Impact Of Television Media Depicting Sex Under The Influence Of Alcohol On Cognitions Derived From The Prototype Willingness Model

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Dedication

For Daisy.
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Abstract

Impact Of Television Media Depicting Sex Under The Influence Of Alcohol On Cognitions Derived From The Prototype Willingness Model

The present study examined the influence of television media on cognitions derived from the Prototype Willingness Model. Existing research on media portraying alcohol and sex demonstrates that media exposure influences corresponding cognitions and behaviors. This dissertation focused on the related, but understudied, college public health issue of sex under the influence of alcohol and experimentally examined the impact of televised media exposure on behavioral willingness to engage in sex under the influence of alcohol, prototypes of individuals who engage in sex under the influence of alcohol, descriptive norms of peers who engage in sex under the influence of alcohol, and perceived vulnerability for engaging in sex without protection while under the influence of alcohol. The moderating influence of social comparison orientation and past engagement in sex under the influence of alcohol were explored.

Television media exposure was manipulated by having college students view television shows depicting sex under the influence of alcohol, the same shows edited to show neither sex nor alcohol, or a no-media control group. Participants completed a questionnaire assessing Prototype Willingness Model constructs along with social comparison orientation, past behavior, and other controls. No significant main effects emerged for media exposure. A significant condition by past behavior interaction demonstrated that willingness to have sex under the influence was highest among participants who had recently engaged sex under the influence of alcohol and who viewed this behavior on television, suggesting that past behavior moderates media
influence. Results for the moderating impact of social comparison orientation were inconsistent. Overall, the results are inconclusive, but provide direction for future research on the impact of media portraying sex under the influence of alcohol on college students’ cognitions related to health risk behavior.
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Chapter 1: Introduction

Alcohol use prior to sex is a formidable public health challenge given that this behavior increases the probability unprotected sex will occur (Kiene, Barta, Tennen, & Armeli, 2009), increases the risk for sexually transmitted diseases (Center for Disease Control and Prevention [CDC], 2011), and is prevalent among young adults (Scott-Sheldon, Carey, & Carey, 2010). Research has demonstrated the negative impact of visual media (e.g., television, film) exposure on sex- and alcohol-related cognitions and behaviors; for example, sexual media exposure is related to sexual initiation (Collins et al., 2004) and alcohol media exposure predicts willingness to use alcohol and alcohol use (Gibbons et al., 2010). Despite the presence of alcohol use preceding sex in television (Kunkel et al., 2007), no known research has examined the impact of televised media depicting alcohol use preceding sex on cognitions related to sex under the influence of alcohol. It is important to research whether cognitions are influenced by media exposure, as cognitions serve as potential mediators between media exposure and health-risk behavior (Dal Cin et al., 2009).

The present study investigated the impact of media influence on cognitions associated with sex under the influence of alcohol using the Prototype Willingness Model (Gibbons, Gerrard, & Lane, 2003), which has demonstrated predictability for both sexual behavior (Thornton, Gibbons, & Gerrard, 2002) and alcohol use (Gibbons et al., 2010). The Prototype Willingness Model incorporates both a reasoned pathway and a social-heuristic pathway to account for health-risk behavior that is not likely to be premeditated (e.g., unplanned sex; Gibbons et al., 2003). The Prototype Willingness Model includes constructs typical in expectancy/value models such as perceived vulnerability, descriptive
norms, and behavioral intentions (see Figure 1). Prototypes and behavioral willingness are additional constructs included in the social-heuristic pathway (a thorough overview of each construct is provided in the main background section). The social-heuristic pathway aids in predicting behaviors that are socially influenced (Gibbons et al., 2003), and is therefore well-suited to examine variables such as media exposure. Recent research has demonstrated that including an assessment of media exposure improves the Prototype Willingness Model prediction of alcohol use (Gibbons et al., 2010); thus media exposure is an important variable to consider in addition to constructs presented in the Prototype Willingness Model.

Figure 1. The Prototype Willingness Model

In the present study I used experimental design to examine the impact of television depicting alcohol use preceding sex on cognitions from the Prototype Willingness Model, specifically behavioral willingness to engage in alcohol use preceding sex, images (prototypes) of the typical person who engages in alcohol use preceding sex, normative perceptions of alcohol use preceding sex, and perceived vulnerability for engaging in sex without protection while under the influence of alcohol.
The experimental design employed three conditions: a risky behavior media condition with television shows depicting characters engaging in alcohol use preceding sex, a non-risky behavior media condition with versions of the same shows edited to exclude alcohol and sex content, and a control condition with no media exposure.

Past behavior and social comparison orientation were examined as potential moderators of media exposure’s impact on cognitions. Past behavior predicts constructs in both pathways of the Prototype Willingness Model as well as future behavior. The influence of exposure to visual depictions of people engaging in sex under the influence of alcohol has the potential to vary based on past experience with sex after drinking; therefore participants’ past engagement in sex under the influence of alcohol was assessed as a moderator. Cognitions in the Prototype Willingness Model, especially prototypes, are influenced by social comparison, a process of comparing oneself to similar others or specific targets (Buunk & Gibbons, 2006; Lane, Gibbons, O’Hara, & Gerrard, 2011; Stock, Gibbons, & Gerrard, 2011). The moderating role of individual differences in social comparison orientation were examined to determine whether the impact of media exposure on cognitions associated with sex under the influence of alcohol is greater among individuals who engage in higher levels of social comparison.
Chapter 2: Background

Sex and alcohol use fulfill various social, relational, and coping motivations for young adults (Patrick & Maggs, 2010). Nationally representative data indicate that over half of 20-24 year olds have engaged in vaginal sex in the past month (Herbenick et al., 2010). Despite high levels of engagement in sexual activity, less than half of young adults report using a condom during their last 10 vaginal sex experiences (Reece et al., 2010). Additionally, only 30% of college students report 100% consistent condom use during the past month, and 48% reported not using a condom during their last sexual encounter (Parsons, Halkitis, Bimbi, & Borkowski, 2000). Consequentially, young adults have a higher risk for acquiring sexually transmitted diseases than other sexually-active groups; individuals aged 15-24 account for about a quarter of the sexually active population, but 48% of the sexually transmitted disease incidence rate (Weinstock, Berman, & Cates, 2004).

Alcohol use is another important public health issue among young adults. Alcohol is one of the most widely abused drugs and is connected to a multitude of negative health outcomes including liver disease, accidental injury, and death (CDC, 2011). Among individuals aged 18-25, the majority report alcohol use in the past year (78.8%) and past month (61.8%) (Substance Abuse and Mental Health Services Administration [SAMHSA], 2010). Among this age group, the rate of binge drinking (i.e., drinking 4 or 5 drinks in one sitting in the past 30 days) is 23.7% (SAMHSA, 2010). Alcohol use is common among college students; almost half of college students (47.2%) report drinking to get drunk (Knight et al., 2002). Nationally representative data indicate that in the past month, 22.2% of college students have drunk 10 or more times (Hingson, Heeren,
Winter, & Wechsler, 2005; Knight et al., 2002). These data illustrate that the rates and quantities at which alcohol is consumed puts this age group at risk for negative health outcomes. Like risky sex, alcohol misuse is a special health concern among young adults.

**Alcohol Use Preceding Sex**

While risky sex and alcohol misuse are problems in their own right, there has been increased examination of the co-occurrence of these behaviors and a call for research on the social-cognitive predictors of engaging in *sex under the influence of alcohol* (Bryant, Nelson, Braithwaite, & Roach, 2010). Given that alcohol impairs cognitive and behavioral functioning (Easdon & Vogel-Sprott, 2000; Peterson, Rothfleisch, Zelazo, & Pihl, 1990; Volkow et al., 2008), researchers have postulated that alcohol leads to risky sexual behavior, and have examined this question using a variety of populations and methods. Among sexually active college students, 70% reported having engaged in a sexual act while under the influence of alcohol or another controlled substance at some point in the last 3 months (Scott-Sheldon, Carey, & Carey, 2010) and 14.5% reported engaging in unprotected sex as a consequence of drinking alcohol in the past year (The American College Health Association [ACHA], 2009). Research compiling data from several national sources found that 8% of college students self-report engaging in unprotected sex due to alcohol use (Hingson, Heeran, Winter, & Wechsler, 2005).

**Survey research.** Survey research related to alcohol preceding sex has examined global associations (i.e., overall if a person reports engaging in both behaviors) between alcohol use and sexual behavior (Anderson & Mueller, 2008; Connell, Gilreath, & Hansen, 2009; Levy, Sherritt, Gabrielli, Shrier, & Knight, 2009; Poulson, Bradshaw,
Huff, Peebles, & Hilton, 2008) as well as event-level (i.e., whether the behaviors co-occur) relationships between these two behaviors (Cooper, 2002; Kiene et al., 2009; Velez-Blasini, 2008; Weinhardt & Carey, 2000). Global association survey research examines self-report rates of involvement with alcohol use and sex, assuming that patterns may signify a link between alcohol use preceding or leading to sexual activity (Cooper, 2002; Weinhardt & Carey, 2000). Among adolescents, self-reported alcohol and substance use were correlated with recent sexual behavior (e.g., having sexual intercourse; Anderson & Mueller, 2008) and risky sexual behavior (i.e., a composite measure including number of partners and condom use at prior experience of sex; Connell, Gilreath, & Hansen, 2009). Research among African American college students has also demonstrated a relationship between alcohol use and risky sexual behavior (i.e., a composite measure incorporating frequency of sex and unprotected sex; Poulson et al., 2008). However, the above associations between alcohol use and sex do not necessarily indicate that alcohol use and sex co-occur during the same event.

**Event-level research.** Studies have employed event-level research to examine more closely whether the correlation between alcohol use and risky sex is due to situational co-occurrence (Cooper, 2002; Weinhardt & Carey, 2000). Event-level research relies on participants reporting about specific sexual encounters employing either critical-incident (e.g., the last experience of sexual intercourse) or multi-event (e.g., diary reporting) methods. Early reviews of event-level research demonstrated within-subject correlations between alcohol use and sex, suggesting co-occurrence of these behaviors (Cooper, 2002). Other event-level reviews found less evidence to support situational co-occurrence of alcohol use and sex, but suggested that the lack of results
may be explained by potential moderators (i.e., partner type – relationship between alcohol and risky sexual behavior may be stronger for casual partners) (Weinhardt & Carey, 2000).

More recent event-level research examined alcohol and sex co-occurring among college students and demonstrated that when the opportunity for sex with a casual partner arose, using alcohol prior predicted that the opportunity would lead to sex, and when sex with a casual partner did occur, alcohol consumption increased the likelihood of unprotected sex (Kiene et al., 2009). Research using multi-event reporting with college males found that consuming alcohol prior to sexual activity reduced the likelihood of engaging in protected sex with casual partners (LaBrie, Eareywine, Schiffman, Pedersen, & Marriot, 2005). However, research among a convenience sample of college students employing critical-incident reporting showed no relationship between consuming alcohol prior to sex and unprotected sex when students reported incidents with either steady or casual sex partners (Velez-Blasini, 2008).

**Quasi-experimental and experimental research.** These mixed-results of event-level reporting led researchers to question the methodologies used to examine alcohol use prior to sexual behavior. In response to these challenges, lab and field-based experiments and quasi-experiments have compared individuals who are sober to those who are intoxicated to examine the influence of alcohol on sexual intentions. For example, research with college students who viewed a realistic film portrayal of two college student actors drinking and escalating in passionate behavior without access to a condom demonstrated that intoxicated participants expressed higher likelihood that they would
continue on with unprotected sex if they were in the situation (MacDonald, Zanna, & Fong, 1996).

Field-based research at bars compared intentions to engage in casual sex among college students (Conner & Flesch, 2001). Drunk and sober participants were presented with a vignette placing them in a potentially sexual situation where they were either intoxicated or sober and did or did not have access to a condom. Participants reported higher intentions to engage in casual sex both when they had been drinking and when they read a vignette imagining themselves as intoxicated. Interestingly, this research also demonstrated that when intoxicated participants were presented with a potentially-sexual vignette, they were more likely to report intentions to engage in sex if the vignette included a description that a condom was available (Conner & Flesch, 2001). These results suggest that cues may operate in conjunction with intoxication and moderate whether or not sex with casual partners occurs.

Together this area of research suggests that alcohol use and risky sex are common behaviors among college-aged individuals, alcohol use results in impaired cognition and behavior functioning (Easdon & Vogel-Sprott, 2000; Peterson, Rothfleisch, Zelazo, & Pihl, 1990; Volkow et al., 2008), alcohol leads to sex and unprotected sex, and that these behaviors function synergistically resulting in compounded health risks. Despite these risks, many college students consider sex under the influence a standard part of the undergraduate experience (Patrick & Maggs, 2010), and social-cognitive antecedents of this behavior are likely informed by social influences such as popular culture media. Alcohol use and sex are common themes in American popular culture and are represented widely in entertainment media. Media exposure informs viewer attitudes about the
broader world and has a direct impact on social-cognitive predictors derived from the Prototype Willingness Model (Dal Cin et al., 2009; Gibbons et al., 2010). It is important to investigate whether media influences cognitions associated with sex under the influence of alcohol given that sex and alcohol use are commonly portrayed in media (Kunkel et al., 2007; Kunkel, Eyal, Finnerty, Biely, & Donnerstein, 2005; Sargent, Wills, Stoolmiller, Gibson, & Gibbons, 2006; Stern, 2005) and college students report watching between two and three hours of television a day (Kean & Albada, 2003; Nelson, Gortmaker, Subramanian, Cheung, & Wechsler, 2007; Ye, 2010).

**Media Exposure**

Media exposure is researched widely and divergently in social psychology but is most often positioned theoretically within Bandura’s social learning theory (Bandura, 1977), postulating that behavior is influenced through modeling and imitation of media content. Researchers have also described the effect of character actions in media as related to peer influence (Brown, Halpern, & L’Engle, 2005), given that media portrays characters that are attractive or popular engaging in risky behavior, thus providing an instructional, desirable model (Gibbons et al., 2010). Additionally, television functions as a storytelling mechanism, informing viewers of various scripts that permeate popular media discourse (Chia & Gunther, 2006). Repeated exposure to behaviors depicted in media may result in young adults perceiving this behavior as normative and increase the accessibility of positive depictions of these behaviors, leading to increased willingness to engage in risky health behavior (Dal Cin et al., 2009).

In a representative sample of television broadcast between the years 2004 and 2005, 70% of shows contained sexual content (Kunkel et al., 2007) and depictions of
sexual behavior on television are increasing (Kunkel et al., 2005, 2007). Sexual content that is portrayed seldom includes protection; only 4% of scenes that include sexual content communicate messages about safe sex and condom use is depicted or suggested in only 1.5% of scenes depicting sex (Kunkel et al., 2007).

Sex is one of many health risk behaviors in media, and content analyses have also investigated portrayals of alcohol use in media. Research on movie exposure has demonstrated that almost all films sampled (92%) portray alcohol use (Sargent et al., 2006). Other content analyses of top-grossing movies demonstrated that 40% of teenage characters are presented using alcohol and the majority of these depictions present no long-term consequences (Stern, 2005). For sexual behavior under the influence of alcohol, two content analyses have examined scenes that depict sexual intercourse and found that 11% depict alcohol use prior (Kunkel et al., 2007) and 19% present substance use prior (predominantly - 16% - alcohol use; Kunkel et al., 2005). Beyond documenting the portrayal of these behaviors in media, research has also sought to examine whether exposure to alcohol and sexual content impacts corresponding cognitions or behaviors using a variety of methods and samples.

Correlational and longitudinal media exposure research on outcomes related to sex. There is growing evidence that alcohol and sex content in media impacts both cognitions and behaviors (Bahk, 2001; Collins et al., 2004; Dal Cin et al., 2009; O’Hara, Gibbons, Gerrard, Li, & Sargent, 2012; Ward & Friedman, 2006). Longitudinal research with a nationally representative adolescent sample had participants report the frequency with which they watched 23 television programs, selected from the most popular programs and supplemented with shows known to contain frequent sexual content
(Collins et al., 2004). Episodes were sampled, scenes were coded for sexual content, number of scenes were averaged, participant exposure was weighted by the frequency with which the participant reported viewing the show, and scores were summed across shows. This rigorous method of capturing exposure demonstrated that viewing sexual content predicted engaging in sexual behavior one year later when controlling for covariates (e.g., age, parental monitoring, deviant behavior, grade point average, sensation-seeking, self-esteem; Collins et al., 2004). Research using similar methods to quantify exposure to sexual content in movies demonstrated that viewing sexual content during adolescence predicted a greater number of sexual partners and less condom use with casual sex partners six years later (O’Hara et al., 2012). Research with older high school students demonstrated that exposure to talk shows known to contain sexual content (e.g., The Jerry Springer Show) predicted higher levels of dating and sexual experience (e.g., level of dating experience, whether or not they had engaged in oral sex, vaginal sex; Ward & Friedman, 2006).

Other sexual media exposure research has examined composite conceptualizations of sexual media that include television as well as other venues (e.g., music videos, magazines; Pardun, L’Engle, & Brown, 2005). Exemplars from each media venue were coded for various categories of sexual representation (e.g., sexual intercourse implied or depicted, unprotected sex; Pardun et al., 2005). Cross-sectional analyses demonstrated that sexual media exposure was related to sexual activity and likelihood of engaging in sex among adolescents, controlling for various demographic variables (e.g., age, race, gender, and household income). Follow-up research assessed the behavior of these adolescents two years later (Brown et al., 2006). Results indicated that sexual media
exposure predicted initiating sexual activity, controlling for demographic and contextual factors (e.g., race, age, gender, SES, puberty status, religious beliefs, grades, and perceived peer sexual norms). Thus, research has demonstrated that sexual media exposure is related to self-reported sexual behavior.

**Experimental media exposure research on outcomes related to sex.** A logical evolution for research on sexualized media is to determine the causal impact of media exposure on cognitions through experimental design. Much experimental research related to sex presented in media uses the sexual script theoretical framework (Ward & Friedman, 2006; Ward, 2002). Specifically, researchers are interested in participants’ endorsement of gender dynamics presented in media. Research among high school students (Ward & Friedman, 2006) and college students (Ward, 2002) with and without sexual experience exposed them to clip reels of television content selected and pre-tested as portraying 1) dating/sex as recreation, 2) women as sexual objects, 3) men as sex-driven, or 4) control media of non-sexual scenes. Results indicated that, controlling for general media exposure and prior sexual experience, exposure to a particular stereotype depicted on popular television shows led to greater endorsement of that stereotype for both high school and college student samples (Ward, 2002; Ward & Friedman, 2006). These findings suggest that sexual media exposure impacts stereotypes about sex (Ward, 2002; Ward & Friedman, 2006); however moderating effects of past sexual experience were not examined.

Experimental work with college men and women has also investigated the impact of televised sexual media on attitudes towards condom use and premarital intercourse. Participants included individuals with and without sexual experience. Participants viewed
scenes from popular shows that either depicted positive consequences of sex or negative consequences of sex, and then reported attitudes immediately and two weeks post-exposure (Eyal & Kunkel, 2008). Results controlled for past sexual behavior and indicated that exposure to sexual television media portraying negative consequences resulted in more negative attitudes towards premarital sex, which persisted two weeks later. In addition, participants in the positive consequences condition had more positive attitudes towards sex.

Experimental work has also examined effects of media exposure on attitudes associated with condom use, exposing college students to television episodes displaying sex with condom use, versions of the episodes edited to omit condom use, or controlled media from different television shows not displaying any sexual content (Farrar, 2006). Results showed no impact for the media exposure on men, but women who were exposed to media content without condoms reported less positive attitudes towards condoms. Although results of experimental sexual media research are mixed, they suggest that television exposure can impact attitudes for a sustained period of time (Eyal & Kunkel, 2008) and impact women’s attitudes about condom use (Farrar, 2006). Collectively, none of the reviewed work on experimental effects of television media on sex-related dependent variables examined the moderating effect of past sexual behavior; this led to the inclusion of past behavior as a moderator in the present study.

Correlational and longitudinal media exposure research on outcomes related to alcohol. A parallel line of research explores media exposure’s influence on alcohol use. Collectively, this research operationalized media exposure to alcohol similar to sex, by generating a list of contemporary top-grossing films and coding the amount of on-
screen alcohol use in each film (Dal Cin et al., 2009; Gibbons et al., 2010; Sargent et al., 2006). Media exposure to alcohol content was calculated by multiplying participants’ responses to films viewed with amount of alcohol exposure depicted in the film. Employing these methods, research among adolescents who had never drunk demonstrated that media exposure predicted alcohol initiation 13-26 months later, while controlling for covariates (e.g., gender, grade, parental education, sensation-seeking; Sargent et al., 2006).

**Media exposure research on outcomes related to alcohol employing the Prototype Willingness Model.** Longitudinal research on alcohol media exposure and use has also examined the influence of exposure on cognitions that predict use within the framework of the Prototype Willingness Model (Dal Cin et al., 2009; Gibbons et al., 2010). Dal Cin and colleagues (2009) collected longitudinal data on alcohol movie exposure, behavioral willingness and prototypes associated with alcohol use, potential covariates (e.g., general media exposure) and alcohol use among a nationally representative sample of adolescents who were contacted four times at 8-month intervals. Analyses demonstrated that alcohol media exposure (at Time 1 and Time 2) had a direct influence on alcohol consumption (at Time 3 and Time 4). Additionally, the impact of alcohol media exposure (Times 1 and 2) on alcohol use (Time 4) was mediated through several Time 3 constructs from the Prototype Willingness Model, including alcohol-user prototype favorability and behavioral willingness to drink alcohol. These findings were replicated using a similar research design that assessed exposure to alcohol media content and the influence on drinking behavior among a nationally representative sample of adolescents (Gibbons et al., 2010). Media exposure to alcohol in film predicted alcohol
use 8 and 16 months post-baseline, and these effects were mediated through prototypes and behavioral willingness.

Taken together, these two research studies revealed media exposure’s influence on prototypes and behavioral willingness as well as its added predictability to the social-heuristic pathway of the Prototype Willingness Model for predicting alcohol use (Dal Cin et al., 2009; Gibbons et al., 2010). This suggests that the Prototype Willingness Model is effective at capturing the mediating mechanisms through which media exposure may influence behavior.

**Experimental media exposure research on outcomes related to alcohol.** The influence of media exposure on alcohol use has also been examined experimentally. Bahk (2001) assessed the impact of media representation of alcohol consequences on cognitions associated with alcohol use among college students. Participants were randomly assigned to view a movie featuring high amounts of character alcohol use edited to primarily display negative consequences associated with alcohol use (e.g., embarrassment in social situations, car crash from drunk driving) or a version equivalent in time length edited to show no negative alcohol consequences (Bahk, 2001). Participants in the no negative consequences condition reported more positive attitudes towards alcohol, expressed more endorsement of the benefits of alcohol use (e.g., amusement), and reported higher dispositions to drink alcohol. Participants’ past engagement in alcohol use was not assessed.

Other research with college students directly measured drinking behavior in response to media exposure (Koordeman, Anschutz, Van Baaren, & Engels, 2010). Koorderman et al. (2010) used similar editing procedures to Bahk (2001) but edited one
film into two conditions to either portray alcohol use behavior or exclude alcohol use behavior. Participants were randomly assigned to view the versions of the films in a semi-naturalistic laboratory setting with couches and access to alcoholic beverages. Controlling for the past week’s drinking behavior, results indicated that the impact of media exposure on actual drinking behavior was moderated by gender. Among men, the media alcohol exposure condition was associated with greater consumption of wine or beer, but there were no effects for women. Analyses also indicated that past week’s drinking behavior did not moderate the impact of condition on the aggregate. Taken together, these results indicate that exposure to media portraying alcohol use void of negative consequences enhances positive attitudes toward alcohol and that among men, exposure to alcohol use in media leads to increased drinking.

**Summary and future directions.** Research exploring the influence of media depicting alcohol and sex content has demonstrated impact on attitudes and behaviors through cross-sectional, longitudinal, and experimental designs (Bahk, 2001; Collins et al., 2004; Gibbons et al., 2010). A review of the literature presents evidence that sex and alcohol content in media impacts attitudes and behaviors, but lacks theoretical cohesion examining the impact of media on social-cognitive predictors associated with behavior. Surprisingly, despite the known health dangers of sex under the influence of alcohol and established impact of media exposure on sexual and alcohol outcomes, no known research has examined the influence of media portraying *sex under the influence of alcohol* on college students’ corresponding cognitions. Understanding the social-cognitive processes that lead to engaging in sex under the influence of alcohol would aid in development of interventions to prevent this behavior. The most theoretically-
grounded examination of the mediating processes connecting media exposure and behavior employs the Prototype Willingness Model (Dal Cin et al., 2009; Gibbons et al., 2010).

The Prototype Willingness Model

The Prototype Willingness Model is a dual process model that predicts behavior through a reasoned decision making process in conjunction with a heuristic, socially-reactive decision making process (Gerrard, Gibbons, Houlihan, Stock, & Pomery, 2008; Gibbons et al., 2003). This model is appropriate for examining media exposure because prototypes (i.e., images of a person one’s age and gender who engages in a risk behavior; Gibbons et al., 2003) are theorized to be derived, in part, from media representations. Secondly, willingness (i.e., an openness to engaging in a behavior given conducive circumstances; Gerrard et al., 2008; Gibbons et al., 2003) is a behavioral antecedent which captures the impact of social influence, such as media (Gerrard et al., 2008; Gibbons et al., 2003).

The Prototype Willingness Model is also appropriate for examining the behavior of sex under the influence of alcohol. Traditional expectancy/value behavior prediction models (e.g., the Theory of Reasoned Action; Ajzen & Fishbein, 1980 and Theory of Planned Behavior; Ajzen, 1991) focus solely on a reasoned decision making process with behavioral intention as the focal antecedent to behavior. The Prototype Willingness Model includes a reasoned-pathway made up of constructs in the Theory of Reasoned Action with behavioral intention as the main antecedent to behavior (Ajzen & Fishbein, 1980). Alcohol use prior to sex is often an unintentional response to an opportunistic social situation, especially between partners who engage in sex under the influence as
part of the college “hook-up” culture (Owen, Fincham, & Moore, 2011). The Prototype Willingness Model was developed in part to explain behavioral variance unaccounted for by behavioral intentions in the Theory of Reasoned Action and includes behavioral willingness as a second primary behavioral antecedent (Gerrard et al., 2008; Gibbons et al., 2003).

More distal behavioral antecedents in the social-heuristic pathway include descriptive norms, prototypes (images of users), and conditional perceived vulnerability. Research has demonstrated improved predictability of health risk behavior (e.g., alcohol use, unprotected sex) incorporating constructs from the Prototype Willingness Model versus expectancy/value models (Gibbons, Gerrard, Blanton, & Russell, 1998; Gibbons, Houlihan, & Gerrard, 2009; Rivas, Sheeran, & Armitage, 2006; Spijkerman, van den Eijnden, Vitale, & Engels, 2004).

**Media exposure and the Prototype Willingness Model.** Previous research has demonstrated that media influences behavioral willingness, the behavioral antecedent of the social-heuristic pathway of the Prototype Willingness Model (Dal Cin et al., 2009; Gibbons et al., 2010; see Figure 2). The influence of media on behavioral willingness occurs directly, as well as through media’s hypothesized influence on perceived vulnerability, descriptive norms, and prototypes, as past research (Dal Cin et al., 2009; Gibbons et al., 2010) has demonstrated that media exposure’s impact on behavioral willingness is mediated through prototypes (see Figure 2). Taken together, these two research studies revealed media exposure’s impact on prototypes and behavioral willingness as well as its added predictability to the social-heuristic pathway of the Prototype Willingness Model (Dal Cin et al., 2009; Gibbons et al., 2010). This suggests
that the Prototype Willingness Model is effective at capturing the mediating mechanisms through which media exposure may influence behavior. However, media’s impact on Prototype Willingness Model constructs has not been tested experimentally.
**Behavioral willingness.** Willingness represents openness to engaging in a behavior given conducive circumstances (Gerrard et al., 2008; Gibbons et al., 2003). Considering that some behaviors (e.g., sex under the influence of alcohol) may occur due to opportunity rather than premeditation, willingness taps into these more social and affective elements of decision making (Gerrard et al., 2008). Research has demonstrated that willingness is predictive of unprotected sex among college students (Gibbons et al., 1998) and future alcohol consumption among young adults (Zimmerman & Sieverding, 2010; Zimmermann & Sieverding, 2011). For example, willingness to engage in unprotected sex was found to predict engagement in unprotected sex six months later among college students (Thornton et al., 2002). Additionally, willingness predicts alcohol use and surpasses the predictive ability of intentions for change in alcohol use over time (Pomery, Gibbons, Reis-Bergan, & Gerrard, 2009). Given research on the predictive
validity of willingness for alcohol and sex behavior, willingness to engage in sex under the influence of alcohol is presumed to be the most appropriate construct for predicting this behavior and will serve as the primary dependent variable for the current study.

Past empirical research has demonstrated that media exposure has a direct impact on willingness for engaging in corresponding behaviors (Dal Cin et al., 2009; Gibbons et al., 2010). Media exposure may impact willingness for two main reasons. First, willingness represents an openness to engage in behavior given conducive circumstances (Gibbons et al., 2003). In comparison to other media portrayals (e.g., song lyrics, magazine articles), television media presents a social illustration of risk behavior because the targets are portrayed interacting through a narrative of social engagement leading up to a behavior. Observing behavior unfold may impact the viewer’s openness to the portrayed situation. Second, exposure to the behavior of interest may result in greater acceptance of the depicted behavior, as has been demonstrated in research on violence portrayed in media (Bushman, Chandler, & Huesmann, 2010). For the behavioral domain of sex under the influence of alcohol, exposure to this behavior on television may result in the viewer’s acceptance and willingness to engage in the depicted behavior. Media also has the possibility to indirectly impact behavioral willingness through prototypes (Dal Cin et al., 2009; Gibbons et al., 2003; Gibbons et al., 2010; Lane et al., 2011).

**Prototypes.** Prototypes are a cognitive representation or image of a person one’s age and gender who engages in a risk behavior (Gibbons et al., 2003). Previous research demonstrates that prototype favorability predicts both willingness to engage in the behavior and actual engagement in behavior (cf., Gerrard et al., 2008). For example, favorable evaluations of prototypes who engage in unprotected sex predicted greater
willingness to engage in unprotected sex among college students, and these results were also supported through experimental manipulation of prototypes (Blanton, VandenEijndenm, Buunk, Gibbons, Gerrard, & Bakker, 2001). Among college students, favorable prototypes of a woman who becomes pregnant or a man who is responsible for pregnancy are predictive of greater willingness to engage in unprotected sex (Thornton et al., 2002). Cross-sectional research has demonstrated that favorability of peer alcohol-user prototypes is related to willingness and intentions to use alcohol (Spijkerman et al., 2004). Similar patterns have been shown longitudinally, with willingness to use alcohol mediating the impact of favorable alcohol prototypes on future alcohol consumption (Ouellette, Gerrard, Gibbons, & Reis-Bergan, 1999). More recent research has replicated these findings, demonstrating that favorability of drinker prototypes impacts future drinking behavior through alcohol cognitions (Rivas et al., 2006; Zimmerman & Sieverding, 2010).

Past empirical research has demonstrated that media exposure has a direct impact on prototypes for engaging in corresponding behaviors (Dal Cin et al., 2009; Gibbons et al., 2003; Gibbons et al., 2010; Lane et al., 2011). Prototypes are likely impacted by media because they are cognitive constructions drawn from experience and can be partially informed by media (Gibbons & Gerrard, 1997; Gerrard et al., 2008). Research examining the impact of media on cognitions associated with the Prototype Willingness Model posits that characters presented in media operate as a form of comparison target or peer (Gibbons et al., 2010). Comparison targets are others with whom individuals compare and can be real or hypothetical, concrete or non-specific, better or worse off (Klein & Weinstein, 1997).
Examining social comparison orientation is relevant for the present study given that research demonstrates its moderating influence on prototypes; among college students who were encouraged to engage in comparison, exposure to a regularly-drinking college student target resulted in greater perceptions of similarity to a drinker prototype (Lane et al., 2011). Research among adolescents has shown that viewing Facebook profiles depicting alcohol-using older peers results in enhanced perceptions of drinker prototypes (Litt & Stock, 2012). Given that characters portrayed in media can serve as comparison targets, these findings suggest that exposure to targets engaging in sex under the influence of alcohol depicted in media will result in more favorable impressions of prototypes that engage in this behavior.

**Norms.** Descriptive norms both directly predict behavior and function as antecedents to willingness in the Prototype Willingness Model (Gibbons et al., 2003). In the Prototype Willingness Model, descriptive norms represent what an individual thinks other people, framed within a reference group, actually do (e.g., percentage of a person’s friends that engage in sex under the influence of alcohol). Norms are theorized to drive behavior because they represent a decisional guide during times of uncertainty (Cialdini, Reno, & Kallgren, 1990). Conformity to perceived norms is also used as a strategy to enhance affiliation to referent peer groups (e.g., friends, other students) in the college social environment (Perkins, 2002).

Empirical findings support the theorized role of norms on cognitions and behaviors associated with alcohol and sex. Perception of higher prevalence of friends engaging in sex without condoms was positively correlated with willingness to engage in unprotected sex (Gibbons et al., 1998). Perceived alcohol norms have been shown to
impact future alcohol use and positive ratings of alcohol-user prototypes (Ouellette et al., 1999; Gerrard, Gibbons, Benthin, & Hessling, 1996). Research with college students has demonstrated that peer norms are related to alcohol use and sexual behaviors (Martens et al., 2006; Novak & Crawford, 2001).

Theoretically, media is thought to impact perceptions of normative behavior because media exposure is related to accessibility of the depicted content (Busselle & Shrum, 2003). Dal Cin and colleagues (2010) argued that repeated exposure to a behavior may result in the viewer perceiving these behaviors as more normative as well as perceiving more favorable behavioral outcomes. Empirical research manipulating comparison targets has demonstrated that alcohol use is perceived as more normative after participants have been exposed to Facebook profiles displaying targets engaging in alcohol use (Litt & Stock, 2011).

**Perceived vulnerability.** Attitudes are also part of the Prototype Willingness Model and are conceptualized as conditional perceived vulnerability, which is the perception that one is vulnerable to negative outcomes (Gibbons et al., 2009). Conditional perceived vulnerability controls for anticipated or future behavior and is the recommended form of measurement for perceived vulnerability for health behaviors (Ronis, 1992; Weinstein, Rothman, & Nicoli, 1998). Research demonstrates that increased perceived vulnerability for sexually transmitted diseases and unintentional pregnancy is associated with less willingness to engage in unprotected sex (Thornton et al., 2002). Research also demonstrates that higher perceived vulnerability for future drinking problems predicts lower engagement in alcohol use (Gerrard et al., 1996).
Health-risk behavior presented on television often portrays unrealistic consequences (e.g., characters that engage in risky sex are not representatively portrayed acquiring sexually transmitted disease; Kunkel et al., 2007). Researchers argue that repeated exposure to a certain behavior may lead participants to have favorable impressions of that behavior and downplay the associated risks (Dal Chin et al., 2010). If individuals can call to mind examples of when targets engaged in a risky behavior and experienced no negative outcome, they are likely to judge the frequency of the negative outcomes based on the examples they can bring to mind, thus underestimating the number of negative consequences (e.g., engaging in sex without protection). Empirical research has demonstrated that exposure to target-individuals engaging in alcohol use resulted in lower perceived vulnerability of negative drinking consequences (Litt & Stock, 2011).

**Past behavior.** Research with the Prototype Willingness Model has demonstrated that past behavior predicts future risk behavior directly and also impacts future behavior through prototypes, norms, and willingness (Gibbons et al., 2009). For example, past risky sexual behavior both directly predicts future risky sexual behavior and mediates behavioral influence through behavioral willingness (Gibbons et al., 1998). Meta-analyses have demonstrated that past risk behavior is one of the strongest predictors of unsafe sex (Albarracín, Johnson, Fishbeinm, & Muellerleile, 2001). For alcohol use, longitudinal analysis demonstrated that past behavior predicts substance use behavioral willingness (Pomery et al., 2009), future alcohol use among adolescents (Gerrard et al., 1996), and future binge drinking among college women (Todd & Mullan, 2011). Given
that past behavior predicts sex and alcohol use behavior, past behavior was assessed in the present study.

**Past behavior and media.** Prior research on alcohol and sex media exposure has either not assessed participants’ past behavior (Bahk, 2001), not examined the moderating impact of past behavior (Eyal & Kunkel, 2008; Farrar, 2006; Ward, 2002; Ward & Friedman, 2006), or found no moderation for past week’s behavior (Koordeman et al., 2010). Theoretically, the social-heuristic pathway of the Prototype Willingness Model is ideal for predicting health risk behaviors that are not premeditated given that with greater experience, behavior is more likely to be predicted by the reasoned pathway (Pomery et al., 2009). Given that media influence is a social-heuristic process, individuals without experience may be more influenced by media. Individuals who have recently engaged in sex under the influence of alcohol have personal context to shape their future expectations, therefore media depictions of sex under the influence of alcohol may impact cognitions more strongly for individuals who have not recently engaged in sex under the influence of alcohol.

Recent research lends credence to the hypothesis that individuals with less engagement in depicted behaviors may be more influenced by visual stimuli portraying these behaviors. Specifically, among men exposed to pictures of sexually dressed female models (v. control images), men who were more sexually conservative had a greater increase in sex behavioral willingness than men who were less sexually conservative (Roberts, Gibbons, Kingsbury, & Gerrard, 2012). Exposure to media depicting negative outcomes of risky sex has greater impact on individuals with less risky sexual experience (Finnerty-Myers, 2011). Research on substance use has demonstrated that individuals
with less experience are more variable in their behavior reactions to media depicting smoking (Shadel, Martino, Setodji, & Scharf, 2012). Taken together, this research suggests that visual depictions of a behavior have greater cognitive and behavioral impact for less-experienced individuals.

Given the wealth of literature supporting application of the Prototype Willingness Model to alcohol- and sex- related cognitions, the current study applied the model to examine cognitions associated with the related behavior of sex under the influence of alcohol. Research investigating alcohol use has examined media exposure using the Prototype Willingness Model, and found support for additional behavioral variance explained through media exposure (Dal Cin et al., 2009; Gibbons et al., 2010). To examine the causal influence of media exposure on cognitions associated with sex under the influence of alcohol, the present study experimentally assessed exposure to television media depicting sex under the influence of alcohol on behavioral willingness, prototypes, norms, and perceived vulnerability and the moderating influence of past behavior.

Another important potential moderator of the relationship between media exposure and dependent variables related to the Prototype Willingness Model is social comparison orientation.

**Social Comparison**

Social comparison is the process by which individuals compare themselves to others in efforts to evaluate their judgments, abilities, and risk (Buunk & Gibbons, 2007; Festinger, 1954; Klein & Weinstein, 1997). In his original theory, Festinger (1954) also posited that comparison targets can serve as goal-states for the comparer. Social comparison relates to media exposure in two ways. First, individuals typically engage
with media because some element of the content portrayed is attractive or entertaining, as television characters can serve as “super-peers” for viewers (Brown et al., 2005). The concept of a super-peer is similar to a comparison target. Festinger (1954) posited that attraction to the target-comparison results in greater conformity pressure. This suggests that media characters that young adults are interested in can serve as attractive social comparison targets and behavioral models. Secondly, social comparison relates to media exposure because comparison with others can occur automatically (Buunk & Gibbons, 2007; Gilbert, Giesler, & Morris, 1995). This may be especially pertinent given that viewers may not be attempting to actively socially compare to character behavior in media, and individuals often report a “third-person” effect believing that others are more impacted by media messages than they themselves are (Hoorens & Ruiter, 1996).

Social comparison is related to prototypes within the Prototype Willingness Model, because the impact of prototype favorability on behavior theoretically occurs through a social comparison process (Gibbons et al., 2003). For example, if a person perceives a social comparison target who engages in sex under the influence of alcohol to be popular, smart, and fun, that individual may be more willing to engage in the prototype’s behavior in efforts to align him or herself favorably. However, individuals vary in how often they engage in the social comparison process.

Social comparison orientation. Social comparison orientation posits that individuals vary in intensity and frequency of social comparison (Buunk & Gibbons, 2006). Social comparison orientation is defined as “individual differences in the inclination to compare one’s accomplishments, one’s situation, and one’s experiences with those of others” (Buunk & Gibbons, 2006, p. 16). Empirical work has demonstrated
that individual differences in social comparison moderate the impact of prototypes on willingness, as the relationship between prototype favorability and willingness is stronger among individuals who engage in higher amounts of social comparison (Gibbons et al., 2003). This may be in part because individuals high in social comparison think more about the prototype, as research has demonstrated that adolescents high in social comparison think more about prototypes of drinkers and individuals who engage in risky sex (Gibbons & Gerrard, 1997).

Research has also demonstrated the moderating impact of social comparison on other cognitions such as willingness and perceived vulnerability. Exposure to social comparison targets of individuals diagnosed with a sexually transmitted disease resulted in varying reactions based on whether or not participants engage in high levels of social comparison (Stock, Gibbons, & Gerrard, 2012). For example, among individuals who had engaged in high levels of past risk behavior, being exposed to a low risk target resulted in increased willingness to engage in unprotected sex and decreased perceived vulnerability for contracting a sexually transmitted disease, but only among those high in social comparison orientation.

Previous research has also found connections between social comparison orientation and behavior. College men who are high in social comparison are more likely to engage in alcohol use if they perceive an alcohol prototype favorably (Gibbons & Gerrard, 1997). Social comparison orientation also moderates the relationship between norms and behavior. Among college students, those who engage in a greater amount of social comparison have a greater increase in drinking behavior when they believe alcohol use on campus is high (Novak & Crawford, 2001). Taken together, these results indicate
that social comparison orientation moderates the predictability of the social-heuristic pathway of the Prototype Willingness Model, with stronger relationships among those who are high in social comparison.

**Social comparison orientation and media.** Although there is no research on whether social comparison orientation moderates the impact of media on cognitions related to alcohol use or sexual behavior, there is some research suggesting that social comparison to thin-ideal media impacts body image and associated behaviors (Krayer, Ingledew, & Iphofen, 2008). In a sample of Latino adolescents, those who expressed greater social comparison to media targets (e.g., perceived targets as similar or inspiring) also endorsed Western media-based appearance ideals and expressed greater disordered eating (Warren, Schoen, & Schafer, 2010). These research studies suggest that individuals higher in social comparison may experience greater impact from media exposure on behavioral cognitions.

A small amount of research has investigated the impact of media exposure on drinking and sex behavior using constructs similar to social comparison, specifically character identification and feelings of connectedness. Experimental work on media exposure demonstrated that character identification predicted greater media impact on sexual experience among both genders (Ward & Friedman, 2006). Research on alcohol has demonstrated that college students who felt more connected to characters on the television show the O.C. were more likely to believe that alcohol is associated with positive consequences (Russell, Russell, & Grube, 2009). These findings suggest that viewers who feel more connected to characters on a television show may also be engaging in greater amounts of social comparison with the characters, resulting in greater
impact of media exposure on their attitudes. Assuming that individuals who engage in
greater amounts of social comparison also feel more connected, involved, and similar to
the characters presented in media has potential implications for the present study.
Specifically, participants who are higher in social comparison may compare more with
the television characters and align their cognitions with the behavior that is presented.

Taken together, these theoretical and empirical results suggest that higher social
comparison orientation may moderate the impact of media exposure on cognitions.
Specifically, individuals who engage in greater social comparison may align their
perceptions of norms, prototypes, and willingness for sex under the influence of alcohol
more strongly after viewing this behavior televised compared to individuals who engage
in less social comparison.

**Chapter 3: The Present Study**

This study investigated the impact of media exposure depicting alcohol use
preceding sexual behavior on cognitions from the Prototype Willingness Model.
Exposure to media was investigated by randomly assigning participants to view
television episodes depicting characters engaging in alcohol use preceding sex (risky
behavior media), media depicting versions of the same episodes with alcohol and sex
content edited out (non-risky behavior media), or a control condition with no media
exposure (control). The study also examined if engagement in sex under the influence in
the past six months or social comparison orientation moderated the hypothesized impact
of media exposure on constructs from the Prototype Willingness Model.

**Main Effects Hypothesis**
Main effects of media exposure were expected. Participants in the risky behavior media condition were expected to express the least healthy cognitions associated with engaging in sex under the influence of alcohol. Specifically, in comparison to the non-risky behavior media and control conditions, participants in the risky behavior media condition were expected to express 1) greater willingness to engage in sex under the influence of alcohol, 2) more favorable prototypes of individuals who engage in sex under the influence of alcohol, 3) greater perceptions of descriptive norms for sex under the influence of alcohol, and 4) lower perceived vulnerability for having sex under the influence of alcohol without a condom (see Figure 3).

Additionally, participants in the non-risky behavior media condition were expected to report higher willingness, more favorable prototypes, higher norms, and lower perceived vulnerability compared to participants in the control condition (see Figure 3). This may occur because exposure to media in general can enhance accessibility of themes typically represented in media (Busselle & Shrum, 2003; Taylor, 2005).
Past Sex Under the Influence of Alcohol Behavior and Social Comparison Orientation Moderator Hypotheses

The hypothesized impact of media portraying alcohol use preceding sex was expected to be moderated by past engagement in sex under the influence of alcohol and social comparison orientation. Media is part of the social-heuristic process and is predicted to have greater impact on individuals with less past experience. Past sex and alcohol media influence research neglected to measure or assess the moderating influence of past behavior (Bahk, 2001; Eyal & Kunkel, 2008; Farrar, 2006; Ward, 2002; Ward & Friedman, 2006), but recent research suggests that media may have greater influence on individuals with less experience in the depicted behavior (Finnerty-Myers, 2011; Roberts, Gibbons, Kingsbury, & Gerrard, 2012; Shadel et al., 2012). The current study examined whether engagement in sex under the influence of alcohol over the past six months moderated media exposure’s influence on cognitions related to sex under the influence of
alcohol. Any main effects of media exposure were predicted to be moderated by past behavior; participants who have not engaged in sex under the influence of alcohol in the past six months are predicted to be impacted *more so* than participants who have.

Social comparison orientation impacts the social-heuristic process and images in media can serve as comparison targets. There is no research investigating whether social comparison orientation moderates the impact of media exposure on cognitions related to alcohol use or sexual behavior. Media research on social comparison and body image outcomes and variables similar to social comparison with sex and alcohol outcomes suggests that individuals higher in social comparison may experience greater impact from media exposure on behavioral cognitions (Krayer, Ingledeiw, & Iphofen, 2008; Russell, Russell, & Grube, 2009; Ward & Friedman, 2006; Warren, Schoen, & Schafer, 2010). Specifically, participants who are higher in social comparison may compare more with the television characters and align their cognitions with the behavior that is presented. Any main effects of media exposure were predicted to be moderated by social comparison orientation; the impact of media exposure on cognitions of interest was hypothesized to be stronger among those *higher* in social comparison orientation.

**Method**

**Participants, stimuli, and procedure.**

*Sample size.* This study examined three experimental groups (risky behavior media, non-risky behavior media, and control) and two potential covariates: social comparison orientation (low versus high) and past engagement in sex under the influence of alcohol (no sex under the influence of alcohol in the past six months versus has had sex under the influence of alcohol in the past six months), resulting in two 3 x 2 designs.
To determine the sample size needed for sufficient 3 x 2 statistical power, a power analysis was conducted using the software program G*Power3 (Faul, Erdfelder, Lang, & Buchner 2007). An a-priori power analysis was conducted considering the experimental design of the originally conceptualized study investigating condition and social comparison only (3 x 2, 6 cells), and using a .40 effect size and power of .95. Results of the power analysis indicated that a minimum of 162 participants (27 participants per cell) were needed. Data were collected from 200 participants.

**Stimuli development.** The media exposure paradigm for the current study combined methods used in two areas of media research. Specifically, the present study used exemplars (Bushman, 2005) and exposed participants in the media conditions to a collection of clips displaying/not displaying the risky behavior of interest (Ward & Friedman, 2006). Adapting methods from media research by Clark and Tiggemann (2008), exemplars were selected by conducting an informal survey among students from the population of interest. Students anonymously reported their favorite television shows that they watched. Shows from this list were researched and selected as potential exemplars for the experimental condition if they 1) had scenes depicting characters engaging in alcohol use prior to sexual activity (i.e., heterosexual vaginal sex), and 2) received a rating of red denoting high presence of risky sexual and overall content from the consumer watchdog group the Parents Television Council (2011). Recent seasons of these shows (Skins, 90210, Greek) were reviewed for episodes where a male and female character engage in alcohol use followed by sex. To create the media condition stimuli, these episodes were edited to create shorter versions.
The risky behavior media condition stimuli included the shortened episodes with scenes portraying sex after drinking alcohol. The shortened episodes were selected or edited to depict no visual suggestion of birth control use, health or social consequences of sex under the influence of alcohol, or images of other substance use (e.g., cigarettes). The non-risky behavior media condition was developed replicating methods used by sex media exposure research (Farrar, 2006) and alcohol media exposure research (Bahk, 2001; Koordeman et al., 2010). Specifically, the original full-length episodes were reedited for the non-risky behavior media condition to exclude all incidents of characters engaging in alcohol use prior to sex and all other depictions of alcohol use or sex. Shortened versions of episodes for both conditions were edited to run for approximately 10 minutes.

A pilot study ($N = 44$) was conducted to pre-test the pairs of scenes for the two media conditions to ensure that they did not vary on potential confounds (e.g., entertainment or mood effects). Results indicated that participants did not rate the paired shortened episodes differently for how frustrating, enjoyable, fun, absorbing, boring, entertaining, exciting, humorous, involving they were ($ps > .10$). The scenes also did not elicit any difference in an overall index of mood ($ps > .10$). Participants did report the risky behavior media scenes to be more sexual than non-risky behavior media scenes for Greek ($p < .01$), differences were marginally significant for 90210 ($p = .057$), and approaching significance for Skins ($p = .19$); participants reported that the Greek risky behavior media scene was more arousing ($p < .05$) than the non-risky version, but arousal did not vary for the pairs of Skins and 90210 scenes ($p > .10$).
To reduce the likelihood that other unanticipated confounds varied between risky behavior media and non-risky behavior media, the presentation of stimuli employed stimulus sampling (Wells & Windschitl, 1999). The use of stimulus sampling helps to ensure construct validity by exposing participants to more than one example of the manipulated variable (e.g., presence of alcohol before sex in a television show) in the event that unanticipated confounds influence the dependent variables (e.g., if characters vary in attractiveness between the conditions and this influences willingness to have sex). For each of the media conditions, participants were exposed to three television clips, presented in a random order, resulting in approximately 30 minutes of viewing time for the risky behavior media and non-risky behavior media conditions.

**Administration.** All participants were recruited through the George Washington University psychology department’s online sign up system. To shield the full purpose of the study while simultaneously providing a description that covered media use, drinking, and sexual behavior, the research study was advertised as a study concerning “television and health attitudes: the lifestyles of college students” for students aged 18 and over. Participants selected an appointment time to complete the research study.

Participants were run through the study individually in a research lab, reviewed a written informed consent, and were provided the opportunity to ask the experimenter questions. The study was administered using the computer-based questionnaire and experimental design software, MediaLab. Participants were randomly assigned to one of three conditions: (1) *risky behavior media* where they viewed versions of television shows depicting alcohol use preceding sex, (2) *non-risky behavior media* where they viewed the same television shows with alcohol and sex edited out of the content, and (3)
control where they viewed no media. Participants in the media conditions (risky behavior media and non-risky behavior media) first viewed the television media corresponding to their condition assignment (see Appendix A) and then filled out the electronic questionnaire assessing the dependent, moderator, and control variables of interest. Participants in the control condition only filled out the electronic questionnaire (see Appendix B). The study instruments and protocol were approved by the George Washington University’s Institutional Review Board.

Measures.

Manipulation. During the media manipulation portion of the study, participants in the risky behavior media and non-risky behavior media conditions viewed approximately 30 minutes of media. Participants in the media conditions filled out post-stimuli measures after each of the three shortened episodes during the media portion of the study.

Stimuli-related measures. Participants in the two media conditions rated whether they had previously seen each clip and how often they watched the show the clip came from on a scale from 0 (never) to 5 (almost every day). Participants’ responses on these items were averaged to create an index of stimuli-specific exposure.

To determine if the stimuli impacted mood, participants in both the media conditions and the control condition filled out a mood measure. Specifically, participants rated mood on a scale used previously in media research, using a 1 to 7 bipolar scale of how they are feeling at that moment for seven items (e.g., happy and sad, agitated and calm) (adapted from Warbuton, Williams, & Cairns, 2006) (see Appendix B). The six items were reversed scored so that higher numbers represented a positive mood. Items
factored together and were combined to create an overall index of positive mood ($\alpha = .86$).

**Dependent variables.** After participants in the media conditions were exposed to the stimuli, they proceeded with responding to the survey. Participants in the control condition began by responding to the survey. Separate surveys were programmed to present gender-relevant questions to male participants and female participants. The survey assessed dependent variables of interest—behavioral willingness to engage in sex under the influence of alcohol, prototypes engaging in sex under the influence of alcohol, norms of engaging in sex under the influence of alcohol, and perceived vulnerability for engaging in sex without a condom while under the influence of alcohol (Gibbons et al., 2003).

**Behavioral willingness.** The alcohol use preceding sex willingness construct began with a description of a hypothetical scenario: “Assume you are not seriously dating anyone. Suppose you were at a party - you have had several drinks and you begin to feel that you may have had enough, and you are getting ready to leave. Then you meet a man/woman for the first time and start talking. You think that he/she is very attractive (the feeling is obviously mutual) and you decide to stay and have a few more drinks with him/her. At the end of the evening, you go to his/her apartment with him/her. You're feeling as if you might like to have sex with him/her and he/she obviously feels the same way, but neither of you has a contraceptive (e.g., condom) available. How willing would you be to 1) stay at his/her apartment and have vaginal sex? 2) go ahead but use a method like withdrawing the man’s penis before ejaculation.” rated on a 7-point scale from 1 (not at all willing) to 7 (completely willing) (adapted from Gibbons et al., 1998; Thornton et
al., 2002). The question was replicated for steady partner (see Appendix B). The four items loaded onto the same factor and were combined to create an overall index of behavioral willingness ($\alpha = .81$).

**Prototypes.** Images of individuals who engage in sex after drinking alcohol were introduced with the following lead-in statements: “Think about the type of person your age and gender who has vaginal sex with a casual partner after drinking alcohol. Not anyone in particular, just your image of a person your age and gender who has sex after drinking. How much do you think the following words describe your image of that person?” Six items commonly used in Prototype Willingness Model research followed the stem, “How [smart, attractive, confident, mature, popular, and exciting] is he/she?” (1 not at all to 7 very) (Gerrard et al., 2008). Additionally, participants rated how similar they perceived themselves to be to the image. This question was replicated for steady partner (see Appendix B).

The descriptor ratings for casual and steady prototype had high reliability ($\alpha = .90$); however not all of the descriptors factored together in principal component analysis. Given that participants’ self-report of past steady and casual sex partners were positively correlated ($r = .30; p < .001$), casual and steady prototype items were averaged to correspond with other constructs measured from the Prototype Willingness Model. Descriptor ratings were averaged for casual prototype descriptors ($\alpha = .84$) and steady prototype descriptors ($\alpha = .90$), each were multiplied by similarity to create an index of prototype perceptions, with higher scores signifying greater favorability and similarity (Litt & Stock, 2011). These ratings on steady and casual prototype images were then averaged together.
**Norms.** Perceptions of descriptive norms were assessed for alcohol use preceding vaginal sex. Specifically, participants were asked gender-concordant perceptions of norms for two referent groups, “How many of your male (female) friends [male (female) college students in the US] have sex with a casual partner after drinking alcohol?” (1 none to 7 almost all) (adapted from, Ouellette et al., 1999). These questions were replicated for steady partner (see Appendix B). The steady and casual normative indexes were correlated and averaged to create an overall index of perceived norms ($r = .52, p < .001$).

**Conditional perceived vulnerability.** Conditional perceived vulnerability was assessed for casual and steady partner by asking: “If you were to have vaginal sex with a casual [steady] partner after drinking alcohol, what are the chances that you would have sex without a condom?” The responses were on a 7-point scale (1 not at all likely to 7 very likely) (see Appendix B). The steady and casual items were correlated and combined to create an overall index of perceived vulnerability ($r = .39, p < .001$).

**Moderator and control variables.** The final section of the questionnaire assessed past risk behavior, general media consumption, social comparison orientation, sensation-seeking, and demographic information (see Appendix B).

**Social comparison orientation.** Assessment of one of the investigated moderators, social comparison orientation, was adapted from the Iowa-Netherlands Comparison Orientation Measure (Gibbons & Buunk, 1999). The Iowa-Netherlands Comparison Orientation Measure is an 11-item measure with items rated on a scale from 1 (disagree strongly) to 5 (agree strongly) (see Appendix B). Seven items relate primarily to whether individuals compare themselves to others: “I often compare how I am doing socially (e.g., social skills, popularity) with other people”, “I am not the type of person who
compares often with others (reversed), “I often compare myself with others with respect to what I have accomplished in life.” Responses on these 7 items demonstrated high reliability (α = .83), factored together, and were averaged to create an index of social comparison orientation.

*Sensation-seeking.* Past research has demonstrated that sensation-seeking is systematically related to both media exposure and substance use (Stoolmiller, Gerrard, Sargent, Worth, & Gibbons, 2010) and media exposure and sexual behavior (Collins et al., 2004; O’Hara et al., 2012). The present study controlled for sensation-seeking, using the Impulsive Sensation-Seeking Subscale derived from an abbreviated version of the Zuckerman-Kuhlman Personality Questionnaire (Zuckerman, 2007) (see Appendix B). Individual items (e.g., “I am an impulsive person”) were scored as true or false and were summed together to create an overall sensation-seeking score.

*General media consumption.* General media consumption included three domains of media: television, movies, and pornography. Specifically, for television participants were asked “How many hours of television (this includes television broadcast on a television, or content originally broadcast on television that you watch on dvd or on the internet such as on hulu) do you watch per week?”; “How many movies do you watch per month?”; and “How many hours of video pornography (this includes content on television, dvds, and on the internet) do you watch per week?” (adapted from Dal Cin et al., 2009; see Appendix B). Reports for each domain were multiplied to calculate a monthly media exposure measure and summed across domains to capture total hours of monthly media consumption. The resulting item was positively skewed and log transformed to normalize the variable.
Past risk behavior. Participants reported their engagement in the health-risk behaviors over the preceding 6 months. Questionnaire items derived from measures used in other research were adapted to specify the definition of vaginal sex for the term “sex.” Past alcohol use preceding vaginal sex was assessed as a moderator. Participants reported past vaginal sexual behavior that occurred after alcohol use, “In the past 6 months, how many times did you have vaginal sex with casual [steady] partner after you had been drinking alcohol?” (never, 1-2 times, over 2 times a month but less than 1 time per week, once a week, 2-3 times per week, 4-5 times per week, over 5 times a week) (adapted from Levy et al., 2009) (see Appendix B). Participants who responded “never” for both casual and steady partners were coded as “0” to represent no sex preceding alcohol use in the last six months (n = 87; 45.1%) and all other responses were coded as “1” to represent engaging in sex under the influence of alcohol during the past six months (n = 106; 54.9%).

For those who had engaged in sex under the influence of alcohol during the past six months, the amount of engagement was calculated as a continuous variable to serve as a control. The responses for steady and casual partner were correlated and averaged (r = .25, p = .001).

Participants reported past vaginal sex partner experience for both steady and casual partners. Participants were asked, “In the past 6 months, how many casual [steady] vaginal sexual partners have you had?” (open-ended) (see Appendix B). Responses to these items were summed, and the resulting item was positively skewed and log transformed to normalize the variable. Individuals who indicated that they had never had sex were coded as “0” to represent their virgin status.
Participants reported *past alcohol behavior*. Participants were asked, “In the past 6 months, how many days have you drunk alcohol?” (0 *never*, 1 *less than 1 time per month*, 2 *less than 1 time per week*, 3 *1-2 times per week*, 4 *3-4 times per week*, 5 *5-6 times per week*, 6 *every day*).

**Demographics.** Participants reported their gender, age, race, relationship status, and sexual orientation (see Appendix B).

**Manipulation check.** To determine if the main manipulation (television content portraying sex under the influence of alcohol versus television content depicting neither sex nor alcohol) was attended to by the participant, at the conclusion of the study participants were asked to briefly describe the plot of each clip (see Appendix B).

## Chapter 4: Results

### Demographics

A total of 200 college students participated in the study. One participant neglected to follow instructions and six indicated their sexual orientation as homosexual resulting in 193 participants included in analyses. The majority of participants were female (65.3%) and were an average of 19.33 (SD = 1.27) years old. The most common racial identification was White/Caucasian (62.7%), followed by other (21.8%), African American/Black (8.3%), and Native American/Pacific Islander (1.6%). Of these participants, 54.9% reported engaging in sex under the influence of alcohol during the past six months, and the modal response for relationship was not in a relationship (48.2%).

### Overview of Participant Responses
See Table 1 for means, standard deviations, and correlations on the main constructs of interest. Overall, all dependent variables were correlated (behavioral willingness, casual and steady prototypes, norms, perceived vulnerability; ps < .001). Past sexual partners, alcohol use behavior, and sex under the influence of alcohol were also positively correlated with all the dependent variables (ps < .01), except past sex partners and steady prototype (r = .11, p = .12). Greater general media consumption was related to less favorable perceptions of a steady prototype (r = -.27 p < .001). Sensation-seeking was positively correlated with all dependent variables and all past behaviors (ps < .01). Being male was related to greater behavioral willingness, favorability of casual prototypes, normative perceptions, past number of sex partners, general media consumption, and less stimuli-specific exposure (ps < .05).
Table 1
Correlations, Means, Standard Deviations, and Ranges for Prototype Willingness Model Constructs for Sex Under the Influence of Alcohol, Past Risk Behavior, Media Controls, Sensation Seeking, and Relationship Status

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
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</thead>
<tbody>
<tr>
<td>1. Behavioral willingness</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2. Prototype</td>
<td>.35***</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Norms</td>
<td>.36***</td>
<td>.37***</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Perceived vulnerability</td>
<td>.59***</td>
<td>.42***</td>
<td>.34***</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Past sex under the influence of alcohol</td>
<td>.39***</td>
<td>.31***</td>
<td>.44***</td>
<td>.35***</td>
<td>--</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>6. Past sex partners</td>
<td>.33***</td>
<td>.30***</td>
<td>.32***</td>
<td>.40***</td>
<td>.56***</td>
<td>--</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>7. Past alcohol use</td>
<td>.31***</td>
<td>.33***</td>
<td>.30***</td>
<td>.23**</td>
<td>.36***</td>
<td>.27***</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. General media consumption</td>
<td>-.01</td>
<td>-.19**</td>
<td>-.03</td>
<td>-.06</td>
<td>.06</td>
<td>.05</td>
<td>-.09</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Stimuli-specific exposure</td>
<td>-.05</td>
<td>.13†</td>
<td>-.06</td>
<td>.08</td>
<td>.05</td>
<td>.18*</td>
<td>.16*</td>
<td>-.01</td>
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<td></td>
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<tr>
<td>10. Sensation seeking</td>
<td>.24**</td>
<td>.33***</td>
<td>.25***</td>
<td>.25**</td>
<td>.26***</td>
<td>.36***</td>
<td>.28***</td>
<td>-.06</td>
<td>.16*</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>11. Relationship status</td>
<td>.14†</td>
<td>.08</td>
<td>.16*</td>
<td>.05</td>
<td>.33***</td>
<td>-.06</td>
<td>-.02</td>
<td>-.02</td>
<td>-.02</td>
<td>-.07</td>
<td>--</td>
</tr>
<tr>
<td>12. Gender (0 = female; 1 = male)</td>
<td>.22**</td>
<td>.13†</td>
<td>.24**</td>
<td>.07</td>
<td>.03</td>
<td>.15*</td>
<td>.01</td>
<td>.17*</td>
<td>-.20**</td>
<td>.12</td>
<td>-.07</td>
</tr>
<tr>
<td>M</td>
<td>3.24</td>
<td>17.08</td>
<td>4.66</td>
<td>2.50</td>
<td>.95</td>
<td>2.43</td>
<td>2.37</td>
<td>48.07</td>
<td>.32</td>
<td>2.53</td>
<td>3.02</td>
</tr>
<tr>
<td>SD</td>
<td>1.48</td>
<td>8.93</td>
<td>1.09</td>
<td>1.47</td>
<td>1.20</td>
<td>3.20</td>
<td>1.22</td>
<td>37.80</td>
<td>.58</td>
<td>2.14</td>
<td>2.36</td>
</tr>
<tr>
<td>Range</td>
<td>1 - 7</td>
<td>2.25 - 49</td>
<td>1 - 7</td>
<td>1 - 7</td>
<td>0 - 5</td>
<td>0 - 26</td>
<td>0 - 5</td>
<td>4 - 226</td>
<td>0 - 3</td>
<td>0 - 7</td>
<td>1 - 8</td>
</tr>
</tbody>
</table>

Note. † p < .10, * p < .05, ** p < .01, *** p < .001; Past behavior sex partners and general media consumption unadjusted means, standard deviations, and ranges are reported, and these variables were log transformed for analyses.
**Statistical methods**

To examine the past behavior by condition interaction, a series of analyses was conducted using general linear model (GLM) analyses of covariance (ANCOVA) to examine the main effects of condition and any interaction between condition and engagement in sex under the influence of alcohol in the past six months on the following dependent variables: behavioral willingness, prototype, norms, and perceived vulnerability (see Table 2 for condition main effects). Condition was coded as follows: 0 = control, 1 = non-risky behavior media, and 2 = risky behavior media. Past sex under the influence of alcohol behavior was coded as follows: 0 = no sex under the influence of alcohol in the past 6 months and 1 = sex under the influence of alcohol in the past 6 months. All analyses controlled for past six month risk behavior (sex partners, alcohol use, engagement in sex under the influence of alcohol), general and specific media exposure, gender (0 = female, 1 = male), sensation-seeking, and relationship status.

Additional analyses were run to examine the hypothesized interactions with social comparison orientation and condition. These analyses included past behavior as a predictor variable. To capitalize on the continuous measurement of social comparison orientation, hierarchical regressions were used to examine the interaction resulting in examination of the 2-way social comparison orientation by condition interaction as well as the 3-way social comparison orientation by condition by past behavior interaction.

**Manipulation check/suspicion.** Participants were instructed to write brief summaries of each clip at the conclusion of the study. Two raters, blind to the participants’ condition assignments, independently read each summary and assessed whether the description signified that the participant had attended to the clips. Raters
discussed and came to consensus on all disagreements. One participant was rated as not paying attention to the three clips. Additionally, another participant verbally expressed suspicion regarding the research protocol to the experimenter while participating in the study. All analyses were replicated eliminating these two participants and there were no changes in the results. Therefore, these participants were included in all main analyses.

**Mood effects.** Mood was analyzed because mood has the potential to be systematically influenced as a result of media exposure, and it needed to be ruled out as a possible confound of any effects on the dependent variables. An ANCOVA controlling for all covariates was conducted to determine if there were condition differences in participants’ mood. Results indicated that there was not a significant impact of media condition on participant mood ratings \(F(2, 192) = 2.51, p = .11\), and no further analysis incorporated or controlled for mood.

**Randomization error check.** In order to determine if there were any errors in randomization, a series of one-way ANCOVAs were conducted on condition. Results indicated that there were no significant differences among conditions on any of the control variables, including past sex under the influence of alcohol \(F(2,192) = .32, p = .72\), past vaginal sex partners \(F(2,192) = 1.58, p = .21\), past alcohol use \(F(2,192) = 1.04, p = .35\), general media exposure \(F(2,192) = 1.97, p = .14\), sensation seeking \(F(2,192) = .03, p = .98\), relationship status \(F(2,192) = .40, p = .67\), or gender \(F(2,192) = .71, p = .49\).
Table 2

*Condition Main Effects*

<table>
<thead>
<tr>
<th>Condition</th>
<th>Control (n = 64)</th>
<th>Non-risky behavior media (n = 64)</th>
<th>Risky behavior media (n = 65)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willingness</td>
<td>M = 3.32</td>
<td>M = 3.18</td>
<td>M = 3.24</td>
</tr>
<tr>
<td></td>
<td>SE = .18</td>
<td>SE = .17</td>
<td>SE = .17*</td>
</tr>
<tr>
<td>Prototype</td>
<td>M = 18.16</td>
<td>M = 17.59</td>
<td>M = 15.20</td>
</tr>
<tr>
<td></td>
<td>SE = 1.05</td>
<td>SE = 1.03</td>
<td>SE = 1.00</td>
</tr>
<tr>
<td>Norms</td>
<td>M = 4.58</td>
<td>M = 4.66</td>
<td>M = 4.69</td>
</tr>
<tr>
<td></td>
<td>SE = .13</td>
<td>SE = .12</td>
<td>SE = .12</td>
</tr>
<tr>
<td>Perceived Vulnerability</td>
<td>M = 2.57</td>
<td>M = 2.28</td>
<td>M = 2.61</td>
</tr>
<tr>
<td></td>
<td>SE = .18</td>
<td>SE = .17</td>
<td>SE = .17</td>
</tr>
</tbody>
</table>

*n = 63 for willingness in the risky behavior media condition

**Condition by past behavior ANCOVAs.** Analyses examining the interaction of condition and past behavior were run on behavioral willingness, prototype, norms, and perceived vulnerability.

**Behavioral willingness.** Past alcohol use ($F(1,191) = 8.33, p = .004$) and male gender ($F(1,191) = 5.23, p = .02$) were associated with willingness to engage in sex under the influence of alcohol. Neither condition ($F(2,191) = .14, p = .87$; see Table 2 for means) nor past sex under the influence of alcohol ($F(2,191) = .14, p = .71$) were related to willingness. The condition by past behavior interaction was significant ($F(2,191) = 3.58, p = .03$). Participants in the risky behavior media condition who had engaged in sex under the influence of alcohol reported the highest willingness (M = 3.64, SE = .27) while participants in this condition who had not engaged in sex under the
influence of alcohol reported the lowest willingness (M = 2.84, SE = .26) (see Table 3).

These results suggest the impact of viewing risky behavior media on willingness depends on the viewer’s past experience with that behavior.¹

Table 3

*Behavioral Willingness*

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Non-risky behavior media</th>
<th>Risky behavior media</th>
</tr>
</thead>
<tbody>
<tr>
<td>No past sex under the influence of alcohol</td>
<td>M = 3.32</td>
<td>M = 3.42</td>
<td>M = 2.84</td>
</tr>
<tr>
<td></td>
<td>SE = .28</td>
<td>SE = .28</td>
<td>SE = .26</td>
</tr>
<tr>
<td></td>
<td>n = 28</td>
<td>n = 28</td>
<td>n = 30</td>
</tr>
<tr>
<td>Past sex under the influence of alcohol</td>
<td>M = 3.31</td>
<td>M = 2.95</td>
<td>M = 3.64</td>
</tr>
<tr>
<td></td>
<td>SE = .25</td>
<td>SE = .23</td>
<td>SE = .27</td>
</tr>
<tr>
<td></td>
<td>n = 36</td>
<td>n = 36</td>
<td>n = 33</td>
</tr>
</tbody>
</table>

*Post-hoc analyses.* Post-hoc analyses were conducted to further investigate the condition by past engagement in sex under the influence of alcohol interaction on willingness. The impact of condition was examined separately for participants who had and had not engaged in sex under the influence of alcohol over the last six months. Results indicated that condition was not significant among individuals who had not engaged in sex under the influence of alcohol (F (2, 86) = 1.31, p = .28). However, condition was approaching significance among individuals who had engaged in sex under the influence of alcohol (F (2,105) = 2.32, p = .10), with those in the risky behavior media reporting the highest behavioral willingness (M = 3.64, SE = .27) and those in the

¹ Analyses were replicated examining behavioral willingness for casual and steady partners as separate dependent variables. For both ANCOVAs, the 2-way condition by past behavior interaction lost significance, but remained marginal (ps < .1). Main effect results were functionally the same (i.e., no differences in significance or direction of betas).
non-risky behavior media reporting the lowest behavioral willingness (M = 2.95, SE = .23). The impact of sex under the influence of alcohol behavior was next examined within each condition. Results indicated that past sex under the influence of alcohol was not significant in the control condition (F (1,64) = .10, p = .76), the non-risky behavior media condition (F (1,64) = .004, p = .95), or the risky behavior condition (F (1,63) = 1.33, p = .25). These post-hoc analyses do not lead to firm conclusions about which differences are driving the interaction, but the effect among individuals who have engaged in sex under the influence of alcohol during the past six months approaching significance suggests that media exposure may have greater impact among individuals who have recently engaged in the portrayed behavior.

Prototype. Past alcohol use (F (1,193) = 4.83, p = .03), general media consumption (F (1,193) = 8.34, p = .004), sensation-seeking (F (1,193) = 5.51, p = .02), and male gender (F (1,193) = 6.40, p = .04) were associated with prototype favorability. The main effect for condition was not significant (F (2,193) = 2.26, p = .11; see Table 2 for means). The main effect for past sex under the influence of alcohol was not significant (F (1,193) = 1.80, p = .18). The condition by past behavior interaction was also not significant (F (2,193) = .29, p = .75) (see Table 4 for means).^2

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^2 Analyses were replicated examining prototypes for casual and steady partners as separate dependent variables. Results did not functionally change for either the main effects or the 2-way interaction.
Table 4

*Prototype of Engager in Sex Under the Influence of Alcohol*

<table>
<thead>
<tr>
<th>No past sex under the influence of alcohol</th>
<th>Control</th>
<th>Non-risky behavior media</th>
<th>Risky behavior media</th>
</tr>
</thead>
<tbody>
<tr>
<td>M = 17.61</td>
<td>M = 16.01</td>
<td>M = 13.88</td>
<td></td>
</tr>
<tr>
<td>SE = 1.70</td>
<td>SE = 1.69</td>
<td>SE = 1.54</td>
<td></td>
</tr>
<tr>
<td>n = 28</td>
<td>n = 28</td>
<td>n = 31</td>
<td></td>
</tr>
<tr>
<td>Past sex under the influence of alcohol</td>
<td>M = 18.70</td>
<td>M = 19.16</td>
<td>M = 16.53</td>
</tr>
<tr>
<td>SE = 1.51</td>
<td>SE = 1.38</td>
<td>SE = 1.57</td>
<td></td>
</tr>
<tr>
<td>n = 36</td>
<td>n = 36</td>
<td>n = 34</td>
<td></td>
</tr>
</tbody>
</table>

**Norms.** Greater engagement in sex under the influence of alcohol ($F(1,193) = 5.46, p = .02$) and being male ($F(1,193) = 8.53, p = .004$) were related to believing that sex under the influence of alcohol was more normative. There was no significant main effect for condition ($F(1,193) = .20, p = .82$; see Table 2 for means). Past sex under the influence of alcohol was marginally related to normative perceptions ($F(1,193) = 2.90, p = .09$); normative perceptions were higher among those who *had* engaged in sex under the influence of alcohol during the last six months ($M = 4.82, SE = .11$) when compared to those who *had not* engaged in sex under the influence of alcohol in the last six months ($M = 4.47, SE = .13$). The condition by past behavior interaction was not significant ($F(2,193) = 1.68, p = .19$) (see Table 5 for means).³

³ Analyses were replicated examining norms for casual and steady partners as separate dependent variables. Results did not functionally change for either the main effects or the 2-way interaction.
Table 5

**Norms**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Control</th>
<th>Non-risky behavior media</th>
<th>Risky behavior media</th>
</tr>
</thead>
<tbody>
<tr>
<td>No past sex under the influence of alcohol</td>
<td>M = 4.58</td>
<td>M = 4.42</td>
<td>M = 4.41</td>
</tr>
<tr>
<td></td>
<td>SE = .203</td>
<td>SE = .20</td>
<td>SE = .18</td>
</tr>
<tr>
<td></td>
<td>n = 28</td>
<td>n = 28</td>
<td>n = 31</td>
</tr>
<tr>
<td>Past sex under the influence of alcohol</td>
<td>M = 5.58</td>
<td>M = 4.90</td>
<td>M = 4.97</td>
</tr>
<tr>
<td></td>
<td>SE = .18</td>
<td>SE = .17</td>
<td>SE = .19</td>
</tr>
<tr>
<td></td>
<td>n = 36</td>
<td>n = 36</td>
<td>n = 34</td>
</tr>
</tbody>
</table>

**Perceived vulnerability.** The number of past sex partners \( F(1,193) = 4.53, p = .04 \) was related to greater perceived vulnerability that sex under the influence of alcohol would result in unprotected sex. Neither condition \( F(2,193) = 1.12, p = .33 \); see Table 2 for means) nor past engagement in sex under the influence of alcohol \( F(1,193) = 1.88, p = .17 \) were related to perceived vulnerability. The condition by past behavior interaction was approaching significance \( F(2,193) = 2.5, p = .08 \) (see Table 6). The extremes in this interaction were similar to the significant 2-way interaction on behavioral willingness, with individuals who had engaged in sex under the influence of alcohol expressing the highest perceived vulnerability in the risky behavior media condition \( M = 2.95, SE = .27 \), and the lowest perceived vulnerability in the non-risky behavior media condition \( M = 2.16, SE = .24 \) (see Table 6).\(^4\)

\(^4\) Analyses were replicated examining perceived vulnerability separately for casual and steady partners. Results did not functionally change for either the main effects or the 2-way interaction.
Table 6

*Perceived Vulnerability*

<table>
<thead>
<tr>
<th>No past sex under the influence of alcohol</th>
<th>Control</th>
<th>Non-risky behavior media</th>
<th>Risky behavior media</th>
</tr>
</thead>
<tbody>
<tr>
<td>M = 2.21</td>
<td>M = 2.39</td>
<td>M = 2.26</td>
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<td>SE = .29</td>
<td>SE = .29</td>
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<td></td>
</tr>
<tr>
<td>n = 28</td>
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<td>n = 31</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Past sex under the influence of alcohol</th>
<th>Control</th>
<th>Non-risky behavior media</th>
<th>Risky behavior media</th>
</tr>
</thead>
<tbody>
<tr>
<td>M = 2.94</td>
<td>M = 2.16</td>
<td>M = 2.95</td>
<td></td>
</tr>
<tr>
<td>SE = .26</td>
<td>SE = .24</td>
<td>SE = .27</td>
<td></td>
</tr>
<tr>
<td>n = 36</td>
<td>n = 36</td>
<td>n = 34</td>
<td></td>
</tr>
</tbody>
</table>

**Condition by social comparison orientation regressions.** To assess the moderating impact of social comparison orientation, hierarchical multiple regression analyses were run to capitalize on the continuous nature of social comparison orientation. Although these results were already investigated in the ANCOVAs, results of the condition by past behavior (0 = *no sex under the influence of alcohol in the past 6 months* and 1 = *sex under the influence of alcohol in the past 6 months*) interactions were included in the analyses and subsequently reexamined using the condition contrasts. Social comparison orientation was centered (West, Aiken, & Krull, 1996). Two sets of orthogonal contrasts derived from the main effect hypotheses were created for the conditions (West, Aiken, & Krull, 1996) to compare control and non-risky behavior media to risky behavior media (CN-R; control = 1, non-risky behavior media = 1, risky behavior media = -2) and control to non-risky behavior media (C-N; control = -1, non-risky media = 1, risky media = 0). Control variables (past sex under the influence of alcohol, past sex partners, past alcohol use, general media consumption, stimuli-specific...
media exposure, sensation-seeking, relationship status, gender), main effects (CN-R, C-N, past sex under the influence of alcohol, and social comparison orientation), 2-way interactions (CN-R by past sex under the influence of alcohol, C-N by past sex under the influence of alcohol, CN-R by social comparison orientation, C-N by social comparison orientation, and past sex under the influence of alcohol by social comparison orientation), and 3-way interactions (CN-R by past sex under the influence of alcohol by social comparison orientation, and C-N by past sex under the influence of alcohol by social comparison orientation) were entered step-wise.

**Behavioral willingness.** A significant social comparison orientation by CN-R interaction emerged for behavioral willingness ($\beta = .15; t = 2.17; p = .03$). In the risk media condition, willingness was highest among individuals low in social comparison. Simple effects analyses revealed that social comparison orientation was not related to willingness within either control/non-risky behavior media (CN; $p > .1$) or risky behavior media (R; $p > .1$). Simple effects analyses (social comparison orientation standard deviation +1/-1) revealed that the differences between the condition contrasts were approaching significance within social comparison orientation above the mean ($\beta = .22, t = 1.91, p = .06$), such that high social comparison reported lower willingness in the risky media condition. The differences between condition contrasts were significant within social comparison orientation below the mean ($\beta = -.24, t = -2.04, p = .04$), such that the risky media contrast was associated with higher willingness. No significant interaction emerged for the C-N condition contrast interaction ($p = .2$).

Similar to the ANCOVAs, which demonstrated a past behavior by condition interaction on willingness, a past behavior interaction emerged for behavioral willingness
with the control/non-risky behavior media versus risky behavior media contrast (condition by CN-R, \( p = .03 \)); similar to the ANCOVAs willingness was highest among those who had engaged in sex under the influence of alcohol in the risky media condition. No significant 3-way interactions emerged (\( ps > .75 \)).

**Prototypes.** No significant condition contrast (CN-R or C-N) by social comparison orientation, condition contrast by past behavior, or condition contrast by social comparison orientation by past behavior interactions emerged for prototypes (\( ps > .36 \)).

**Norms.** No significant condition contrast (CN-R or C-N) by social comparison orientation, condition contrast by past behavior, or condition contrast by social comparison orientation by past behavior interactions emerged for perceived norms (\( ps > .14 \)).

**Perceived vulnerability.** A contrast C-N by social comparison orientation interaction approached significance for perceived vulnerability (\( \beta = .13, t = 1.90, p = .06 \)), but not for the CN-R contrast (\( p = .96 \)). Similar to the ANCOVAs, a past behavior interaction emerged for perceived vulnerability (with C-N, \( p = .04 \)). Individuals who had engaged in sex under the influence of alcohol in the past six months expressed lower perceived vulnerability in the non-risky media condition contrast compared to the control contrast. Individuals who had not engaged in sex under the influence of alcohol in the

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5 Results were rerun examining behavioral willingness separately for casual and steady partners. For both steady and casual partner behavioral willingness, the social comparison orientation by CN-R interaction was not significant (approaching significance for steady partner; \( p = .07 \)). All other results were functionally the same.

6 Results did not functionally differ examining steady and casual prototypes separately.

7 Results did not functionally differ examining steady and casual norms separately.
past six months expressed higher perceived vulnerability regardless of condition. No significant 3-way interactions emerged ($p > .53$).\textsuperscript{8}

**Chapter 5: Discussion**

The present study experimentally examined the impact of viewing television media depicting sex under the influence of alcohol using the Prototype Willingness Model theoretical framework. Sex under the influence of alcohol is commonly portrayed in visual media (e.g., television, Kunkel et al., 2005; 2007) and is a public health concern on college campuses (Patrick & Maggs, 2010). Previous research has demonstrated that media exposure is predictive of sexual and alcohol outcomes (Bahk, 2001; Collins et al., 2004; Dal Cin et al., 2009; Ward & Friedman, 2006). Experimental research among college students suggests that media exposure results in greater endorsement of cognitions related to sex (Eyal & Kunkel, 2008; Ward & Friedman, 2006) and alcohol use (Bahk, 2001; Koorderman et al., 2010). Longitudinal research using the Prototype Willingness Model provides evidence that media’s influence on alcohol use is mediated through Prototype Willingness Model cognitions, specifically increased prototype favorability and behavioral willingness (Dal Cin et al., 2009; Gibbons et al., 2010). However, results from the present research demonstrated that media exposure did not influence cognitions related to alcohol use prior to sex.

The present study was the first research to experimentally examine media influence using the Prototype Willingness Model and to investigate the impact of media

\textsuperscript{8} Results were rerun examining perceived vulnerability separately for casual and steady partners. Perceived vulnerability for a casual partner revealed a significant interaction for social comparison orientation by the C-N condition contrast ($p = .03$). When examining perceived vulnerability for a steady partner, the significant interactions found with the combined item were not replicated.
depicting *sex under the influence of alcohol*. Previous research has used a variety of conceptualizations of control groups but has not used a non-media control group to determine whether exposure to any media may systematically influence cognitions related to health risk behavior. The present study addressed this gap by including both a non-risky behavior media condition and a control condition with no media. Additionally, the present study contributed to research on media influence through examination of past behavior and social comparison orientation moderation. Results demonstrated that media exposure’s influence on select cognitions related to sex under the influence of alcohol depended on past behavior and social comparison.

**Interpretation of Results**

**Media exposure main effects.** The hypothesis that exposure to risky behavior media would result in the greatest risky health cognitions, compared to the non-risky behavior and no media exposure conditions, was not supported. The televised media conditions did not have a significant impact on 1) willingness to engage in sex under the influence of alcohol, 2) favorability of prototypes of individuals who engage in sex under the influence of alcohol, 3) descriptive norms for sex under the influence of alcohol, or 4) perceived vulnerability for having sex under the influence of alcohol without a condom. Non-significant patterns emerged as hypothesized for norms, such that participants rated norms highest in the risky behavior media condition, followed by the non-risky behavior media condition, and lowest in the control condition. However, non-significant patterns were opposite of the hypothesized results for all other dependent variables. For prototype favorability in particular, ratings were lowest in the risky behavior media condition for both the aggregate and when the sample was split on past behavior. Given that past
research suggests that media related to sex and alcohol impacts cognitions related to health risk behavior (e.g., Bahk, 2001; Dal Cin et al., 2009; Eyal & Kunkel, 2008; Gibbons et al., 2010; Koorderman et al., 2010; Ward & Friedman, 2006), the present results indicate that brief exposure to media depicting sex under the influence of alcohol does not immediately impact cognitions related to risky behavior in this particular sample.

**Prototypes and media characters.** The pattern of prototype favorability aggregate means, while not significant, warrants additional discussion. Specifically, prototype favorability ratings were lowest after participants viewed television characters engaging in sex after drinking. These results are in contrast to longitudinal research with alcohol use, which demonstrate that exposure to alcohol use in film increases prototype favorability (Gibbons et al., 2010); however, Gibbons and colleagues point out that their results show that prototypes are malleable and media could also make prototypes less favorable. Compared to past research on alcohol media exposure’s effects on Prototype Willingness Model constructs, the present study included an older-aged sample and assigned participants to view television characters engaging in the risk behavior of sex under the influence of alcohol. Assigned exposure is different from capturing viewing that participants have selected to engage in over time, as self-reported exposure more likely features characters that individuals are attracted to and interested in.

The non-significant trends in the present study indicate that when individuals are confronted with images of people engaging in sex under the influence of alcohol, they may view this as negative and perceive prototypes of individuals who engage in this behavior less favorably. Original research on prototype perception has shown that the
impact of prototype perception on willingness and behavior is driven more by negative perceptions of images (Gerrard et al., 2008; Gibbons et al., 2003). Raw prototype favorability scores for steady and casual prototypes were only slightly above the midpoint, suggesting participants in the current study may have perceived the characters negatively leading to the trends of lower prototype favorability after exposure.

Past behavior effects. No main effects emerged for past behavior. Participants who recently had sex under the influence of alcohol reported higher behavioral willingness, prototypes, norms and perceived vulnerability, but these patterns were non-significant. These results are surprising given that past behavior commonly predicts future sex and alcohol cognitions (e.g., Gibbons et al., 2009; Pomery et al., 2009; Todd & Mullan, 2011).

Past behavior moderation on behavioral willingness. Participant engagement in sex under the influence of alcohol during the past six months moderated the impact of media exposure on behavioral willingness. After viewing sex under the influence of alcohol on television, participants who had engaged in sex under the influence of alcohol reported the highest willingness, while participants who had not engaged in sex under the influence of alcohol during the past six months rated the lowest willingness. Post-hoc analyses suggest that media exposure had the strongest impact among those who had recently engaged in sex after using alcohol. These results are in contrast to the hypothesized moderation that media exposure would have greater influence on individuals who had not recently engaged in the sex under the influence of alcohol.

This hypothesis was based on research showing that individuals with less experience had greater cognitive and behavioral responses to visual stimuli. Reexamining
this literature, the conceptualization of exposure (i.e., pro-smoking media and advertising, still images of sexy women, media depicting unsafe consequences of risky sex) and past experience (i.e., never versus ever smokers, sexually liberal versus sexually conservative) were different from the present study (Finnerty-Myers, 2011; Roberts, Gibbons, Kingsbury, & Gerrard, under review; Shadel et al., 2012). The operational definitions of media exposure and past behavior in the present study were closest to research investigating response to alcohol in media, and these results were also more similar to the present results but demonstrated no moderating effect of past behavior (Koordeman et al., 2011).

Participants in the present study who had recently engaged in sex under the influence of alcohol may have been more influenced by watching this behavior on television because any reminder of sex under the influence carried greater personal relevance. For these individuals, their personal engagement in sex under the influence of alcohol was likely more salient compared to individuals who not recently (or ever) engaged in sex under the influence, and viewing an environmental cue depicting this behavior may have activated and enhanced their existing willingness to engage in sex after drinking. For individuals not actively engaging in sex under the influence, viewing media may have been unlikely to enhance their behavioral willingness, especially if they were disinterested in engaging in sex under the influence of alcohol.

Past behavior moderation on perceived vulnerability. There was a marginally significant past behavior by condition interaction for perceived vulnerability for having unprotected sex under the influence of alcohol. Among participants who viewed sex under the influence of alcohol on television, perceived vulnerability was highest among
college students who had engaged in sex under the influence of alcohol during the past six months and lowest for those who had not. However, overall lowest ratings of perceived vulnerability were among individuals who had engaged in sex under the influence of alcohol during the past six months in the non-risky behavior media condition. The edited episodes in the risky behavior media condition depicted no visual or verbal suggestion of condom use, and these results suggest that for individuals who have engaged in sex under the influence, viewing this behavior without condoms influences perceived vulnerability that this behavior could occur without protection.

Measurement of past behavior. The current study captured past engagement in sex under the influence of alcohol over the past six months. Among individuals who had not engaged in sex under the influence of alcohol during the past half year there were likely some who had engaged in sex under the influence of alcohol during their lifetime but not in the last six months, some who had engaged in sex but not under the influence of alcohol, and some who had never had sex. An operational definition of past behavior encompassing these subgroups may have resulted in different moderation patterns. Individuals who had engaged in sex under the influence of alcohol, but not in the last six months, may have been impacted by media similarly to those who had engaged in sex under the influence of alcohol in the past six months. Among individuals who had never had sex at all, they may have not been as impacted by the media because they were not interested in having sex or were not interested in having their first sexual experience in a non-sober state. Future research exploring sex under the influence of alcohol should ask participants their histories of both recent and lifetime past sex under the influence, and recent and lifetime sex sober.
Social comparison orientation effects. How much one engages in social comparison influenced the impact of exposure to television portraying sex under the influence of alcohol. Differences emerged for the control and non-risky behavior media versus risky behavior media contrast on willingness. Willingness was highest among individuals low in social comparison orientation in the risky behavior media condition; participants reported higher willingness when they did not view sex under the influence of alcohol on television.

These results are opposite of the hypothesized moderating effects for social comparison orientation. Prior research demonstrating that social comparison orientation moderates the social-heuristic pathway of the Prototype Willingness Model informed the hypothesis that individuals higher in social comparison orientation would express greater willingness to engage in sex under the influence of alcohol after viewing this behavior on television (Gibbons & Gerrard, 1997; Novak & Crawford, 2001). Individuals were expected to identify the characters engaging in sex under the influence of alcohol as positive comparison targets.

One potential explanation for why college students high in social comparison tendencies were not greatly impacted in the expected direction is that they did not consider the characters featured on Skins, Greek, and 90210 as positive comparison targets. Although the television shows used as exemplars were drawn from shows that students in the population reported watching, participants may not have held positive views of the featured characters. The non-significant condition trends for prototype favorability provide some evidence to suggest that participants viewed the characters unfavorably. Research on social comparison and health behavior has shown that
perceiving a social comparison target as negative can result in distancing from the comparison target (Gibbons & Gerrard, 1997). If individuals high in social comparison viewed the characters negatively, their cognitions may have reflected distancing themselves from the target, neutralizing evidence of a social comparison orientation moderating effect.

A second potential explanation for why high social comparison college students were not greatly impacted by viewing characters engaging in sex under the influence is that participants did not engage in comparison because of target dissimilarity. Although there is research to suggest that characters depicted in media function as comparison targets, this may be dependent on whether or not the viewer identifies with the character (Russell, Russell, & Grube, 2009; Ward & Friedman, 2006). Former research demonstrating the moderating impact of social comparison orientation on the social-heuristic pathway of the Prototype Willingness Model has used targets that are presented to the participants as individuals from their reference groups rather than fictionalized characters. For example, social comparison research has exposed college students to audio testimonials of same-gender and age targets presumed to be from the same college (Stock, Gibbons, & Gerrard, 2012). Research on social comparison shows that perceived similarity evokes comparison to targets and some level of existing similarity may be necessary for social comparison to occur (Lane et al., 2011) In the present study, high social comparers may not have identified with the characters portrayed in the video clips.

**Overall interpretation.** Taken together, the moderating impact of social comparison orientation and past behavior on behavioral willingness, and marginally significant moderating impact of past behavior on perceived vulnerability, suggest an
interactional influence of person variables and media exposure on cognitions related to sex under the influence of alcohol. Depictions of risky behavior in media did not have a one-size-fits-all influence and, for behavioral willingness, varied based on the individual’s tendency to socially compare and past engagement in the behavior. Although significant findings emerged, they were not in the expected directions and many anticipated relationships were null or unsupported.

**Limitations**

There were several limitations to the present research involving both experimental design and the sample. The lack of main effects for media exposure may be a result of a weak dose of the media manipulation. For the media conditions in the present study, participants viewed media for a total of 30 minutes. Other research has exposed participants to reduced-length movies (Bahk, 2001; Koorderman et al., 2010), three full television episodes (Farrar, 2006) or two hours of television (Eyal & Kunkel, 2008). Longer amounts of exposure to the behavior portrayed on media may have been necessary to illustrate the impact of media displaying sex under the influence of alcohol on related cognitions. Future research should not only continue to employ stimulus sampling but also test whether greater time of exposure to sex under the influence of alcohol on television elicits direct impact on cognitions.

Research with other media behavioral influence (e.g., media violence) has demonstrated effects on aggression with less than 30 minutes of media exposure, but these effects may be stronger because of the number of times the behavior is portrayed (i.e., participants play video games and engage in/view multiple simulated aggressive or violent acts, Bushman & Gibson, 2011). Additionally, the behavioral effects were
measured through proxy behaviors (e.g., noise blasting a confederate participant) rather than cognitions associated with aggression. Exposure to a greater number of incidents ($x > 3$) of sex under the influence of alcohol may enhance behavioral cognitions associated with this behavior.

Null findings for moderating effects of past behavior and social comparison orientation on prototypes and norms could have resulted from several issues. These constructs were different from behavioral willingness and perceived vulnerability in that they were about others (i.e., norms in one’s college and nation and perception of a typical individual who engages in the behavior) rather than cognitions related directly to the participant’s behavior. As previously mentioned, past behavior for engaging in sex under the influence of alcohol was assessed for the participants’ behavior the past six months. Other research on how past behavior moderates the impact of media exposure captured past behavior over the course of the prior week (Koordeman, Anschutz, Van Baaren, & Engels, 2010) as well as the participant’s lifetime (Shandel, Martino, Setodji, & Schar, 2012). For the present study, assessing past six month behavior may have masked findings that would have emerged if past behavior was conceptualized as any experience engaging in sex under the influence of alcohol.

For social comparison orientation, prior media exposure research has demonstrated that character identification and character connection predicted greater media impact on sexual experience (Ward & Friedman, 2006) and positive alcohol cognitions (Russell, Russell, & Grube, 2009). These findings suggest that viewers who feel more connected to characters on a television show may engage in greater amounts of social comparison with the characters, resulting in greater impact of media exposure on
their behaviors and attitudes. Participants in the current sample may or may not have identified with the characters presented in the television clips, and future research should investigate whether character identification predicts media influence and whether this relationship is stronger among those who engage in greater amounts of social comparison.

The sample size for the present study was also quite limited. Marginal effects that emerged (e.g., past behavior by condition interaction for perceived vulnerability) may have been significant if the study were powered through a larger sample size. Additionally, the demographic make-up of the present study of young adults within a college environment resulted in a fairly homogeneous sample. There is a potential that media exposure is moderated by other factors (e.g., age, race, or socioeconomic status) and research with broader samples would need to be conducted to investigate this question.

This research study broadened examination of risky behavior of college students and was the first to examine media exposure for sex under the influence of alcohol. However, this behavior is complicated to assess given that it depends on the co-occurrence of two behaviors (i.e., alcohol use followed by sexual activity) and that each of these behaviors can also occur independently. Additionally, the participants’ interpretation of the behavior portrayed in media could have varied because participants may have been more affected by depictions of sexual activity or depictions of alcohol use. Without additional conditions, which tested media exposure to just alcohol use and just sex, along with measurement of dependent variables for these behaviors, it is unknown what aspects of the media exposure were most salient to participants.
Lastly, sex under the influence among college students is an important behavior to study in order to enhance public health. However, any research that examines this behavior among sober participants in a lab setting is somewhat contrived given that using alcohol impairs cognitive and behavioral functioning (Easdon & Vogel-Sprott, 2000; Peterson, Rothfleisch, Zelazo, & Pihl, 1990; Volkow et al., 2008). Field experiments and laboratory research where participants use alcohol has shown effects of alcohol use on risky sexual behavior (Conner & Flesch, 2001; MacDonald, Zanna, & Fong, 1996). To examine the effect of media depicting sex under the influence of alcohol on actual behavior, it will be important to expand methodologies to enhance external validity.

**Future Directions**

Future research should expand participant samples to include representation of different ages and races, as these are two demographic variables with relevance to media influence. Research across various media influence domains has found that adolescents and children are especially impacted by media exposure (Collins et al., 2004; O’Hara et al., 2012; Pardun, L’Engle, & Brown, 2005). Future research on exposure to sex under the influence of alcohol should expand samples to include adolescents and track their media consumption, cognitions and behaviors over time through emerging adulthood. Main effects of media exposure on cognitions such as prototypes and behavioral willingness may be more apparent in younger populations given that adolescents’ decision-making process for risky health behaviors is informed more by social factors than adult populations (Gibbons, Kingsbury, & Gerrard, 2012).

Additionally, racial differences are an important area to investigate for future research on the influence of media depicting sex under the influence of alcohol. Research
using the Prototype Willingness Model to investigate the impact of alcohol exposure demonstrated that despite greater exposure to alcohol content among African American adolescents, White adolescents’ cognitions and behaviors were more impacted by alcohol exposure. It is unclear whether African American adolescents’ resilience is due to factors associated with identification with comparison targets, as the majority of characters in film are not African American, or whether African Americans are less susceptible to social influence (Gibbons et al., 2010). Although varied racial identities were represented in the present research, the study did not have a large enough group of African American and White participants to allow for comparisons of media impact between Whites and African Americans. Future experimental research should focus on recruiting matched samples of African American and White participants to test the moderating influence of race.

Very recently, researchers have begun using ecological momentary assessment methods to capture the impact of exposure to pro-smoking media on smoking behavior (Shadel et al., 2012). Ecological momentary assessment methods use real-time participant-driven behavior reports at randomly prompted times to measure exposure and behaviors throughout a participant’s day-to-day life. Implementation of these methods would address several unresolved issues in the present study. First, it would capture exposure to media depicting sex under the influence of alcohol that the participant is interested in versus media that they are assigned to view, providing an enhanced opportunity to measure the impact of social comparison orientation. Secondly, it would allow for capturing actual behavior of sex under the influence of alcohol close it time to when the behavior actually occurred. Having access to both exposure and behavioral sex
under the influence of alcohol data from college students would expand the findings of the present study and allow for a more thorough and valid exploration of media’s impact on behavior.

**Conclusion**

The present study was the first to experimentally examine exposure to media depicting sex under the influence of alcohol and whether media exposure impacts risky health cognitions derived from the Prototype Willingness Model. Media exposure did not directly impact cognitions related to health risk behavior, but results suggest that the influence of exposure on behavioral willingness is moderated by past behavior and social comparison orientation. Overall, these results speak to existing research on media exposure and provide initial findings to inform future research on the influence of media depicting sex under the influence of alcohol employing broader samples and methodologies. College students’ widespread engagement in alcohol and sex put them at risk for negative health outcomes, and future research should continue to identify the predictors of cognitions related to sex under the influence of alcohol.
References


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Appendix A: Administration

*Note.* This is a staged participant. No pictures were taken of actual participants.
Appendix B: Measures

Post-stimuli Measures

Past experience
Have you seen this clip before?
yes/no
Have you seen a full episode of this television show before?
yes/no
If yes, please rate how much you agree with the following statement:
How often do you watch this show?
never; once a year or less; once a month or less; once a week or less; more than once a week; almost every day

Post-manipulation Dependent Variables

Mood
Rate how you are feeling at this very moment:
happy/ sad
bothered/ untroubled
unfriendly/ friendly
relaxed /tense
contented/ discontented
agitated /calm
all on a scale of 1 to 7

Behavioral Willingness
Assume you are not seriously dating anyone. Suppose you were at a party - you have had several drinks and you begin to feel that you may have had enough, and you are getting ready to leave. Then you meet a man/woman for the first time and start talking. You think that he/she is very attractive (the feeling is obviously mutual) and you decide to stay and have a few more drinks with him/her. At the end of the evening, you go to his/her apartment with him/her. You're feeling as if you might like to have sex with him/her and he/she obviously feels the same way.
How willing would you be to stay at his/her apartment and have vaginal sex?
How willing would you be to go ahead but use a method like withdrawing the man’s penis before ejaculation?
1 not at all willing to 7 completely willing

Suppose you were at a party with your boyfriend/girlfriend - you have had several drinks and you begin to feel that you may have had enough, and you are getting ready to leave. At the end of the evening, you go to his/her apartment with him/her. You're feeling as if you might like to have sex with him/her and he/she obviously feels the same way.
How willing would you be to stay at his/her apartment and have vaginal sex?
How willing would you be to go ahead but use a method like withdrawing the man’s penis before ejaculation?
1 not at all willing to 7 completely willing

Prototype
Think about the type of person your age and gender who has vaginal sex with a casual partner after drinking alcohol. Not anyone in particular, just your image of a person your age and gender who has sex after drinking. How much do you think the following words describe your image of that person?
Smart
Attractive
Confident
Mature
Popular
Exciting
How similar are you to this person?
1 not at all to 7 very

Think about the type of person your age and gender who has vaginal sex with a steady partner after drinking alcohol. Not anyone in particular, just your image of a person your age and gender who has sex after drinking. How much do you think the following words describe your image of that person?
Smart
Attractive
Confident
Mature
Popular
Exciting
How similar are you to this person?
1 not at all to 7 very

Perceived norms
How many of your male/female friends have sex with a casual partner after drinking alcohol?
How many male/female college students in the US have sex with a casual partner after drinking alcohol?
How many of your male/female friends have sex with a steady partner after drinking alcohol?
How many male/female college students in the US have sex with a steady partner after drinking alcohol?
1 none to 7 almost all

Perceived vulnerability
If you were to have vaginal sex with a casual partner after drinking alcohol, what are the chances that you would have sex without a condom?
1 not at all likely to 7 very likely
If you were to have vaginal sex with a steady partner after drinking alcohol, what are the chances that you would have sex without a condom?

1 not at all likely to 7 very likely

General media consumption
How many hours of television (this includes television broadcast on a television, or content originally broadcast on television that you watch on dvd or on the internet such as on hulu) do you watch per week?
How many movies do you watch per month?
How many hours of video pornography (this includes content on television, dvds, and on the internet) do you watch per week?

Iowa-Netherlands Comparison Orientation Measure
I often compare how my loved ones (boy or girlfriend, family members, etc.) are doing with how others are doing.
I always pay a lot of attention to how I do things compared with how others do things.
If I want to find out how well I have done something, I compare what I have done with how others have done.
I often compare how I am doing socially (e.g., social skills, popularity) with other people.
I am not the type of person who compares often with others.
I often compare myself with others with respect to what I have accomplished in life.
I never consider my situation in life relative to that of other people.
1 disagree strongly to 5 agree strongly

The Zuckerman-Kuhlman Personality Questionnaire – Impulsive Sensation-Seeking Subscale
I am an impulsive person.
I enjoy getting into new situations where you can’t predict how things will turn out
I prefer friends who are excitingly unpredictable.
I often get so carried away by new and exciting things and ideas that I never think of possible complications.
I like “wild” uninhibited parties.
I would like the kind of life where one is on the move and traveling a lot, with lots of changes and excitement.
I often do things on impulse.
true/false

Past alcohol use preceding sex risk behavior
In the past 6 months, how many times did you have vaginal sex with a casual partner another person after you had been drinking alcohol?
never, 1-2 times, over 2 times a month but less than 1 time per week, once a week, 2-3 times per week, 4-5 times per week, over 5 times a week
In the past 6 months, how many times did you have vaginal sex with a steady partner another person after you had been drinking alcohol?
Past sex risk behavior.
In the past 6 months, how many casual vaginal sexual partners have you had?
In the past 6 months, how many steady vaginal sexual partners have you had?

Past alcohol use risk behavior.
In the past 6 months, how many days have you drunk alcohol?
never, less than 1 time per month, less than 1 time per week, 1-2 times per week, 3-4 times per week, 5-6 times per week, every day

Demographics
What is your sex?
male/female
What is your age?
How would you define your race?
Africa American/Black; Caucasian/White; Hispanic/Latino/a; Native American/Pacific Islander; Other
How would you define your sexual orientation?
1 totally straight; 4 bisexual, 7 totally homosexual
How would you rate your current romantic relationship status?
1 no relationship; 7 very strong commitment; 8 married

Manipulation checks
Describe what was going on in the first clip.
Describe what was going on in the second clip.
Describe what was going on in the third clip.