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Conflict and expectancies interact to predict sexual behavior under the influence among gay and bisexual men

Brooke E Wells¹, Tyrel J Starks¹, Jeffrey T Parsons^{1,2}, and Sarit Golub²

¹Center for HIV/AIDS Educational Studies and Training (CHEST), New York, NY, USA

²Department of Psychology, Hunter College of the City University of New York (CUNY), New York, NY, USA

Abstract

As the mechanisms of the associations between substance use and risky sex remain unclear, this study investigates the interactive roles of conflicts about casual sex and condom use and expectancies of the sexual effects of substances in those associations among gay men. Conflict interacted with expectancies to predict sexual behavior under the influence; low casual sex conflict coupled with high expectancies predicted the highest number of casual partners, and high condom use conflict and high expectancies predicted the highest number of unprotected sex acts. Results have implications for intervention efforts that aim to improve sexual decision-making and reduce sexual expectancies.

Keywords

expectancies; men who have sex with men; sexual behavior; sexual conflict; substance use

Research demonstrates a link between substance use (including alcohol and drugs) and risky sexual behavior among gay and bisexual men (GBM). GBM who use substances are more likely to HIV seroconvert over time (Baliunas et al., 2010) and are more likely to report engaging in sexual risk behavior (Grov et al., 2008; Heath et al., 2012; Shoptaw and Reback, 2007). Illustrating the complexity of the link between substance use and sexual risk behavior, Stall and Purcell (2000) reviewed the literature and concluded that global studies and situational studies often show a positive association between substance use and sexual risk behavior, but that event-level studies less consistently demonstrate the association, highlighting the need to further investigate the individual factors influencing this association.

This study draws on components of three theoretical models: Alcohol Myopia Theory (AMT), Expectancy Theory, and Cognitive Escape Theory (CET). Each focuses on different aspects of the cognitive and motivational processes that influence these behaviors. We have

combined components of these theories to highlight two distinct constructs. The first is sexual conflict, conceptualized as competing desires, attitudes, and beliefs about sexual behavior. The second is sexual expectancies, defined as expectations about the sexual effects of substance use.

AMT (Steele and Josephs, 1990) focuses on what it terms “inhibition conflict,” which occurs when an individual experiences strong instigatory and inhibitory cues for the same behavior. AMT argues that the influence of alcohol is most pronounced under conditions of inhibition conflict because alcohol focuses individuals on cues (either instigatory or inhibitory) that are most salient and reduces the influence of competing, but more distal cues (George and Stoner, 2000; Steele and Josephs, 1990). Studies demonstrate that alcohol is most strongly related to intentions to engage in risky sexual behavior among those high in sexual fear (measured by the Sexual Aversion Scale; Stoner et al., 2007). Furthermore, Dermen and Cooper (2000) developed a metric of inhibition conflict about condom use and found that alcohol was only associated with condom use among those high in conflict.

In a slightly different placement of conflict, CET (McKirnan et al., 1996) focuses on the conflict between the desire to engage in sexual behavior and the desire to avoid HIV risk. CET argues that, among some men, the avoidance of risk requires effortful cognitive restraint. This conceptualization of cognitive restraint is similar to the notion of behavioral automaticity inherent in other theories of health behavior, which posit that automaticity is a key factor in behavior change (Lippke and Ziegelmann, 2006). Over time, that restraint becomes cognitively burdensome, motivating a behavioral rebound or an escape. In CET, substance use provides a vehicle for escape. Research indicates that the association between substance use and sexual risk behavior is more pronounced among men who scored higher on a measure of effortful sexual restraint compared to men whose sexual restraint was more effortless (McKirnan and Peterson, 1990). Anxiety about HIV risk is also associated with depression and unprotected anal intercourse (Yi et al., 2011), and the desire for cognitive escape also mediates the association between depression and sexual risk behavior (Alvy et al., 2011).

Expectancy theory (Dermen and Cooper, 1994a, 1994b; Wilson and Lawson, 1976) posits that expectations that substance use lowers sexual inhibitions, increases sexual risk, and/or enhances sexual pleasure moderate the relationship between substance use and sexual behavior, making sexual behavior under the influence more likely and more risky as such expectations increase. Evidence demonstrates associations between expectancies and substance use prior to sex, sex after drinking, and unprotected sex after drinking (Patrick and Maggs, 2009; White et al., 2009). In research with GBM, those who reported unprotected sex more strongly believed in the effects of substances on sexual risk behavior, when compared to men who did not engage in unprotected sex (Bimbi et al., 2006), and men who reported stronger enhancement expectancies reported increased risk intentions after drinking (Maisto et al., 2012). Furthermore, a specific drinking expectancies scale was developed for GBM, and findings support a link between expectancies and sexual behavior after drinking (Mullens et al., 2011).

Expectancies are also critical in CET. CET posits that, when combined with expectations that substance use will facilitate cognitive escape, the desire for cognitive escape will lead people to strategically use substances to achieve that unburdened cognitive state. In fact, men who more strongly endorsed the specific expectation that alcohol and drugs facilitate cognitive escape reported more sexual risk behavior than men with weaker expectations (McKirman et al., 2001).

As evidence supports the importance of both conflict and expectancies, there have been calls for their integration (Cooper, 2002; Morris and Albery, 2001). A study by Dermen and Cooper (2000) found that alcohol consumption at first intercourse was associated with decreased condom use among those high in both condom use conflict and sexual risk expectancies. Similarly, research conducted by our group indicated that GBM who were high in condom use conflict and high in expectancies were more sensitive to the effects of substance use on sexual risk behavior, making sexual risk under the influence more likely (Wells et al., 2011). Though research on conflict and expectancies indicates that each influences the likelihood of sex with a casual partner (White et al., 2009), no research (to our knowledge) has combined these concepts to specifically examine sex with casual partners, irrespective of condom use. However, research indicates that men who were high in sexual guilt and expected to drink alcohol viewed pornographic slides longer than those who did not expect alcohol and who were low in sexual guilt, indicating an interaction between guilt and alcohol expectancies (Lang et al., 1980). In a review of the literature, George and Norris (1991) conclude that alcohol and/or the belief that one has consumed alcohol has the most effect on behaviors that are socially stigmatized or inhibited (viewing deviant pornography, sexual assault, etc.). As sex with casual partners may be a behavior that is inhibited or stigmatized among some, the conflict around that behavior may be relevant in substance-using situations, especially when coupled with expectations about the effects of substances on that behavior. Because of the lack of research that addresses interactions between sexual conflicts and expectancies, it is unclear whether the combination of conflict and expectancies always has the additive effects noted above or whether other kinds of interactions are also operating.

This study focuses on two conflicts—conflict about engaging in sex with casual partners and conflict about condom use with casual partners. Analyses examined the interaction between each kind of conflict and expectancies in predicting sexual behavior under the influence among GBM. Our two outcome variables—number of casual partners under the influence and the number of unprotected anal sex acts under the influence with casual partners—were chosen because of their association with HIV transmission risk. While the number of casual partners is not necessarily directly related to HIV transmission (as transmission would depend on condom use), Koblin et al. (2006), in their longitudinal study of over 4000 men who have sex with men (MSM), found that high numbers of male partners (4 in the last 6 months) independently accounted for 32.3 percent of HIV infection. As such, we believe that this outcome, while not strictly a risk factor for HIV transmission, is a good indicator of transmission risk and is often a target of intervention efforts. Furthermore, though more recent research indicates that a large proportion of HIV transmission among GBM occurs within the context of main partnerships (Sullivan et al., 2009), this study focuses on casual partners for three primary reasons. First, this study was conceptualized and conducted in

2009, prior to the publication of Sullivan's data, and reflects an earlier focus on casual partnerships. Second, as Sullivan and colleagues estimated that 68 percent of seroconversions occurred within the context of main partnerships, a sizeable portion of seroconversions (32%) occur with casual partners, thus warranting continued research. Finally, research indicates that GBM are more likely to use substances in the context of casual sexual events than in main partner sexual events (Stueve et al., 2002) and that alcohol and drug use are more likely to influence sexual risk behavior with casual partners than with primary partners (Brown and Vanable, 2007; Dolezal et al., 2000; Vanable et al., 2004). As such, we pose the following two research questions: (1) What are the main and interactive effects of casual sex conflict and sexual expectancies on the number of casual partners under the influence? and (2) What are the main and interactive effects of condom use conflict and sexual expectancies on unprotected sex with casual partners while under the influence? In light of findings related to CET and our own previous research, we hypothesized that conflict and expectancies would have an additive effect in both situations, such that those high in both conflict and expectancies would report the highest levels of casual sex and unprotected sex under the influence.

Methods

Procedure

Participants were drawn from a sample of 930 GBM surveyed in 2008 using a brief street-intercept survey method (Miller et al., 1997) at a series of gay, lesbian, and bisexual (GLB) community events in New York City through the *Sex and Love V7.0 Project*. This methodology has been used successfully in research endeavors with GLB populations, providing data comparable to more traditional approaches (Grov et al., 2006a, 2006b).

At each community event, the research team hosted a booth, and a member of the research team approached each person who passed to provide information about the project and an invitation to participate. This active approach resulted in a high response rate (85.2%). Individuals were then given a questionnaire on a clipboard that took 15–20 minutes to complete (staff also provided information sheets). Participants were advised to complete the questionnaire away from others to ensure confidentiality, were not asked to provide any identifying information, and deposited their completed questionnaire into a secure box. As an incentive, participants were given a voucher for movie admission. All procedures were reviewed and approved by the Institutional Review Board of the corresponding author.

Measures

Demographic characteristics and serostatus—At the beginning of the survey, respondents indicated their age, race/ethnicity, education, employment status, income, and HIV serostatus.

Sexual conflict—Sexual conflict was assessed using the three-item measure of sexual conflict developed by Dermen and Cooper (2000), modified from that originally designed by Cooper and Orcutt (1997). Items were adapted to ask specifically about each type of conflict (i.e. casual sex conflict and unsafe sex conflict). Participants were asked to indicate their

level of agreement on a 6-point Likert scale to the following three prompts (6 items total): “Generally, when hooking up, I have a hard time deciding whether or not to [have sex with casual partners]/[use a condom or to insist that my partner use one].,” “Generally, when hooking up, I feel very unsure about whether or not to [have sex with casual partners]/[use a condom, or to insist that my partner use one],” and “Generally, when hooking up, I feel really undecided about whether or not [to have sex with casual partners]/[use a condom, or to insist that my partner use one].” Scores for the three items were summed (casual sex conflict $\alpha = .95$; unsafe sex conflict $\alpha = .92$) and ranged from 3 to 18, with higher scores indicating more conflict. Because it was hypothesized that conflict is meaningful as a categorical (i.e. “high” conflict or “low” conflict) rather than continuous construct, participants were split into groups based on conflict scores. Casual sex conflict was dichotomized into low (0–6) and high (7) based on a median split (as indicated by the distributional properties). Unsafe sex conflict was dichotomized into low (3) and high (4), which reflected a negatively skewed distribution (37% of participants indicating the minimum possible level of unsafe sex conflict).

Expectancies—Participants’ expectancies about the sexual effects of drugs and alcohol were measured using a 17-item scale that integrated items from three validated expectancy scales. First, 10 items from the Sex-Related Alcohol Expectancies Scale (Dermen and Cooper, 1994a) were used to assess sexual enhancement, risk, and disinhibition expectancies. Second, three items from the Alcohol Expectancies Regarding Sex, Aggression, and Sexual Vulnerability Questionnaire (Abbey et al., 1999) were used to assess sexual vulnerability expectancies (expectancies that substance use increases vulnerability to sexual coercion or aggression). And third, four items from the Alcohol Expectancy Questionnaire (Brown et al., 1987) were used to assess masculinity expectancies and additional enhancement expectancies. Participants indicated their agreement on a 6-point Likert scale to statements such as “When drinking or using drugs, I feel closer to a sexual partner” or “When drinking or using drugs, I am less likely to use a condom or to ask a partner to use a condom.” Scores on this scale could range from 17 to 102, with higher scores indicating stronger expectancies about the sexual effects of substance use ($\alpha = .94$). Expectancies were also considered meaningful as a categorical (i.e. “high” or “low”) rather than continuous construct, and participants were split into two groups based on expectancy scores. Scores were dichotomized into low (0–50) and high (51 scores) based on a median split (as indicated by the distributional properties).

Sexual behavior

Number of casual sex partners under the influence—Number of casual sex partners under the influence was assessed using two summary questions, preceded by the directions, “The following questions are about your CASUAL MALE SEX PARTNERS”: (1) “In the last 3 months when you were under the influence of ANY alcohol or drugs, how many men who are the same HIV status as you did you have sex with?” and (2) “In the last 3 months when you were under the influence of ANY alcohol or drugs, how many men whose HIV status you did not know or who are a different HIV status than you, did you have sex with?” The answers to these two questions were summed to calculate the total number of casual partners under the influence.

Rates of unprotected sex under the influence—Men were asked to report the number of times (in the last 3 months) that they engaged in anal sex without a condom (receptive and insertive) with casual partners (both HIV seroconcordant and serodiscordant) *while under the influence of drugs or alcohol*, using five ordinal response options (0, 1–2, 3–5, 6–9, and 10+). After responding to the questions regarding the number of casual sex partners, participants were then asked, “With these men, *while under the influence*, how many times did you fuck a guy with NO condom” and “With these men, *while under the influence*, how many times did a guy fuck you with NO condom?” The responses to these four questions (each of these two questions were asked for serodiscordant and seroconcordant partners) were then combined to create one variable that represented the total estimated number of high-risk sex acts, across partner HIV status and positioning (insertive vs receptive). Because participants’ responses were not evenly distributed across categories, summary estimates were collapsed into two categories, which categorized men as engaging in three or more versus two or fewer acts under the influence. This split is a conceptual split that indicates less than one unprotected anal sex act per month (in the 3-month reporting window) versus more regular unprotected anal sex under the influence (an average of once a month or more).

Data analysis

In each regression analysis, conflict, expectancies, and their interaction were the predictors (all categorical), and sexual behavior under the influence was the outcome variable. Poisson regression models were used for the number of casual sex partners outcome because this variable constitutes a count variable and Poisson models are appropriate for the prediction of count variables (Coxe et al., 2009). Because initial Poisson regressions indicated significant overdispersion, a negative binomial model was calculated using maximum likelihood estimation to estimate the dispersion parameter. To examine unprotected anal sex under the influence, a logistic regression model was run, wherein the dependent variable was the frequency category of unprotected anal sex acts under the influence (two or fewer acts vs three or more acts).

Results

Sample creation and characteristics

A total of 930 GBM completed survey measures. For these analyses, we created a restricted sample based on five criteria. First, the sample was restricted to men who reported a HIV-negative or unknown status, as sexual conflicts are likely qualitatively different experiences for HIV-positive men. Second, because the measures and conceptual framework focus on casual sex, the sample was limited to only those who reported sex with casual partners. Third, because the outcome variables were sexual behavior under the influence, the sample is restricted to men who reported alcohol and/or drug use in the last 3 months. Finally, both samples were restricted to men who provided complete data on all variables of interest.

The 252 participants in our analytic sample ranged in age from 18 to 80 years, with an average age of 36.7 years ($SD = 12.2$ years). The sample was fairly well educated, well distributed in regard to income, and most were employed at least part time. For analyses

examining unprotected anal sex under the influence as the outcome variable, the sample was further restricted to men who reported at least one occurrence of unprotected anal sex in the last 3 months ($n = 107$). Men who were excluded from this sample did not significantly differ from the full sample on any demographic characteristics. The average casual sex conflict score did not significantly differ between the subsample and the full sample, though the average unsafe sex conflict in the subsample (only those who reported unprotected anal sex) was significantly higher than the average score for the full sample ($t(357) = -2.12, p = .03$). The average expectancy score in the subsample was also marginally higher than in the full sample ($t(357) = -1.92, p = .055$), though the median remained the same in both the full sample and the subsample (see Table 1).

Casual sex conflict—The number of casual partners under the influence was examined using a negative binomial regression analysis, wherein the number of casual sex partners under the influence was the dependent variable, and casual sex conflict and expectancies (both dichotomous) were entered in the first model, and their interaction was included in the second model. The model containing only main effects accounted for a significant amount of variability in the number of partners under the influence. The addition of the interaction term significantly improved model fit. Parameter estimates indicated that casual sex conflict and the interaction between casual sex conflict and expectancies significantly predicted number of partners (see Table 2).

Differences among group means (i.e. number of causal partners reported by participants with high conflict/high expectancies, high conflict/low expectancies, etc.) were examined using post hoc pairwise comparisons. Between high conflict groups, there was no difference in the number of casual sex partners under the influence between men with low versus high expectancies. Between low conflict groups, men reporting high expectancies about the sexual effects of drugs and alcohol reported more casual sex partners under the influence than those reporting low expectancies. In short, while there was an independent main effect of expectancies in the first model (without the interaction term), this effect seems to be strongest for the group low in casual sex conflict. Group means are depicted in Figure 1(a).

Unsafe sex conflict—Number of unprotected sex acts under the influence was examined using a binary logistic regression, wherein the category of unprotected sex acts under the influence (two or fewer vs three or more) was the dependent variable, unsafe sex conflict and expectancies were entered on the first step, and their interaction was entered on the second step. In the main effects model, expectancies and conflict were both significant predictors of the risk categorization. Adding the interaction significantly improved the fit of the model, and the interaction between unsafe sex conflict and expectancies was significant. In the full model, there was a significant main effect of unsafe sex conflict and of the interaction between conflict and expectancies; the main effect of expectancies was not significant (see Table 3). The high expectancies/high conflict group had the highest proportion of men engaging in high rates of unprotected sex under the influence (66.7% of men reported three or more acts under the influence), and the other groups did not differ from one another (see Figure 1(b)).

Establishing double dissociation—To whether the association between conflict and sexual behavior occurs only when the type of conflict matches the behavior, we tested the two noncongruent models, as described below. We ran these models to test the specificity of predictors and eliminate the possibility that conflict, regardless of type, was globally associated with sexual behavior outcomes.

First, we tested a binary logistic regression model, wherein the category of unprotected sex acts under the influence was the dependent variable, and casual sex conflict and expectancies were entered on the first step, and their interaction was entered on the second step. Expectancies were the only significant predictor of unprotected sex acts under the influence.

Next, the number of casual sex partners under the influence was examined using a negative binomial regression, wherein the number of casual sex partners under the influence was the dependent variable, and unsafe sex conflict and expectancies were entered in the first model, and their interaction was included in the second model. Expectancies were the only significant predictor of the number of casual sex partners under the influence.

Discussion

This study found that sexual conflict and expectancies interact in complex ways that extend our practical and theoretical understandings of the mechanisms underlying the association between substance use and sexual risk, inform the operationalization of conflict, and also provide unique points of entry for prevention and intervention efforts. These findings may partially explain the inconsistency regarding this association in the previous literature.

Each kind of conflict interacted uniquely with expectancies to predict sexual behavior under the influence. Contrary to our hypothesis, men who were low in casual sex conflict and high in expectancies reported the highest number of casual partners under the influence. For conflict about condom use, however, men who were both high on condom use conflict and high in expectancies tended to be in the highest risk group, which was consistent with our hypothesis. Practically, it seems that conflict about casual sex may lead men to avoid casual sex when they are under the influence of drugs or alcohol. However, men who were conflicted about unprotected sex may still engage in casual sex but be more likely to succumb to the influence of substances (and/or their expectations of substances' effects) to ultimately engage in risk behavior. In short, men who were high in conflict about condom use seemed to be especially sensitive to the effect of expectancies. Though a causal mechanism cannot be determined from cross-sectional data, these results suggest that there may be a causal mechanism in the association between substance use and sexual risk behavior, though other psychosexual and contextual factors may moderate this association. These findings are consistent with research indicating that self-regulation is important in balancing the effects of sexual sensation seeking on unprotected sex but not in the association between sensation seeking and the number of casual sex partners (Adam et al., 2008).

These interactions inform our theoretical understandings of the mechanisms underlying the association between substance use and sexual behavior. Results indicate that expectancies do not operate equally for all men. For men who were low in conflict about engaging in sex with casual partners, expectancies predicted the number of partners under the influence, while for men high in conflict about casual sex, expectancies did not predict the number of partners under the influence. In this way, it seems that expectancies facilitated a desired behavior (sex with casual partners). However, expectancies may also have facilitated the use of substances as an escape from conflict about unprotected sex, as suggested by McKirnan et al. (1996, 2001). These findings are consistent with research showing that the relationship between avoidant coping and alcohol consumption was mediated by tension-reduction alcohol expectancies (Hasking et al., 2011), which supports findings that psychological distress is associated with substance use (Gibbie et al., 2012) and that avoidant coping styles are associated with nonadherence to HIV medications (Halkitis et al., 2005). Other research indicates that positive outcome expectancies of precautionary measures (Hepatitis B vaccination) and perceptions of risk for Hepatitis B interact to predict vaccination intentions for Hepatitis B (Das et al., 2008), demonstrating that expectancies alone may not determine behavioral intentions. Clearly, expectancies and conflict do not always have a clear additive effect, rather their interaction is complex and nuanced, thus requiring additional research.

These results also provide insight into the operationalization of sexual conflict. Though most studies have examined only a single type of conflict—about condom use, results indicate that conflict may operate in multiple arenas that are distinct but potentially overlapping. Findings also established double dissociation, which provides additional construct validity to support the use of distinct conflict metrics and supports the proposed theoretical integration. Future research should examine the development of sexual conflicts. Specifically, social factors such as internalized homonegativity may influence the development of sexual conflicts, which would highlight the use of social support (i.e. group or community-based) interventions that could alleviate the impact of stigma. The role of stigma may be particularly important as stigma is a critical barrier to sexual communication about HIV (Bird and Voisin, 2011). Research should also aim to understand the exact mechanisms of conflict's influence on behavior and the contextual factors that influence intrapsychic conflict negotiation in interpersonal situations. For example, sexual conflict may exert its influence by creating arousal or negative affect in a sexual situation, both of which have known effects on decision making and task performance (Caffray and Schneider, 2000; Loewenstein and Lerner, 2003), including the avoidance of a decision, which may invite substance use as a means of avoiding negative affect and the sexual decisions behind that affect. If so, intervention and prevention efforts could focus on building decision-making skills in the face of arousal, on techniques to reduce negative affect, or on the development of coping strategies to deal with the threat of HIV (Siegel and Schrimshaw, 2000). Relationship factors may also exacerbate or mitigate sexual conflict's presence and influence. Future research should examine event-level experiences of conflict so as to better understand the contextual factors that influence its experience and influence on risk behavior. Finally, research should attempt to better conceptualize and operationalize sexual conflict to improve research into its development, negotiation, and effects. For example, sexual conflict may be conceptually similar to cognitive dissonance (Festinger, 1957;

Harmon-Jones, 2000), which is often induced in cognitive interventions (Stice et al., 2011; Stone and Fernandez, 2008; Tryon and Misurell, 2008) and is a theoretical foundation of motivational interviewing (MI; Draycott and Dabbs, 1998). As many psychological theories utilize some notion of conflict, future research should aim to solidify a shared working definition and operationalization.

Results highlight the potential utility of various prevention and intervention strategies. First, MI (Miller and Rollnick, 2002), which works to elicit and resolve ambivalence about one's behavior, may be especially useful in helping individuals resolve sexual conflict in a way that preserves physical health. Miller and Rollnick conceptualize ambivalence as "a normal aspect of human nature ... a natural phase in the process of change" but theorize that getting "stuck" in that state can create and exacerbate problems (p. 14). According to Miller and Rollnick, ambivalence stems from one of the two basic types of conflict—avoidance–avoidance conflict and approach–avoidance conflict. The conflict we describe is most typical of the approach–avoidance conflict, wherein an individual is both attracted to and repelled by the same behavior—casual sex or sex without a condom. The interaction between conflict and expectancies demonstrates that, in some cases, individuals may utilize substances as a means of escaping that conflicted state and achieving the behavioral outcome desired (sex without a condom). As such, our research provides a conceptual framework through which to examine the underlying balance of factors that influence conflicts and the ambivalence that those conflicts create; this knowledge will be useful in determining the strategies best suited to help individuals resolve that conflict. MI may provide a useful adjunct to cognitive therapies focusing on expectancies by eliciting the client's existing beliefs, attitudes, and motivations around substance use and then heightening discrepancies between those factors.

Second, these findings may inform the development and selection of cognitive interventions in so much as conflicts, expectancies, and their interactions may predict the appropriateness of and responses to prevention messages and intervention efforts. For example, messages warning about the sexual effects of substances may actually strengthen expectancies and reduce one's sense of personal responsibility. The expectation of an escape from responsibility from one's behavior may also fuel the use of substances in sexual situations, as a means of escaping responsibility for risky behavior; this expectation may be particularly relevant for individuals who are conflicted about sexual risk behavior. Research has shown promising effects of expectancy challenges, in which challenging the expectations one holds about the sexual effects of alcohol can effectively reduce the strength of those beliefs and can also reduce alcohol consumption (Lau-Barraco and Dunn, 2008; Wiers and Kummeling, 2004). Following the methodologies of some of the direct alcohol expectancy challenges (those without alcohol administration), procedures could present MSM with data that illustrate individual variability in the effect of expectancies, ask MSM to refute individual expectancy statements, and requires men to engage in an ongoing expectancy monitoring process, wherein they write down and refute substance use expectancies that they encounter in their lives.

Though these findings are compelling, several limitations should be considered. First, because of the brief nature of the survey, we were limited to assessing sexual outcomes

using summary variables. Furthermore, participants were asked to report on both the number of partners and number of sex acts that occurred under the influence of alcohol and/or drugs. Though we believe this theoretical model applies for both alcohol and drug use, alcohol and various kinds of drugs may have very distinct effects on sexuality (including expectancies), and different substances may be utilized in sexual venues (Halkitis et al., 2009). Second, as this study aims to contribute to the operationalization of conflict, we utilized a metric of conflict as developed by Dermen and Cooper (2000). This metric asks individuals to rate their level of decision-making difficulty, which may tap into the uncertainty experienced by someone with conflict, rather than the underlying conflict itself. In other words, it may be that this metric is a proxy of conflict. Furthermore, it may also be that individuals interpret “no conflict” differently, with some indicating no conflict because they do not feel conflicted about their inconsistent or nonexistent condom use, while others may indicate no conflict because they do not experience uncertainty around consistent condom use. As such, the “no conflict” group may include distinct groups of men with regard to psychosexual feelings and sexual behavior. Third, as studies have shown that a large proportion of HIV transmission occurs within the context of main partnerships (Sullivan et al., 2009), this study is limited in that we only measured sexual behavior with casual partners. Perhaps there are unique kinds of conflict within the contexts of relationships, such as conflicts between intimacy and safety needs. Fourth, the sample was a convenience sample collected at lesbian, gay, bisexual, and transgender (LGBT) events, which may have attracted a very specific subsample of the LGBT community. Finally, this is a cross-sectional study, which limits the causal conclusions that can be made from these data.

Despite these limitations, these results inform our understanding of the psychosexual factors that influence sexual behavior that occurs under the influence, providing critical evidence about the mechanisms of action. In addition to the implications for theory and practice, these findings may also contextualize the inconsistency of previous literature examining the relationship between substance use and sexual behavior. Future research should aim to integrate psycho-sexual variables into examinations of the association between substance use and sexual behavior.

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Figure 1.

(a) Casual sex conflict $\times$ expectancies and (b) unsafe sex conflict $\times$ expectancies.

Table 1

Sample characteristics.

	<u>Casual sex conflict subsample</u>		<u>Unsafe sex conflict subsample</u>	
	<u><i>N</i> = 252</u>		<u><i>N</i> = 107</u>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	36.7	12.2	35.5	12.2
	<i>n</i>	%	<i>n</i>	%
Sexual orientation				
Gay	227	90.1	97	90.7
Bisexual	25	9.9	10	9.3
Race/ethnicity				
White	162	64.3	66	61.7
African–American	27	10.7	11	10.3
Hispanic/Latino	24	9.5	11	10.3
Asian and Pacific Islander (API)	23	9.1	9	8.4
Mixed/other	16	6.3	10	9.3
Education				
High School (HS) diploma/General Educational Development (GED)	18	7.2	8	7.5
Some college/Associate in Arts (AA)/technical degree	48	19.1	20	18.8
4-year college degree	121	48.2	50	47.2
Graduate degree	64	25.5	28	26.5
Income				
<20K/year	35	14	17	16
20K–40K/year	53	21.2	19	17.9
40K–60K/year	46	18.4	25	23.6
60K–80K/year	42	16.8	17	16
>80K/year	74	29.6	28	26.4
Employment status				
Full time	199	80.2	85	80.2
Part time	22	8.9	15	14.2
Unemployed/retired	27	10.9	6	5.7
Relationship status				
Single	195	77.4	81	75.7
Partnered	57	22.6	26	24.3
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Conflict scores				
Casual sex conflict	7.28	4.22	6.63	3.97
Unsafe sex conflict	5.43	3.66	6.34	3.84
Expectancies	50.07	20.11	54.59	21.03
Outcomes				
Number of partners Under the Influence (UI)	3.9	9.5	—	—

	<i>n</i>	%	<i>n</i>	%
Risky acts UI				
2 unprotected acts UI	—	—	69	64.5
+3 unprotected acts UI	—	—	38	35.5

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Table 2

Negative binomial regression test of moderation with casual sex conflict and expectancies predicting the number of casual sex partners under the influence ($N = 252$).

	Model 1		Model 2	
	Exp(<i>B</i>)	95% CI	Exp(<i>B</i>)	95% CI
Intercept	4.626**	3.163–6.767	3.577**	2.418–5.292
Conflict (low vs high)	1.454	0.946–2.237	2.390*	1.346–4.247
Expectancies (low vs high)	0.330**	0.215–0.507	0.611	0.319–1.170
Conflict × expectancies			0.332*	0.140–0.790
Likelihood ratio $\chi^2(2) = 26.24^{**}$			Likelihood ratio $\chi^2_{\text{step}(1)} = 6.24^*$	
			Likelihood ratio $\chi^2_{\text{model}(3)} = 32.48^{**}$	

Group means (number of casual sex partners UI)	<i>M</i>	<i>SD</i>
Low expectancies, low conflict	1.74	0.34
Low expectancies, high conflict	2.19	0.58
High expectancies, low conflict	8.55	1.83
High expectancies, high conflict	3.58	0.71

CI: confidence interval.

* $p < .01$,

** $p < .001$.

Logistic regressions of Unsafe sex conflict and expectancies predicting the percentage of men engaging in high-risk sex under the influence ($N = 107$).

Table 3

		Step 1	Step 2
Model	χ^2	21.55***	26.57***
df		2	3
Nagelkerke	R^2	0.251	0.302

95% CI						95% CI					
	β	Exp(B)	Lower	Upper	p value		β	Exp(B)	Lower	Upper	p value
Constant	−0.895	0.409			<.001		−1.02	0.36			<.001
Conflict (low vs high)	1.39	4.02	1.5	10.76	.006		1.4	4.05	1.39	11.79	.01
Expectancies (low vs high)	1.29	3.65	1.47	9.06	.005		0.862	2.37	0.815	6.889	.113
Conflict × expectancies interaction							2.33	10.29	1.22	87.04	.032
Likelihood ratio $\chi^2(2) = 21.55$ ***						Likelihood ratio $\chi^2_{\text{step}(1)} = 5.02^*$					
						Likelihood ratio $\chi^2_{\text{model}(3)} = 26.57$ ***					

CI: confidence interval.

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