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Dimensions of Sexual Orientation and Rates of Intimate Partner Violence among Young Sexual Minority Individuals Assigned Female at Birth: The Role of Perceived Partner Jealousy

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Abstract

Objective: Sexual minorities assigned female at birth are at increased risk for experiencing intimate partner violence (IPV) compared to heterosexual individuals, and bisexual individuals assigned female at birth appear to be at greatest risk. However, few studies have examined potential explanatory factors. Partner jealousy may contribute to bisexual individuals' increased risk for experiencing IPV, given stereotypes that they are promiscuous and evidence that people anticipate being jealous of a bisexual partner.

Methods: This study examined the role of perceived partner jealousy in cross-sectional associations between self-reported dimensions of sexual orientation (identity, attractions, behavior) and IPV victimization among 368 young sexual minorities assigned female at birth (77.4% cisgender women).

Results: Sexual behavior was associated with IPV, but sexual identity and attractions were not. Those with both male and female sexual partners in their lifetime were at increased risk for many forms of IPV compared to those with only male partners and those who never had sex, and these associations were partially explained by their higher perceived partner jealousy. Those with male and female partners were only at increased risk for two types of IPV compared to those with only female partners and these differences were not explained by perceived partner jealousy.

Conclusions: Jealousy may contribute to behaviorally bisexual individuals' increased risk for many forms of IPV compared to those with only male partners or never had sex. This highlights the importance of considering multiple dimensions of sexual orientation and has implications for the development of interventions to reduce IPV in this population.

Keywords

intimate partner violence; bisexuality; sexual minority; jealousy

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Previous research on sexual orientation disparities in intimate partner violence (IPV) has demonstrated that sexual minority women are approximately two times more likely to experience IPV than heterosexual women, and bisexual individuals may be at greatest risk (e.g., Conron, Mimiaga, & Landers, 2010; McLaughlin, Hatzenbuehler, Xuan, & Conron, 2012; Olsen, Vivolo-Kantor, & Kann, 2017; Walters, Chen, & Breiding, 2013). Despite evidence that bisexual individuals may be at higher risk for IPV compared to other sexual minority individuals, very few studies have examined potential mechanisms accounting for their heightened risk. One mechanism that may help to explain this risk is partner jealousy. Stereotypes portray bisexual individuals as promiscuous and likely to commit infidelity in relationships (Friedman et al., 2014), and these stereotypes may lead partners of bisexual individuals to be more jealous (Armstrong & Reissing, 2014; Li, Dobinson, Scheim, & Ross, 2013). Given that jealousy has consistently been linked to the perpetration of IPV in heterosexual samples (Brownridge, 2004; Foran & O'Leary, 2007; Giordano, Soto, Manning, & Longmore, 2010), heightened partner jealousy arising from these stereotypes may place bisexual individuals at increased risk for IPV. In the current study, we examined whether differences in perceived partner jealousy accounted for bisexual individuals' increased risk for IPV in a sample of sexual minorities assigned female at birth (i.e., cisgender women, transgender men, and non-binary individuals who self-identify as sexual minorities, report same-gender attractions, and/or same-gender sexual partners).

Disparities in IPV among Subgroups of Sexual Minority Women

Despite growth in research on IPV among sexual minorities, most studies have focused on differences in IPV risk between heterosexual and sexual minority individuals. This research has generally grouped lesbian and bisexual women together, and the few studies that have kept them separate have compared them to heterosexual women but not to each other (e.g., Conron et al., 2010; Goldberg & Meyer, 2013; McLaughlin et al., 2012; Walters et al., 2013). Still, there is substantial evidence that self-identified bisexual women are at increased risk for IPV (psychological, physical, and sexual) compared to heterosexual women (Conron et al., 2010; Freedner, Freed, Yang, & Austin, 2002; Goldberg & Meyer, 2013; Martin-Storey, 2015; McLaughlin et al., 2012; Walters et al., 2013). There is also evidence that self-identified lesbian women are at increased risk for IPV (psychological, physical, and sexual) compared to heterosexual women (Balsam, Rothblum, & Beauchaine, 2005; Freedner et al., 2002; Martin-Storey, 2015), but these findings have been less consistent (e.g., other studies have not found differences in physical or sexual IPV; Conron et al., 2010; Goldberg & Meyer, 2013; McLaughlin et al., 2012; Walters et al., 2013). The few studies to compare lesbian and bisexual women to each other have typically found that bisexual women are at increased risk for IPV (psychological, physical, coercive control) compared to lesbian women (Barrett & St. Pierre, 2013; Freedner et al., 2002; Walters et al., 2013; for an exception see Balsam et al., 2005).

Although sexual orientation is comprised of at least three dimensions: identity, attractions, and behavior (Laumann, Gagnon, Michael, & Michaels, 1994), most studies on IPV among sexual minorities have focused on sexual identity, with very few examining differences by sexual behavior and none to our knowledge examining differences by attractions. Consistent with studies on sexual identity, the few studies to examine lifetime sexual behavior have

found that women who have had both male and female partners are at increased risk for IPV (psychological, physical, sexual, coercive control) compared to those with only male partners (Martin-Storey, 2015; McCauley et al., 2015; Messinger, 2011) and those with only female partners (Messinger, 2011). As such, while there is evidence that both lesbian and bisexual women are at increased risk for IPV compared to heterosexual women, women who identify as bisexual and/or have had male and female sexual partners appear to be at greatest risk.

Prior research has demonstrated that examining only a single dimension of sexual orientation can obscure nuanced differences in risk for physical health, mental health, and substance use disorders (Bostwick, Boyd, Hughes, & McCabe, 2010; Dyar et al., 2018; McCabe, Hughes, Bostwick, West, & Boyd, 2009). Sexual identity, attractions, and behavior are not equivalent or interchangeable dimensions of sexual orientation, and it is not uncommon for individuals who use a specific sexual identity label to report attractions and/or engage in sexual behaviors that may not match common societal understandings of their sexual identity (Igartua, Thombs, Burgos, & Montoro, 2009). For example, a much larger proportion of the population reports multi-gender attractions (i.e., attractions to more than one gender) and/or has had male and female sexual partners than the proportion who self-identify as bisexual (e.g., Bostwick et al., 2010). Given the multidimensional nature of sexual orientation, the IPV literature's predominant focus on sexual identity may obscure nuanced differences in risk across different dimensions of sexual orientation and thus mechanisms that account for these differences.

Further, nearly all of the aforementioned studies focused exclusively on cisgender women (Balsam et al., 2005; Freedner et al., 2002) or only assessed sex and not gender identity (Martin-Storey, 2015; McCauley et al., 2015; Messinger, 2011; Walters et al., 2013). By focusing exclusively on cisgender individuals, existing literature on IPV among sexual minorities excludes a sizeable proportion of the population—transgender and non-binary individuals (Kuper, Nussbaum, & Mustanski, 2012; Richards et al., 2016). Thus, there is a need for research on IPV among sexual minorities using gender inclusive samples to provide a more complete understanding of IPV in this population.

Partner Jealousy as a Potential Mechanism

There is a dearth of research examining potential mechanisms accounting for disparities in IPV, especially among subgroups of sexual minority women. Given that self-identified bisexual women and behaviorally bisexual women (i.e., those who have had both male and female sexual partners) appear to be at increased risk for IPV compared to self-identified or behaviorally heterosexual or lesbian women, there is a need to understand why this is the case in order to develop and refine interventions to reduce IPV in this population. Scholars have suggested that bisexual women may be at increased risk for IPV compared to lesbian women due to their relationships with men (Messinger, 2011). However, much of this research has not assessed the gender of partners perpetrating IPV. In one exception, previous analyses of data from the current sample indicated that the gender of an individuals' relationship partner was not associated with the likelihood of experiencing IPV in that relationship (Whitton, Dyar, Mustanski, & Newcomb, 2019). As such, there is a critical need

to examine other factors that may explain the increased risk for IPV experienced by bisexual women and women who have had both male and female sexual partners. One factor that may help explain their increased risk for IPV is partner jealousy.

Previous research focused on heterosexual individuals has consistently demonstrated that individuals who are more jealous of their partners (based on self- or partner-report) are more likely to perpetrate IPV (Brownridge, 2004; Foran & O'Leary, 2007; Giordano et al., 2010). Jealousy is also one of the most commonly reported motivations for perpetrating IPV (Neal & Edwards, 2015). Despite substantial support for a link between partner jealousy and IPV perpetration, this has not been examined among sexual minorities. Partner jealousy may be particularly relevant to IPV perpetrated against bisexual individuals given stereotypes that they are unable to maintain monogamous relationships and likely to commit infidelity (Brewster & Moradi, 2010; Friedman et al., 2014). Further, research indicates that endorsement of these stereotypes about bisexual individuals is associated with greater anticipation of feeling insecure and jealous in a relationship with a bisexual partner (Armstrong & Reissing, 2014) and bisexual individuals report that their relationship partners who endorse these stereotypes display more jealousy (Li et al., 2013). Given that partner jealousy is associated with IPV perpetration and people are particularly likely to feel jealous of bisexual partners, partner jealousy may help explain why bisexual women are at greatest risk for IPV.

In the current study, we examined the extent to which perceived partner jealousy accounted for bisexual individuals' increased risk for IPV in a sample of sexual minorities assigned female at birth. The current study builds on a previous study using the same sample, which found that self-identified bisexual individuals assigned female at birth were at greater risk for sexual and gender minority (SGM) specific IPV (e.g., threats to "out" one's partner) than self-identified lesbian individuals, but they did not differ in rates of psychological, physical, sexual, or coercive controlling IPV (Whitton et al., 2019). In the current study, we expanded our operationalization of sexual orientation to include identity, attractions, and behavior, and examined the indirect effects of sexual orientation on IPV risk via perceived partner jealousy. We hypothesized that bisexual individuals (based on identify, attractions, or behavior) would be at higher risk for psychological, physical, sexual, SGM-specific, coercive control, and cyber IPV as well as being injured by their partners compared to other sexual minorities assigned female at birth (Hypothesis 1), report more perceived partner jealousy compared to other sexual minorities assigned female at birth (Hypothesis 2), and that these higher levels of perceived partner jealousy would explain bisexuals' increased risk for IPV (Hypothesis 3).

Methods

Procedures

FAB400 is an ongoing cohort study of 488 young female-assigned at birth sexual and gender minorities focused on their health, development, and intimate relationships (Whitton et al., 2019). FAB400 employs a merged cohort accelerated longitudinal design (Galbraith, Bowden, & Mander, 2017) and includes two cohorts: (1) a late adolescent cohort recruited for FAB400 in 2016–2017 (N = 400; 16–20 years old at baseline); and (2) a young adult

cohort comprised of sexual and gender minorities assigned female at birth from Project Q2, a longitudinal study of SGM youth that began in 2007 (N = 88; 23–32 years old at the FAB400 baseline assessment; Mustanski, Garofalo, & Emerson, 2010). Inclusion criteria for FAB400 and Project Q2 were identical, requiring participants to be 16–20 years old when they enrolled, speak English, and either identify with a sexual or gender minority label, report same-gender attractions, or report same-gender sexual behavior. To enroll in FAB400, participants were also required to be female-assigned at birth. Each cohort was recruited using an incentivized snowball sampling approach, in which participants were recruited from various venues (i.e., SGM organizations, health fairs, SGM high school/college groups) and social media advertisements (45% of the sample), and then enrolled participants could refer up to 5 peers (55% of the sample). In 2016–2017, all 488 participants completed the FAB400 baseline assessment.

The current analyses used data from the baseline assessment. Participants were asked to report on up to three sexual and/or romantic partnerships that occurred in the last 6 months, one of which they designated as the most significant (i.e., "…the person that you spent the most time with, were most serious about, or who had the biggest effect on you"). Participants then completed a number of measures with reference to their relationship with their most significant partner (referred to throughout as their current partner or their current relationship for brevity). Participants who did not report a sexual or romantic relationship in the last 6 months (n = 81) were excluded from the current analyses. Participants who reported a one-time sexual encounter as their most significant relationship (n = 17) were also excluded from the current analyses because the measure of perceived partner jealousy was not administered for one-time sexual encounters. There were 20 couples in the analytic sample. To eliminate this source of non-independence, we randomly selected one partner in each couple to be excluded from analyses. Additionally, given our focus on sexual minorities, we excluded two transgender men who self-identified as straight, reported exclusive attractions to women, and reported only female sexual partners. This resulted in a final analytic sample of 368 (Table 1).

Participants

The analytic sample of sexual minority individuals assigned female at birth was diverse in race/ethnicity (23.6% non-Latinx White), gender identity (22.6% gender minorities), and sexual identity (24.7% identified as lesbian/gay). The majority of the sample reported attractions to men and women (77.4%), with a smaller proportion reporting exclusive attractions to women (19.8%). Approximately half of the sample had both male and female sexual partners in their lifetimes, with smaller proportions of the sample reporting only female partners (17.4%), only male partners (16.6%), or that they had never had sex (14.7%).

Measures

Demographics.—Information about participants' age, race/ethnicity, and gender identity (i.e., male, female, transgender, gender non-conforming, genderqueer, non-binary, and not listed) were collected. Participants of any race (i.e., White, Black or African American, American Indian or Alaskan Native, Asian, Native Hawaiian or Other Pacific Islander, other

unlisted racial groups, and multiracial) who identified as Latinx, were categorized as Latinx. Participants also provided their partners' gender identity and sex assigned at birth (male, female, intersex).

Dimensions of Sexual Orientation

Sexual identity.: Participants were asked, "Which of the following commonly used terms best describes your sexual orientation?" with the options: gay, lesbian, bisexual, queer, unsure/questioning, straight/heterosexual, pansexual, asexual, and not listed (please specify). Participants were categorized into five groups: lesbian, bisexual, queer, pansexual, and other.

Attractions.: Participants were asked to indicate "the individuals to whom you are physically attracted." Response options were: only males; mostly males but some females; males and females equally; mostly females but some males; only females; and I'm not physically attracted to anyone. Participants were categorized into two groups: those who reported attractions to "only females" and those who reported attractions to both men and women. Three transgender men who selected "only males" and 7 individuals who selected "I'm not physically attracted to anyone" were excluded from analyses of attractions.

Lifetime sexual behavior.: Participants were asked to indicate how many men and women they had sex with in their lifetime. Responses were open-ended. For lifetime sexual behavior, four groups were created based on the number of male and female sexual partners reported: never had sex; only male partners; only female partners; and both male and female partners.

Intimate Partner Violence

Sexual and Gender Minority Conflict Tactics Scale 2 (SGM-CTS2).: An adapted version of the CTS2 (Straus, Hamby, Boney-McCoy, & Sugarman, 1996) was used to assess minor and severe psychological IPV, minor and severe physical IPV, injury by partner, and sexual IPV victimization. This scale was adapted to make it appropriate for use with sexual and gender minorities individuals and has demonstrated similar factor structure, internal reliability, and validity as the original CTS2 (for a description of adaptations, see Dyar et al., 2019). The SGM-CTS2 assesses how frequently each of 37 IPV victimization events occurred on a 0–7 scale: 0 *(never*), 1 (*once*), 2 (*twice*), 3 (*3–5 times*), 4 (*6–10 times*), 5 (*11–20 times*), 6 (*more than 20 times*), and 7 (*not in the past 6 months, but it did happen before*). Dichotomous variables were created to represent whether or not participants experienced each type of IPV victimization in the past 6 months in the context of their relationship with their most significant partner (coded as 0 if the sum of subscale items was 0; coded as 1 if the sum of subscale items was greater than 0). Cronbach's alphas were acceptable for all subscales (α = .66 to .82) except sexual IPV (α = .47), consistent with the original CTS2 (Straus et al., 1996). The same response scale was also used for the Coercive Control Scale, SGM-Specific IPV Tactics Scale, and Cyber Abuse Measure.

Coercive Control Scale.: The Coercive Control Measure (Dyar et al., 2019) was used to assess IPV characterized by controlling behaviors (8 items; α = .78). Example item: "[Partner name] monitored my time and made me account for my whereabouts." This

measure has demonstrated validity in the current sample (e.g., positive associations with psychological IPV and ineffective couple communication, negative association with relationship satisfaction; Dyar et al., 2019).

SGM-Specific IPV.: The Sexual and Gender Minority Specific Intimate Partner Violence Tactics Scale (Dyar et al., 2019) assesses unique types of IPV that SGM individuals may experience, including threats to disclose one's SGM identity, isolation from the SGM community, and denigration for being SGM. This measure includes 5 items assessing victimization ($\alpha = .63$). Example item: "[Partner name] threatened to out me to my friends, family, or other people in my life if I didn't do what they wanted." This measure has also demonstrated validity in this sample (e.g., positive associations with ineffective communication and coercive control, negative association with relationship satisfaction; Dyar et al., 2019).

Cyber Abuse: was measured using an abbreviated version of the Cyber Dating Abuse measure (Zweig, Dank, Yahner, & Lachman, 2013). This measure includes 4 items ($\alpha = .61$) assessing IPV victimization that occurs via social media and text messaging. Example item: "[Partner name] pressured me to send a sexual or naked photo of myself." This measure has demonstrated validity in samples of heterosexual and sexual minority youth (e.g., associations with other types of IPV, depression, and anger) (Dank, Lachman, Zweig, & Yahner, 2014; Zweig et al., 2013; Zweig, Lachman, Yahner, & Dank, 2014) and in the current sample via positive associations with coercive control and ineffective couple communication and a negative association with relationship satisfaction.

Perceived Partner Jealousy—was measured using a brief measure developed for the current study. Three items were adapted from the Multidimensional Jealousy Measure (Pfeiffer & Wong, 1989) to assess the participant's perception of their partner's jealousy. Adapted items include: "[Partner name] is suspicious that I am secretly in a romantic and/or sexual relationship with someone else," "[Partner name] is jealous when I am around people I may be attracted to," and "[Partner name] has accused me of cheating." Response options range from 1 (strongly disagree) to 7 (strongly agree), and responses to these three items were averaged ($\alpha = .81$).

Analytic Plan

Missing data (less than 0.1%) were handled using full information maximum likelihood. All analyses were conducted in Mplus Version 7. Prior to examining indirect effects, we examined the direct effects of sexual orientation on IPV risk in a series of binomial logistic regressions. Individuals who had both male and female partners were the reference group for analyses examining sexual behavior, bisexual was the reference group for those examining sexual identity, and attractions to both men and women was the reference group for sexual attractions because our hypotheses focused on comparing these groups to all other groups (e.g., comparing bisexual identified individuals to individuals who identified in other ways). Age and race/ethnicity were controlled for in all analyses because they were significantly associated with IPV. As age and cohort were highly correlated ($r = .93$), we did not control for cohort. We controlled for gender minority status to account for the diversity of this

sample. Power for these analyses was > .80 to detect moderate effects (*OR* = 3.5) for all types of IPV when the comparison group included 50 or more individuals and for all comparison groups when the type of IPV was reported by ≥ 10% of the sample (all types of IPV except for injury). Power was > .80 to detect small effects (*OR* = 2.5) when the type of IPV was reported by ≥ 15% of the sample and the comparison group included 50 or more individuals. Next, we conducted a series of analyses of covariance in which sexual identity, attractions, or behavior predicted perceived partner jealousy. Power was > .80 for small to moderate effect sizes ($\eta_p^2 \geq .03$). Significant associations between dimensions of sexual orientation and perceived partner jealousy were then followed by tests of indirect effects of dimensions of sexual orientation on IPV through perceived partner jealousy using the bootstrap approach with 5,000 resamples. Power was > .80 for all indirect effects comprised of a moderate (Cohen's d = .50) difference in perceived partner jealousy by sexual orientation and an association between perceived partner jealousy and IPV with an odds ratio of 1.40 or greater. Power was > .60 for indirect effects comprised of a small to moderate difference (Cohen's d = .25) in jealousy and an association between perceived partner jealousy and IPV with an OR of 1.40 or greater.

Results

Dimensions of Sexual Orientation Predicting IPV – Direct Effects (Hypothesis 1)

There were significant differences in IPV based on lifetime sexual behavior, but not sexual identity[1] or attractions (Table 2). Participants who had both male and female partners in their lifetime were at increased risk for IPV in their current relationship, particularly compared to those who never had sex and those who only had male partners. When ORs (presented in tables) are less than one, inverse ORs are presented in text to facilitate interpretation of risk among individuals with both male and female partners. Compared to participants who only had male partners, those who had both male and female partners were at increased risk for severe psychological (OR = 2.56, 95% CI: 1.19, 5.56), minor physical (OR = 2.39, 95% CI: 1.07, 5.81), and severe physical IPV (OR = 3.25, 95% CI: 1.13, 12.68), and being injured by their partner (OR = 5.37, 95% CI: 1.27, 49.90). Compared to those who never had sex, those who had both male and female partners were at increased risk for minor psychological (OR = 3.12, 95% CI: 1.64, 6.25), severe psychological (OR = 2.50, 95% CI: 1.13, 5.56), minor physical (OR = 6.11, 95% CI: 2.14, 20.05), severe physical IPV (OR = 7.17, 95% CI: 1.72, 66.69), and being injured (OR = 4.39, 95% CI: 1.01, 41.68). Compared to participants who only had female partners, those who had both male and female partners were at increased risk for severe physical IPV (OR = 2.64, 95% CI: 1.08, 7.69) and being injured (OR = 3.56, 95% CI: 1.12, 17.99).

Dimensions of Sexual Orientation Predicting Perceived Partner Jealousy (Hypothesis 2)

There were also significant differences in perceived partner jealousy based on lifetime sexual behavior, but not sexual identity or attractions (Table 3). Participants with both male and female partners reported more perceived partner jealousy than those who never had sex

[1]Differences in rates of IPV between self-identified lesbian/gay and bisexual individuals from the larger study have been presented elsewhere (Whitton et al., 2019). The odds ratios presented here differ slightly from those presented in (Whitton et al., 2019) due to different analytic samples and covariates.

(Cohen's d = .53) and those with only male partners (Cohen's d = .28). In contrast, they did not differ from those with only female partners (Cohen's d = .12).

Indirect Effects (Hypothesis 3)

Given that lifetime sexual behavior was significantly associated with perceived partner jealousy and IPV, we examined the indirect effects of lifetime sexual behavior on IPV via perceived partner jealousy.[2] We did not examine indirect effects for sexual identity or attractions because neither was associated with perceived partner jealousy. Path coefficients and indirect effects are reported in Table 4. Effects of sexual behavior (both male and female partners *versus only male partners* and *versus never had sex*) on all types of IPV through perceived partner jealousy were significant. In contrast, the indirect effects of lifetime sexual behavior (both male and female partners *versus only female partners*) through partner jealousy were not significant. All of the significant indirect effects demonstrated that participants who had both male and female partners reported higher perceived partner jealousy than those who had never had sex and than those who only had male partners, which was associated with higher risk for IPV.

Analyses with Only Female Partners as the Reference Group

We found differences in perceived partner jealousy and IPV between participants who had both male and female partners and those who only had male partners as well as participants who never had sex. In contrast, there was not a significant difference in perceived partner jealousy between participants who had both male and female partners and those who had only female partners. Additionally, these two groups had the fewest significant differences in IPV. As such, we re-examined differences in perceived partner jealousy and IPV risk with only female partners as the reference group to better understand the experiences of participants who only had female partners. Results indicated that participants who only had female partners were at increased risk for minor psychological IPV compared to those who never had sex (OR = 2.78, $p = .01$), but were not at increased risk for any other types of IPV compared to those who never had sex or those with only male partners. Additionally, participants who only had female partners reported more perceived partner jealousy than those who never had sex but did not differ from those who only had male partners. Because participants with only female partners were generally not at increased risk for IPV and reported similar rates of perceived partner jealousy compared to those with only male partners, we did not conduct indirect effects analyses of the effects of sexual behavior (female partners only vs. other groups) on IPV risk.

Supplementary Analyses

Finally, we conducted four sets of sensitivity analyses to rule out potential confounds. In the analyses focused on lifetime sexual behavior, participants who were reporting on their first sexual or romantic relationship, by definition, could not be in the group that had both male and female sexual partners in their lifetime. To test whether having had a previous sexual/romantic relationship confounded these analyses, we re-ran the analyses focused on sexual

[2]Consistent with recent recommendations (see Kenny & Judd, 2014; Rucker, Preacher, Tormala, & Petty, 2011), we examined indirect effects predicting all types of IPV, including those for which the direct path from lifetime sexual behavior to IPV was not significant.

behavior after excluding 62 participants whose current relationship was their first sexual (18 in the only female group, 33 in the only male group) or romantic relationship (11 in the never had sex group). The pattern of results remained the same; all of the significant effects remained significant. Second, we re-ran the analyses focused on sexual behavior controlling for current partner gender (in addition to age and race/ethnicity) to determine whether partner gender was acting as a confounder. This set of sensitivity analyses only included participants who never had sex and participants who had both male and female partners, because lifetime sexual behavior and current partner gender were nearly perfectly correlated in the other groups (i.e., participants who only had male partners and those who only had female partners). Again, the pattern of results remained the same, indicating that current partner gender did not account for the observed differences in perceived partner jealousy and IPV. To determine whether cohort could be a confounder, we also conducted a set of sensitivity analyses in which we removed participants from the 2007 cohort ($n = 83$) and the pattern of results was consistent with those reported above. Finally, given that most of the previous research in this area has focused on cisgender women, we conducted sensitivity analyses on the subsample of cisgender women ($n = 285$). The pattern of results was consistent with those presented in the main results section.

Discussion

The primary aims of the current study were to examine whether bisexual individuals assigned female at birth were at higher risk for IPV than other sexual minorities assigned female at birth and to determine the extent to which perceived partner jealousy may explain their increased risk. We addressed several limitations of previous research by examining multiple dimensions of sexual orientation (identity, attractions, and behavior) and multiple forms of IPV. We found that sexual behavior was associated with most forms of IPV as well as perceived partner jealousy, but sexual identity and attractions were not (hypothesis 1). Specifically, behaviorally bisexual individuals (i.e., those who had both male and female sexual partners in their lifetime) were at increased risk for several forms of IPV compared to those who never had sex, those who only had male partners, and (to a lesser degree) those who only had female partners. These results highlight the importance of considering multiple dimensions of sexual orientation to understand risk for IPV. This pattern of results extends existing evidence that behaviorally bisexual women are at greater risk for many forms of IPV compared to predominately heterosexually-identified women with only male sexual partners and for some forms of IPV compared to women with only female sexual partners (Martin-Storey, 2015; McCauley et al., 2015). The current findings provide particularly strong evidence that behaviorally bisexual individuals are at increased risk for IPV compared to individuals with only different-sex partners because all of our participants were sexual minorities - thus eliminating sexual minority status as a potential confound.

These findings raise an important question—why are behaviorally bisexual individuals at increased risk for some types of IPV compared to other sexual minorities? We found that behaviorally bisexual individuals reported higher perceived partner jealousy than those who only had male partners and those who never had sex (hypothesis 2), which in turn partially explained their increased risk for many forms of IPV compared to these other groups (hypothesis 3). These findings are consistent with previous research demonstrating that

sexual jealousy is associated with IPV perpetration among heterosexual individuals (Brownridge, 2004; Foran & O'Leary, 2007; Giordano et al., 2010). It is noteworthy that heightened risk for IPV among bisexual individuals was specific to lifetime sexual behavior and did not extend to sexual identity or attractions. Stereotypes about bisexual individuals portray them as hypersexual; for example, they are stereotyped as promiscuous and likely to commit infidelity (Brewster & Moradi, 2010; Friedman et al., 2014). Bisexual individuals even describe being stereotyped in these ways by their romantic partners (Hequembourg, Livingston, & Parks, 2013; Li et al., 2013). In addition, previous research has found that individuals who endorse these stereotypes are more likely to anticipate feeling insecure and jealous in a relationship with a bisexual partner (Armstrong & Reissing, 2014). As such, based on our findings and previous research, having a partner who has had both male and female partners in their lifetime may trigger jealousy and insecurity more so than having a partner who identifies as bisexual or who is attracted to more than one gender. This possibility is consistent with evidence that some people endorse restrictive definitions of bisexuality in which it is assumed that a person must have had sex with both men and women in order to be bisexual (Alarie & Gaudet, 2013). This may explain why lifetime sexual behavior was associated with perceived partner jealousy and many forms of IPV in our sample, but sexual identity and attractions were not. Given that we did not assess partner-reported jealousy and potential reasons for jealousy (e.g., stereotypes), it will be important to do so in future studies.

Although previous studies have found that bisexual-identified individuals are at increased risk for psychological and physical IPV and coercive control compared to self-identified lesbians (Barrett & St. Pierre, 2013; Freedner et al., 2002; Walters et al., 2013), we did not find differences in risk between lesbian- and bisexual-identified individuals. However, a previous study using a different analytic sample from the same larger project as the current study found that bisexual-identified individuals were at increased risk for SGM-specific IPV (i.e., tactics that involve leveraging societal stigma against SGM individuals, like threatening to disclose a partner's sexual orientation) compared to lesbian-identified individuals (Whitton et al., 2019). While this group difference was not significant in the current study, the estimate was in the same direction. It is likely that the difference in significance between the previous and current studies is due to differences in the analytic sample and covariates. Previous studies have tended to focus on *lifetime* IPV, whereas the current study focused on IPV in a single relationship. As such, lesbian- and bisexual-identified women may differ more on lifetime risk for IPV than risk for IPV in a single relationship. Future research should continue to examine similarities and differences in IPV risk among sexual minorities to shed further light on this nascent area of research.

Further, it is not clear why behaviorally bisexual individuals would report higher perceived partner jealousy than those with only male partners but not compared to those with only female partners. It will be important for future research to examine other potential mechanisms contributing to differences in IPV among subgroups of sexual minorities. For example, among heterosexuals, depression and substance use are prospectively associated with risk for IPV, and these associations have been found in cross-sectional studies of sexual minorities (Capaldi, Knoble, Shortt, & Kin, 2012; Lewis, Milletich, Kelley, & Woody, 2012). Given that behaviorally bisexual individuals experience higher rates of depression

and substance use compared to sexual minority women who only have female partners (Bostwick et al., 2010; Newcomb, Birkett, Corliss, & Mustanski, 2014), this may help to explain why behaviorally bisexual individuals are at risk for severe physical IPV and injury compared to those with only female partners. In addition, there may be other relational mechanisms (e.g., dissatisfaction, lack of respect for one's partner) that contribute to differences in IPV among subgroups of sexual minorities, and it will be important for future research to examine these mechanisms as well.

Of note, our analyses demonstrated that sexual minorities assigned female at birth who only had female partners were generally not at higher risk for IPV compared to sexual minorities assigned female at birth who never had sex or only had male partners. Previous research has found somewhat mixed evidence for differences in IPV risk between self-identified lesbian and heterosexual women, with some studies finding that lesbian-identified women are at higher risk (Balsam et al., 2005; Freedner et al., 2002; Martin-Storey, 2015) and others failing to find differences in risk (e.g., Conron et al., 2010; McLaughlin et al., 2012; Walters et al., 2013). It is important to keep in mind that all of our participants, including those with only male partners, were sexual minorities based on at least one dimension of sexual orientation (identity, attractions, and/or behavior). Thus, the analyses in the current study are not directly comparable to previous analyses of differences in IPV risk between heterosexual and lesbian women. It will be important for future research to examine the intersection between sexual identity and behavior in relation to IPV, which we were not powered to examine in the current study.

Limitations

The current findings should be considered in light of its limitations. First, given that the data were cross-sectional, the directionality of the association between perceived partner jealousy and IPV cannot be determined. While it is possible that perceived partner jealousy influences IPV, it is also possible that experiencing IPV leads individuals to perceive their partners as jealous. It will be important for future longitudinal research to examine the directionality of this association. Second, we did not assess whether partners knew about the participants' sexual identity, attractions, or behavior. Therefore, it is possible that another factor may lead individuals who've had both male and female sexual partners to be in relationships characterized by higher perceived partner jealousy. Future research should examine the roles of individuals' knowledge of their partners' sexual identity, attractions, or behavior play a moderating role in the associations between sexual orientation, partner jealousy, and IPV. Third, our sample was a non-probability sample, did not include sexual minorities assigned male at birth, and did not include a heterosexual comparison group. One of our sexual behavior groups was comprised of sexual minorities who only had male partners in their lifetime, and a small number self-identified as heterosexual; however, all were sexual minorities based on at least one dimension of sexual orientation. It will be important for future research to compare the experiences of sexual minority and heterosexual individuals assigned female at birth to fully understand differences in IPV between these groups. Fourth, as noted, we measured participants' perceptions of their partners' jealousy and it will be important for future studies to examine partners' own reports of their jealousy. Fifth, we did not include attractions to or sexual behavior with non-

binary partners in the current study. This is an important direction for future research. Sixth, although we used diverse recruitment strategies, many participants were recruited via SGM community events and social media advertisements on SGM-relevant pages and recruitment materials were marketed toward LGBTQ+ individuals (e.g., images of same-gender couples, rainbows). Thus, this sample may underrepresent those who are less involved in the SGM community and do not self-identify as part of the community. Finally, the confidence intervals for the odds ratios for analyses of the least frequently reported types of IPV were relatively wide due to the small number of individuals in some groups who experienced these outcomes (e.g., 2 individuals who had only female sexual partners reported being injured). Future research with larger samples may provide more precise estimates.

Research Implications

Despite these limitations, the current study addressed several gaps in previous research by examining associations between multiple dimensions of sexual orientation and multiple forms of IPV in a sample of young sexual minorities assigned female at birth that included gender minorities. Overall, our findings suggest that lifetime sexual behavior may be a more robust risk factor for many forms of IPV compared to sexual identity and attractions among sexual minorities, highlighting the importance of considering multiple dimensions of sexual orientation. Our findings suggest that perceived partner jealousy may contribute to behaviorally bisexual individuals' increased risk for multiple forms of IPV, which has important implications for the development of interventions to prevent and reduce IPV in this population.

Prevention and Clinical Implications

The current findings highlight the critical need for interventions to prevent and reduce the perpetration of IPV against sexual minorities. While various interventions have been developed for perpetrators and survivors of IPV (see Eckhardt et al., 2013), scholars have called attention to the need for IPV interventions to address the unique experiences of sexual minority individuals (e.g., Gehring & Vaske, 2017). Rates of IPV in the current sample were high across groups, indicating the need for further research to understand and alleviate IPV for all sexual minorities. These rates were particularly high among sexual minorities with both male and female partners. Given our findings, it may be helpful for interventions to address jealousy as a way to reduce IPV perpetrated against behaviorally bisexual individuals. Clinicians could examine perpetrators' thoughts and feelings related to their partners' sexual histories and, if perpetrators endorse stereotypical beliefs about bisexual people (e.g., the assumption that someone who has had both male and female partners needs to continue to have male and female partners to be satisfied), then clinicians could challenge those beliefs. Clinicians could use cognitive-behavioral strategies to teach perpetrators skills to cope with jealousy in their relationships, and individuals who have experienced IPV may benefit from learning skills to recognize and cope with partner jealousy and maintain their safety in the event that partner jealousy leads to IPV. Finally, couples may benefit from learning skills to effectively communicate about previous relationships as a way to enhance security in one's current relationship. Again, it is important to note that the current study focused on participants' perceptions of their partners' jealousy rather than their partners' own reports of their jealousy and it is possible that individuals' perceptions may not have

been accurate. However, previous research has demonstrated that jealousy is associated with IPV perpetration among heterosexual individuals regardless of whether it is measured using self- or partner-report (Brownridge, 2004; Foran & O'Leary, 2007; Giordano et al., 2010). Still, it will be important for future studies of IPV risk among sexual minorities to examine partner-reported jealousy and potential reasons for jealousy (e.g., stereotypes).

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Table 1

Demographics of Analytic Sample (N = 368)

Demographic Variable	*n*	%
Cohort		
Late Adolescent Cohort	285	77.4%
Young Adult Cohort	83	22.6%
Race/Ethnicity		
White	87	23.6%
Black	142	38.6%
Latinx	91	24.7%
Other	48	13.0%
Gender Identity		
Cisgender Women	285	77.4%
Transgender or Male	26	7.1%
Genderqueer/Non-Binary	57	15.5%
Sexual Identity		
Lesbian/Gay	91	24.7%
Bisexual	146	39.7%
Queer	38	10.3%
Pansexual	67	18.2%
Other Sexual Identity	26	7.1%
Partner Gender		
Cisgender Women	147	39.9%
Cisgender Man	166	45.1%
Gender Minority	54	14.7%
Missing	1	0.3%
Sexual Attractions		
Women only	73	19.8%
Men and women	285	77.4%
Men only	3	0.8%
No attractions	7	1.8%
Lifetime Sexual Behavior		
Never had sex	54	14.7%
Female partners only	64	17.4%
Male partners only	61	16.6%
Male and female partners	189	51.4%
Age (*M, SD*)	20.05 (3.90)	

Table 2

IPV Victimization Risk by Dimensions of Sexual Orientation: Comparisons to Individuals with Bisexual Identity, Attractions, and/or Behavior

	Sexual Identity					Sexual Behavior		
Type of IPV Victimization	**Lesbian/Gay**	**Queer**	**Pansexual**	**Other**	**Monosexual Attractions**	**Female Partners Only**	**Male Partners Only**	**Never had Sex**
Minor Psychological	1.15 [.63, 2.09]	.92 [.41, 2.06]	.94 [.50, 1.78]	1.19 [.47, 3.00]	1.23 [.67, 2.25]	.89 [.47, 1.68]	.62 [.33, 1.15]	**.32 [.16, .61]**
Severe Psychological	1.23 [.68, 2.22]	1.01 [.40, 2.54]	.75 [.37, 1.55]	1.08 [.42, 2.74]	1.11 [.61, 2.02]	.80 [.43, 1.49]	**.39 [.18, .84]**	**.40 [.18, .88]**
Minor Physical	.86 [.45, 1.64]	.59 [.18, 1.91]	.73 [.32, 1.65]	.98 [.35, 2.69]	.88 [.45, 1.72]	.57 [.27, 1.12]	**.42 [.17, .93]**	**.16 [.04, .47]**
Severe Physical	1.5 [.71, 3.17]	.65 [.13, 3.25]	.83 [.28, 2.46]	.61 [.13, 2.89]	1.40 [.66, 2.96]	**.38 [.13, .92]**	**.31 [.08, .89]**	**.14 [.01, .58]**
Injury	2.37 [.91, 6.18]	1.55 [.33, 7.26]	1.01 [.24, 4.17]	1.34 [.26, 6.92]	2.16 [.90, 5.17]	**.28 [.06, .90]**	**.19 [.02, .79]**	**.23 [.02, .99]**
Sexual	.76 [.37, 1.57]	- -	1.23 [.56, 2.71]	.69 [.21, 2.26]	.88 [.42, 1.85]	.62 [.27, 1.44]	1.19 [.53, 2.63]	.38 [.12, 1.18]
Coercive Control	1.06 [.59, 1.88]	.46 [.17, 1.27]	.77 [.38, 1.55]	1.16 [.47, 2.86]	1.06 [.59, 1.89]	.78 [.42, 1.47]	.61 [.30, 1.25]	.48 [.22, 1.08]
SGM-Specific	.68 [.30, 1.52]	.28 [.06, 1.31]	1.14 [.53, 2.45]	.62 [.17, 2.27]	.64 [.27, 1.53]	.95 [.41, 2.19]	1.11 [.50, 2.47]	.74 [.30, 1.87]
Cyber	1.31 [.60, 2.85]	.88 [.22, 3.49]	.98 [.39, 2.47]	.60 [.13, 2.80]	.76 [.32, 1.78]	1.06 [.47, 2.41]	.78 [.30, 2.02]	.43 [.14, 1.38]

Odds ratios are presented. Reference groups: lifetime sexual behavior (male and female partners), sexual identity (bisexual). Monosexual attractions is coded as 0 = non-monosexual attractions; 1 = monosexual attractions. Calculated controlling for race/ethnicity, age, and gender identity. 95% confidence intervals are presented for odds ratios. Results are significant ($p < .05$) if the confidence interval does not contain 1. Significant ORs are in bold. "-" indicates incalculable odds ratio due empty cells.

Table 3

Differences in Partner Jealousy by Dimensions of Sexual Orientation

	F	*p*	η_p^2	Marginal Mean	*SE*
Sexual Identity	1.18	.32	.01		
Lesbian/Gay				2.96	.18
Bisexual				2.76	.14
Queer				2.23	.28
Pansexual				2.81	.21
Other				2.82	.32
Attractions	.31	.58	.001		
Monosexual				2.89	.21
Non-monosexual				2.77	.10
Sexual Behavior	4.03	.008	.03		
Female partners only				$2.83^{b,c}$	.21
Male partners only				$2.55^{a,c}$	.21
Male and female partners				3.04^{b}	.13
Never had sex				2.12^{a}	.23

Marginal means calculated controlling for race/ethnicity, age, and gender identity. Superscript letters represent the results of pairwise comparisons of the marginal means. Marginal means with the same superscript letter are not significantly different from one another, while marginal means with different superscript letters differ significantly.

Table 4

Path Coefficients for Indirect Effects Models of Lifetime Sexual Behavior Predicting IPV Risk through Partner Jealousy

						Indirect Effect	
Outcome	**Predictor**	***OR***	***95% CI***	***b (SE)***	***p***	**Estimate**	**95% CI**
Jealousy	Female partners only	-	-	−.20 (.26)	.43		
	Male partners only	-	-	−.49 (.23)	.03		
	Never had sex	-	-	−.92 (.22)	< .001		
Minor Psychological	Jealousy	1.44	1.23, 1.75	.36 (.09)	< .001		
	Female partners only	.97	.48, 2.10	−.03 (.37)	.94	−.07	−.30, .12
	Male partners only	.71	.34, 1.40	−.35 (.36)	.34	**−.18**	**−.41, −.01**
	Never had sex	.41	.19, .84	−.88 (.37)	.02	**−.33**	**−.60, −.15**
Severe Psychological	Jealousy	1.79	1.52, 2.25	.58 (.10)	< .001		
	Female partners only	.75	.31, 1.58	−.29 (.42)	.49	−.12	−.43, .19
	Male partners only	.37	.13, .80	−1.00 (.46)	.03	**−.28**	**−.59, −.02**
	Never had sex	.47	.15, 1.08	−.75 (.52)	.14	**−.53**	**−.88, −.26**
Minor Physical	Jealousy	1.84	1.54, 2.36	.61 (.11)	< .001		
	Female partners only	.51	.18, 1.20	−.67 (.48)	.16	−.12	−.45, .21
	Male partners only	.51	.16, 1.21	−.67 (.55)	.21	**−.30**	**−.63, −.02**
	Never had sex	.21	.01, .61	−1.56 (2.04)	.45	**−.56**	**−.93, −.27**
Severe Physical	Jealousy	2.20	1.79, 3.19	.77 (.15)	< .001		
	Female partners only	.26	.04, .81	−1.31 (1.04)	.21	−.16	−.62, .26
	Male partners only	.39	.01, 1.23	−1.02 (2.15)	.63	**−.38**	**−.82, −.03**
	Never had sex	.18	.001, .60	−1.77 (4.05)	.66	**−.71**	**−1.23, −.37**
Injury	Jealousy	1.79	1.42, 2.75	.58 (.17)	< .001		
	Female partners only	.21	.01, .77	−1.58 (3.31)	.63	−.12	−.50, .20
	Male partners only	.15	.002, .80	−1.87 (4.47)	.67	**−.29**	**−.69, −.02**
	Never had sex	.27	.001, 1.38	−1.31 (4.41)	.77	**−.54**	**−1.06, −.25**
Sexual	Jealousy	1.60	1.40, 2.05	.47 (.10)	< .001		
	Female partners only	.62	.19, 1.23	−.48 (.48)	.32	−.10	−.37, .15
	Male partners only	1.57	.63, 3.94	.45 (.49)	.36	**−.23**	**−.52, −.02**
	Never had sex	.61	.09, 1.68	−.50 (1.44)	.73	**−.43**	**−.76, −.20**
Coercive Control	Jealousy	1.82	1.58, 2.23	.60 (.09)	< .001		
	Female partners only	.84	.37, 1.75	−.18 (.40)	.65	−.12	−.46, .19
	Male partners only	.76	.30, 1.63	−.27 (.43)	.53	**−.29**	**−.61, −.02**
	Never had sex	.83	.31, 1.97	−.18 (.47)	.70	**−.55**	**−.88, −.28**
SGM-Specific	Jealousy	1.53	1.27, 1.90	.42 (.10)	< .001		
	Female partners only	.98	.37, 2.18	−.02 (.47)	.97	−.09	−.32, .10
	Male partners only	1.36	.53, 3.32	.31 (.47)	.51	**−.21**	**−.44, −.05**
	Never had sex	1.10	.34, 3.00	.09 (.57)	.87	**−.39**	**−.69, −.20**
Cyber	Jealousy	1.67	1.40, 2.14	.52 (.11)	< .001		
	Female partners only	1.10	.40, 2.77	.10 (.52)	.85	−.10	−.40, .17

						Indirect Effect	
Outcome	**Predictor**	***OR***	***95% CI***	***b (SE)***	***p***	**Estimate**	**95% CI**
	Male partners only	.98	.29, 2.69	−.02 (.66)	.98	**−.25**	**−.55, −.02**
	Never had sex	.72	.12, 2.61	−.30 (1.37)	.83	**−.47**	**−.82, −.22**

The reference group for lifetime sexual behavior is male and female sexual partners. 95% confidence intervals are reported for odds ratios.