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Social Exclusion and Casual Sex Willingness: The Role of Gender and Relationship Status

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Social Exclusion and Casual Sex Willingness: The Role of Gender and Relationship Status

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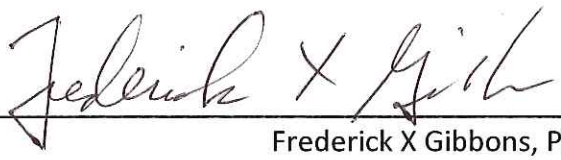
Major Advisor 
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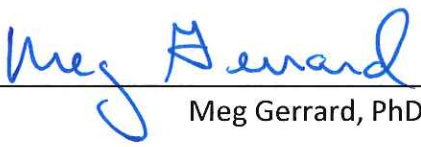
Associate Advisor 
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Abstract

Previous research has shown that social exclusion has very negative effects on individuals, even when the excluders are out-group members. In fact, certain forms of out-group exclusion, such as racial discrimination, can have more detrimental effects on one's health and well-being than being excluded by members of one's in-group. The current study used Cyberball—a computer ball-tossing game—to examine the effects of gender-based exclusion (i.e., same vs. opposite sex) on willingness to engage in casual sex. Results showed exclusion by same-gender (in-group) players led to higher casual-sex willingness than did opposite-gender (out-group) exclusion. However, the effect was moderated by participant gender and relationship status: the effect was present for males and not females. Additionally, monogamous males had lower willingness after same-sex exclusion, whereas single males had higher willingness. These findings provide insight into the relations between group-based social exclusion and risky-sex behavior.

Keywords: social exclusion, Cyberball, sexual risk behavior, gender, behavioral willingness

Social Exclusion and Casual Sex Willingness:

The role of gender and relationship status

Social connection and group belonging are fundamental, basic human needs. From an evolutionary perspective, membership in a social group helps secure survival, e.g. to provide shelter and food, as well as to ensure opportunities for reproductive fitness (Baumeister & Leary, 1995). This relation can be seen historically and across cultures, in which ostracized individuals will die sooner and reproduce less than those who are included by others (Williams, 2007). In a review of the empirical literature, Baumeister and Leary (1995) concluded that "the need to belong is a powerful, fundamental, and extremely pervasive motivation." In other words, this need to belong is construed by researchers as a primary motive for human behavior.

When a person is excluded by an individual or a group, a process referred to as *social exclusion*, the effects can be extremely impactful. Social exclusion is associated with a reduced sense of belonging, as well as lowered self-esteem, control, meaningful existence, and increased negative mood (Williams, 2007; Zadro, Williams, & Richardson, 2004). Additionally, social exclusion activates the same neural pathways as physical pain (Eisenberger, Lieberman, & Williams, 2003). Clearly, there are many negative effects when an individual is socially excluded.

Behavioral reactions to social exclusion tend to fall under one (or more) of the following categories: aggressive/antisocial, self-defeating, and/or affiliative/prosocial behaviors (Abrams, Hogg, & Marques, 2004). Evidence for aggressive, or antisocial responses range from more harmful sound-blasting of others in a lab after being excluded (Twenge, Catanese, & Baumeister, 2002), to case studies linking exclusion to extreme acts of violence (Leary, Kowalski, Smith, & Phillips, 2003). Self-defeating behaviors include procrastination, risky lottery choices, and

unhealthy behaviors, such as overeating and substance use (Twenge, Catanese, & Baumeister, 2002). Affiliative, or prosocial, responses include enhanced cooperation (Ouwerkerk, Kerr, Gallucci, & Van Lange, 2005), exhibiting more behavioral mimicry after being excluded (Lakin & Chartrand, 2003), and allocating larger cash rewards (but only when future interactions were expected; Maner, DeWall, Baumeister, & Schaller, 2007).

The focus of the current study is how people respond to social exclusion through sexual behavior. As previously mentioned, social exclusion reduces a person's sense of belongingness and self-esteem, and increases negative affect. As one would expect, these reactions can lead to behavior motivated by a desire to fill these voids. For instance, Cooper, Shapiro, and Powers (1998) found intimacy and self-enhancement are primary motives for sex. Risky sexual behavior can be construed as both an affiliative behavior (i.e., increasing connection and intimacy) and/or a self-defeating behavior (i.e., more focused on short-term rewards, such as boosting ego and reducing negative affect, than on long-term consequences, such as sexually transmitted disease and unplanned pregnancy). In terms of underlying motivation, both affiliative and self-defeating behaviors can satisfy one's need to belong, while also serving as an attempt to boost self-esteem or restore ego, and reduce negative affect following exclusion.

Literature Review

Three perspectives that have examined the link between exclusion and risky sex will be discussed. These include: Life History Theory (LHT; Figueredo et al., 2006; Gadgil & Bossert, 1970), an evolutionary theory which has only recently been applied to social exclusion; Rejection Sensitivity (RS), which is focused on differential responses to exclusionary events (Downey, Feldman, Khuri, & Friedman, 1994); and the Theory of Ostracism (Williams, 2007), a commonly used theory in the social exclusion literature.

Life History Theory

Sacco, Young, Brown, Bernstein, and Hugenberg (2012) used *Life History Theory* (Figueredo et al., 2006; Gadgil & Bossert, 1970) to examine social exclusion and risky sex cognitions. One premise of this evolutionary theory is that when a person has a shorter life expectancy, he/she will engage in "fast" life history strategies (LHS). "Fast" LHS will be more focused on the short-term adaptive benefits of a behavior than the long-term consequences. For example, higher numbers of sexual partners can increase reproductive fitness in a short amount of time (due to a shorter anticipated lifespan, this would be construed as an "adaptive" behavior). Conversely, a longer expected lifespan results in "slow" life history strategies, focusing more on the enduring effects of behaviors. One example would be having fewer sexual partners due to an emphasis on having long-term relationships and investing more in fewer offspring.

From an evolutionary perspective, when a person is excluded, their survival is threatened. This will result in engaging in more "fast" strategies such as having more sexual partners. Sacco et al. (2012) manipulated social exclusion in females, and found evidence of increased endorsement of "fast" LHS (e.g., "I'd rather have several sexual partners than just one") following exclusion. This higher endorsement of "fast" LHS was attributed to an attempt to reaffiliate with people to avoid being excluded again. However, Sacco et al. (2012) claim that only women can use sex as a strategy because of sex-specific mating dynamics: women are seen as "sellers" of sex and men are the "buyers," from a *social exchange theory* view (Atchison, Fraser, & Lowman, 1998; Baumeister & Vohs, 2004). Sacco et al. (2012) did not include male participants, and thus gender differences were not examined in the study.

Rejection Sensitivity (RS)

The second perspective is *rejection sensitivity* (RS), defined as anxiously expecting, readily perceiving, or overreacting to instances of rejection (Downey et al., 1994; Feldman & Downey, 1994). Kopetz et al. (2013) examined the link between RS and risky sexual behavior in a population of non-injection substance users, and found RS significantly predicted number of sexual partners. The authors' interpretation of this result was that when an individual is high in RS, risky sexual behavior is used as a method of fortifying relationships. Interestingly, the effect was significant for women, but not for men. According to the authors, one explanation for this finding is that female gender roles emphasize sex as a way to increase intimacy and communion. Therefore, sex may be a strategy for women to fulfill their need to belong when perceived rejection is high. Although these authors give a different explanation for sex differences than the LHS account previously mentioned, once again this trend is hypothesized as being specific to women.

It is worth noting that the RS measure used by Kopetz et al. (2013) was a subjective reaction to the experience of social rejection, and social rejection was not experimentally manipulated. There are many reasons one may have a heightened RS (e.g., levels of past exclusion), as well as individual difference factors that could be spuriously driving these effects (e.g., neuroticism and gender are highly correlated with RS). Indeed, the authors acknowledge that the cross-sectional nature of the study limits conclusions of causality and potential underlying mechanisms.

Theory of Ostracism

The last perspective to discuss is William's (2007) *Theory of Ostracism*. According to this theory, the immediate neural response after being excluded is the signaling of an innate ostracism-detection system in the form of pain. Since pain is an adaptive mechanism to signal

survival threat, this theory is consistent with an evolutionary framework. The Theory of Ostracism predicts that following exclusion, people experience a reduced sense of belonging, lower sense of control, a decline in self-esteem, and lower perceived meaningful existence. These cognitive and emotional responses to exclusion can influence whether an excluded individual responds in an aggressive/antisocial, or prosocial/affiliative manner. For example, reduced feelings of belongingness could trigger an affiliative response to increase a sense of belonging, whereas a lack of control could prompt an aggressive response to regain a sense of control.

The Theory of Ostracism has been used to explain racial discrimination, since there is evidence that race-based exclusion is often attributed to racism, and racial discrimination has been found to influence the cognitive and affective responses that are the part of the Theory of Ostracism (Goodwin, Williams, & Carter-Sowell, 2010; Stock, Gibbons, Walsh, & Gerrard, 2011). Stock, Peterson, Gibbons, and Gerrard (2013) empirically tested the hypothesis that race-based exclusion leads to willingness to engage in risky sex in an African American sample. Unlike the previous studies mentioned, this study found effects in both males and females. In fact, males had higher willingness to engage in risky sex after being excluded and showed a larger change in willingness than did females. This suggests that social exclusion does affect males in terms of sexual behavior, and that the gender differences found in the Kopetz et al. (2013) study may be attributable to some other factor. Thus, more research is needed to better understand the role of gender in relation to exclusion.

The Current Study

The focus of the current study was on the relation between social exclusion and casual sex willingness, and explored the role of gender and romantic relationship status in this relation.

As will be discussed, I used a measure of risky sex cognitions that typically shows effects in men (see below). The experimental paradigm used is a well-known and popular manipulation of social exclusion, and included the following four factors: an exclusion/inclusion condition, participant gender, gender of the excluders, and romantic relationship status.

The Prototype-Willingness Model (PWM)

The main outcome measure for the current study is a construct from the Prototype-Willingness Model (PWM) of health behavior (Gerrard, Gibbons, Houlihan, Stock, & Pomery, 2008; Gibbons, Gerrard, & Lane, 2003). The PWM is a modified dual-processing theory of decision-making that involves two separate pathways leading to behavior. The first pathway, referred to as the reasoned path, is similar to other models of planned behavior, and includes the proximal antecedent behavioral intention (BI). Behavior associated with BI is a result of deliberation and consideration of consequences, then an intention to act. The second pathway, called the social reaction path, takes into account that many times behavior can be a reaction to an unplanned situation. This pathway includes the proximal antecedent behavioral willingness (BW). BW is assessed by asking how willing one would be if he/she were presented with an opportunity to engage in a behavior in which he/she may not have intended or anticipated. Previous research has shown risk cognitions about certain risk behaviors are antecedents to engaging in those specific behaviors (Gibbons et al., 2003; Gibbons, Gerrard, Oullette, & Burzette, 1998; see Webb & Sheeran, 2009 for a review), which makes risk cognitions a useful proxy to risk behavior in the laboratory setting.

Oftentimes, BW can be a better predictor of risky behavior than BI. For example, intentions to engage in a behavior tend to form after one has experience with the behavior (Pomery, Gibbons, Reis-Bergan, & Gerrard, 2009). Thus without much experience with a

behavior, individuals are not likely to have set an intention. Also, BW is more likely to predict behavior when a decision is more heuristic or affective in nature, as opposed to more of a reasoning-based decision. Since many of the motives for sex have primarily affective and/or heuristic components (e.g. enhancement, social approval, and intimacy; see Cooper et al, 1998; Meston & Buss, 2007), I focused on BW as an outcome for this study.

Hypotheses. The following hypotheses were tested:

H1: Consistent with previous literature, casual sex BW will be higher than casual sex BI.

H2: As with previous studies using similar BW wording, men will have higher casual sex BW than women do. (see Figure 1a).[1]

H3: As with past research, casual sex BW will be higher in the social exclusion condition than in the inclusion (control) condition (see Figures 1a and 1b).

Negative Affect (NA) and Social Self-Concept (SC)

Research has shown social exclusion changes mood, including levels of anger, sadness, and happiness (Williams, 2007; Zadro et al., 2004). Additionally, negative affect, such as anger and sadness, has been shown to influence BW (Gerrard et al., 2008; Gibbons et al., 2010; Pomery, unpublished raw data). This relation between affect and the reactive path is consistent with other modified dual-process models. For example, Epstein's (1998) Cognitive Experiential Self Theory posits that affective processes tend to influence the reactive (as opposed to reasoned) path to behavior. As previously mentioned, in the PWM, BW is associated more with the reactive path. I therefore predicted negative mood will mediate the relation between social exclusion and risky sex BW.

[1] Due to this hypothesized gender difference, subsequent BW analyses involved a separate, follow-up analysis in which males and females were run separately. This included Hypotheses 3; 7-9; and 11.

Previous research under the Sociometer theory and the Theory of Ostracism framework have consistently shown social exclusion leads to reduced self-esteem (Leary, 2012; Williams, 2009). Both theories state that self-esteem has evolved as an innate gauge to measure current levels of group inclusion. This serves the adaptive function of alerting individuals when inclusionary status is threatened, so that an individual can increase group belonging. This involves the previously described evolutionary explanation that ostracism is maladaptive and decreases a person's chances for survival. Therefore, I predicted social exclusion would also reduce *social self-concept* (SC). Social SC is defined as an individual's social self-evaluation, such as self-reported attractiveness or popularity. As argued by Rosenberg, Schooler, Schoenback, and Rosenberg (1995), there are meaningful differences between global and specific self-esteem, in that specifying the domain results in better prediction of effects, as well as subsequent behavior (e.g., the academic self-concept "smart" can better predict academic success than a global measure of self-esteem; Rosenberg et al., 1995). For the current study, I chose to measure social SC as the most relevant SE component to social exclusion. As posited by Sociometer theory and the Theory of Ostracism, this SC reduction could, in turn, lead to an increase casual sex BW as a means to socially connect.

Hypotheses. The following hypotheses were tested:

H4: Consistent with previous research, social exclusion will lead to significantly lower social SC and positive mood (see Figure 2).

H5: Since research has demonstrated that NA is higher when one is excluded, and NA can result in higher casual sex BW, NA will mediate the relation between exclusion and BW (see Figure 2).

H6: Based on Sociometer theory and the Theory of Ostracism, change in SC will mediate the relation between exclusion and casual sex BW (see Figure 2).

Gender-based exclusion

Stock et al. (2013) found that certain attributes of an excluder altered the effects of social exclusion on an individual. For example, some forms of out-group exclusion, such as exclusion by members of another racial group, have been shown to have more detrimental effects on one's health and well-being than being excluded by members of one's in-group, e.g., members of the same race (Stock et al., 2011; Stock et al., 2013). Recently, however, Stock (unpublished) found evidence that a simple in-group vs. out-group explanation may not fully describe this relation. Instead, the response to race-based exclusion (i.e., being excluded by a member of the same race or a different race) is moderated by a person's own race. Stock et al. (2013) found that Black participants are more impacted when excluded by Whites than they are when excluded by Blacks. However, Whites are also more impacted when excluded by Whites than by Blacks. One possible explanation for this finding is that Whites are a dominant group compared to Blacks (Kahn, Ho, Sidanius, & Pratto, 2009; Sidanius & Pratto, 1999), and therefore both Blacks and Whites are more impacted when being excluded by a dominant group member.

The current study examined whether gender-based exclusion would follow a similar pattern to that of race-based exclusion: I predicted that behavioral reactions to in-group vs. out-group exclusion vary as a function of the gender of the participants. Because males are considered to be a more dominant group than females (Pratto & Espinoza, 2001; Pratto & Walker, 2004; Rosenthal & Levy, 2010; Sidanius & Pratto, 1999), I predicted exclusion by males would affect both men and women more than exclusion by females.

Hypotheses. The following hypothesis was tested:

H7: For the reasons stated above, male exclusion will result in higher casual sex BW (among both males and females; see Figures 1a and 1b).

Relationship status

Many studies have shown that romantic relationship status can buffer against a variety of stressors that lead to health problems, such as chronic pain, depression, and substance use (Braithwaite, Delevi, & Fincham, 2010; Brown, Sheffield, Leary, & Robinson, 2003; MacDonald & Leary, 2005; Master et al., 2009; Oishi, Schiller, & Gross, 2013). However, no studies to the best of my knowledge have looked at the moderating role of relationship status on social exclusion and sexual risk behavior. Since being in a relationship can satisfy the need to belong, I predicted being in a relationship would buffer against the negative effects of exclusion. Furthermore, previous research suggests that being rejected can prompt people to seek connection from already-established relationships (Epley, Waytz, & Cacioppo, 2007; Gardner, Pickett, Jefferis, & Knowles, 2005; Twenge et al., 2007). Following exclusion, monogamous individuals might have reduced casual sex BW, due to an increased desire for one's primary partner.

Hypotheses. The following hypotheses were tested:

H8: Since sex with another person while in a monogamous relationship is considered improper behavior, and is associated with many negative consequences, single participants will have higher BW than will monogamous participants.

H9: In line with H2, gender and relationship status will moderate the relation between exclusion and casual sex BW: only single males will have higher casual sex BW when excluded (see Figures 1a and 1b).

H10: In accordance with the PWM, BW can better predict behavior than BI when the behavior is high-risk (Gerrard et al., 2008; Gibbons et al., 2003; Pomery et al., 2009). Since sex outside of a monogamous relationship would be considered high-risk, the difference between BW and BI will

be significantly higher among monogamous participants than single participants (Figure not shown, but analyses were run separately for males and females).

Methods

Participants

Participants were 315 heterosexual undergraduate psychology students who received partial course credit for participation. The mean age was 18.71 (*SD* = 1.09). Since the interest was in monogamous and single participants, I only included in analyses those who reported being either "in a monogamous relationship" or "single." Therefore, 10 participants were removed for being "in a relationship but seeing other people," 20 were removed because I did not have their posttest relationship status, and 14 participants were removed because they changed relationship status between T1 and T2. Additionally, I removed 13 participants for high levels of suspicion about the purpose of the study, and 18 African Americans.[2] For all analyses, n = 240. The sample was 48 percent male (n = 115) and 52 percent female (n = 125). Forty five percent of participants were in a monogamous relationship (n = 107) and 55 percent were not (n = 133).

Procedure

For the pretest session (T1), participants completed a mass-testing questionnaire in their introductory psychology class. They reported demographic information, casual sex BW, romantic relationship status, and social SC. The lab session (T2) occurred 1-3 months after T1.

During the lab session, participants played Cyberball 4.0 (William, Yeager, Cheung, & Choi, 2012). Cyberball is an online ball-tossing game, in which participants are told they will be playing a game with other “players.” Cyberball is preprogrammed with bogus “players” who either include or exclude the participant from the game by the number of times they throw the

[2] As will be discussed, the excluders in this study were White. African Americans were therefore excluded from analyses in order to avoid confounding race-based with gender-based exclusion (For further information on race-based exclusion, see Pascoe & Richman, 2009, for a review; and Stock et al., 2013).

ball to the participant. In the past decade, hundreds of studies have used this paradigm, which has been shown to be quite effective for inducing social exclusion (See Williams, 2007; 2009, for reviews).

Participants were told they would be doing a "visualization exercise" while playing an online game with students at other universities, and would then fill out a brief survey. Experimenters were the same sex as participants. Before starting, experimenters took a photograph of the participant and pretended to upload it to the Internet. The participant was then seated at a private computer cubicle. Each participant saw bogus photographs of 3 other "players." The photographs of the other "players" were either all males or all females, in order to manipulate gender-based exclusion. Cyberball lasted approximately 2.5 - 3 minutes. In the inclusion condition, participants received the ball an equal amount of the time (25% of the time among 4 players). In the exclusion condition, participants were passed the ball 3 times during the first half of the game (one toss from each of the 3 other "players"), and then excluded for the remainder of the game (31 throws total). After the game, participants filled out the posttest questionnaire. They were then debriefed and assigned class credit for participation.

Design

The design was a 2: Participant gender x 2: Relationship status (monogamous/single) x 2: Exclusion status (included/excluded) x 2: Gender of other "players" (same-sex "players"/opposite-sex "players"). Each participant was randomly assigned to one of the following conditions, blocking for gender and relationship status: same-sex exclusion, opposite-sex exclusion, same-sex inclusion, opposite-sex inclusion.

Measures

The following measures are presented in the order they appeared in the questionnaire:

Positive mood items (T2). Participants were asked to describe how much they felt each of the following at that moment, from 1 (not at all) to 7 (very much): happy, enthusiastic, delighted, cheerful ($\alpha = 0.89$)

Negative mood items (T2). Participants were asked to describe how much they felt each of the following at that moment, from 1 (not at all) to 7 (very much): Hostile, angry, lonely, depressed ($\alpha = 0.77$).

Behavioral willingness (T1 & T2). As previously mentioned, BW is a construct in the PWM of health behavior (Gerrard et al., 2008; Gibbons et al., 2003). BW to engage in casual sex with a stranger was assessed using a single-item question. At T2, participants answered the following question on a scale from 1 (not at all) to 7 (very):

"Suppose you were at a party sometime in the next 6 months, and met a man/woman for the first time. You think that s/he is very attractive (the feeling is mutual). At the end of the evening, you go to his/her apartment. How willing would you be to have sexual intercourse?"

The T1 BW measure (used as a covariate) was slightly different than the T2 BW question. The anchors at T1 were the following: 1 = not at all, 3 = somewhat, 5 = quite, and 7 = extremely (whereas at T2 1 = not at all, 4 = somewhat, 7 = very). Additionally, the T1 BW wording did not include "in the next 6 months" in the vignette. Participants answered the following from 1 (not at all) to 7 (extremely):

"Suppose you were at a party and met a man/woman for the first time. You think that s/he is attractive (the feeling is mutual). At the end of the evening, you go to his/her apartment. How willing would you be to have sexual intercourse?"

Behavioral intention (T1 & T2). Participants were asked the degree to which they intended to engage in casual sex with a stranger. At T2, participants answered the following question on a scale from 1 (definitely not) to 7 (definitely):

"Sometime in the next 6 months do you intend to have sexual intercourse with someone you don't know very well or that you've just met (e.g., at a party)?"

The T1 BI wording (also used as a covariate) was the same as the T2 BI wording, with the exception of the word "sometime" at the start of the sentence. At T1, participants answered the following question on a scale from 1 (definitely not) to 7 (definitely):

"In the next 6 months, do you intend to have sexual intercourse with someone you don't know very well or that you've just met (e.g. at a party)?"

Social self-concept (T1 & T2). On a scale from 1 (not at all) to 7 (extremely), participants were asked to rate themselves on how popular, attractive, and "cool" they are (α = 0.81).

Relationship status (T1 & T2). Participants selected one of the following options to indicate their current relationship status: In a monogamous relationship; in a relationship, but also seeing other people; single, but dating; single and not currently seeing anyone. As previously mentioned, participants who selected "in a relationship, but also seeing other people" were excluded from analyses.

Manipulation checks (T2). Participants were asked from 1 (not at all) to 7 (very):

1. How much did you feel you were included in the game?
2. Did you feel that you had control over the course of the game?

Control Variable. The following item was used as a control variable:

Semester. The study took place over two semesters. Thus I added semester as a control variable. For analyses, Semester 1 was coded as 0, and Semester 2 was coded as 1.

Results

Descriptive statistics, correlations, and manipulation checks

Table 1 presents means, standard deviations, and zero-order correlations for all variables. Twenty-Nine percent of participants reported they had never engaged in sexual intercourse. BW significantly correlated with BI at both T1 and T2 (r = 0.76 and 0.74, respectively; ps < .001). T1 BW and T2 BW were highly correlated, as well as T1 BI and T2 BI (r = .80 and .81, respectively; ps < .001), indicating stability of these measures over time. Consistent with Hypothesis 1, a paired-samples t-test revealed that T1 BW (M = 3.13, SD = 1.95) was significantly higher than T1 BI (M = 2.39, SD = 1.85); $t(237) = 8.62$, $p < .001$.

Manipulation checks. At T2, participants who were excluded reported lower feelings of being included, F (1,223) = 463.25, $p < .001$, and a lower sense of control at T2, F (1,223) = 112.69, $p < .001$, than did participants who were included. To check for significant pretest group differences prior to the manipulation, an ANOVA was conducted on pretest (T1) BW. Even though participants were randomly assigned to conditions, there was a significant 2-way interaction between Exclusion status and Gender of other "players," F (1,222) = 4.26, p = .04. Tables 2 and 3 show the T1 BW means, broken down by T2 conditions to illustrate the error in randomization to experimental conditions (followed by T1 BI means in Tables 4 and 5). Although T1 BW was controlled for in the following analyses, this is a notable study limitation.

T1 BW

Consistent with Hypotheses 2 and 8, an ANOVA on T1 BW revealed significant main effects of Gender, F (1,234) = 119.33, p<.001 and Relationship status, F (1,234) = 14.29, p <

.001; as well as a Gender x Relationship status interaction, F (1,234) = 6.02, p = .015. As expected from Hypothesis 2, males (M = 4.30, SD = 1.92) were significantly higher than females (M = 2.06, SD = 1.21), F (1,234) = 119.33, p <.001. Consistent with Hypothesis 8, single participants (M = 3.47, SD = 2.04) were higher than monogamous participants (M = 2.72, SD = 1.74). However, contrasts from the Gender X Relationship status interaction revealed that single females (M = 2.18, SD = 1.27) did not significantly differ from monogamous females (M = 1.91, SD = 1.13), as each were very low on the scale; F (1,234) = 0.92, p = 0.34. But single males (M = 4.86, SD = 1.80) were significantly higher than monogamous males (M = 3.61, SD = 1.87); F (1,234) = 18.64, p < .001. Tables 2-5 show T1 BW and BI means.

T1 BW versus T1 BI

To compare BW and BI among single and monogamous participants, T1 BW and T1 BI were log-transformed for a within-between participants design.[3] Consistent with Hypothesis 10, a repeated-measures ANOVA revealed a significant BW/BI x Relationship status interaction, F (1, 234) = 42.03, p <.001. In line with Hypothesis 2, males and females were run in separate analyses. The BW/BI x Relationship status interaction was significant among males, F (1,112) = 35.58, p < .001, as well as among females, F (1,122) = 10.66, p = .001. Among monogamous males, the simple main effects of the natural log revealed that BI (M = .43, SD = .61) was much lower than BW (M = 1.11, SD = .65), F (1,112) = 110.59, p <.001, whereas among single males, BI (M = 1.31, SD = .62) was also lower than BW, but to a smaller extent (M = 1.48, SD = .52), F (1,112) = 8.30, p = .005. Among the monogamous females, the simple main effects of the natural log of BI (M = .09, SD = .29) was much lower than BW (M = .49, SD = .55), F (1, 122) = 40.21, p < .001. The simple main effects of the natural log of BI for the single females (M = .50, SD =

[3] Standardization was not feasible for these analyses, since the BI distribution was positively skewed. As an alternative, natural log transformations were used.

.62) was also significantly lower than BW (M = .62, SD = .56); F (1, 122) = 4.53, p = .035, but like the males, to a smaller extent. This was an interesting finding; although females exhibited very low BW, it was still significantly different than BI.

T2 BW

In order to test Hypotheses 3, 7, and 9 (see Figures 1a and 1b for heuristic model), a full-factorial Analysis of Covariance (ANCOVA) on T2 BW was conducted, controlling for T1 BW and semester. T1 BW was the only significant covariate of posttest BW, F (1,219) = 177.54, p < .001. The ANCOVA revealed a significant 4-way interaction (Participant gender x Relationship status x Exclusion status x Gender of other "players"), F (1,219) = 7.19, p = .008. Table 6 shows male BW adjusted means and Table 7 shows female BW adjusted means. In line with Hypothesis 2 (and to examine this interaction more closely), ANCOVAs for males and females were run separately. The Relationship status x Exclusion status x Gender of other "players" 3-way interaction was not significant for females, F (1,114) = 1.52, p = .22; but was significant for males, F (1,103) = 5.58, p = .02. Thus, with the T1 BW analysis, males were driving the T2 BW effects.

Planned contrasts from the ANCOVA (Relationship status x Exclusion status x Gender of other "players") revealed that single males who were excluded by other males reported higher BW (M = 4.43, SD = 1.15) than single males who were excluded by females (M = 3.58, SD = 2.16); F (1,219) = 4.45, p = .04. In contrast, monogamous males who were excluded by other males reported lower BW (M = 2.65, SD = 1.65) than monogamous males who were excluded by females (M = 3.69, SD = 2.24); F (1,219) = 4.11, p = .04. Additionally, there was a significant difference between monogamous and single males' BW in the same-sex exclusion condition; F

(1,219) = 15.03, $p < .001$. Figure 3 shows monogamous and single males' BW means adjusted for T1 (Figure 4 shows female BW means, adjusted for T1 BW).

Social SC and Mood

Consistent with Hypothesis 4, participants who were excluded had significantly lower positive mood at T2, F (1,237) = 37.90, $p < .001$, higher negative mood at T2, F (1,237) = 30.50, $p < .001$, and lower SC at T2, F (1, 234) = 9.34, $p = .002$, than participants who were included. Next, to test Hypotheses 5 and 6, separate regressions were run for mood and change in SC on T2 BW, controlling for T1 BW. Neither mood nor change in SC significantly predicted BW (ps > .10).[4] Therefore, I did not test further for mediation.

Discussion

Many studies have experimentally manipulated social exclusion, but very few have examined the impact of social exclusion on risky sex cognitions. To the best of my knowledge, this is the first study exploring the role of relationship status and gender-based exclusion on sex willingness.

Prototype-Willingness Model (PWM)

The difference between baseline (T1) BW and BI varied as a function of relationship status, among both males and females (though to a much larger extent among males). In other words, participants in a monogamous relationship, who had no BI to cheat, reported that they might be willing to have sex with someone who is not a significant other. The PWM might help explain this result. As previously mentioned, less experience and higher levels of risk associated with a behavior often results in higher BW than BI (in which case BW could also be a better predictor of behavior than BI, Gerrard et al., 2008; Gibbons et al., 2003; Pomery et al., 2009).

[4] Although social SC was not mediating the relation, I did find an interesting Participant gender x Exclusion status x Gender of other "players" 3-way interaction, F (1,218) = 8.93, $p = .003$: both males and females had significantly lower SC when excluded by female "players." These findings are beyond the current scope of this study.

Since 29% of participants were virgins, and casual sex can be considered risky (especially for individuals in a monogamous relationship), using BW as a measure was useful for studying casual sex among students.

Negative Affect (NA) and Social Self-Concept (SC)

The common finding that social exclusion results in negative mood and low self-esteem (measured as social SC) was replicated. I tested mood and change in self-concept as mediators, but neither of these appear to be mediating the relation. This is informative in terms of understanding the underlying mechanisms. For example, mood enhancement (i.e., having sex in order to reduce negative affect) does not account for this pattern of results. As for SC, previous research has shown higher SC can actually lead to higher casual sex BW (Houlihan et al., 2008). In fact, there was a positive zero-order correlation in the data between SC and BW (See Table 1). Though it was originally hypothesized that reduced SC would serve as motivation to improve relational bonds, this hypothesis was not supported by the data.

Behavioral Willingness (BW)

Participant gender differences. As expected, males were higher on BW than females. In fact, the hypothesis that social exclusion would change BW was supported when looking at the males separately, but was not significant among females. Unlike the studies previously mentioned, which either reported or speculated that only women respond to social exclusion with risky sex (Kopetz et al., 2013; Sacco et al, 2012), I used a measure that typically shows effects in men. However, the wording of the dependent measure could also explain why the effects were not significant among women. The women had very low baseline BW. The distribution in baseline BW may have been truncated by a floor effect; or the measure may be measuring risk tolerance in addition to willingness to have causal sex. Meeting an unfamiliar man and going

back to his apartment may not have been an appealing vignette among women due to perceived safety gender differences.

One theory that provides insight into this observed BW gender difference and its link to perceived safety is the gendered risk perception theory (Gustafson, 1998). This theory states women's increased perceptions of risk, and socialization to avoid risk, contribute to the robust finding of gender differences in acceptance of casual sex offers. Conley (2011) found indirect evidence for this theory in a study that found lower perceptions of risk in a hypothetical vignette when the casual sex partner is someone familiar, such as a close friend of the opposite sex. When perceived risk was equal among men and women, the gender difference in likelihood to accept casual sex offers was eliminated.[5] The vignette I used specifically mentions casual sex with a stranger. Thus, it is possible that the low female BW scores (across all female experimental conditions in the current study) are partly the result of the female participants' perception that casual sex with a stranger is not safe.

Gender of Cyberball "players." Social exclusion affected BW to have casual sex only in males excluded by other males; male BW was not affected when excluded by females. These results are consistent with Stock et al.'s (2011; 2013; unpublished) previous research on race-based exclusion, which suggests that this phenomenon could be more than a simple in-group vs. out-group dynamic. In their research, both Black and White individuals were more impacted when excluded by White Cyberball "players," the more dominant group members. Similarly, I found when males were excluded by same-sex "players" (fellow dominant group members), it had stronger effects on casual sex BW than did opposite-sex "players" (subordinate group

[5] Conley (2011) also manipulated the levels of the anticipated sexual pleasure in order to reduce the gender gap in casual sex willingness. Although this is an important variable in reducing gender differences, since our BW wording included going to a man's apartment, perceived safety is more relevant to the current discussion.

members). BW seems to be affected more by dominant group members than subordinate group members; however, since there were not significant BW effects among women, any conclusions based on this premise are limited.

Relationship status. Males' response to same-sex exclusion also varied as a function of relationship status: monogamous males had lower BW to have casual sex, whereas single males had higher BW. These results could be driven by similar motives. One potential motive is connection and intimacy. Among monogamous males, being more faithful to one's sexual partner (i.e., not cheating) could be used as a social connection strategy, since cheating could jeopardize the chances of maintaining a previously-established relationship. It is also possible that casual sex BW is lower for monogamous males due to an increased desire for one's partner, which is also an indication of a need for intimacy. The same motive applied to single males, who do not already have a romantic partner, predicts that a new sexual partner is an opportunity for intimacy and connection they might not otherwise have.

Another potential motive is reasserting male ego and masculinity. If a male is in a monogamous relationship, perhaps his primary partner makes him feel empowered and masculine. But for single men, casual sex would be a way to reassert their social status and masculinity after being excluded. This explanation also fits with the gender of Cyberball "players" finding: being excluded by other males could be more threatening to a man's masculinity than being excluded by females.

It is possible that the underlying motives differ based on relationship status, rather than similar motives leading to different responses as a function of relationship status. For example, monogamous males cite intimacy as a higher motive of sex than do single males (Cooper et al., 1998). Perhaps when excluded, monogamous males' need for connection and intimacy increases,

but single males' need to restore their ego and masculinity is more important, and casual sex is a way to achieve this. Since I was unable to directly test these ideas, future research is needed to understand the underlying mechanisms.

Previous Literature

Although this study was not specifically designed to test the Theory of Ostracism, Life History Theory, or a Rejection Sensitivity framework, some of the findings are relevant to these perspectives. A common theme among each of these frameworks is that sex is used as a strategy for connection and belonging following exclusion. The relevance of this study's results will be discussed in relation to past research.

Theory of Ostracism. The following components of the Theory of Ostracism were supported: exclusion leads to reduced self-esteem (measured as social SC), sense of control, and feelings of inclusion. Additionally, the behavioral responses to exclusion tend to be antisocial/aggressive, and/or prosocial/affiliative. Among single males, casual sex BW could have been an affiliative response to exclusion. Yet for monogamous males, lower BW to have sex outside of a monogamous relationship could be both prosocial (if the reduced BW is driven by less BW to cheat on a romantic partner) or affiliative (if the BW reduction is due to an increase in desire for one's partner). Therefore, these results could be consistent with the Theory of Ostracism.

Rejection sensitivity. RS has been experimentally manipulated and shown to increase following exclusion (Maner et al., 2007), but it is also a dispositional trait (Downey et al., 1996; Feldman & Downey, 1994). Kopetz et al. (2013) found a link between RS and numbers of sexual partners among females, but not males. My study did not measure RS, but a rejection sensitivity theorist may interpret BW as a RS measure. In that instance, the higher BW among single males

might support a RS explanation. However, female BW was very low compared to males. Whereas in the literature, females tend to report higher RS than males (Downey et al., 1996). This would indicate the BW measure is not a feasible proxy for RS in the current study.

Life History Theory. From a LHS perspective, Cyberball activates the adaptive mechanism in which exclusion reduces anticipated life expectancy. For the current study, this would have led the males to exhibit a preference for "fast" LHS, including casual sex. However, monogamous males had lower BW, which from an evolutionary perspective is not considered a "fast" LHS strategy. Additionally, the claim made by Sacco et al. (2012), that from a social exchange theory viewpoint only women will use this strategy, was not supported. I included both males and females and only found effects among males.

Limitations

The results discussed should be evaluated with some limitations in mind. There was a randomization error, in which the groups had differences in T1 (pretest) BW. Although this was statistically controlled for, it is still an issue. Replicating these results is an important next step. There was also a change in wording for the BW and BI question from pretest to posttest, which limited my ability to use change scores from T1 to T2. Also, the BW and BI questions were single-item measures which does not allow reliability to be checked. Lastly, the generalizability to other populations and real-world situations is limited by the factors of using a sample of Introductory Psychology students in a laboratory setting. However, Cyberball is presumed to tap into innate mechanisms that individuals experience when excluded, which if true allows generalization to a wider range of contexts.

Conclusion

This study's results suggest that males are impacted when excluded by other males, and the response varies as a function of relationship status. Overall, this study offers interesting insight into the role of gender-based exclusion and romantic relationship status as factors involved in reactions to social exclusion and risky sex cognitions.

Future Directions

One focus for future research is on motives which could be driving the BW effects among males following social exclusion. It is possible that monogamous males and single males have different motives, or perhaps similar motives that manifest differently depending on whether they are in a relationship or single. Assessing the distinction between male ego and drive for intimacy motives as a function of relationship status will be a next step.

Another plan for future research is to alter the hypothetical scenarios for the BW questions to improve measurement for women. It is likely that the vignette produced a scenario that women would not typically find enjoyable or appealing. If perceptions of safety and expectations of an enjoyable sexual experience are ensured, we might find more BW variance among women when excluded. To increase perceptions of safety, the sexual partner in the hypothetical scenario can be changed from a stranger to a known, trusted friend. Additionally, to increase the expectation of a pleasant sexual experience, the scenario can mention "a casual, 'no-strings-attached' night of fun, enjoyable sex."

Public Health Implications

Further understanding the psychosocial factors contributing to risky sexual behavior, including social exclusion, has important public health implications. For instance, Healthy People 2020, a nationwide health-promotion and disease-prevention program, states that

behavioral factors such as risky sex contribute to the number of Sexually Transmitted Diseases (STDs) occurring each year. Examples of risky sexual behavior include casual sex, unprotected sex, and high numbers of sexual partners.

Approximately 20 million new STDs occur every year in the United States, with a total prevalence of 110 million people reporting a diagnosis (Centers for Disease Control, 2012). The current research adds to the evidence that risky sexual behavior, which includes casual sex, is strongly tied to social factors such as exclusion. One crucial step is to try and understand the underlying mechanisms better. Understanding the psychosocial factors leading to sexual risk behavior will guide future sexual risk reduction intervention research. Results of this study indicate that single males will become more vulnerable to risky sex after being socially excluded. After further work, knowing whether intimacy or ego restoration is the goal for an individual would allow the delivery of an appropriate framing of an intervention message.

Additionally, many studies have demonstrated the PWM is a useful framework for designing interventions (Gibbons, Gerrard, Stock, & Finneran, in press). For example, the PWM's consideration of socially reactive thinking has been successfully used to inform interventions among adolescents, including a sexual risk reduction program (Murry et al., 2011). This population is of particular concern since the Centers for Disease Control (2012) reported that youth are disproportionately affected by STDs. Although young people between 15-24 years make up less than 25% of the total population, they account for 50% of new STD diagnoses each year (Centers for Disease Control, 2012). The PWM is especially useful when targeting this age group for intervention.

As Klein, Shepperd, Suls, Rothman, and Croyle (2014) recently pointed out, "successful behavior change does not occur merely by providing people with information, but rather by

understanding and targeting the constellation of motives, emotions, cognitions, interpersonal processes, and situations that drive behavior" (p. 1). As future research uncovers the underlying mechanisms and motives connecting social exclusion and casual sex, successful behavior change efforts can be more effective.

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Table 1

Means, Standard Deviations, and Correlations

Measures	1	2	3	4	5	6	7	8	9	10	11	12	13
1. T1 BW													
2. T1 BI	.761**												
3. T1 SC	.285**	.327**											
4. T2 BW	.797**	.707**	.301**										
5. T2 BI	.660**	.811**	.308**	.736**									
6. T2 SC	.213**	.263**	.801**	.241**	.289**								
7. T2 Number of sexual partners	.385**	.366**	.402**	.372**	.369**	.325**							
8. T2 NA	.036	.099	.024	-.021	.082	-.056	.005						
9. T2 PA	-.001	-.017	.254**	.007	.047	.335**	.063	-.443**					
10. Gender	-.577**	-.432**	-.206**	-.584**	-.425**	-.218**	-.179**	.009	-.033				
11. Inclusion/exclusion	.060	.014	.021	.007	.012	-.102	.004	.338**	-.371**	.017			
12. Same/opposite-sex “players”	.079	.013	.039	.008	-.045	.035	-.009	-.036	.078	-.009	-.025		
13. Monogamous/Single	.191**	.434**	.061	.219**	.448**	.018	-.112	-.031	-.017	-.005	.051	-.027	
Mean	3.1	2.4	4.0	3.4	2.4	4.0	2.15	1.9	3.6	n/a	n/a	n/a	n/a
SD	1.9	1.9	1.1	2.0	1.9	1.0	3.13	1.0	1.3	n/a	n/a	n/a	n/a

Note. ** indicates significance at the p<.01 level. 10 coded as 1=male, 2=female. 11 coded as 1=inclusion, 2=exclusion. 12 coded as 1=same-sex “players,” 2= opposite-sex “players”. 13 coded as 1=monogamous, 2=single.

Table 2

T1 Male BW

Relationship status	Same-sex exclusion	Opposite-sex exclusion	Same-sex inclusion	Opposite-sex inclusion
Single	4.67_{ab}	4.86_{ab}	5.27_{a}	4.80_{ab}
Monogamous	3.36_{b}	5.00_{ab}	2.60_{c}	3.69_{abc}

Note. Means sharing common subscript are not statistically significantly different.

Table 3

T1 Female BW

Relationship status	Same-sex exclusion	Opposite-sex exclusion	Same-sex inclusion	Opposite-sex inclusion
Single	2.06	2.24	2.47	1.86
Monogamous	2.00	2.13	1.69	1.81

Note. None of the means are statistically significantly different.

Table 4

T1 Male BI

Relationship status	Same-sex exclusion	Opposite-sex exclusion	Same-sex inclusion	Opposite-sex inclusion
Single	4.37_{a}	4.07_{ac}	4.36_{a}	4.35_{a}
Monogamous	1.82_{b}	2.67_{bc}	1.27_{b}	2.00_{b}

Note. Means sharing common subscript are not statistically significantly different.

Table 5

T1 Female BI

Relationship status	Same-sex exclusion	Opposite-sex exclusion	Same-sex inclusion	Opposite-sex inclusion
Single	2.06	1.53	2.42	2.07
Monogamous	1.00	1.33	1.23	1.06

Note. None of the means are statistically significantly different

Table 6

T2 Male BW

Adjusted Means by Condition

Relationship status	Same-sex exclusion	Opposite-sex exclusion	Same-sex inclusion	Opposite-sex inclusion
Single	4.43_{a}	3.58_{bc}	3.78_{abd}	3.93_{ab}
Monogamous	2.65_{cd}	3.69_{ab}	3.97_{ab}	3.62_{ab}

Note. Means sharing common subscript are not statistically significantly different.

Table 7

T2 Female BW

Adjusted Means by Condition

Relationship status	Same-sex exclusion	Opposite-sex exclusion	Same-sex inclusion	Opposite-sex inclusion
Single	3.14	3.09	3.30	2.89
Monogamous	2.95	2.49	2.85	2.98

Note. None of the means are statistically significantly different

Table 8

T2 Male BI

Adjusted Means by Condition

Relationship status	Same-sex exclusion	Opposite-sex exclusion	Same-sex inclusion	Opposite-sex inclusion
Single	3.50_{a}	3.14_{abc}	2.57_{abcd}	$ab3.17_{ab}$
Monogamous	2.04_{cd}	1.74_{d}	2.52_{abcd}	2.11_{bcd}

Note. Means sharing common subscript are not statistically significantly different.

Table 9

T2 Female BI

Adjusted Means by Condition

Relationship status	Same-sex exclusion	Opposite-sex exclusion	Same-sex inclusion	Opposite-sex inclusion
Single	2.13	2.49	2.62	1.87
Monogamous	2.22	1.94	2.35	1.92

Note. None of the means are statistically significantly different

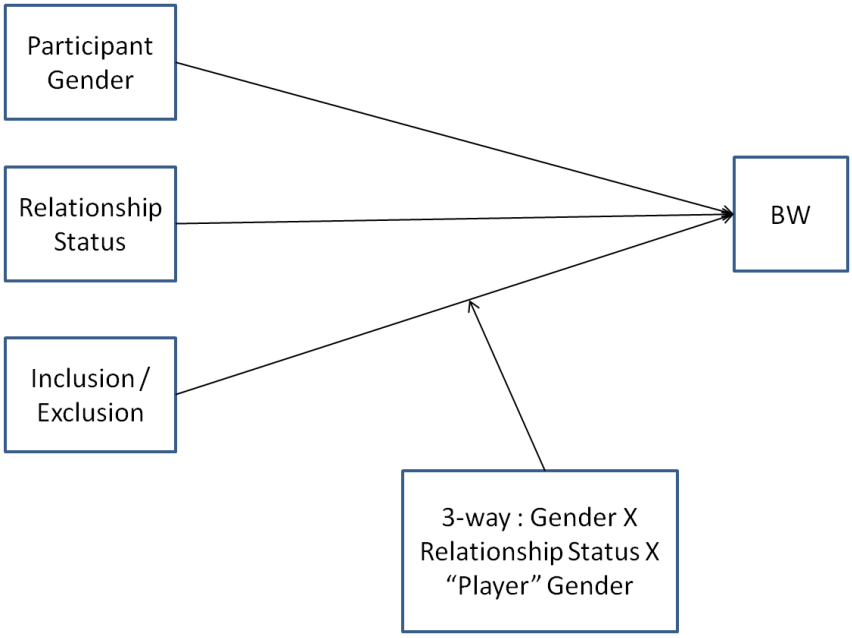

Figure 1a. Participant Gender and Relationship Status were hypothesized to have a main effect on BW. Additionally, the effect of Inclusion/Exclusion condition on BW was hypothesized to be moderated by the three way interaction between Participant Gender, Relationship Status, and "Player" Gender condition, such that males who are single will increase willingness when excluded by males more than monogamous men or women.

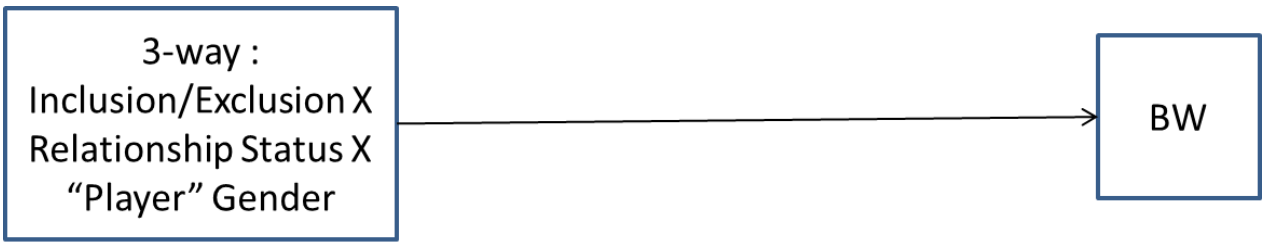

Figure 1b. In line with H2, the following Inclusion/Exclusion X Relationship Status X “Player” Gender analysis was run separately for males and females.

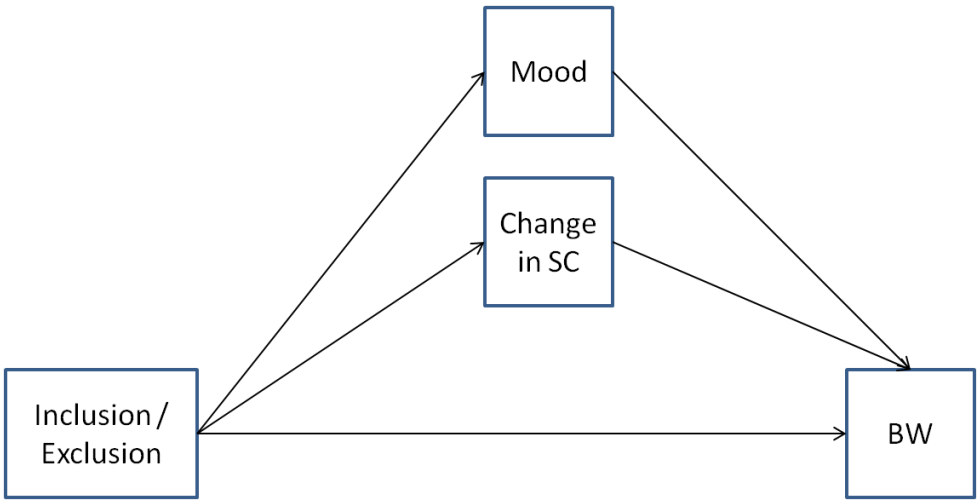

Figure2. The effects of Inclusion/Exclusion on BW will be mediated by mood and change in social SC

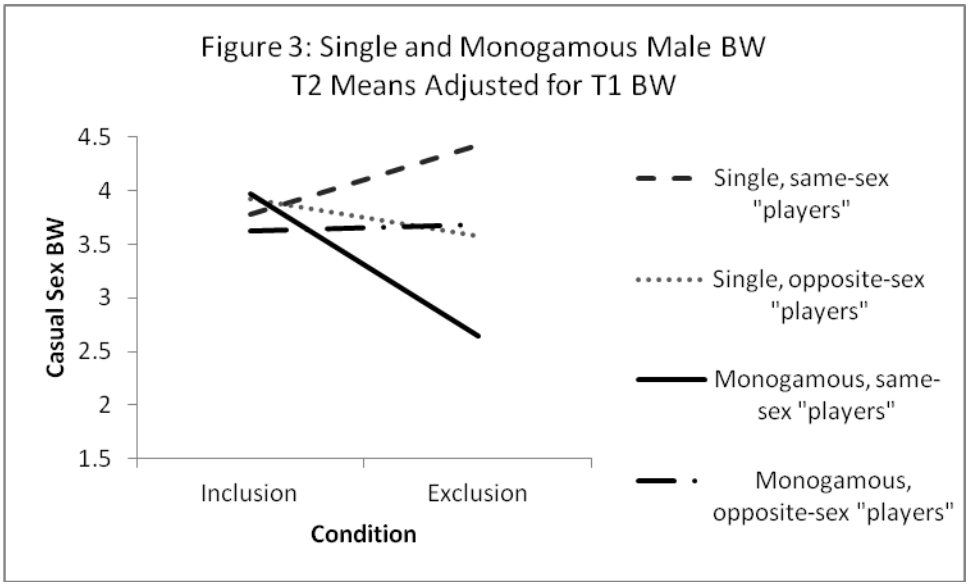
Figure 3: Single and Monogamous Male BW
T2 Means Adjusted for T1 BW
Casual Sex BW
4.5
4
3.5
3
2.5
2
1.5
Inclusion
Exclusion
Condition
Single, same-sex "players"
Single, opposite-sex "players"
Monogamous, same-sex "players"
Monogamous, opposite-sex "players"

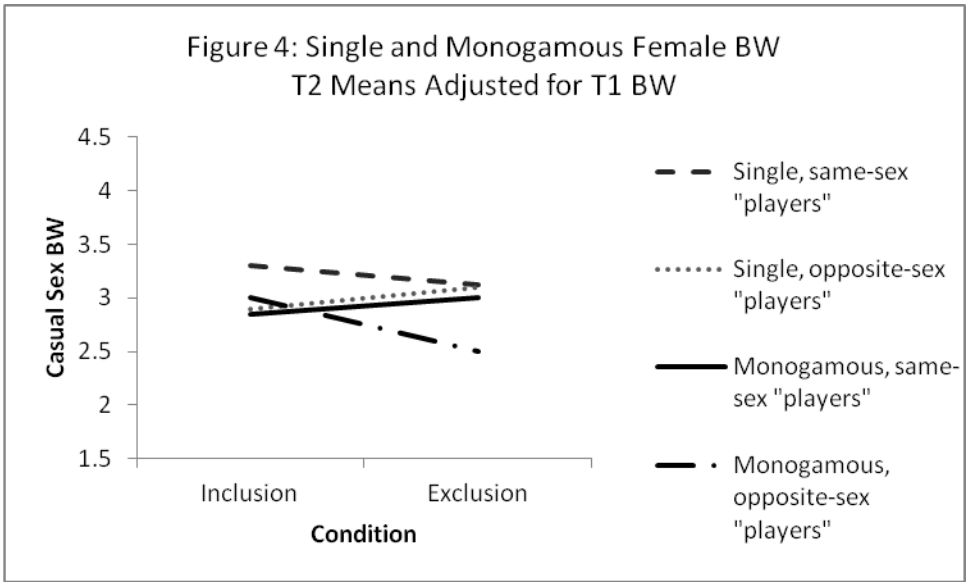
Figure 4: Single and Monogamous Female BW
T2 Means Adjusted for T1 BW
Casual Sex BW
4.5
4
3.5
3
2.5
2
1.5
Inclusion
Exclusion
Condition
Single, same-sex "players"
Single, opposite-sex "players"
Monogamous, same-sex "players"
Monogamous, opposite-sex "players"

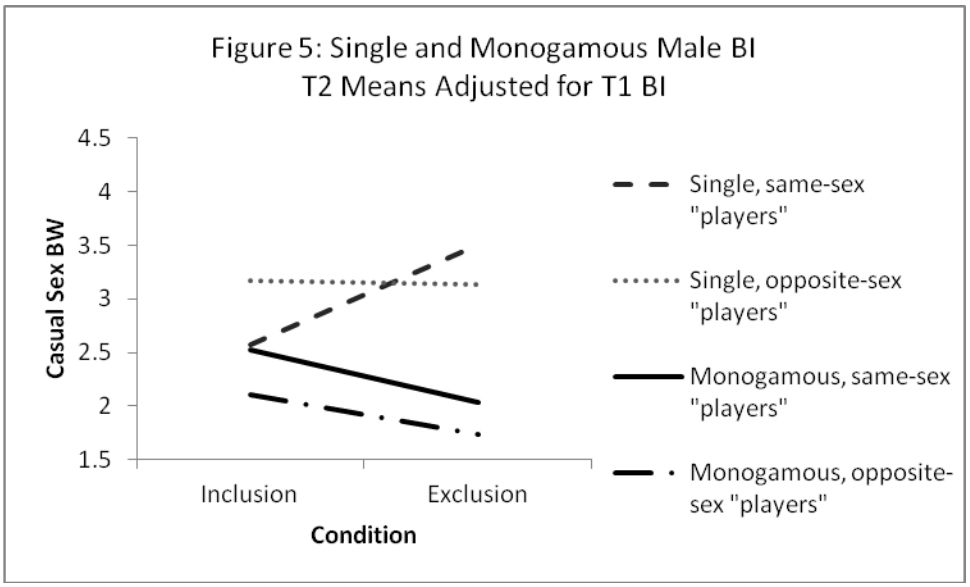
Figure 5: Single and Monogamous Male BI
T2 Means Adjusted for T1 BI
Casual Sex BW
4.5
4
3.5
3
2.5
2
1.5
Inclusion
Exclusion
Condition
Single, same-sex "players"
Single, opposite-sex "players"
Monogamous, same-sex "players"
Monogamous, opposite-sex "players"

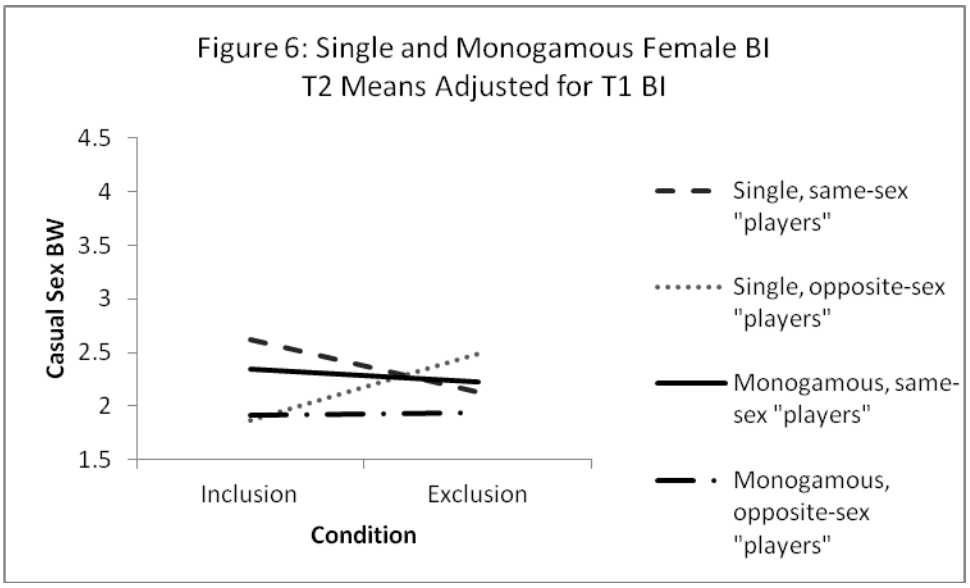
Figure 6: Single and Monogamous Female BI
T2 Means Adjusted for T1 BI
Casual Sex BW
4.5
4
3.5
3
2.5
2
1.5
Inclusion
Exclusion
Condition
Single, same-sex "players"
Single, opposite-sex "players"
Monogamous, same-sex "players"
Monogamous, opposite-sex "players"