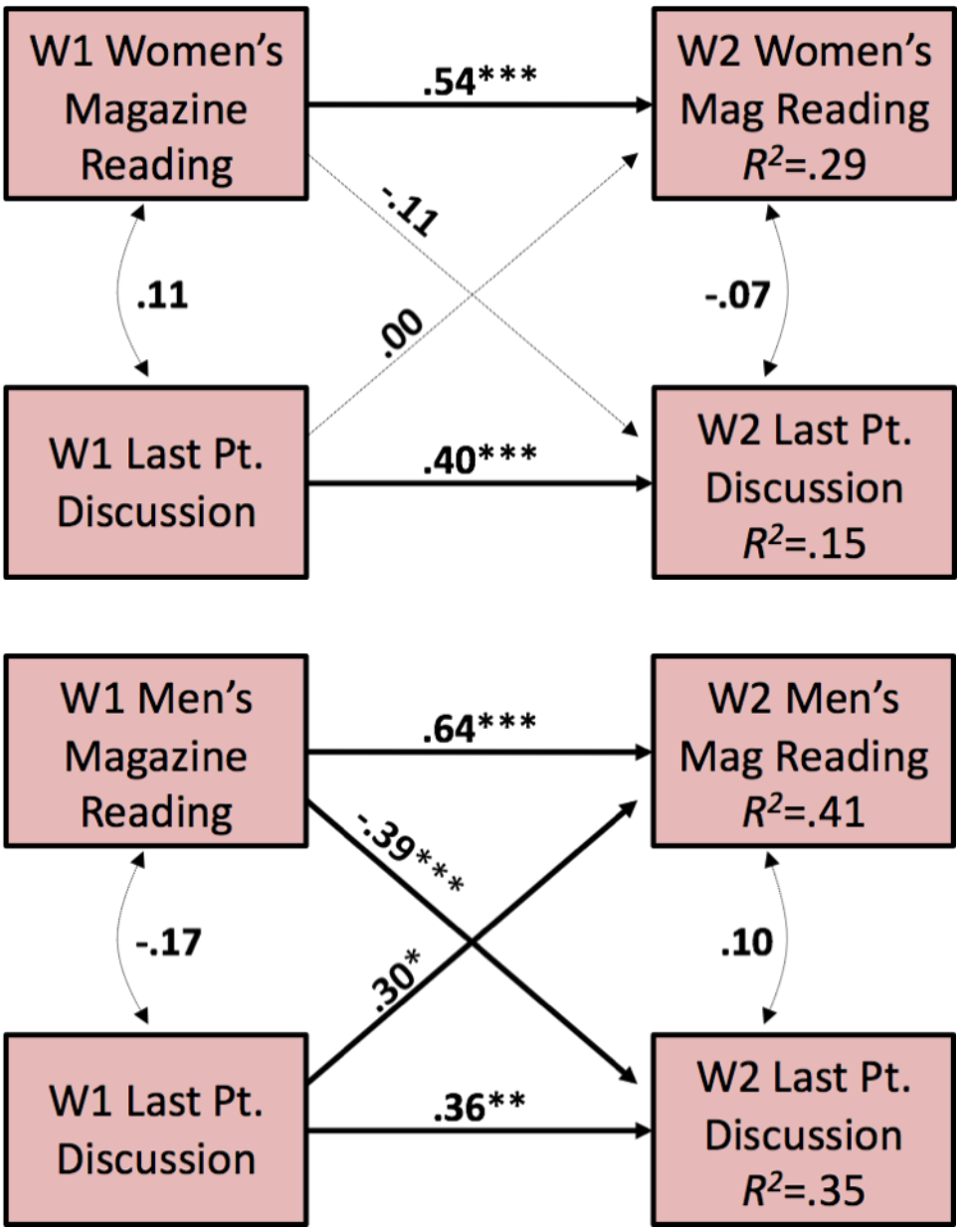


Figure 3.18. Cross-lagged models examining Wave 1 and Wave 2 magazine reading and safe sex discussion with most recent partners for sexually active women (top) and men (bottom). Women: $\chi^2(2, N = 55) = 1.22$, $p = .54$, CFI = 1.00, TLI = 1.16, RMSEA = .00. Men: $\chi^2(1, N = 32) = .11$, $p = .74$, CFI = 1.00, TLI = 1.30, RMSEA = .00. Demographic control variables are indicated in Table 3.21. ***p<.001 **p<.01 *p<.05 $^{+}p < .06$ $^{++}p < .075$ $^{+++}p < .10$.

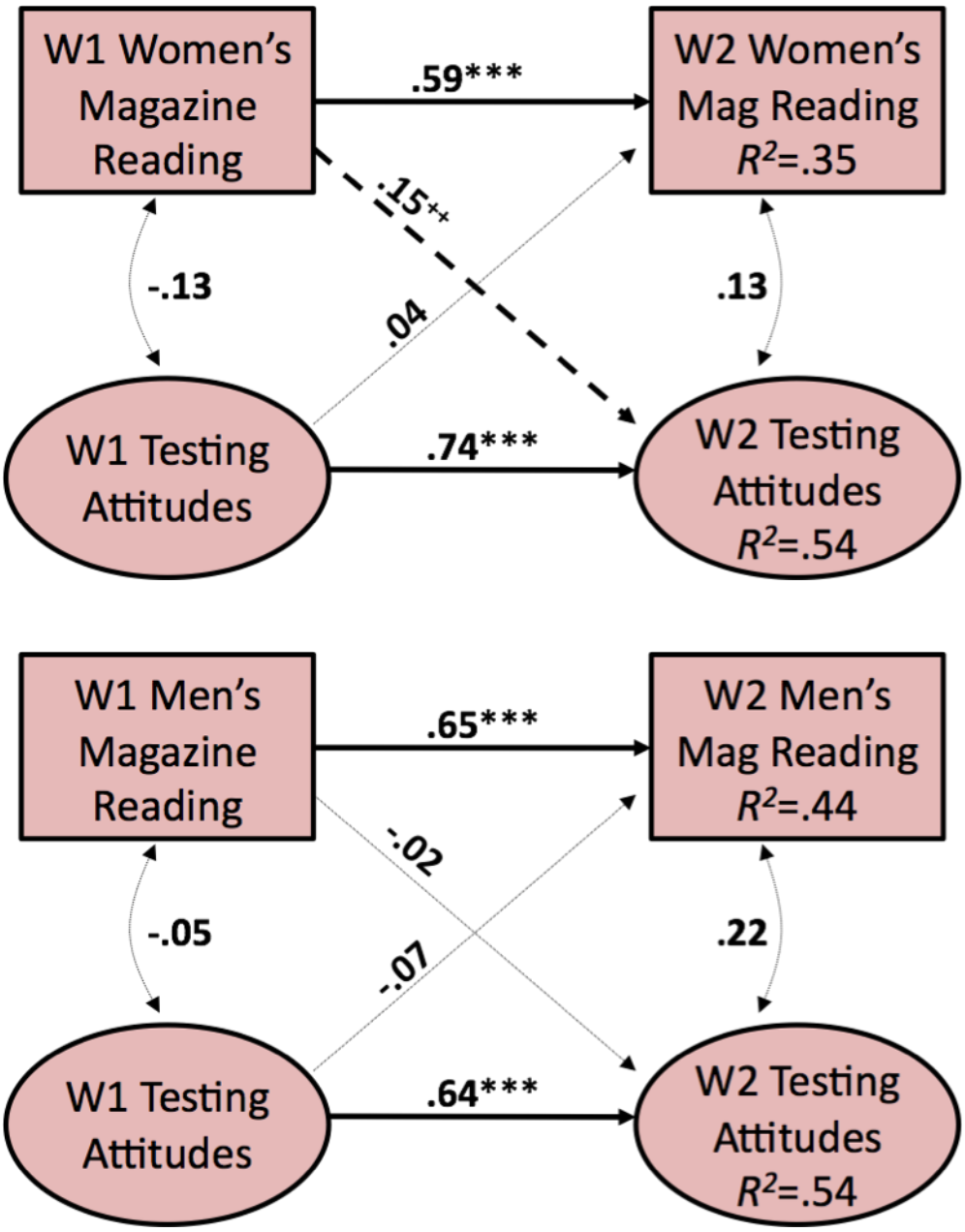


Figure 3.19. Cross-lagged models examining Wave 1 and Wave 2 magazine reading and HIV testing attitudes for women (top) and men (bottom). Women: $\chi^2(22, N = 114) = 18.98$, $p = .65$, CFI = 1.00, TLI = 1.01, RMSEA = .00. Men: $\chi^2(21, N = 61) = 21.42$, $p = .43$, CFI = 1.00, TLI = 1.00, RMSEA = .02. Demographic control variables are indicated in Table 3.21. ***p<.001 **p<.01 *p<.05 $^{+}p < .06$ $^{++}p < .075$ $^{+++}p < .10$.

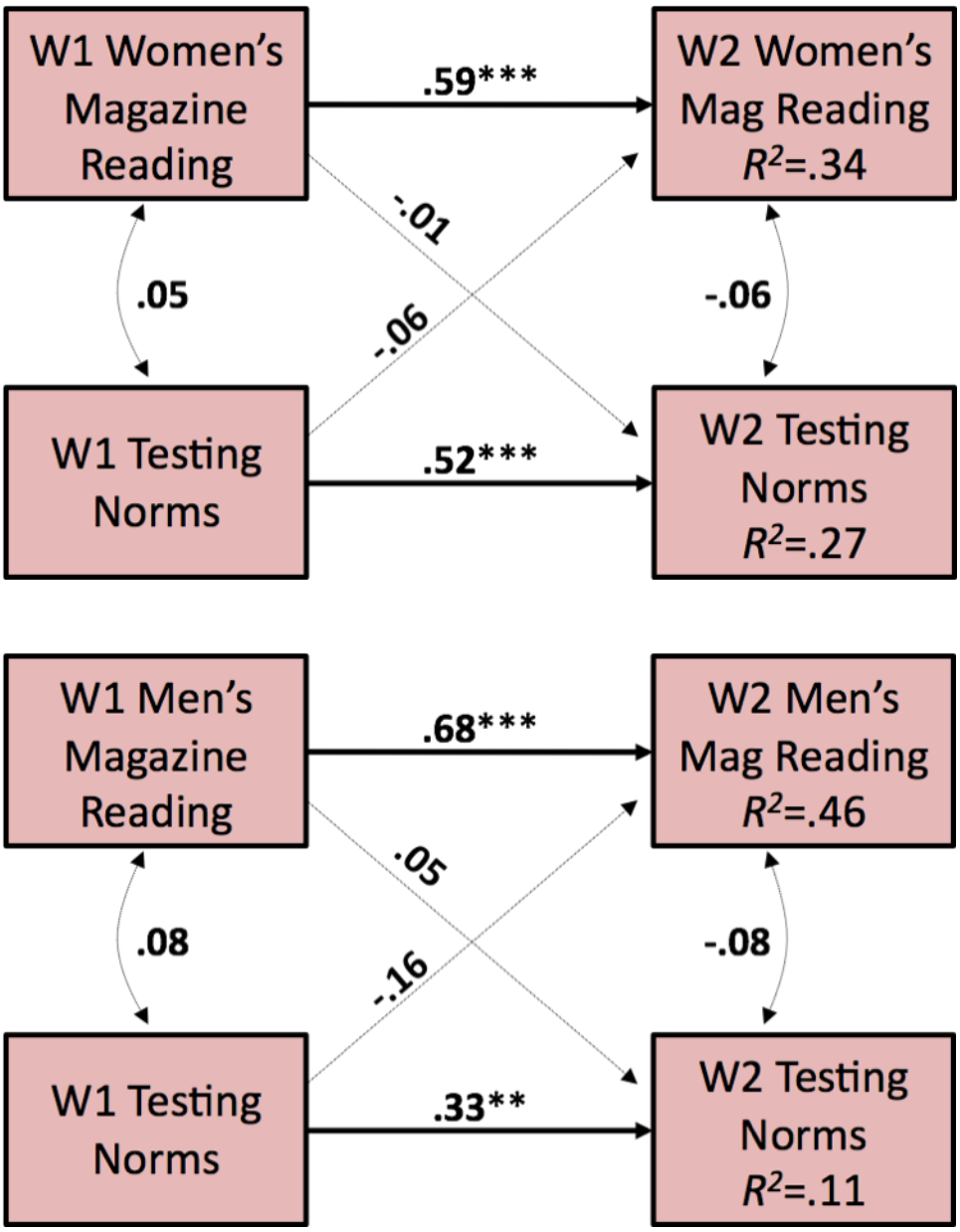


Figure 3.20. Cross-lagged models examining Wave 1 and Wave 2 magazine reading and HIV/STI testing norms for women (top) and men (bottom). Women: $\chi^2(3, N = 114) = 3.25$, $p = .35$, CFI = 1.00, TLI = .99, RMSEA = .03. Men: $\chi^2(2, N = 61) = .12$, $p = .94$, CFI = 1.00, TLI = 1.21, RMSEA = .00. Demographic control variables are indicated in Table 3.21. ***p<.001 **p<.01 *p<.05 $^{+}p < .06$ $^{++}p < .075$ $^{+++}p < .10$.

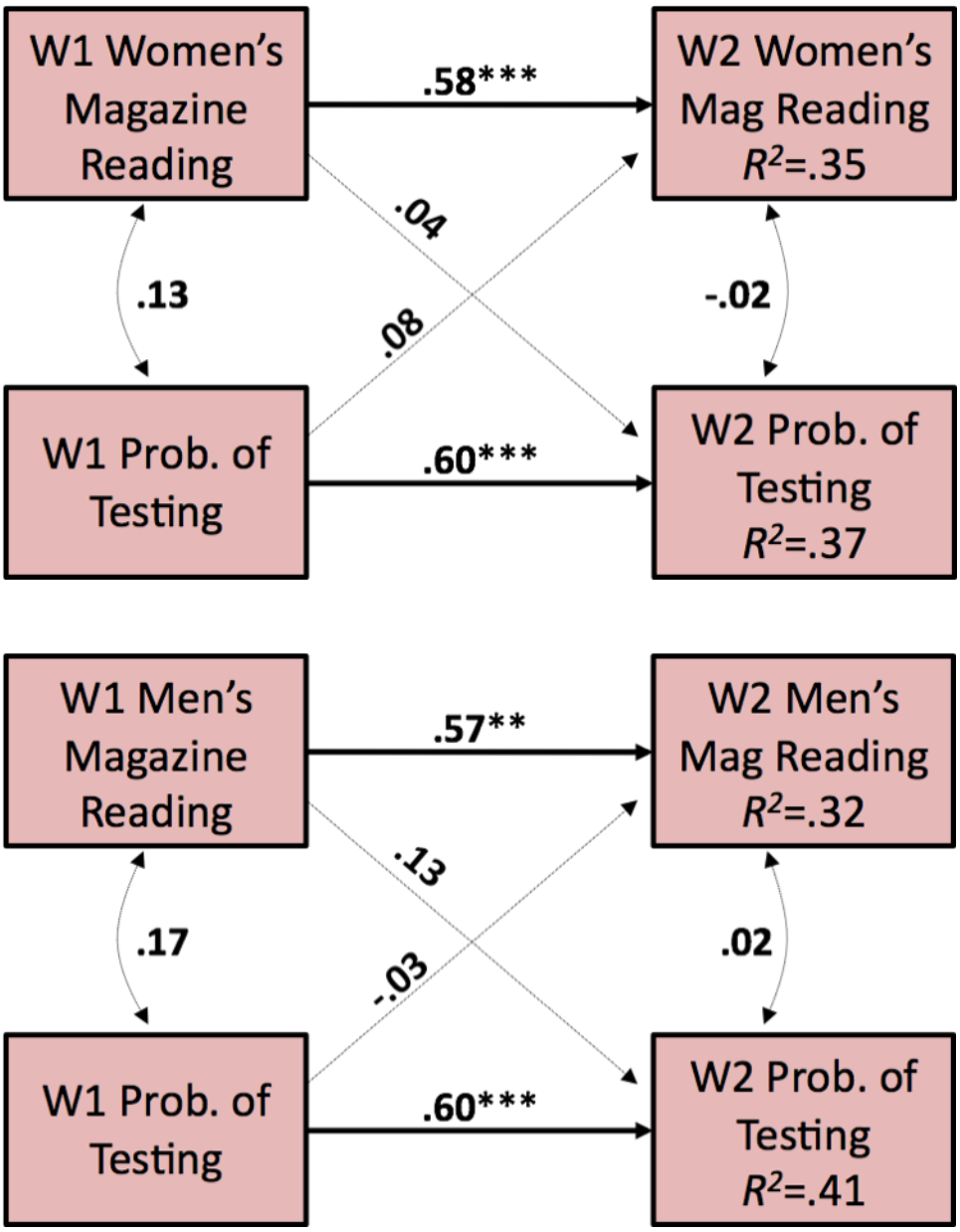


Figure 3.21. Cross-lagged models examining Wave 1 and Wave 2 magazine reading and probability of HIV/STI testing for women (top) and men (bottom). Women: $\chi^2(3, N = 114) = .97$, p = .81, CFI = 1.00, TLI = 1.08, RMSEA = .00. Men: $\chi^2(3, N = 61) = 1.47$, $p = .69$, CFI = 1.00, TLI = 1.25, RMSEA = .00. Demographic control variables are indicated in Table 3.21. ***p<.001 **p<.01 *p<.05 $^{+}p < .06$ $^{++}p < .075$ $^{+++}p < .10$.

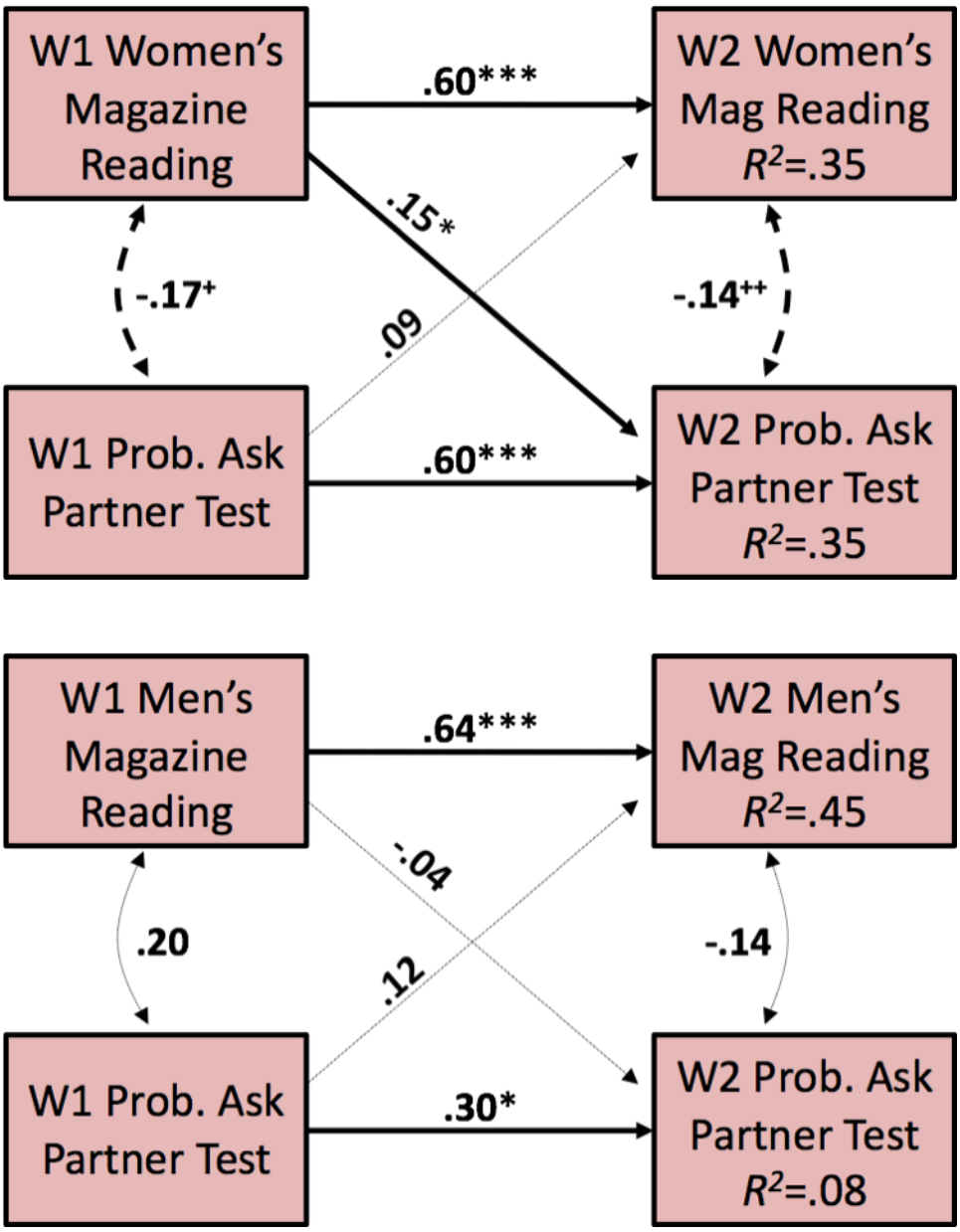


Figure 3.22. Cross-lagged models examining Wave 1 and Wave 2 magazine reading and probability of asking partners to test for women (top) and men (bottom). Women: $\chi^2(3, N = 114) = 2.14$, $p = .54$, CFI = 1.00, TLI = 1.04, RMSEA = .00. Men: $\chi^2(3, N = 61) = 2.85$, $p = .42$, CFI = 1.00, TLI = 1.01, RMSEA = .00. Demographic control variables are indicated in Table 3.21. ***p<.001 **p<.01 *p<.05 $^{+}p < .06$ $^{++}p < .075$ $^{+++}p < .10$.

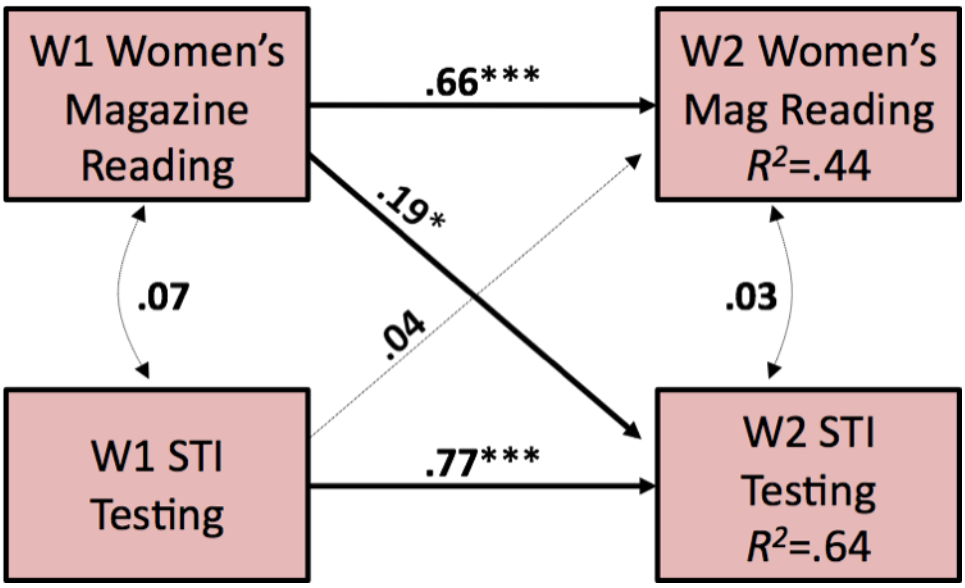


Figure 3.23. Cross-lagged model examining Wave 1 and Wave 2 magazine reading and STI testing for sexually active women. $\chi^2(2, N = 52) = 2.10$, $p = .35$, CFI = 1.00, TLI = 1.00, RMSEA = .03. Demographic control variables are indicated in Table 3.21. ***p<.001 **p<.01 *p<.05 $^{+}p < .06$ $^{++}p < .075$ $^{+++}p < .10$.

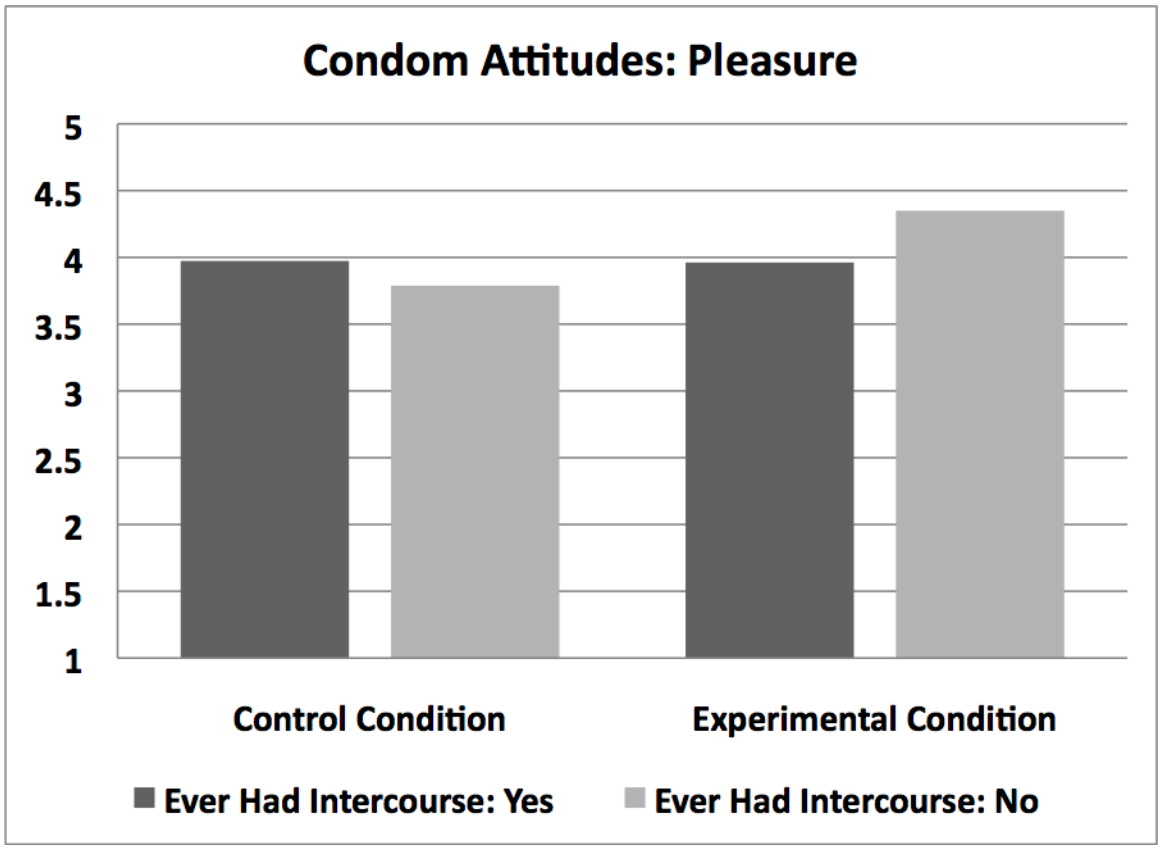


Figure 4.1. Interaction between experimental condition and intercourse status for condom attitudes regarding pleasure.

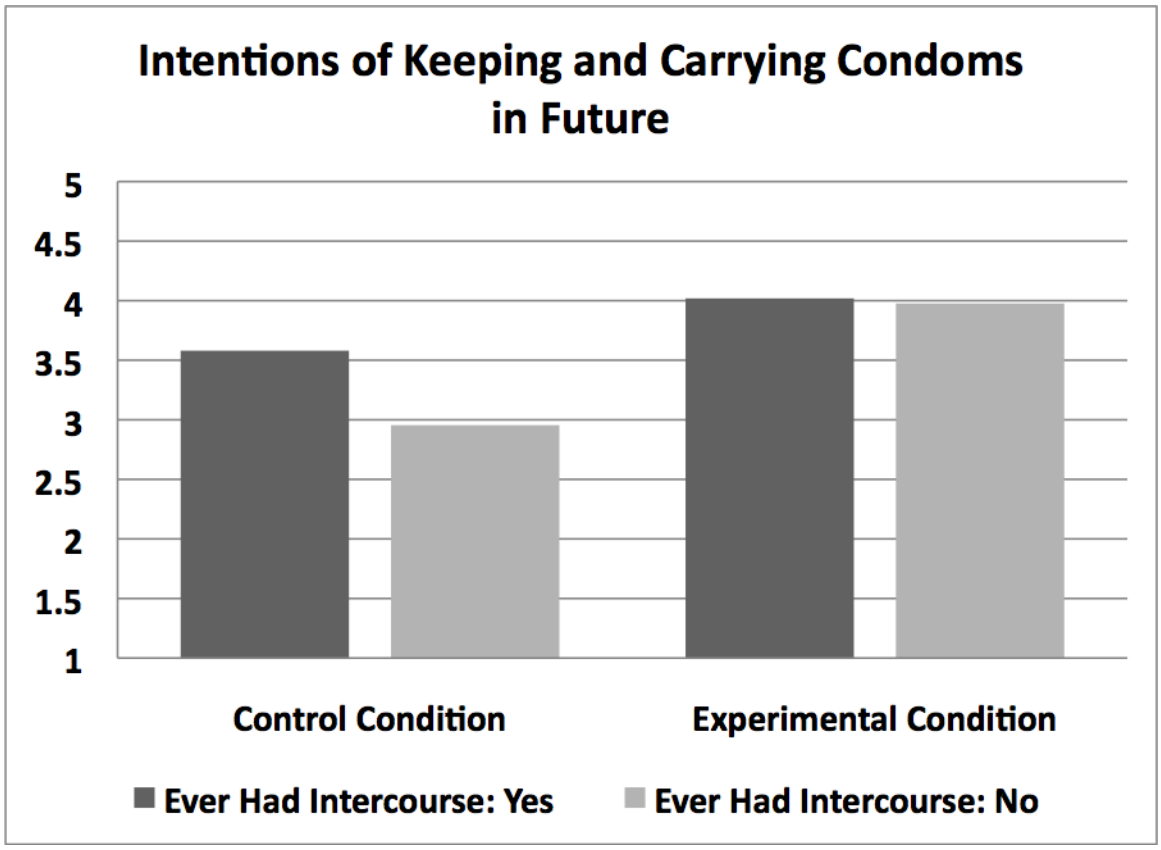


Figure 4.2. Interaction between experimental condition and intercourse status for intentions to keep and carry condoms in the future.

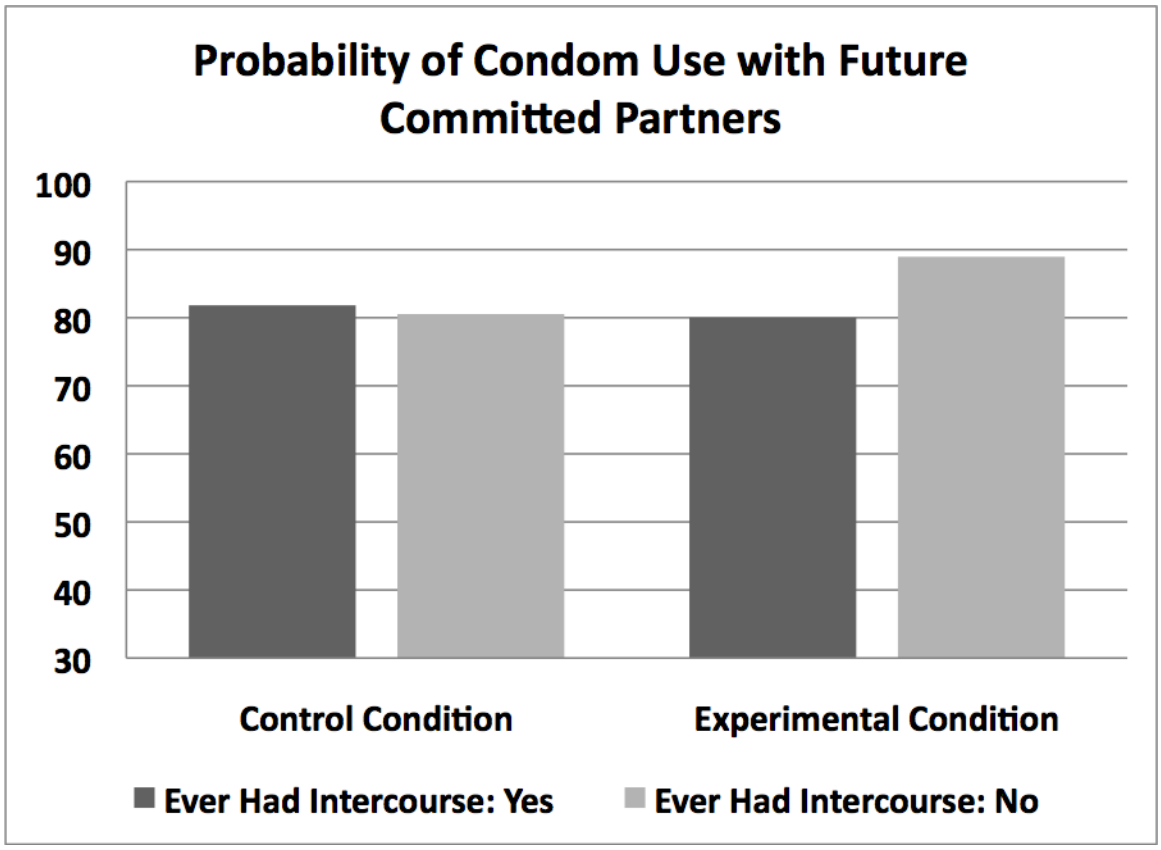


Figure 4.3. Interaction between experimental condition and intercourse status for probability of condom use with future committed partners.

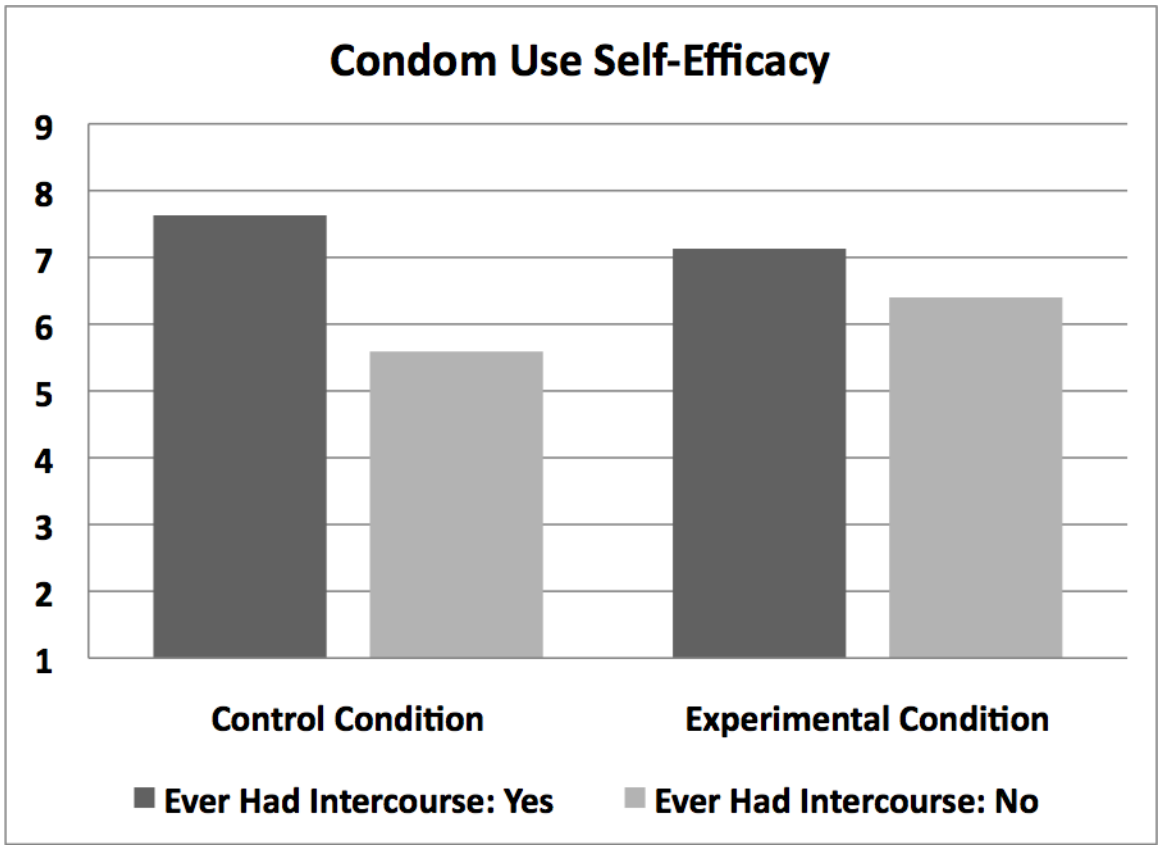


Figure 4.4. Interaction between experimental condition and intercourse status for condom use self-efficacy.

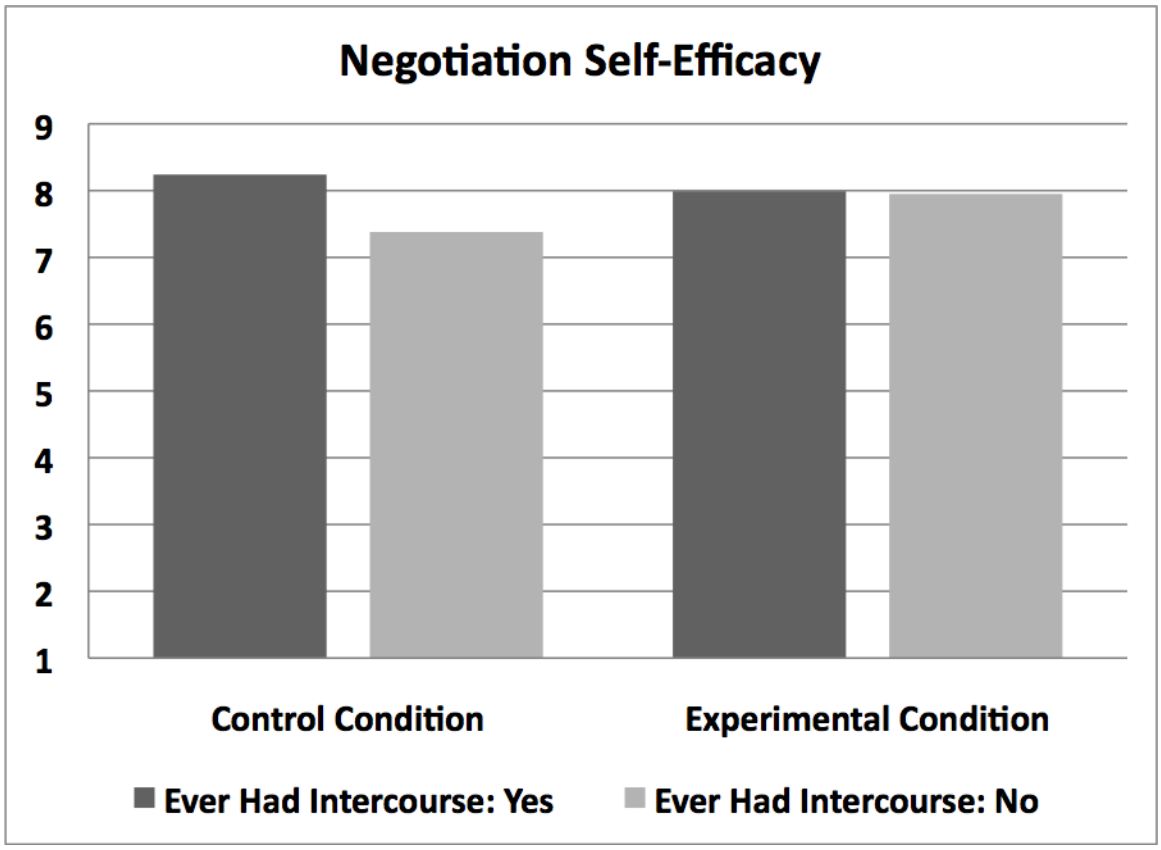


Figure 4.5. Interaction between experimental condition and intercourse status for negotiation self-efficacy.

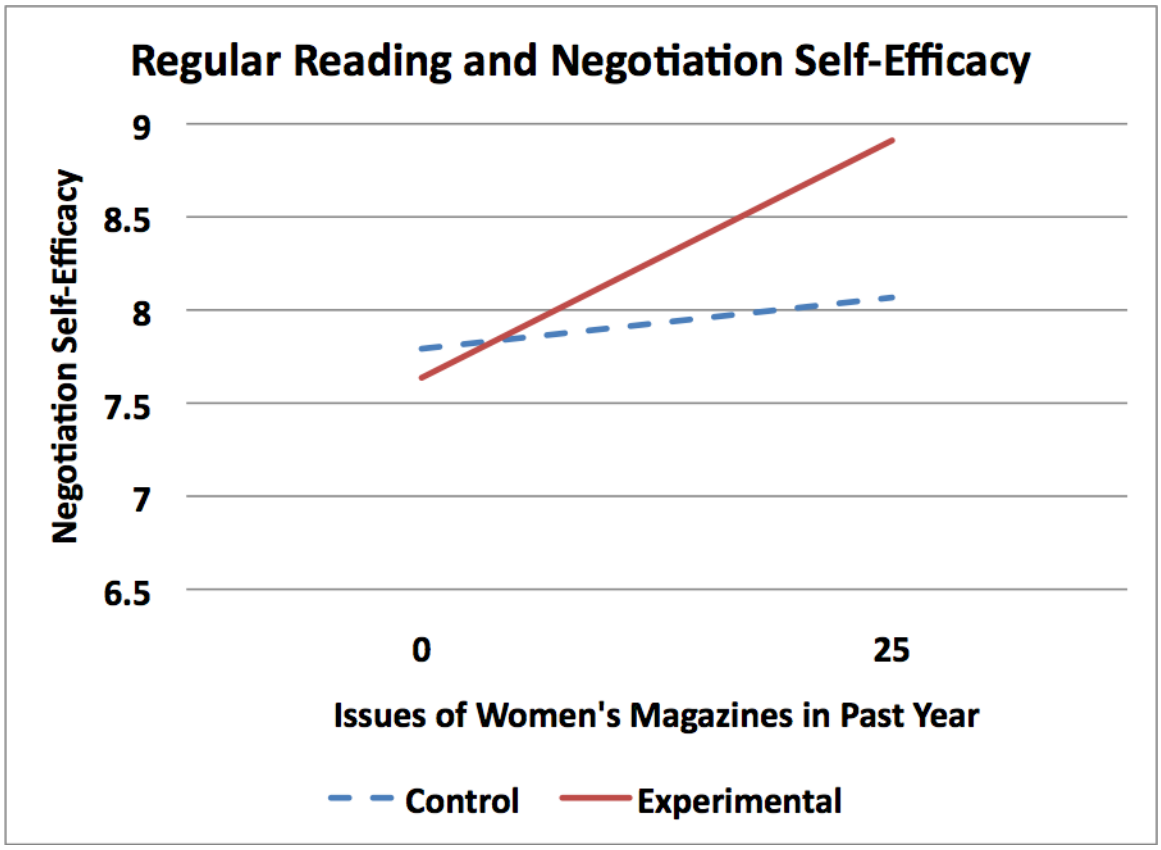


Figure 4.6. Interaction between experimental condition and regular reading of women's magazines for negotiation self-efficacy.

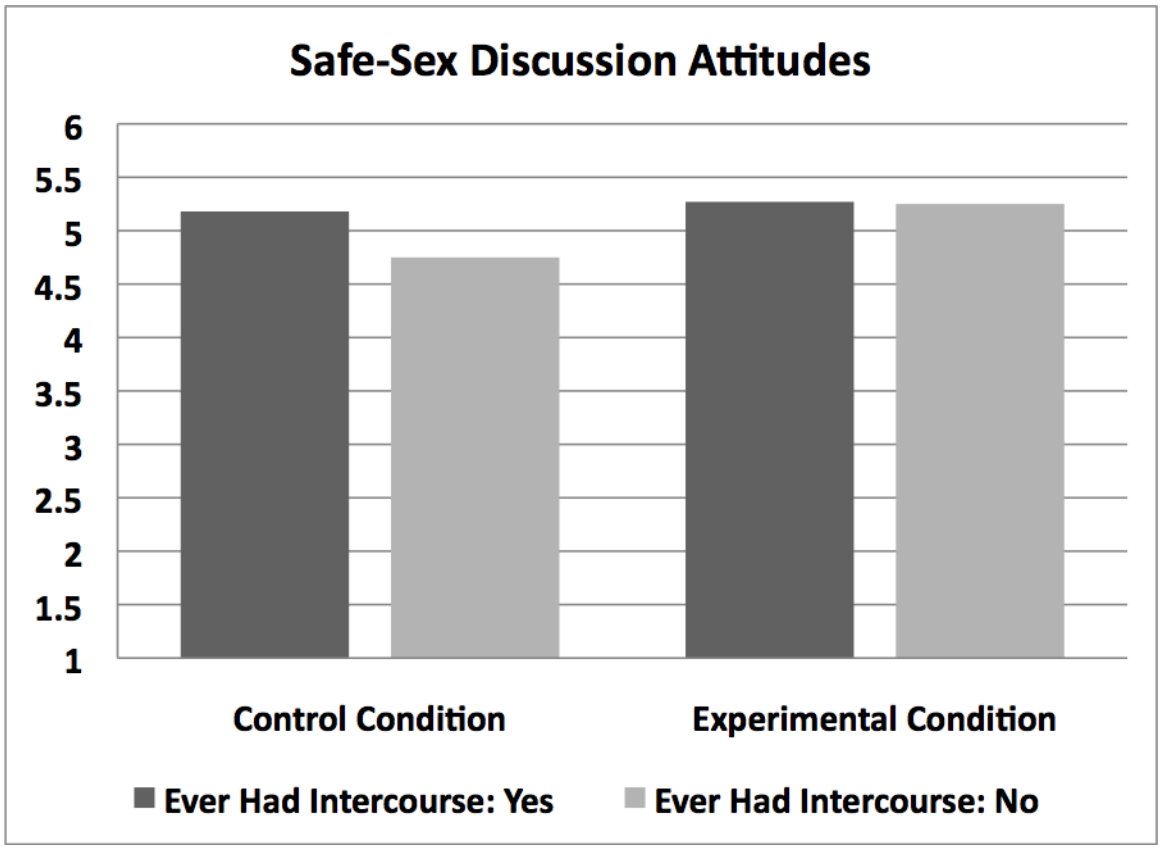


Figure 4.7. Interaction between experimental condition and intercourse status for safe-sex discussion attitudes.

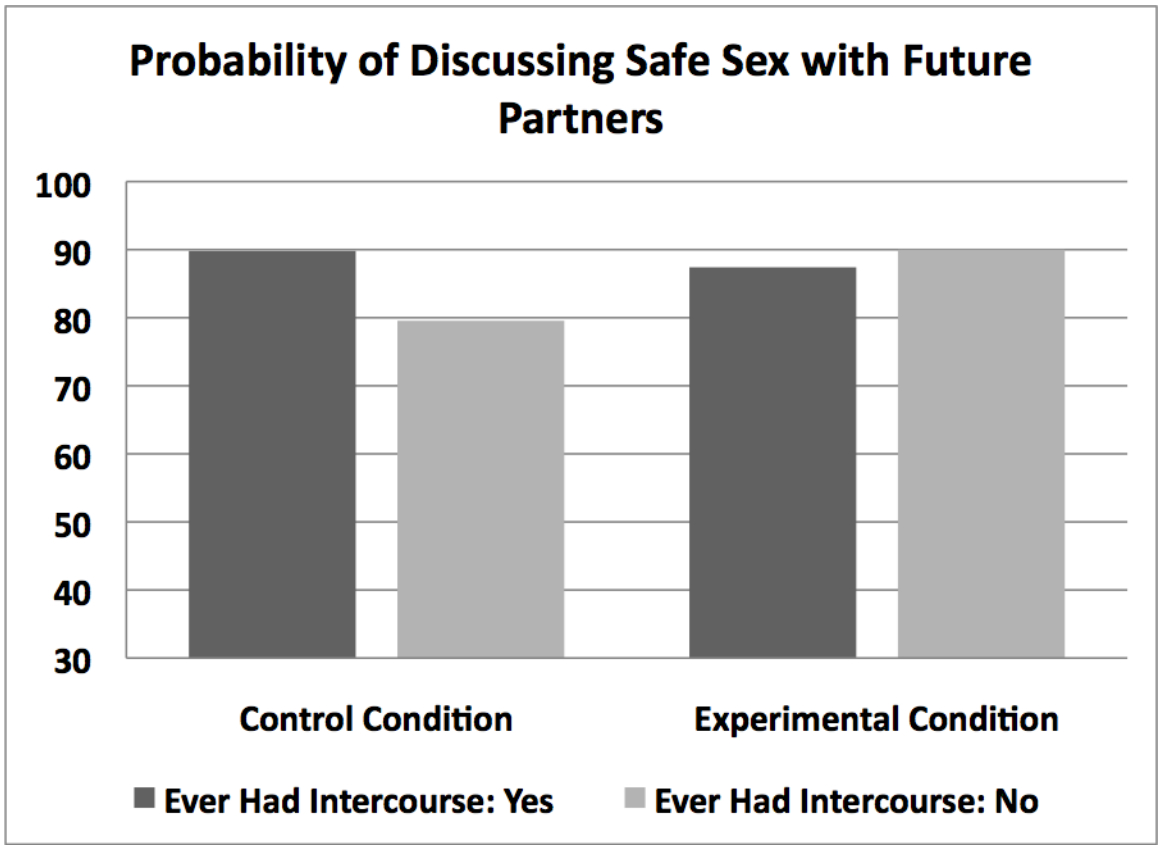


Figure 4.8. Interaction between experimental condition and intercourse status for probability of discussing safe sex with future partners.

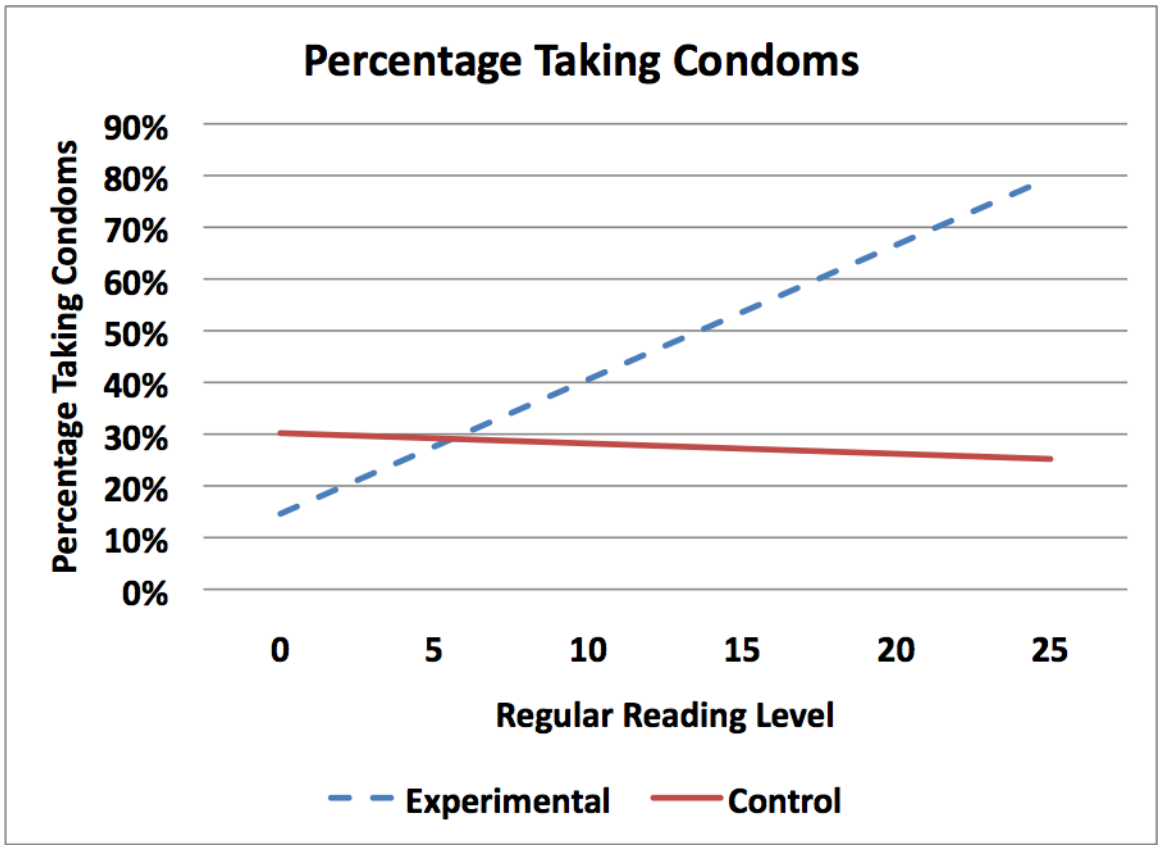
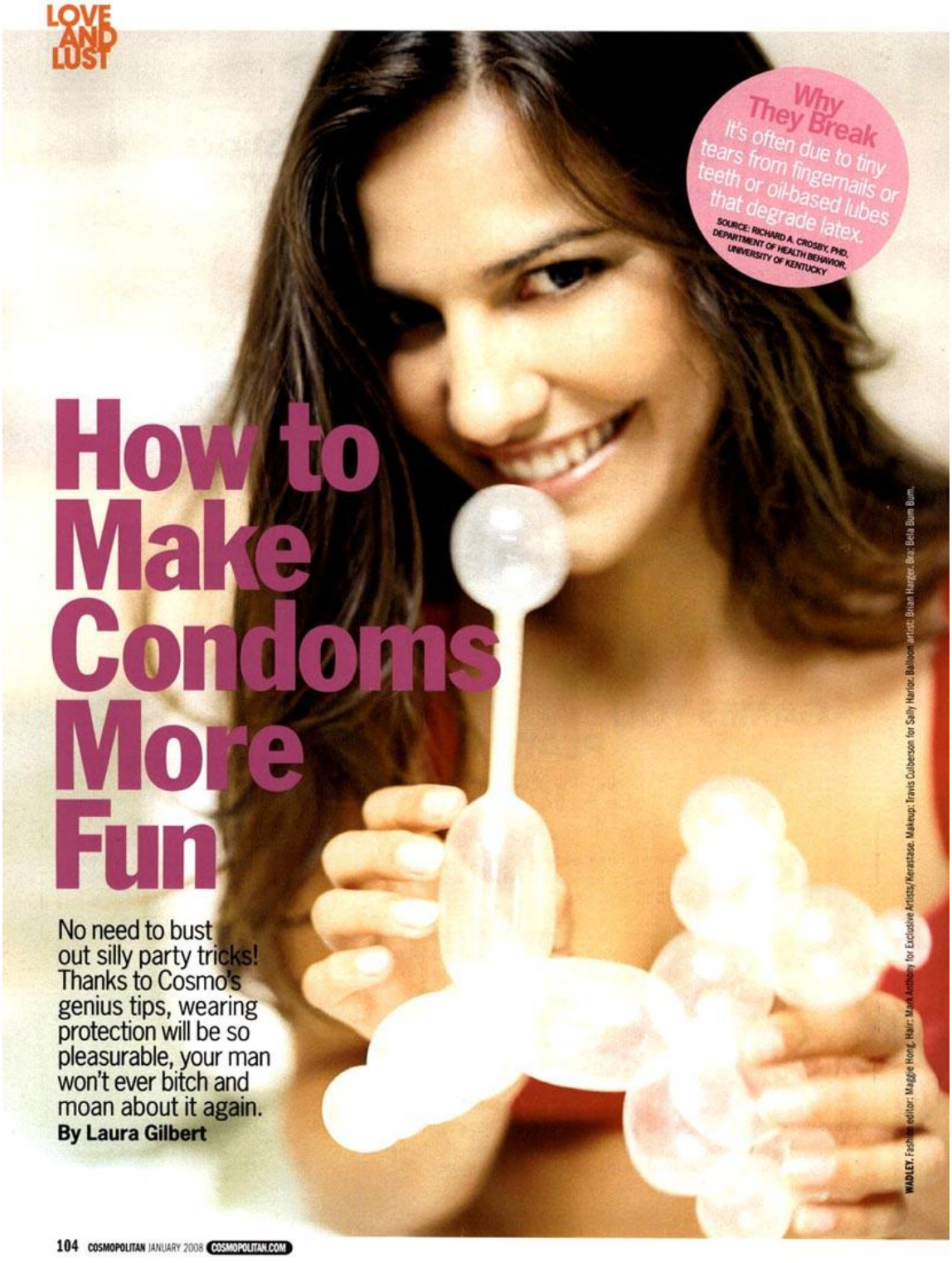


Figure 4.9. Interaction between experimental condition and regular reading level for percentage taking condoms.

Appendix

Experimental Article 1



■ Making condoms *sound* playful is easy (love glove, woody hoodie, peter parka...). But coming up with cutesy names isn't enough to get a guy to like wearing one, despite the fact that they ward off unwanted pregnancies and STDs. Lucky for you, Cosmo has found ways to maximize pleasure while using protection. "It's as simple as choosing the right rubber, making him feel at ease, and keeping the intensity high throughout the act," says sexologist Yvonne K. Fulbright, PhD, author of *Sex With Your Ex*. When you do all three, "he won't have the usual anxiety about losing his erection or not being able to climax." What's more, you'll be able to milk more sensations out of safe sex too. We're sharing it all right here.

SHOPPING TIPS

Most people spend all of seven seconds choosing a condom, according to data from Trojan. But a last-minute dash to the drugstore can mean less satisfaction in the sack. Below, we explain how to pick a winner.

Size matters. The right fit completely changes how a guy experiences sex with a condom. One that's too tight reduces sensation, takes longer to get on (which can deflate his erection), and is more likely to break. Quick sizing test: If you can't roll the raincoat all the way down to the base of his penis, it's not large enough. That said, an oversize one can slip off, and the extra material can make your dude feel inadequate.

Though the standard size of condoms is about 7 inches long, the length can vary up to an inch and girth sizes also range, so experiment with brands and styles (sites like condomania.com list size categories).

Try a condom designed with a swirl or bulb at the end of it—it'll say so on the box, usually with a word like *twist* or *pleasure* or *spiral*. These models fit securely around the base of his shaft while creating more friction near the nerve-packed head of his penis.

Consider a polyurethane prophylactic. Unlike latex, they transmit body heat, making intercourse feel more sensual. If you and your guy are committed and STD-free, try a lambskin condom. These also transmit heat, and many men swear this type feels more like skin on skin. But they only protect against pregnancy, since the natural, porous material can allow the transmission of STDs.

SOURCES: PSYCHOLOGIST AND SEX THERAPIST JOEL D. BLOCK, PHD, AUTHOR OF *THE ART OF THE QUICKIE*; SEXOLOGIST YVONNE K. FULBRIGHT, PHD, AUTHOR OF *SEX WITH YOUR EX*; ADAM GLICKMAN, CEO OF CONDOMANIA.COM; WEBMD MEN'S HEALTH EXPERT SHELDON MARKS, MD

LET'S GET IT ON

Rolling one on doesn't have to ruin the mood.

The faster you can slip on a safety sheath, the less likely he is to go limp. Minimize fumbling by opening the wrapper during foreplay. Pull the condom out, and place two drops of lube inside. This increases sensation at the supersensitive head of his penis. Place the opening over the top of his shaft. Hold it there with one hand, lightly squeeze the tip of the condom, and use the other hand to unravel it all the way down to the base of his member.

For a treat, use your mouth. Dab your lips with lube, then lightly suck the (nonspermicidal!) disc into your mouth with the nipple end inward. (Grossed out? Try a flavored love glove.) Carefully wrap your lips over your teeth and put your mouth at the head of his member. Push your lips against the ring of the condom, slide it down his shaft, and unroll the rest with your hand. *Ta-da!*

PLEASURE-MAXING MOVES

A condom needn't come between you, him, and a climax.

Squeeze your legs together in missionary or doggie-style to create extra pressure.

Make a V with your pointer and middle fingers, then place it between your legs. Press it against the base of his penis as he thrusts. This gives him more stimulation where the condom is tightest (i.e., most numbing).

Buy a vibrating ring—Trojan, Durex, and LifeStyles sell them. It's a plastic band attached to a buzzing nub. Place the band around the base of the condom, with the nub facing your clitoris, and enjoy the pulsating ride. ■

Condom Come-Ons

The following lines can get a dude to suit up.

"I love how uninhibited I feel in bed when I know we're being safe. *Rowr*!"

"Whoa! You're big to begin with, but that thing makes you look *huge*!"

"How awesome is it that with these, we can go *all* night?!"

Experimental Article 2

Sex 911: The ER Doc Is In

Don't laugh—these code-red scenarios could happen to you! Travis Stork, MD, cohost of *The Doctors*, describes the scandalous details of nooky gone horribly wrong.

At first, she thought he was screaming with pleasure.

CHRIS CLINTON. Associate fashion editor: Rebecca Hessel; Hair: Martin Christopher for Tresemmé/Kate Ryan Inc. Makeup: Jordy Poon using La Prairie. Prop stylist: Tara Marino. (On her) shirt: Rag & Bone; bra: XOXO; shoes: Charlotte Russe; bangles: Joomi Jooiz.

I've been an emergency-room physician for 7 years, and my colleagues and I have seen every urgent condition you could think of, including plenty of outrageous sex-related emergencies. No couple expects a romantic night to turn into a risky situation, but knowing what kind of snafus go down between the sheets can help you prevent them. Keep reading and, with any luck, you'll never have to describe your guy's broken penis to a triage nurse.

SEX EMERGENCY 1

His Penis "Broke" During Extravigorous Sex

Speaking as a guy, all I can say is, *ow*. As a doctor, however, I can tell you that this injury, medically known as a penile fracture, is rare. Still, I've seen it in the ER, and it isn't pretty. It's a true urologic emergency.

How it happens: During girl-on-top sex, a woman will pull out all the way, then thrust back down really hard—inadvertently slamming her pubic bone against her guy's erect penis. And in a battle between his penis and her pubic bone, the penis loses. One of the blood-filled tubes of tissue inside the penis can rupture, causing a snapping sound, agonizing pain, and purplish swelling and bruising. Did I mention the agonizing pain?

If a guy gets to the hospital pronto, surgeons should be able to repair the ruptured tube, and hopefully in about six weeks, he'll be as good as new. If he waits, his penis may not heal properly. He could end up with a permanent curve and/or erectile dysfunction.

To keep your guy from this horrific fate, try not to thrust so high or so wildly in the girl-on-top position that you risk losing control of where your pelvis will come back down. And if he's the one thrusting out of control, tell him to slow down…or potentially pay the price.

BED ALERT!
If you get hurt midbooty, you may not notice until later. When aroused, your body produces hormones that dull your sense of pain.
SOURCE: THE KINSEY INSTITUTE

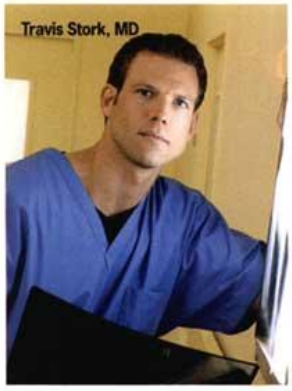
SEX EMERGENCY 2

The Condom Fell Off and Got Lost Inside You

A condom that slips off (or rips, which I'll tackle next) usually means that your guy used one that was too big or too small or didn't wear it right. This is why it's a good idea to watch him put it on.

Make sure he uses one hand to pinch the tip of the condom (creating space for his semen to go) while he rolls the condom onto his penis with his other hand. The condom should fit comfortably yet snugly (tugging gently at the top of it shouldn't cause it to slide off) and cover his entire shaft.

If he doesn't put it on correctly and the condom slides off during sex (in the ER, it's called a retained condom), it can be tough to locate immediately because your vagina will be elongated and wetter than usual. But rest assured, it is in there and will turn up. The



vagina isn't a Bermuda Triangle–like zone where objects go missing!

Try extracting it yourself by standing with one foot propped on the toilet seat, inserting your middle and index fingers into your vagina, and sweeping them from back to front. Bearing down—as if you were trying to go to the bathroom—will help you reach the back of your vagina and push the condom out.

No luck? Visit the pros who deal with this situation more often than you'd think: Make a next-day appointment (nothing bad will happen if it stays in you overnight) with your own gyno, or head to the ER, where an MD can get it out painlessly using forceps.

SEX EMERGENCY 3

As Your Guy Climaxed, the Condom Ripped

Like I said above, your man probably forgot to leave room at the tip for his semen to collect as he ejaculated. Without the extra space, his semen has nowhere to go, so the condom rips… and you're suddenly at risk.

If you know your partner is STD-free, then your main concern is thwarting conception. Hit the drugstore for Plan B, aka emergency contraception. If taken within 72 hours, it's up to 89 percent effective at preventing pregnancy.

If you don't know your guy's STD status, your health is in jeopardy. A drop of semen in your vagina can expose you to the bacteria that cause chlamydia and/or gonorrhea as well as the viral particles that cause HIV.

Talk to your gyno as soon as possible. Your best course of action depends on your particular situation, and your gyno will be able to advise you on how to stay safe.

"If he doesn't seek medical attention, his penile tissue can be starved of oxygen, and the whole organ may have to be amputated."

SEX EMERGENCY 4

A Sex Toy Got Stuck Around the Base of Your Guy's Shaft

A penis ring is supposed to make a man's erection harder and help him last longer. But please, don't try this, as the consequences can be awful.

The ring went on when your guy was soft, right? So you need to wait until his erection totally goes away before it'll come off. Have him take a cold shower, which will prompt blood to flow out of his penis. Dabbing lubricant near the ring should also help loosen it.

If you can't remove it yourself, go to the ER as soon as possible. Docs can give your guy meds that ease his erection and can remove the ring with tools. If he doesn't seek medical attention, his penile tissue can be starved of oxygen, and the whole organ may have to be amputated, which I hope I never see.

SEX EMERGENCY 5

You Feel Pain and Burning Postsex

I treat women in the ER with this complaint all the time. Usually, they think they have a urinary tract infection. But then I'll see pimples or watery blisters in or near the vagina: genital herpes.

If you're going to get an STD, herpes may not be so bad. True, the first outbreak can be severe, causing painful, itchy, and/or tingly pimples that blister open. The blisters burn when urine comes in contact with them (it can feel like a UTI) and can take weeks to heal. Some people also develop flulike symptoms, like a fever or chills.

After that, outbreaks tend to be more mild, and antiviral meds can reduce their frequency. Herpes can be dangerous if you have an outbreak during labor. (Doctors will do a C-section so the baby isn't exposed.)

Although it's certainly not desirable, 1 in 5 adults has herpes, and it's really just cold sores of the genital area. ■

THE DOCTORS RETURNS FOR SEASON 2 THIS MONTH. GO TO THEDOCTORSTV.COM FOR MORE INFO.

The Tricky Thing About Herpes

If you've been diagnosed with herpes, tracing it back to the source is tough. Herpes can lie dormant for years. You may have picked it up from a previous partner but only just had your first outbreak, or you could have had mild outbreaks before and not realized you were infected. Also, your guy could have been infected without knowing it, then passed the virus to you. Add that you don't even have to have intercourse to contract it and condoms don't fully protect you and it's no wonder it's so rampant.

Andrew Southam/CBS

Experimental Article 3

THE COSMO HEALTH REPORT

"I HAVE AN STD. NOW WHAT?"

When these women were diagnosed, there was anger, fear, guilt, and finally, acceptance. With total frankness, they relate what they went through.

By Gail O'Connor

■ For young single-and-dating women, few things are as scary as finding out you have a sexually transmitted disease (STD). Of course there are the serious health risks: Human papillomavirus (HPV) is linked to cervical cancer, and such bacterial infections as chlamydia and gonorrhea, if left untreated, can cause infertility.

But what really terrifies women are the emotional and lifestyle implications of testing positive. This brings on a frightening sense of isolation; many women conclude that since they have an STD, they are somehow undatable and will never have another relationship. They also feel tainted, dirty, and ashamed.

SURPRISING STD Fact

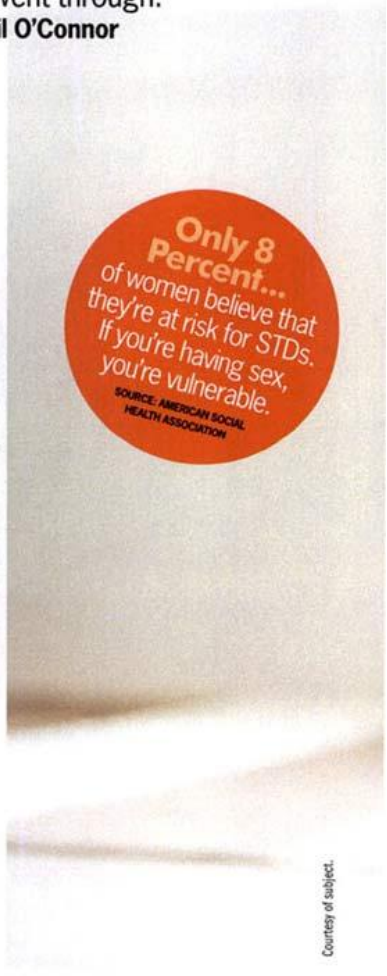
● About 45 percent of women ages 20 to 24 have HPV, the most common viral STD, at any given time (most will suffer no health consequences, as their immune systems will fight off the virus before it does any harm). And 25 percent of women will end up with genital herpes.

With so many people being diagnosed every year—50 percent of all sexually active adults under 25 will have an STD at some point—Cosmo is joining the fight to erase the stigma and start letting women know that if it happens to them (despite being as careful as possible), they have no reason to feel alone or guilty.

To help us spread our message, two brave 20something women decided to step forward and reveal what it's really like to live with an STD. Here, they open up about the shock of the news, handling some intense emotions, and realizing that a positive result hardly means life is over.

Christin New, 22

A promising new relationship. I'd always been careful about my health—my dad is a doctor, and my mom is a nurse—and I was aware of the harm STDs can do. So when I hit it off with a funny, smart guy back in early 2006, I insisted that we both be screened for a slew of STDs—including chlamydia, herpes, and HIV—before having sex.



Courtesy of subject.

WADLEY. The models pictured in *Cosmopolitan* are used for illustrative purposes only. *Cosmopolitan* does not suggest that the models actually engage in the conduct discussed in the stories they illustrate.

Scary, yes, but it really isn't the end of the world.

THE COSMO HEALTH REPORT

SURPRISING STD Facts

- Females are at greater risk. Unlike the penis, the vagina is lined with warm, moist mucus membranes that are easy for bacteria and viruses to pass through, explains Lillian Schapiro, ob-gyn in Atlanta. This environment is very hospitable to bacterial and viral growth... which is why women are more likely to contract STDs than men are.
- Ninety-three percent of people surveyed believe their partner doesn't have one. But only a third have discussed STDs with their partners, reports a survey from the American Social Health Association.

My results came back negative, and he said his did as well.

Alarming symptoms. For five months, we dated and slept together exclusively...or so I thought. One day, I noticed several small red bumps along my outer labia. I had recently shaved there, so I figured maybe they were ingrown hairs. But within a few days, the bumps grew and became round open sores that hurt when I touched them. As I checked them out with a hand mirror, a chill went through me, and I had a terrifying suspicion of what might be causing them.

An emergency visit. I went to my doctor immediately, and she examined the sores. She said there was a strong possibility they were genital herpes, but she advised me not to panic, so I didn't. She then took a skin test and a blood test and told me the results would be back in three days.

Tests confirm the worst. My doctor looked so sad as she broke the news that I had herpes simplex virus type 2 (the often more severe kind of herpes that usually affects the genitals, as opposed to herpes simplex virus type 1, which is much more common around the mouth).

I immediately burst into tears in her office. After she prescribed a course of antiviral medication that can ease but not cure the disease, I ran to my car and sobbed so hard, a security guard knocked on the window and asked me if I was okay.

Confronting her guy. Once I regained my composure, I went to see my boyfriend. He begrudgingly copped to messing around with another woman. I asked, "Did you know at the time that the person you cheated on me with had herpes?" He replied, "Yes." That was all I needed to hear to split with him for good on the spot.

Feeling hopeless and afraid. For the next two days, I lay in bed, unable to function because I felt so isolated and betrayed. I wasn't in love with my ex, but I liked him a lot. He tried calling a few times, saying we should talk things over, but I didn't bother returning his phone calls.

Her biggest fear. The initial outbreak lasted six weeks. There was a lot of discomfort—it hurt when I wiped myself after peeing, and the sores itched like crazy as they crusted over and healed. But I didn't focus on the physical discomfort of herpes so much as I panicked about spreading the infection accidentally. At my job as a pastry chef, I was afraid of giving it to someone by using the toilet, and at home, I was terrified of passing it to my mom or dad via the shower.

SURPRISING STD Fact

- About 40 percent of women with untreated chlamydia—the top bacterial STD—or gonorrhea will develop pelvic inflammatory disease (PID), an infection of the upper reproductive tract that can reduce fertility by scarring the fallopian tubes. And 1 in 8 females with PID will become infertile.

Getting the facts. Luckily, I have an aunt who is an infectious-disease doctor, and I opened up to her about my diagnosis. She reassured me that it was highly unlikely I could transmit herpes by sharing a bar of soap in the shower, by using a toilet, or through any other kind of casual contact. She also told me that 1 in 4 women are infected, which I didn't know.

"As I checked out the bumps with a hand mirror, a chill went through me."

WADLEY. The models pictured in Cosmopolitan are used for illustrative purposes only. Cosmopolitan does not suggest that the models actually engage in the conduct discussed in the stories they illustrate.

SURPRISING STD Fact

- Half of all sexually active women ages 25 and under have not been screened for chlamydia. Yet women in this age-group should be tested annually. Seventy-five percent of infected women show either no or vague symptoms, so it's often not caught and treated at an early stage.

Arianna Daut, 24

Dealing with outbreaks. The next several months were very hard. I told friends and my parents, and they were all supportive. But I soon had another outbreak, and then a third that was two months long. My doctor prescribed a different antiviral medication that's taken daily to help keep the virus dormant. Because of this, I've since had far fewer and less severe outbreaks. Not having them so often helped me to straighten up and start living again... and that included dating.

Telling a new man. I was always upfront about my disease on the first date. I'd say, "I want to be honest with you, I have genital herpes. It's just a tiny part of who I am, and I don't let it affect me." Surprisingly, most guys were very understanding. I had a few short relationships, and then I had a boyfriend for eight months who was herpes-negative. He'd dated a girl with herpes before, so he knew all about it and how to be careful.

Living with an STD. It's been almost a year and a half since my diagnosis. I get an outbreak every four months, and it only lasts a week or so. Herpes has barely affected my life, except in one major, positive way: I decided to go back to school as a nursing major so I can help other women become more proactive about their health. I know I wouldn't have made that career switch if it hadn't been for my own experience.

In the dark about STDs. I was 21 and a virgin when I moved from my home state of Utah to Arizona to launch a career as an illustrator. In the conservative religious community where I grew up, sex was never discussed. As for STDs, I'd heard of herpes, yet I didn't even know what HPV was. But then I fell for a guy, and soon I moved into his apartment and began my first sexual relationship.

Painful symptoms strike. Two months later, I developed mysterious genital sores. They were red, dime-size blisters, with clear fluid draining from them. It hurt to touch them and even to walk or pee. I also noticed painless skin tag–like white bumps on my vulva and vagina. Of course, I was really scared, but I was also hoping that maybe I just had an allergy to a new laundry detergent.

Two shocking diagnoses. No surprise, I was wrong about the allergy to laundry detergent. I tested positive for herpes and HPV. The blisters were herpes lesions, and the skin tags were warts, a common symptom of some strains of HPV. The doctor I went to wasn't especially sympathetic or helpful. I felt ashamed and embarrassed, but mostly I was stunned. I never dreamed I'd get not one but two STDs, especially one I'd barely heard of.

How her guy reacted. When I gave him the news, my boyfriend felt horribly guilty—he said he had no idea he had any STDs. I believed him then and still believe him now. Although he tested positive for herpes and HPV shortly after I did, he never had a single symptom of either disease.

"I was really scared and hoped maybe I just had an allergy to a new detergent."

SURPRISING STD Facts

- Twenty percent of people with genital herpes never have a second outbreak. Most sufferers have four to five outbreaks (lasting 3 to 14 days) per year...and even more during the first year they contract the disease, says Paul Lyons, MD, associate professor of family and community medicine at Temple University in Philadelphia.
- Herpes hits other body parts as well. Besides your genitals and mouth, you can develop herpes sores on your butt and upper thighs. "Condoms only cover part of the genitals, and though it's not common, you can develop lesions anywhere you made contact with the skin of an infected guy," says Lydia A. Shrier, MD, attending physician in adolescent/young-adult medicine at Children's Hospital Boston.

Courtesy of subject

Why me? In the days that followed, my self-esteem plunged. Because of my upbringing, I couldn't help thinking the STDs were punishment for having sex before marriage. Then I started doing research on the Internet, and I found some comfort in the fact that STDs are extremely common. That eased my guilt slightly.

Getting treatment. While I was dealing with the emotional effects, I had to take care of the physical symptoms. The herpes sores went away within two weeks, after which my doctor prescribed a lotion for the warts. But the lotion didn't work, so I had to undergo treatments with an acid-based topical solution.

I also had laser surgery to remove the warts from inside my vagina and, as it turns out, my cervix. Both treatments were painful, but thankfully, the warts soon disappeared. A few weeks later, my boyfriend and I could have sex again. I didn't have a recurrence of herpes or warts, so although I still felt dirty, life returned to normal.

SURPRISING STD Fact

● HPV causes more than cervical cancer. A new study suggests that HPV may lead to throat cancer...and that the route of transmission is via oral sex with a partner who has HPV, says Freda McKissic Bush, ob-gyn in Jackson, Mississippi. Other studies link HPV to penile and vulval cancer.

A killer consequence. Since some types of HPV can cause cervical cancer, I had to see my gyno for frequent Pap tests. One came back suspicious. More tests confirmed my worst fear: I had cancer cells on my cervix. Turns out, I had contracted one HPV type that triggers warts and two others linked to cancer. I was terrified. I honestly thought I was going to die, even though the cancer was in an early stage.

Her mother's harsh words. I didn't share with my family that I'd gotten STDs, but I couldn't keep the cancer diagnosis from them. So I told my mom. She looked at me with a blank face, then coldly asked, "How did you get it?" When I told her how, she said she wanted to kill my boyfriend. Then she remarked that cancer was actually the result of my choices.

"More tests confirmed my worst fear: I had cancer cells on my cervix."

In a sense this is true, but to triumph over the disease, I needed to keep my distance from that kind of thinking. I told my brother and sister too, who'd also moved away from our conservative church, and they understood where I was coming from. That helped.

Battling cancer...and relationship stress. While I was being treated for cancer with another round of laser surgery, my boyfriend was really wigged out. We were fighting more too. I blamed him for the situation I was in, and I felt he didn't understand what I was going through.

He started seeing a therapist because it was so hard for him to accept that he was the cause of my cancer. I started seeing a counselor too, to work out my anger at him and all that had happened. It was a tense time.

SURPRISING STD Fact

● The HPV vaccine won't totally protect you. It's recommended that all females between 9 and 26 be vaccinated (many gynos think women over 27 should be too). But it only keeps you from contracting four viral types, two of which cause 70 percent of cervical cancer cases, says Livette Johnson, MD, infectious-disease specialist at Saint Vincent's Hospital Manhattan. For added defense, use condoms and get a yearly Pap test, which can detect cancerous or precancerous changes.

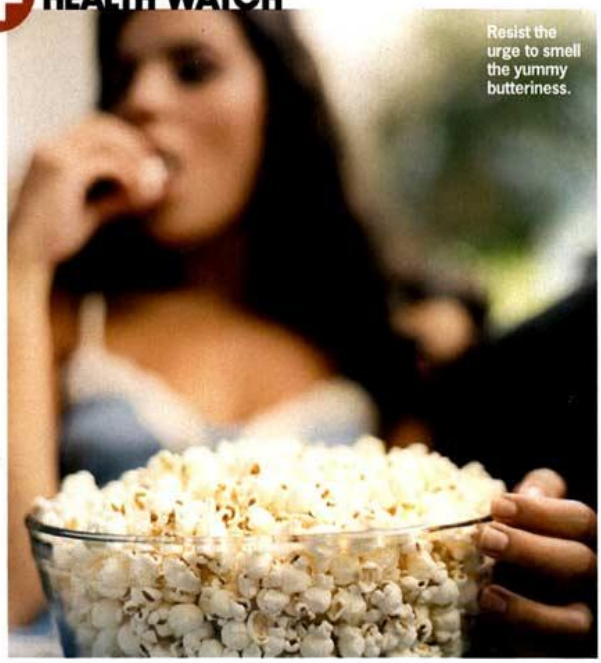
Moving on. Luckily, the laser surgery removed all the cancer from my cervix, and I didn't need any more treatments, though I always have to be checked because it can come back at any time. My boyfriend and I were getting along again. Two years later, we had a baby boy together. We also got married, but it didn't last—just three months.

Dating with STDs. I'd like to start meeting men again, but I'm really not sure how I'll tell guys I have herpes and HPV. But I will definitely inform them early on. My thinking is, if they're appalled by my diagnosis, then I don't need them.

No longer feeling guilty. I'm still cancer-free, and I haven't had an outbreak of herpes or warts since the very first one. It sounds crazy, but the main thing I regret is wasting all that time feeling ashamed and dirty. What happened to me was unlucky, yes, but I'm no longer plagued by the idea that I brought it upon myself. ■

Control Article 1

HEALTH WATCH



Resist the urge to smell the yummy butteriness.

Sneaky Health Hazards

Certain lifestyle habits that seem harmless can backfire on your body. Learn how to stay safe.

By Victoria Lucia

■ Recently, doctors diagnosed a case of popcorn lung, a rare, potentially lethal respiratory illness brought on by exposure to buttery microwave popcorn. Here, the lowdown on this and other surprising health threats.

OD'ing on Buttered Microwave Popcorn

Inhaling the buttery smell exposes you to a chemical that can lead to the aforementioned popcorn lung, which makes exhaling difficult, says Cecile Rose, MD, a pulmonary specialist at Denver's National Jewish Medical and Research Center.

Prevent it by: Eating the kind that doesn't contain butter flavor or never inhaling the odor directly.

Sleeping in Your Contact Lenses

Catching zzz's with your contacts in might hurt you, especially after drinking, says Marguerite McDonald, an ophthalmologist in Lynbrook, New York. Alcohol dehydrates your eyes, making your contacts tighten up and scratch your corneas. These abrasions could lead to an eye infection.

Prevent it by: Removing them, no matter how tired and tipsy you are.

MDs You Need to See

Besides getting a yearly gyno exam, you also should go to an internist for an annual physical.

SOURCE: HOLLY PHILLIPS, MD

Handling Gym Gear

You get on the treadmill, adjust the speed, then rub your eyes. If a member who used the machine before you had a cold or the flu, you're probably going to get sick too. "Viral particles left behind by an infected person enter your body after you touch the equipment then touch your eyes, nose, ears, or mouth," says microbiologist Philip Tierno, PhD, who studied gym germ transmission.

Prevent it by: Not putting your hands on your face during a sweat session.

Guzzling Red Bulls and Vodka

A study found that when mixed into a cocktail, the caffeine in the Red Bull stimulates your brain, masking signs of drunkenness. Because you don't realize that the booze in the vodka has affected you, you keep drinking—getting more sloshed and putting your safety in danger, says Mary Ann Bauman, MD.

Prevent it by: Spacing out your Red Bulls and vodka so you have only one per hour, giving the booze time to clue you in to your physical state.

Ingesting Caffeine and Acetaminophen (Tylenol)

Taking large amounts of these substances in a 24-hour period may set you up for liver disease. All it takes is a tall coffee in the a.m., a few Diet Cokes, espresso postdinner, and chocolate (or tea) before bed—plus more than eight 500-milligram acetaminophen pills in that time frame.

Prevent it by: Popping only two acetaminophen twice per day and nixing caffeinated food. Or switch to an anti-inflammatory pain med like ibuprofen or naproxen, which won't react badly with caffeine. ■

WADLEY. Fashion editor: Maggie Hong. Hair: Mark Anthony for Exclusive Artists/Kerastase. Makeup: Travis Culberson for Sally Hanson. Pajamas: Eberjey Intimates.

Control Article 2

You, Even Better

Why It's Smart to Be an Early Riser

Sleeping too long isn't just bad for your career (rolling in late plus a round of layoffs equals your ass on the line), but it can also leave you feeling moody and sluggish all day. These effective tactics help—yes, they're even for hard-core snooze-button abusers.

BY ZOË RUDERMAN

Getting up at the crack of dawn sucks. We know, and experts know—which is why they've been studying sleep patterns to find out why it sucks *so* much. Turns out, being an early riser isn't a matter of just setting the alarm; it requires a strategic plan to reset your body's clock by making little tweaks throughout the entire day. This info couldn't have come at a better time, considering that nowadays, being the first one at work could actually help you hold on to your job.

Fool Your Internal Clock

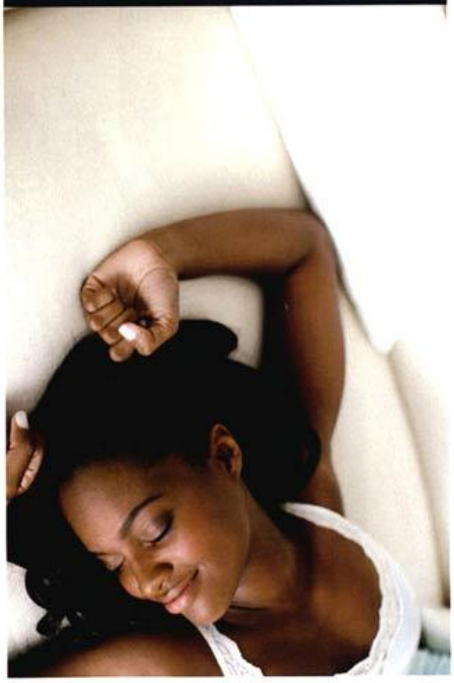
Setting your alarm back a full hour is jarring to your system, so take baby steps. Every two days, set the alarm for just 10 minutes earlier. And don't stress out about shifting back the time you go to sleep. You'll naturally adjust to an earlier bedtime after a few days.

Use This Mental Trick

Women tend to run through the day mentally when the alarm goes off, but that will cause you to feel overwhelmed and beat. So focus strictly on the next 30 minutes—the clothes you'll wear, what you'll eat for breakfast, etc. After a few mornings, doing this will become second nature.

Sip All Your Coffee by 10 A.M.

Get your caffeine fix right when you roll out of bed. It'll take effect within half an hour and stay in your body throughout the afternoon, when people who wake up early are typically most exhausted. You can have all you want, but just make sure you switch to decaf or some other non-caffeinated drink by 10. That way, it'll all be out of your system by bedtime.



Screw the worm—the early bird gets to keep her job.

Go to the Gym After Work

Sleep experts used to believe that an a.m. workout was a great way to wake up the body. But actually, the ideal time is right after work. Three to five hours after exercising, your temperature starts to drop. That tells your brain that it's time for sleep. If you work out in the morning, your brain gets that sleep signal midday and throws off your rhythm. By scheduling workouts for around 5:30 p.m., though, your body will be ready for bed at the right time.

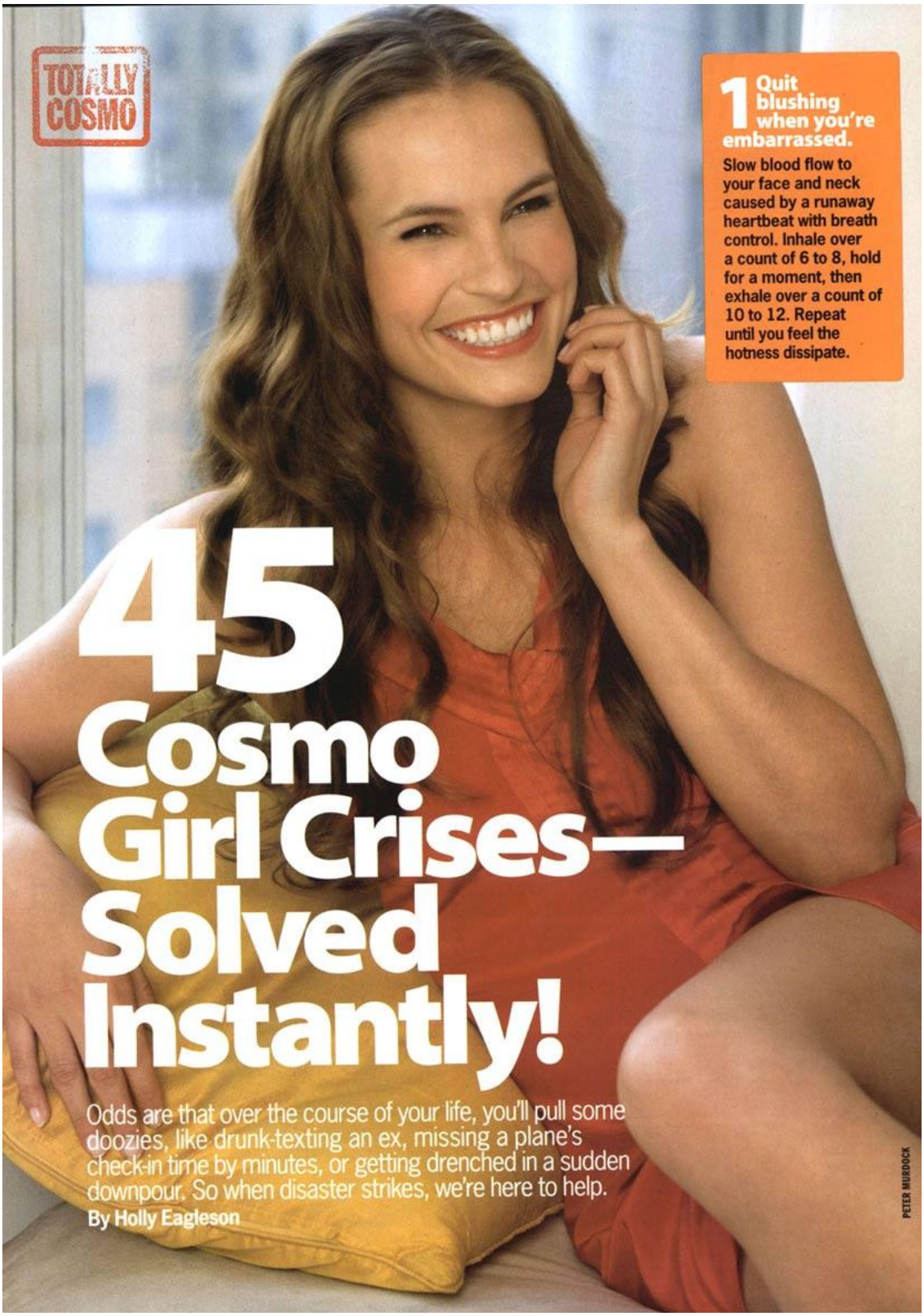
Eat These in the Evenings

Foods that have a mix of carbs, calcium, and protein—like cereal and milk—help to promote sleep. If you have a small snooze-inducing snack an hour or so before your desired bedtime, you'll have a deeper rest and actually feel more alert the next morning. ■

SOURCES: THOMAS BALKIN, PHD, CHAIRMAN OF THE NATIONAL SLEEP FOUNDATION; SARA MEDNICK, PHD, COAUTHOR OF *TAKE A NAP! CHANGE YOUR LIFE*

CHRIS CLINTON. Fashion editor: Maggie Hong. Hair: Carlos Vera for visionofvera.com. Makeup: Thora at katenyainc.com for Nars Cosmetics. Camisole: Only Hearts Helena Stuart.

Control Article 3



2 Act natural when you run into an ex and his new girlfriend.
Poise is key, so stand or sit confidently. Next, imagine something that makes you happy. Then be the first to stick out your hand and introduce yourself to her, but keep it brief. Say you're running late for something then excuse yourself.

3 Deal with a hangover when you have an early meeting.
Forgo dehydrating coffee and drink OJ (its potassium helps settle the shakes) plus copious amounts of water. And eat a breakfast with protein and carbs, like eggs and toast. After you shower, use eyedrops to get bright-eyed, and rub on a fragrant body lotion so you won't stink as you sweat the liquor out.

4 Find out what's wrong when your car won't start.
First, make sure the gas gauge isn't on empty and the car is in proper gear. If no warning lights appear on the dashboard, open the hood and make sure your battery terminal cables aren't loose. If they're tight and you hear a clicking noise when trying to start the engine, use a car-battery starter or ask a neighbor to help you jump-start it. If it starts, drive to your mechanic to have the battery tested. If the attempt fails and you still hear a clicking noise, the problem may be your starter or alternator, which needs a mechanic's assistance; same goes for engine grinding when you turn the key. And if you smell gas, turn the car off immediately and leave the area; you might have a leak that needs to be inspected ASAP.

5 Spice up your outfit when you realize you're dressed the same way as somebody else.
If your doppelgänger's hair is down, pull yours up, or vice versa. Then, if the outfit involves a skirt, roll up the waistband to emphasize your legs. Lastly, feign a chill and borrow a wrap from the hostess if you're at a party at someone's home.

6 Quickly fix your breath when you don't have gum or a mint on a date.
Dash off to the bathroom and gargle with water. Then use a paper towel or an upside-down spoon to scrape your tongue as far back as you can reach, removing odor-causing bacteria.

7 Erase deodorant marks on your shirt that you didn't notice till after you left the house.
Rub the inside of your shirt or a dark (but not darker than the item with deodorant on it) cloth towel against the fabric. *Don't* use a paper towel. The white marks will disappear.

8 Dispel a rumor about you that's going around.
Address it right away by having your close friends explicitly deny it to others ("Trust me, she would never do that!"). And be ready with a positively phrased one-liner that contradicts the rumor, like "I had a great time at a ski resort with my mother last weekend" instead of "Hell no, I did not sleep with that guy last Saturday night!"

9 Reclaim your dignity after you drunk-text an ex-boyfriend.
The best damage control is silence. However, if he writes back asking what's up, text him: "My bad, that message wasn't meant for you. Got a new phone that I'm still trying to figure out. Hope all is well!"

10 Save a shirt that you just scorched with an iron.
Rub a little distilled white vinegar on the fabric, then wipe with a clean cloth. If the marks are light, they should disappear. You may want to hit it with a shot of Febreze to eliminate the vinegary smell.

11 Loosen a stuck zipper.
Run a bar of soap or pencil lead over the spot where it won't budge. This friction should free up the teeth.

12 Stop the bleeding when you pick at a scab on your face.
Squirt an eyedrop on the wound. It contains antihistamines that constrict blood vessels, so the flow will slow like magic.

13 Distract a toxic coworker when she backs you into the pantry area to complain.
Say "I don't mean to interrupt you, but I have to get back to my desk. I'm expecting a call, and unfortunately, I'm not finished preparing for it."

Sugar Rush
When you're facing a crisis, your glucose levels rise and help you focus your attention and think quickly.
SOURCE: MARK DOMBECK, PHD, OF MENTALHELP.NET

14 Prevent a romantic advance from a male friend.
Ask him for advice about a dude you have your eye on—even if he's imaginary. For example: "I'm totally into this guy at work, but I'm not sure how to take it to the next level. Any ideas? You're such a good friend [with an emphasis on *friend*], I figured you'd have a great suggestion."

15 Handle it when you get caught trashing someone.
Apologize stat with something like "I'm sorry, that was wrong of me," but don't sprint off afterward. Follow up with something neutral or positive that changes the subject, like "I've been meaning to tell you, I really liked that idea you had in the meeting the other day."

16 Improvise when you unexpectedly get your period and no tampons are in sight.
Take 15 squares of TP, and fold them in half (from top to bottom) three times until 5 inches long. Then form a tube by rolling the paper inward from the sides. Pinch the middle so it makes a shallow V—place this part in your vagina, only about an inch deep. The other two ends go flat against your lips and underwear, and they can fan out a bit to prevent leakage.

CHRIS ECKERT/STUDIO D.

TOTALLY COSMO

17 Claim your space if the person next to you on an airplane is taking up too much room.
Approach the flight attendant and say "I'm very claustrophobic, and my seatmate and I aren't fitting in the space. Any chance I could get a new spot?" If that's not possible, stake your territory by putting down the armrest and placing your bag on the floor line that separates your space. Then put your arm on the shared armrest and your head in that hand, so it will be hard for him to invade your body zone.

Also, stand up a magazine or folder between the seat cushions to accentuate the divide between you.

22 Cover up when a button pops off your blouse.
If you can't pin it, pop some gum in your mouth and chew. Then place it underneath the hole where the button fell off, and press together. Reattach the button on top with a small portion of the gum.

23 Debloat your stomach when you're feeling gassy.
Have a cup of tea with peppermint oil. The menthol has an antispasmodic effect on your digestive tract, letting the air out smoothly.

18 Play it off after burping on a first date.
Say a quick "Pardon me," then keep talking as if nothing happened. Yeah, you're human, but most guys don't need to know you can belch the ABCs until at least date three.

19 Get chewing gum out of your hair.
Oily substances will help loosen the gum's grip, so slather on olive or canola oil or even peanut butter, then gently tug out the wad after a few minutes.

20 Save your ass when you answer your work phone in a rude way and a VIP is on the line.
Don't lie and say you were expecting someone else. Just say: "Please excuse me and accept my apologies. I'm having one of those days. What can I do to help you?"

21 Sweet-talk your way onto a plane when you arrive past the check-in cutoff.
The airline gate agent may claim she can't violate TSA policy, but it's at the employee's discretion to make exceptions for late boarders. Appeal to her authority with this spiel: "I wouldn't ask you to break the rules, but I'd be so grateful if you'd do anything in your power to get me on. This is the last flight out before [insert huge event you can't miss]. Is there anything I can do to help you get me on the plane?"

24 Bounce back after you overhear a rude remark about yourself.
First, stop fuming and recognize it's this person's problem, not yours. Then, if you're in a bathroom, calmly walk out of the stall and up to the offender and say: "Ouch. Do we need to talk? I'd really prefer you tell me about any issue you have with me to my face."

25 Salvage a cell phone that was dropped in water.
Open the back and remove the battery right away. If your cell has a SIM card, take that out, and open up any rubber covers that protect charging slots. Then use towels (or ideally, a wet-dry vacuum but *not* a hair dryer) to remove moisture from every crevice of the phone. Don't charge the battery until it's fully dried, internally and externally.

26 Avoid looking like a drowned rat when you're caught in the rain without an umbrella.
Clean your face by using a little hand lotion or eyedrops on a tissue to wipe away runny makeup. Comb your hair back into a braid, a look that seems more intentional than a ponytail. Then take off excess layers of clothing, like undershirts and underwear. Plant yourself in front of a hand dryer or use towels to press out excess water on both sides of fabric.

27 Salvage your tights when you rip a hole in them.
A dab of clear nail polish on each end of the tear should stop the run. If it's in the front, take them off and put them on backward. And if you can find a marker the same color as your tights, mark through the hole to stain your skin.

28 Pretend that you love a bad gift.
An unconvincing "I love it!" is too transparent. Deflect attention by saying "Wow, where did you get this?" If she asks if you like it, say "You know me so well—this is such a thoughtful gift!"

29 Retrieve info when you delete an important e-mail.
Call your IT department to see if there is a backup folder where messages are stored before they're purged from your e-mail system. And if you can remember part of the sender's name, type it in the "To" field in a message and the entire address could come up.

30 Erase red-wine stains from your teeth.
Grab a wedge of lemon and head for the bathroom. Remove all the pulp, and rub the slice over your teeth.

31 Extract a stubborn splinter.
If you can't get it to budge from tweezing or soaking in hot water, slather the spot in cream or petroleum jelly before bed. By morning, the splinter should have eked its way closer to the surface.

(From top) JESUS AYALA/STUDIO D. SVEND LINDBAEK.

32 Sober up when you realize your drink was much stronger than you thought.
Scarf a handful of nuts and a piece of bread—the carb/fat combo helps the alcohol metabolize more slowly. Then drink a few glasses of water or fruit juice, followed by coffee. Keep noshing on salty snacks to spur you to sip more H_2O.

33 Assuage the situation when you acted like someone was pregnant when she wasn't.
Be direct and give an apology like "Please excuse me, I need to start paying better attention" and then leave it at that.

34 Locate lost keys in a hurry.
Think back to what you were doing when you got home, then retrace your steps, checking the pockets of clothing you wore. If that fails, grab the largest magnet from your fridge and hunt with it under desks and beds—you may feel a tiny pull when they're nearby.

35 Figure out someone's name you forgot.
Grab a friend she doesn't know, and say, "I want you to meet [insert friend's name]." If she doesn't say hers, offer "I'm sorry, I keep wanting to call you [insert random girl's name], but I know that's not right...." When she says it, fake knowing a look-alike with the made-up name.

36 Politely decline food you hate or don't eat.
Avoid proselytizing your beliefs ("I don't eat anything that used to be a cuddly animal!") if you're a guest in someone else's home. Just say "It looks so good, but I've found out the hard way that it doesn't agree with my body." Food allergies are so common today that it's unlikely they'll press you.

37 Get an embarrassing photo of you online taken down.
Plead potential career ruin. Say "My company is cracking down on photos of employees online. I'm not trying to be a pain, but I'm sure you understand why this shot of me doing a keg stand eight years ago could look bad for me."

istockphoto.com

38 Bail out of a terrible first date.
Slyly glance at your phone and say: "Whoa, I have a bunch of missed calls. Excuse me, I should check on this." Then go to the bathroom or to the ATM to grab cash for your portion of the bill. When you come back, say "I'm sorry to do this, but there's been an emergency, and I have to go. It was nice meeting you." Then drop your half of the check in cash on the table as you walk out.

39 Remove a lipstick stain from a shirt you try on at a store.
Apply a bit of petroleum jelly or clear lip balm or gloss to the spot, then carefully wipe it clean with a towel or baby wipe. Remember, most stores have cameras, so if it doesn't come clean, *you* may have to.

40 Save face when your credit card is declined at dinner.
Say "Would you excuse me? I'd like to call my credit-card company to see what's going on." Feign a conversation on your cell phone, then return to the table and say: "I just started online bill paying, and somehow, my bank missed a cycle. May I borrow some cash, and then we can swing by my place so I can write you a check? Or if you'd prefer, the next dinner is on me."

41 Backtrack when you click on the online-dating profile of someone you know.
Preempt his seeing your profile on the "Who's viewing you" page. Send a platonic message like this: "Funny meeting you here....When I clicked on your profile, I thought, This guy reminds me of someone, but I had no idea it was you. Hope you find someone great on this site!"

42 Freshen up when you realize your pits reek of BO.
If you're at a restaurant, discreetly ask a server on the way to the bathroom for a little baking soda—or, as a backup, cornstarch—from the kitchen. Rub either one into your clothing. In a pinch, rub a magazine perfume strip inside the fabric.

43 Desmellify a bathroom.
Try lighting a match or candle or spraying air freshener. If none are available, run the hot water in the sink, plug the drain, pour a little of the most fragrant bath soap the host has into the basin, and let it permeate for a minute.

44 Remove a blood stain from fabric when you cut yourself while making dinner.
Stick a clean finger in your mouth and moisten it with your saliva, then put it on the stain. It should vanish quickly. If that doesn't work, rinse it in cold water for a minute, and apply a few drops of hydrogen peroxide directly on the fabric.

45 RSVP when you're asked to a wedding without a guest reply for your boyfriend.
Don't call and put the couple on the spot. Instead, enclose a nice note with your RSVP saying that you would love to attend but you wondered if your boyfriend could accompany you. Say that if that's not possible, you totally understand.

SOURCES: ETIQUETTE EXPERT SUSAN FITTER; CAROLYN FORTE, DIRECTOR OF HOME APPLIANCES AND CLEANING PRODUCTS FOR THE *GOOD HOUSEKEEPING* RESEARCH INSTITUTE; MUZIB KHAN, VICE PRESIDENT OF PRODUCT MANAGEMENT AND ENGINEERING FOR SAMSUNG MOBILE; PSYCHOLOGIST KEVIN R. KULIC, PHD; COUPLES THERAPIST ELLA LASKY, PHD, DIRECTOR OF THE FAMILY AND COUPLES TREATMENT AND TRAINING SERVICE AT THE INSTITUTE FOR CONTEMPORARY PSYCHOTHERAPY IN NEW YORK CITY; HOLLYWOOD MOVIE WARDROBE STYLIST JENNIFER LAZARUS; OB/GYN MARY JANE MINKIN; ROBYN S. PASSANTE, AUTHOR OF *THE POCKET IDIOT'S GUIDE TO WEDDING ETIQUETTE*; RAJEET PATEL, MD; HOLLY PHILLIPS, MD, CHIEF MEDICAL CORRESPONDENT FOR CBS 2 IN NEW YORK CITY; RICHARD PRICE, DMD, CONSUMER ADVISER FOR THE AMERICAN DENTAL ASSOCIATION; KATE REARDON, AUTHOR OF *TOP TIPS FOR GIRLS* AND FOUNDER OF TOPTIPS.COM; JULIE SUSSMAN AND STEPHANIE GLAKAS-TENET, COAUTHORS OF *DARE TO REPAIR YOUR CAR*; CAREER EXPERT NICOLE WILLIAMS, AUTHOR OF *WILDLY SOPHISTICATED*

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