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Sexual Assault in Bisexual and Heterosexual Women Survivors

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Abstract

Social support is related to sexual minority status and negative psychological impact among sexual assault survivors. We compared bisexual and heterosexual survivors on how different types of social support are connected to symptoms of posttraumatic stress disorder (PTSD) and depression. A community sample of bisexual and heterosexual (N = 905) women sexual assault survivors completed three annual surveys. Heterosexual women reported greater perceived social support and fewer negative reactions to disclosure of sexual assault than bisexual women, but there were no differences in frequency of social contact. Perceived social support and frequency of social contact were related to fewer psychological symptoms of PTSD and depression for all women. Heterosexual women had fewer psychological symptoms than bisexual women. Finally, perceived social support mediated the relationship of sexual orientation with depressive symptoms but not with PTSD symptoms. These findings suggest that social support and sexual orientation may explain women's post-assault adjustment.

Keywords

social support; sexual assault; psychological outcomes; sexual orientation; longitudinal research; bisexuality

Sexual orientation plays a role in risk of sexual victimization of women. When compared to heterosexual women, lesbians and bisexual women are at greater risk for sexual victimization (Drabble, Trocki, Hughes, Korcha & Lown, 2013; Rothman, Exner & Baughman, 2011; Walters, Chen & Breiding, 2013). Sexual violence victimization and recovery of non-heterosexual women remains understudied, but the few available studies suggest that lesbians and bisexual women experience greater recovery problems following sexual assault than heterosexual women (Balsam, Beauchaine & Rothblum, 2005; Long, Ullman, Long, Mason & Starzynski, 2007; Sigurvinsdottir & Ullman, 2015). Social support is a powerful protective factor against the negative impact of sexual assault (see Ullman, 2010 for a review), yet research is also lacking on how social support affects recovery of women of different sexual orientations. In this study, we examine how different types of

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social support are connected to recovery outcomes among bisexual women and heterosexual sexual assault survivors.

Psychological symptoms following sexual assault

Psychological symptoms of depression and post-traumatic stress disorder are common among sexual assault survivors in general (Campbell, Dworkin, & Cabral, 2009). Cross-sectional studies show that sexual minorities experience greater negative impact of victimization, with 57.4% of bisexual women and 33.5% of lesbian women reporting at least one negative impact (e.g., feeling afraid, missing work, PTSD symptoms), compared to 28.2% of heterosexual women (Walters et al., 2013). Bisexual women also report greater PTSD symptoms than heterosexual women (Long et al., 2007; Sigurvinsdottir & Ullman, 2015) and lesbians may also experience greater symptoms than heterosexual women (Sigurvinsdottir & Ullman, in 2015). Heterosexual women also report fewer depressive symptoms than bisexual women (Sigurvinsdottir & Ullman, 2015). Non-heterosexual women, especially bisexual women, are therefore more likely to experience recovery problems following sexual assault. However, longitudinal data on the psychological impact of sexual assault for sexual minorities are seriously lacking.

Context of sexual assault among sexual minorities

The context of sexual assault may be different for sexual minorities than heterosexual women, which needs to be taken into account to understand their recovery. First of all, some sexual victimization is anti-gay harassment. For example, in 2011, sexual violence accounted for 3% of the 3162 reported hate crimes against LGBTQH (lesbian, gay, bisexual, transgender, queer and HIV-affected) people (though transgender and HIV-affected individuals are not specifically discussed in this study), with sexual harassment accounting for another 3% (National Coalition of Anti-Violence Programs, 2011). Second, non-heterosexual individuals may experience discrimination and systematic oppression from living in an anti-gay society (DiPlacido, 1998). Sexual minority stress may contribute to further victimization by increasing likelihood of risk behaviors that make this population vulnerable to further sexual victimization. The theoretical concept of minority stress is derived from stress and coping theory and posits a relationship between minority and dominant values and resultant conflict with the social environment experienced by minority group members (Herek & Garnets, 2007; Meyer, 2003). This theory proposes that minority health disparities can be explained by stressors due to a hostile, homophobic culture, which often results in various forms of discrimination and victimization that may lead to poorer mental health and ultimately impact access to care (Herek & Garnets, 2007; Meyer, 2003). This chronic stress can also make recovery from sexual assault more difficult (Balsam et al., 2005). Furthermore, these social forces may also lead to sexual minorities being less socially integrated and having less access to various forms of support, due to marginalization or rejection by various societal institutions (e.g., family, work, religion). Therefore, interventions and services for sexual assault survivors should be sensitive to the needs of this group in order to be as effective as possible (Gentlewarrior & Fountain, 2009; Todahl, Linville, Bustin, Wheeler & Gau, 2009). In sum, sexual minorities may have different needs

than heterosexual survivors, some of which may be impacted by the social contexts of their victimization experiences.

Social support of sexual assault survivors

Social support is a protective factor in women's recovery from sexual assault (Mason, Ullman, Long, Long & Starzynski, 2009), although most research shows greater protective effects of perceived availability of support than more objective measures of received support (Taylor, 2011). Some evidence suggests certain forms of support may differ between women survivors of different sexual orientations (Long et al., 2007), but little research exists beyond descriptive cross-sectional studies of this topic to date. Perhaps differences in support networks may explain differences in recovery outcomes observed between sexual assault survivors of different sexual orientations. Previous work also suggests that negative social reactions to assault disclosure (e.g., victim blame) may play a role in women's recovery. Receiving negative reactions when disclosing assault was more common for sexual minority women survivors and may explain their poorer mental health outcomes compared with heterosexual survivors (Sigurvinsdottir & Ullman, 2015). Given this preliminary finding, it is important to further examine how various forms of social support in general may promote recovery over time and whether their effects differ according to sexual orientation.

Social support is critically important to mental health of adults in general and may uniquely affect mental health for sexual minorities. Hsieh (2014) analyzed representative sample data from middle-aged U.S. adults and found that bisexual-identified individuals had the least social resources and poorest mental health status of all sexual orientation groups. Lesbian/gay-identified individuals and heterosexual-identified individuals with same-sex sexual experience were less socially integrated and perceived less emotional support than heterosexual individuals but did not report poorer mental health. Finally, social integration and social support jointly mediated the link between sexual orientation and psychological distress. That is, sexual minorities were less socially integrated, which was related to having lower social support and, in turn, greater psychological distress for bisexual participants. Also, sexual minority-identified individuals experienced more health benefits from their confidants and receipt of emotional support, suggesting that sexual minorities may have a greater need for, but also a greater benefit, from supportive social relationships. Sexual minorities may therefore be somewhat different than from heterosexual survivors, but this relationship has not been studied in detail.

Current study

The purpose of this study is to examine the relationship between social support and psychological outcomes, and how that relationship is impacted by sexual orientation. In this study, we examine different types of social support and how these relate to psychological symptoms following victimization in a sample of bisexual and heterosexual women. The previous literature suggests that non-heterosexual women reported greater PTSD and depressive symptoms than heterosexual women as a result of sexual victimization. A potential explanation for this effect is sexual minority stress. Social support has been shown in the literature to be an important variable in predicting the psychological outcomes of

survivors (Ullman, 2010). National data suggest that social support is an especially important factor for non-heterosexual women generally, and may contribute to better mental health, in part by reducing the harmful effects of sexual minority stress (Hsieh, 2014). This is the first longitudinal study to our knowledge to examine the role of sexual orientation and social support in psychological recovery from sexual assault. We examine whether different kinds of social support (e.g., social integration, perceived support) differentially predict psychological outcomes, including both general measures of social support and social reactions associated with sexual assault disclosure in order to better understand sexual minority women's recovery process.

Method

Participants

A community sample of bisexual and heterosexual women sexual assault survivors was recruited in the Chicago metropolitan area for three waves of mail surveys ($N = 905$ for all three waves, original sample $N = 1,863$). The women ranged in age from 18 to 71 and bisexual women ($M = 35.05$). 810 women identified as heterosexual and 95 as bisexual. Table 1 compares heterosexual and bisexual women on demographics and assault characteristics. The only differences by sexual orientation were that bisexual women were younger at the time of the survey than heterosexual women and that bisexual women were overall less educated than heterosexual women. Overall, the sample was racially diverse, had low-income and was well-educated. Table 1 also shows that a large number of women had been revictimized during the time of the study and the majority of participants had experienced completed rape. Survivors were most likely to have been assaulted by a man than by a woman or by perpetrators of both genders, which did not differ by sexual orientation. Such an overwhelming majority of male perpetrators could point to a lack of willingness to disclose women perpetrated assaults, or even perceive such behavior as violent in the first place. There were no differences in assault severity by sexual orientation. The most common survivor-perpetrator relationship was acquaintance or first date, followed by stranger, romantic acquaintance or partner, multiple types of perpetrators and relatives. There were no differences in survivor-perpetrator relationship by sexual orientation.

A number of participants ($N = 96$) identified as lesbian, did not provide data on sexual orientation or identified as 'other' than heterosexual, bisexual or lesbian. These women were too heterogeneous in terms of sexual orientation to be combined into one and compared to heterosexual and bisexual survivors. Lesbians were excluded from the current study ($N = 52$) because once missing data on key outcomes had been factored in for all waves of data, the group was too small to compare to bisexual and heterosexual women ($N = 48$). Additionally, previous work has found that bisexual women are at particularly high risk for recovery problems, warranting studies focusing on this group. For more information about the analysis of those identifying as 'Lesbian' or 'Other,' please see the Analysis section of this paper. Unfortunately, we did not have information about whether participants identified as transgender.

Procedure

Participants completed a paid mail survey about their unwanted sexual experiences as part of a study on the impact of sexual assault on adult community-residing women in the Chicago metropolitan area. Recruitment was accomplished via weekly advertisements in local newspapers, on Craigslist, and through university mass mail. In addition, fliers were posted in the community, at various Chicago colleges and universities, as well as community agencies, some of which focus on issues of violence against women. Interested women called the research office and were screened for eligibility using the following criteria: a) had an unwanted sexual experience at the age of 14 or older, b) were 18 or older at the time of participation, and c) had previously told someone about their unwanted sexual experience. We sent eligible participants packets containing the survey, an informed consent sheet, a list of community resources for dealing with victimization, and a stamped return envelope for the completed survey. Participants indicating interest in further surveys were sent surveys at 1 and 2 year follow-up periods. Although participants needed to live in the Chicago metropolitan area when they were first recruited into the study, participants who moved to other places within the United States were allowed to continue their participation if they wished. Participants were paid \$25 for each survey completed. The university's Institutional Review Board approved all study procedures and documents.

Measures

Sexual victimization—Sexual victimization in both childhood (prior to age 14) and adulthood (at age 14 or older) was assessed using the revised Sexual Experiences Survey (SES-R; Testa, VanZile-Tamsen, Livingston, & Koss, 2004), which measures various forms of sexual assault including: unwanted sexual contact, verbally coerced intercourse, attempted rape, and rape resulting from force or incapacitation (e.g., from alcohol or drugs). The revised 11-item SES measure had good reliability ($\alpha = .73$); similar reliability was found in our sample ($\alpha = .78$). Both child sexual abuse (CSA) and adult sexual assault were assessed with the SES measure in the Wave 1 survey. For the remaining two surveys, participants were asked if they had had an unwanted sexual experience since taking the last survey and again completed the SES if that was the case. The SES is scored from 0 = no victimization, 1 = contact, 2 = sexual coercion, 3 = attempted rape, 4 = rape, but for these analyses, we dichotomized the SES (0 = no revictimization, 1 = any type of sexual revictimization).

Depressive symptoms—Depressive symptoms were measured using a 7-item version of the Center of Epidemiologic Studies Depression Scale (CESD-7) modified by Mirowsky and Ross (1990). The 7 items were: "I felt I could not shake off the blues," "I had trouble keeping my mind on what I was doing," "I felt everything I did was an effort," "I had trouble getting to sleep or staying asleep," "I felt lonely," "I felt sad," "I felt I just could not get going". Participants were asked to rate their symptoms over the past 12 months using a 5-point Likert scale from 0 (*never*) to 5 (*always*). In this sample descriptives for depressive symptoms were: $\alpha = .86$ ($M = 2.01$, $SD = .75$) for W1, $M = 1.79$, $SD = 0.75$, $\alpha = .86$ for W2 and $M = 1.74$, $SD = 0.77$, $\alpha = .88$ for W3.

Posttraumatic stress symptoms—PTSD symptoms were assessed with the Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1995), a standardized 17-item instrument based on DSM-IV criteria. On a scale ranging from 0 (not at all) to 3 (almost always), women rated how often each symptom, including reexperiencing/intrusion (e.g., “having bad dreams or nightmares about this experience”), avoidance/numbing (e.g., feeling distant or cut off from people around you”), and hyperarousal (e.g., “feeling irritable, having fits of anger”) bothered them in relation to the sexual assault during the past 12 months. If women had more than one assault, PTSD symptoms were assessed with respect to the most serious assault. The PDS has acceptable test–retest reliability for a PTSD diagnosis in assault survivors over two weeks ($\kappa = .74$; Foa, Cashman, Jaycox, & Perry 1997). The 17 items were summed to assess the extent of posttraumatic symptomatology (for this sample, W1: $M = 21.13$, $SD = 12.93$, $\alpha = .93$, W2: $M = 16.76$, $SD = 12.03$, $\alpha = 0.94$ and W3: $M = 15.41$, $SD = 12.12$, $\alpha = .94$).

Sexual orientation—Participants were asked whether they identified as mostly heterosexual, somewhat heterosexual, bisexual, somewhat homosexual or mostly homosexual. This was recoded so that 0 = mostly heterosexual and somewhat heterosexual (810 women) and 1 = bisexual (95 women). This question was created for this study after consulting with an expert on sexual assault in sexual minority women. Those who identified as somewhat homosexual, mostly homosexual or did not provide data were excluded from analysis. This was done because of few lesbians in the sample, especially at Wave 3, allowing us to focus our analyses on bisexual women. Furthermore, sexual orientation was only assessed at Wave 1 (at the time of completing the survey, not the time when the unwanted sexual experience occurred), which is a limitation of the study as sexual orientation may change over time.

Perceived social support—Perceived social support was assessed with the Social Support Questionnaire (Short Form) (Sarason, Sarason, Shearin & Pierce, 1987). Participants were asked to answer 1 (yes) or 0 (no) to whether they experienced any of the 6 different items regarding their perception that someone is there for them (e.g., “Is there someone you can really count on to be dependable when you need help?”). Items are summed for a possible range of 0 to 6, wherein higher scores indicate greater perceived social support. Reliability was excellent (W1: $M = 0.89$, $SD = 0.03$, $\alpha = 0.84$, W2: $M = 0.91$, $SD = 0.03$, $\alpha = 0.87$, W3: $M = 0.90$, $SD = 0.03$, $\alpha = 0.90$).

Frequency of social contact—Frequency of social contact, an objective measure of social integration, was assessed with five questions asking how often a person comes into contact with informal social network members from the RAND Health Insurance Experiment (Donald & Ware, 1984; e.g., “How often did you get together with friends and relatives, like going out together or visiting in each other’s home?” Responses were measured on a Likert type scale from 1 (less than 5 times during the past 12 months) to 7 (every day). Reliability was good (W1: $M = 4.26$, $SD = 1.21$, $\alpha = 0.71$, W2: $M = 4.35$, $SD = 1.17$, $\alpha = 0.71$, W3: $M = 4.41$, $SD = 1.22$, $\alpha = 0.70$). The composite score was based on the averaged items, with higher scores indicating greater frequency of social contact.

Social reactions—The Social Reactions Questionnaire contains 48 items which are answered on a five point Likert scales (Ullman, 2000). Women were asked how other people reacted to their disclosure of sexual assault since they disclosed their victimization and includes comments people said or actions they took in response to the disclosure and knowing about the assault. Reactions assessed include positive reactions: emotional support (e.g., “held you or told you that you are loved”), tangible aid (e.g., “helped you get medical care”), information support (e.g., “provided information and discussed options” and negative reactions: victim blame (e.g., “told you that you were irresponsible or not cautious enough”), distraction or discouraging her from talking about the assault, treating the victim differently (e.g., “pulled away from you”), controlling (e.g., “made decisions for you”), and egocentric responses (e.g., “said they feel personally wronged by your experience”). The measure has positive and negative overall summary computed scales indicating the frequency of receipt of positive and negative reactions overall which were used to compare groups in this study (Ullman, 2000). Previous studies have confirmed the reliability and validity of this measure (Relyea & Ullman, 2015; Ullman, 2000). Descriptives in this sample were as follows: Negative reactions: W1 $M = 0.90$, $SD = 0.35$, $\alpha = 0.92$; W2 $M = 0.53$, $SD = 0.27$, $\alpha = 0.94$, W3 $M = 0.47$, $SD = 0.22$, $\alpha = 0.95$; Positive reactions, W1 $M = 2.15$, $SD = 0.72$, $\alpha = 0.93$; W2 $M = 1.69$, $SD = 0.64$, $\alpha = 0.96$, W3 $M = 1.47$, $SD = 0.58$, $\alpha = 0.96$.

Analysis

The purpose of this study was to examine different types of social support and how these related to psychological symptoms for bisexual and heterosexual survivors. First, we used two sided t-tests to examine sexual orientation differences in perceived social support, followed by frequency of social contact and finally social reactions to sexual assault disclosure at each Wave. Then we examined how sexual orientation and each type of social support related to depressive and PTSD symptoms longitudinally using a hierarchical linear modeling approach (HLM). In the models, all interaction terms between sexual orientation, wave, and each type of social support were originally modeled but removed when non-significant. This allowed us to determine whether specific types of perceived and received support and assault-related social reactions had time-varying effects on psychological symptoms over time. The significant interaction terms are presented in the results section.

We also ran the results with and without control variables (age, income and education) but they did not influence the findings so they are not presented here. It is important to note that we reran all analyses including lesbians and those who identify as ‘Other,’ but the findings reported here were not impacted for depressive symptoms at all or for PTSD symptoms for those identifying as ‘Other.’ However, for PTSD symptoms, lesbians had similar results as bisexual women (elevated symptoms). We excluded lesbians due to their very low number in our study and because the effect of lesbian orientation only persisted for PTSD, but not depressive symptoms. Given these sample limitations, it seemed justifiable to focus on bisexual women, a high risk and understudied group of survivors. Only complete data was used, because those who dropped out of the study had significantly higher PTSD and depressive symptoms than those who remained in the study. These participants were therefore removed because they might have inflated scores at Wave 1 without providing data

for later time points, giving the impression that women in the sample had improved more than was actually the case. The results therefore need to be interpreted bearing this in mind.

Third, and finally, we conducted a longitudinal mediation analysis to determine whether different forms of support mediated the effects between sexual orientation and psychological symptom outcomes. The analyses were done in SPSS Version 20 and Stata Version 13.

Results

Perceived social support

Perceived social support increased over time for heterosexual women but decreased for bisexual women (see Figure 1). At Wave 1, perceived social support was similar for the two groups, but heterosexual women reported significantly greater social support at Wave 2, $t(891) = 2.37$, $p = 0.02$, $d = 0.16$, and at Wave 3, $t(900) = 2.36$, $p = 0.02$, $d = 0.16$ than bisexual women. Group differences therefore increased with time and bisexual women received less perceived support than heterosexual women.

Frequency of social contact

The pattern of results was very different for frequency of social contact (see Figure 1). For both groups, frequency of social contact decreased over time and there were no group differences at any time point. This suggests that sexual orientation is not differentially related to frequency of social contact over time, but that such social contacts decreased over time for all groups.

Social reactions to sexual assault disclosures

We examined changes in assault-related social reactions received by women disclosing sexual assault over time. For positive social reactions, sexual orientation differences were mixed. For example, there were no significant difference at Waves 1 or 3, but bisexual women ($M = 2.00$) reported greater positive reactions to sexual assault disclosures at Wave 2 than heterosexual women ($M = 1.71$), $t(845) = -2.20$, $p = 0.03$, $d = 0.15$. For negative reactions, however, bisexual women consistently reported greater negative reactions to disclosures at every time point. (W1 Bisexual ($M = 1.11$), heterosexual ($M = 0.92$), $t(826) = -2.18$, $p = 0.03$, $d = 0.15$; W2 Bisexual ($M = 0.71$), heterosexual ($M = 0.54$), $t(849) = -2.09$, $p = 0.04$, $d = 0.14$; W3 Bisexual ($M = 0.67$), heterosexual ($M = 0.49$), $t(821) = -2.34$, $p = 0.02$, $d = 0.16$). Bisexual women therefore experienced greater negative social reactions than heterosexual women, but the pattern was less clear for positive reactions.

Depressive symptoms

We examined depressive symptoms longitudinally using HLM (see Table 2). Bisexual women reported more depressive symptoms than heterosexual women. Perceived support was related to fewer depressive symptoms, but negative social reactions were connected to greater depressive symptoms. CSA history and revictimization were also related to greater depressive symptoms. In addition to these effects, two significant interactions were observed. First, an interaction between time and frequency of social contact, suggesting that greater social contact was connected with fewer depressive symptoms, but that this

relationship became weaker over time. The second was an interaction between time and positive social reactions, showing that the greater positive reactions were connected with more depressive symptoms, but that this relationship decreased over time. Thus, sexual orientation and social support both contributed to depressive symptoms over time.

PTSD symptoms

The results for a parallel HLM model with results for PTSD symptoms are in Table 2. Negative social reactions were related to more PTSD symptoms, while more frequent social contact was related to less PTSD symptoms. These effects persisted when CSA history and revictimization were controlled. Two significant interactions emerged. First, an interaction between sexual orientation and perceived social support showed that perceived social support had a stronger negative relationship with PTSD symptoms for bisexual women than for heterosexual women. Second, an interaction between positive reactions to assault disclosure and time revealed that receiving more positive reactions was related to more PTSD symptoms, but the association weakened over time. These results suggest that social support and sexual orientation uniquely contributed to PTSD symptoms over time.

Social support as a mediator

Finally, we conducted several longitudinal mediation analyses to determine whether frequency of social contact and perceived social support mediated between sexual orientation and psychological symptoms and therefore help explain some of the association. We found that perceived social support significantly mediated the relationship between sexual orientation and depressive symptoms (indirect effect = 0.014, $z = 1.83$, $p = 0.04$), such that bisexual orientation was negatively associated with perceived support, which was then negatively associated with depressive symptoms. This suggests that although bisexual women have more depressive symptoms, this may be partially due to lower perceived support, yet perceived support is still protective against depressive symptoms. However, perceived support did not mediate between sexual orientation and PTSD symptoms. Also, neither frequency of social contact nor social reactions mediated the sexual orientation-symptom relationship, depressive or PTSD symptoms (not shown).

Discussion

Social support is a protective factor associated with better recovery from sexual assault (Ullman, 2010). However, past research shows differences in social support among victims by sexual orientation (Long et al., 2007), with sexual minority women, especially bisexual women, at higher risk of negative forms of support. Longitudinal studies are currently lacking on changes in support over time and how they relate to differences in recovery outcomes for survivors of different sexual orientations. To address this gap, the present longitudinal study was the first of its kind examining the effects of sexual orientation and social support on PTSD and depressive symptoms in a community sample of women sexual assault survivors.

We found sexual orientation differences in perceived social support, but not frequency of social contact over three years. Heterosexual women perceived greater social support than

bisexual women, consistent with past cross-sectional research (Long et al., 2007). We also found that bisexual women received more negative reactions to disclosure than heterosexual women, replicating and extending on previous cross-sectional work (Sigurvinsdottir & Ullman, 2015). These results suggest that quality of social support, rather its objective quantity, is connected with sexual orientation. The results also suggest one reason for greater negative mental health effects of sexual assault in bisexual women may be their receipt of more negative social reactions, which are known to be related to worse recovery outcomes (Ullman, 2010).

Social support was related to fewer PTSD and depressive symptoms for all women, consistent with past research showing protective effects of social support on women's mental health (Taylor, 2011). In terms of recovery over time, psychological symptoms were lower in heterosexual women than bisexual women and decreased over time in both groups. Depressive symptoms were greater for women with less frequent social contact, and this relationship got stronger over time, suggesting that facilitating increased social integration is important for survivors to ensure they do not become increasingly isolated and to ameliorate depressive symptoms. This may be accomplished through therapy, informal support groups, and/or community organizations focused on bisexual women's concerns. Greater PTSD symptoms were related to lower perceived social support among bisexual women. These results suggest that different types of social support and sexual orientation shape psychological symptoms and underscore the importance of assessing these relationships longitudinally. Follow-up research is necessary to investigate exactly why these different types of social support have such different relationships with psychological outcomes. These results imply that social support may play a more critical role for bisexual women's PTSD symptoms in particular, consistent with the protective role of support in sexual minority women in general (Hsieh, 2014).

Interestingly, we found that negative social reactions to sexual assault disclosure were related to greater PTSD and depressive symptoms over time, consistent with other past research in survivors in general (Littleton, 2010; Orchowski, Untied, & Gidycz, 2013), but that these effects did not differ according to sexual orientation. These results show that the impact of such negative responses like victim blame negatively affect recovery of women regardless of sexual orientation over time. Positive social reactions to assault disclosures were also related to greater symptoms, but the associations weakened over time. This is consistent with past research showing positive social reactions tend to co-occur with negative reactions for women who are typically telling multiple support sources and receiving both good and bad reactions. Because it is hard to tease such reactions apart and they may come from the same people, it doesn't necessarily mean that these positive reactions are harmful, but that in the context of negative reactions they may not be protective (Ullman, 2010).

Surprisingly, we only found mediational effects of perceived support on the relationship of sexual orientation and depressive symptoms, but not with PTSD symptoms, suggesting that perceived support may be more important than frequency of social contact in explaining differences in depressive symptoms by sexual orientation. However, this may also be due to depressive symptoms being measured in general, not specific to the assault, whereas PTSD

symptoms were assessed specifically with respect to sexual assault. Mediation may not have been significant for this reason, if PTSD symptoms related to other trauma exposures were not captured. However, it is also possible that perceived support acts as a moderator between PTSD symptoms and sexual orientation, rather than a mediator, a possibility that should be examined in future research.

Revictimization rates were high in our study, so were vital to incorporate into our analyses, and as expected, affected both PTSD and depressive symptoms over time. This pattern of results is consistent with and builds upon past research on sexual minority sexual assault survivors (Long et al., 2007; Sigurvinsdottir & Ullman, in press). It is vital to better investigate how multiple victimization experiences impact recovery for survivors as well as whether such patterns of revictimization and their effects vary according to sexual orientation. Differences in social networks may confer differing risks of revictimization and associated psychological consequences for sexual minority women, yet without further research with larger samples of bisexual and lesbian women, we will be unable to discern such effects.

This study had various limitations including use of a convenience sample and retrospective survey methods. Given the small sample of lesbians, we only used bisexual women survivors in our analyses, although it is important to note that including lesbians in earlier analyses did not change the results. Still, more research is needed with larger samples of lesbians in particular, because this group is likely to be more hidden in sexual violence research, and some work shows that lesbians experience such violence and its harmful effects (Girshick, 2002). This study did not take into account sexual attraction and/or sexual histories/number of partners, which also may differ by sexual orientation and perhaps influence sexual victimization experiences, social support, and psychological recovery outcomes. In addition, the literature that suggests that "bisexual" is a larger umbrella term that includes other plurisexual identities (such as pansexual, fluid, potentially queer, etc.), so "bisexual women" as a group are not homogenous (Galupo, Davis, Gryniewicz & Mitchell, 2014), and research also suggests a diversity of experience among "heterosexual women" (Thompson & Morgan, 2008), so future work should account for such complexity.

Future research is needed to evaluate a broader range of constructs to better understand group differences, particularly in representatively sampled women. Regarding our psychological symptom measures, while strictly speaking we could not link depression to the assault, we had a measure of depression over multiple assessment periods, so we could observe changes in depression and these symptoms, as with PTSD symptoms, both of which may be attributable to multiple forms of victimization or other experiences they had during the study. While PTSD was linked to the sexual assault experience, as that is how PTSD was assessed with reference to a traumatic event at the time of this study, this does not mean that some symptoms due to CSA, which many women also had in our sample, were not "reactivated" in adulthood via another more recent assault.

This study is an important addition to the sparse literature available on the victimization and recovery of bisexual and heterosexual women following sexual assault. While longitudinal in nature, we cannot say that social support effects on symptoms are causal, yet they are

clearly important to study further, particularly in relationship to other constructs like coping, known to influence recovery. Further research is needed to replicate these findings and to examine why social support may be more crucial for recovery of sexual minority sexual assault victims, and would be aided by studies on this population developed and framed by minority stress theory (Herek & Garnets, 2007; Myer, 2003). In addition, how informal social support relates to formal support seeking post-sexual assault in women of different sexual orientations needs further study, as we know informal support seeking can affect whether women seek formal support post-assault (Ullman, 2010). In past work on sexual assault survivors generally, social reactions received after disclosing assault were worse for revictimized women (Mason et al., 2009) than for women with one assault. Given these early findings, the question of how revictimization and social support may impact recovery for women survivors of diverse sexual orientations over time is an important one for future research, which is needed in large longitudinal samples of survivors.

The present study's results may aid in the development of services and interventions sensitive to the needs of women sexual minority survivors. Support network interventions are needed to improve the responses to survivors of sexual assault and should take into account the differences in general support and assault-specific reactions experienced by women of different sexual orientations. Greater understanding of the role of assault disclosure on recovery and how quality and quantity of support networks change following victimization in various subgroups of survivors may help to better identify and target appropriate services both to survivors as well as to their informal support network members.

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Figure 1.
Sexual orientation by perceived social support and frequency of social contact

Table 1

Demographic information and assault characteristics (assessed at Wave 1)

Variable		Heterosexual women	Bisexual women	p- value
Age	Age at assault	22.12	21.54	0.54
	Age at Wave 1 survey	38.52	33.25	0.00
Race	African American	48.00%	36.80%	0.47
	White	36.00%	41.10%	
	Asian	2.00%	2.10%	
	Other	7.90%	10.60%	
	Multiracial	5.90%	9.50%	
Ethnicity	Hispanic	13.10%	19.40%	0.10
Employed		43.40%	37.90%	0.30
Income	\$10,000 or less	38.10%	47.30%	0.32
	\$10,000–20,000	19.00%	22.60%	
	\$20,000–30,000	12.10%	9.70%	
	\$30,000 or more	30.80%	20.50%	
Education	College degree or higher	33.80%	26.30%	0.04
	Some college	43.40%	37.90%	
	High school grad	13.90%	23.20%	
	Not completed high school	8.90%	12.60%	
Single		49.90%	49.50%	0.37
Has children		55.80%	50.50%	0.33
Revictimized	Wave 2	36.50%	41.90%	0.30
	Wave 3	31.80%	37.40%	0.29
Male perpetrator		96.90%	95.80%	0.77
Survivor perpetrator relationship	Stranger	21.20%	18.10%	0.86
	Casual acquaintance/first date	39.00%	36.20%	
	Romantic partner	20.20%	23.40%	
	Relative	9.70%	10.60%	
	Multiple types	9.90%	11.70%	
Highest level of violence	Weapon used	17.40%	21.30%	0.40
	Choking, beating	14.60%	13.80%	
	Hitting, slapping	8.70%	7.50%	
Completed rape		85.60%	87.20%	0.16

Table 2

Hierarchical linear model predicting depressive and PTSD symptoms

Predictor	Depression	PTSD
Wave	0.09	−0.61
Bisexual	0.19 *	−1.91
Frequency of social contact	−0.05	−1.31 **
Perceived social support	−0.07 **	−1.26 **
Positive reactions	0.07 *	1.58 **
Negative reactions	0.16 **	3.68 **
Childhood sexual abuse	0.04 **	1.01 **
Revictimization	0.22 **	5.00 **
Wave * frequency of social contact	−0.03 *	n.s.
Wave * positive reactions	−0.04 *	−0.59 *
Bisexual * perceived social support	n. s.	1.04 *

*
 $p < 0.05$ **
 $p < 0.001$.