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ORIGINAL PAPER

The Co-Occurrence of Asexuality and Self-Reported Post-Traumatic Stress Disorder Diagnosis and Sexual Trauma Within the Past 12 Months Among U.S. College Students

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Abstract An increasing number of individuals identify as asexual. It is important to understand the relationship between a diagnosis of post-traumatic stress disorder or a history of sexual trauma co-occurs with asexual identity. We aimed to assess whether identification as asexual was associated with greater likelihood for self-reported PTSD diagnosis and history of sexual trauma within the past 12 months. Secondary data analysis was undertaken of a cross-sectional survey of 33,385 U.S. college students (12,148 male, 21,237 female), including 228 self-identified asexual individuals (31 male, 197 female), who completed the 2015–2016 Healthy Minds Study. Measures included assessment of self-report of prior professional diagnosis of PTSD and self-report of prior sexual trauma in the past year. Among non-asexual participants, 1.9% self-reported a diagnosis of PTSD and 2.4% reported a history of sexual trauma in the past 12 months. Among the group identified as asexual, 6.6% self-reported a diagnosis of PTSD and 3.5% reported a history of sexual assault in the past 12 months. Individuals who identified as asexual were more likely to report a diagnosis of PTSD (OR 4.44; 95% CI 2.32, 8.50) and sexual trauma within the past 12 months (OR 2.52; 95% CI 1.20, 5.27), compared to non-asexual individuals. These differences persisted after including sex of the participants in the model, and the interaction between asexual identification and sex was not significant in either case. Asexual identity was associated with greater likelihood of reported PTSD diagnosis and reported sexual trauma within the past 12 months. Implications for future research on asexuality are discussed.

Keywords Asexuality · Sexual trauma · Post-traumatic stress disorder

Introduction

Individuals, and especially young people, are increasingly rejecting traditional sexual orientation identities such as heterosexual/straight, gay or lesbian, or bisexual (Diamond, 2003; Russell, Clarke, & Clary, 2009). Among them are individuals who identify as asexual (Bogaert, 2004; Houdenhove, Gijs, T'Sjoen, & Enzlin, 2015). Research on asexuality is still nascent, and specific definitions of asexuality vary across studies and theoretical approaches (Bogaert, 2006). Though asexual-identified individuals may still engage in sexual activity (for example, for the benefit of a partner from whom they obtain other relational benefits, or masturbation), they may not report typical patterns of sexual attraction (Brotto, Knudson, Inskip, Rhodes, & Erskine, 2010; Brotto & Yule, 2017; Yule, Brotto, & Gorzalka, 2017). As well, the term "asexual" has been adopted by individuals and social groups and appears to represent a stable and natural variation in human sexual experience (Bogaert, 2006; Brotto et al., 2010; Brotto & Yule, 2017; Cranney, 2017; Houdenhove, Enzlin, & Gijs, 2017).

At the same time, it is important to both clinical practice and efforts to advocate for individuals who are asexual to better understand the co-occurrence of asexual identity and sexual aversion disorder. Sexual aversion disorders may onset as a result of sexual trauma and may be indicated by a reported history of sexual trauma or a diagnosis of post-traumatic stress disorder (PTSD) (Leiblum & Wiegel, 2002; van Berlo & Ensink, 2000; Yadav, Gennarelli, & Ratakonda,

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2001). Beginning to better understand how asexual identity and a history of sexual assault or PTSD co-occur can provide direction to future work on clinical practice with asexual-identified individuals and efforts to advocate for the recognition of asexuality. To this end, it is important to know to what degree asexual identity may co-occur with a history of sexual trauma and PTSD diagnosis.

Literature on asexuality has burgeoned in recent years, including theoretical work on the taxonomical classification of asexuality and empirical research on the prevalence and associates of asexuality. Regarding prevalence, an early study investigated the occurrence of asexuality among over 18,000 British individuals (Bogaert, 2004). Using archival data from a prior national study, asexuality was defined as an affirmative response to the option "I have never felt sexually attracted to anyone at all" in response to an item asking about direction of sexual attractions. This resulted in 1% of the sample being classified as asexual. Estimates within other recent studies range broadly depending on how asexuality is assessed with most estimates being about 1% (Bogaert, 2012).

Theoretical work has also addressed asexuality and its distinction from clinically significant or subclinical levels of hypoactive sexual desire disorder. Specifically, asexual individuals may experience a level of sexual desire, arousal, and pleasure that is adequate for them. As well, asexuality appears to be more likely to be a lifelong trait, whereas individuals with hypoactive sexual desire disorders may have felt typical levels of sexual desire to others prior to the onset of hypoactive sexual desire disorder (Bogaert, 2006). In one study, over 600 individuals were recruited online from social network sites, including social network sites for asexual persons (Brotto, Yule, & Gorzalka, 2015). Participants were categorized as asexual, as having clinically significant hypoactive sexual desire, as having subclinical hypoactive sexual desire, or as being controls (i.e., demonstrating neither asexuality nor hypoactive sexual desire) based on responses to inventories of asexual identity and hypoactive sexual desire. The results indicated that participants classified as asexual reported lower incidence of being treated for sexual disorders and lower scores on measures of sexual desire and distress compared to individuals classified as having clinical and subclinical hypoactive sexual disorder. These results suggest that asexuality is not merely a label for hypoactive sexual desire, but may reflect a specific and enduring sexual orientation.

Research has also examined factors associated with asexuality. In the aforementioned national study of British individuals (Bogaert, 2004), individuals classified as asexual were more likely to have health problems, more likely to have lower socioeconomic status, and more likely to regularly attend religious services compared to individuals classified as not asexual. However, this study was limited by its use of sexual attraction rather than identity to define asexual identification; it is possible that other individuals (e.g., those with severe chronic health conditions, religious individuals who did not want to report sexual attraction, etc.) were included in the asexual group aside from individuals who may have identified as asexual.

Another study sampled 214 individuals recruited from an Internet social network site for asexual individuals (Brotto et al., 2010), aiming to examine associations with asexual identity. The results indicated that most asexual persons did not feel distressed by their sexuality and most did not report fear or disgust about sexuality. Of the participants, 21% of women and 9% of men reported a prior diagnosis with a psychiatric disorder, though participant scores on an assessment of depression were mostly in the non-clinical range. Although informative, the results of this work are limited in a number of ways. First, the sample was recruited from an online social networking site for asexual persons. Individuals engaged in such a social networking site may be individuals for whom an asexual identity is particularly salient, and such persons may also be aware of potential biases against asexual persons and consciously or unconsciously seek to present a more positive image of themselves on symptom inventories. As well, this research was limited in that it assessed only asexual persons and did not include comparisons with non-asexual persons. Thus, it is challenging to understand symptom prevalence rates among asexual persons and whether those rates are high, not different, or low, without corresponding data on non-asexual persons.

Some research has explored some associations between asexual identity and psychiatric symptoms. For example, asexual identity was associated with higher rates of some mental health indicators (depression, anxiety, psychoticism, suicidality, and interpersonal problems) among a sample of asexual-identified individuals collected online and compared to heterosexual and non-heterosexual college students (Yule, Brotto, & Gorzalka, 2013). In contrast, among a national sample from New Zealand, self-identified asexual identity was not associated with mental or physical health issues (Greaves et al., 2017). However, the links between asexuality and sexual trauma and PTSD have not been the subject of much empirical work. Nevertheless, sexual trauma may be associated with aversion to sexual behaviors (Leiblum & Wiegel, 2002; Rosen, 2000). Asexual individuals may be more likely than non-asexual persons to recognize that an experience of sexual aggression was sexual assault; an asexual identity is associated with exploration and reflection on sexual identity and experiences (MacNeela & Murphy, 2015). Additionally, it is possible that some individuals with a history of sexual trauma do not recognize the symptoms of sexual aversion and mistake those symptoms for an asexual identity or that some individuals with a history of sexual trauma intentionally adopt an asexual identity to avoid discussing their sexual trauma history, consistent with avoidant

coping responses to sexual trauma (Littleton, Horsley, John, & Nelson, 2007). The goal of the present study was to extend literature on asexuality and to investigate links between asexual identity and sexual trauma and PTSD diagnosis. To this end, we had the following hypotheses:

Hypothesis 1 Individuals who identify as asexual will be more likely to report a prior diagnosis of PTSD. We will also assess for moderation of this relationship by participant sex.

Hypothesis 2 Individuals who identify as asexual will be more likely to report sexual trauma within the past 12 months. We will also assess for moderation of this relationship by participant sex.

Method

Sample

The Healthy Minds Study (HMS) examines physical and mental health variables among college students and is conducted annually by the University of Michigan and affiliate universities. At each university, data are collected from a sample of 4000 students (for large universities) or the entire student body (for smaller universities). Universities with graduate programs typically include both undergraduate and graduate students in the samples. Students are invited to participate via email, and three reminders for participation are sent. We used data from 2015 to 2016 waves of the HMS, which sampled a total of 34,217 college students (50% female, 46% male, 1% other) from across the USA. Data were collected online voluntarily and anonymously, and ethical review was completed at the University of Michigan and approved at each participating institution. The HMS includes sample probability weights to adjust for non-response and to facilitate representativeness of the data. Probability weights from 2015 to 2016 data set were used to conduct all reported analyses. Further details on the HMS are reported elsewhere (Healthy Minds Study, 2015). Analyses were conducted using the Complex Samples module of SPSS v. 24 to account for the complex sample design of the HMS. Reported data reflect weighted estimates.

Measures

Asexual Identity

Asexual identity was obtained through recoding participant free responses to an option to enter text in for sexual orientation ("How would you describe your sexual orientation?") rather than select one of the available options (heterosexual, gay/lesbian, bisexual, questioning). Participants whose identity included "asexual" or "ace" were categorized as asexual, similar to the process used by Greaves et al. (2017).

Self-Reported PTSD Diagnosis

PTSD diagnosis was assessed using a single item about PTSD included among a set of items asking about 17 different specific psychiatric diagnoses (e.g., major depressive disorder, panic disorder, attention deficit hyperactivity disorder; participants could also write in a disorder not listed). The HMS did not assess what traumatic event precipitated PTSD. However, among college students who have PTSD or symptoms of PTSD reported rates of sexual assault rates are high (Gray, Litz, Hsu, & Lombardo, 2004; Read, Ouimette, White, Colder, & Farrow, 2011; Vrana & Lauterbach, 1994). Participants were asked, "Have you ever been diagnosed with any of the following conditions by a health professional (e.g., primary care doctor, psychiatrist, psychologist, etc.)?" Responses were coded as 0 = no PTSD diagnosis, 1 = PTSD diagnosis present.

Sexual Trauma in the Past 12 Months

Sexual trauma in the past 12 months was assessed using a combination of two items. Participants were first asked about general experiences of "emotional, physical, or sexual abuse" in the past 12 months. If they answered affirmatively to this item, they then viewed a set of items that included "Over the past 12 months, were you in a sexually abusive relationship?" and "Over the past 12 months, were you ever forced to have unwanted sexual intercourse through the use of physical force or threat by someone who was not an intimate partner?" Non-affirmative response to both these items was recoded as 0 = no sexual trauma as assessed within the past 12 months, and affirmative responses to either of these two items were coded as 1 = sexual trauma reported in the past 12 months.

Other Measures

Natal sex was assessed with a single item ("What sex were you assigned at birth? [Meaning on your original birth certificate]") via participant selection of male or female. Gender identity was assessed with one item ("What is your current gender identity?") with response options of male, female, trans male, trans female, genderqueer/gender non-conforming, or another identity. Due to small cell sizes, individuals who identified as trans male, trans female, genderqueer/gender non-conforming, or another identity were collapsed

into a single category for group comparisons. Participants were able to select from a range of racial/ethnic categories.

Statistical Analyses

Logistic regressions were used to assess the association between asexual identity and self-reported PTSD diagnosis or sexual trauma in the past 12 months. These logistic regressions are presented with 95% confidence intervals; reference groups are non-asexual, no reported PTSD diagnosis, and no reported sexual trauma history.

Results

Data were included for 33,385 participants (12,148 male, 21,237 female) who provided data on all variables in the analyses (age, sexual identity, natal sex, self-reported PTSD diagnosis, and history of sexual assault). A total of 152 participants were excluded for missing one data point; 15 for missing two, and 747 for missing three. In the final analytic sample, 228 participants identified as asexual, representing a prevalence rate of 0.68%. It should be noted that identification as asexual required participants to self-report asexual identity as their identity rather than select it, so this extra step in identification may have resulted in some asexual individuals simply omitting the item, for example if they assumed that the available options of heterosexual, bisexual, gay or lesbian, or questioning meant that researchers were only interested in those groups. In the sample, 1.9% self-reported a diagnosis of PTSD and 2.4% reported a history of sexual trauma in the past 12 months. Among the group identified as asexual, 6.6% self-reported a diagnosis of PTSD and 3.5% reported a history of sexual assault in the past 12 months. Demographic data are shown in Table 1.

We conducted preliminary analyses based on demographic variables. Individuals who reported that their sex assigned at birth was female were more likely to report an asexual identity (OR 3.46, 95% CI 2.21, 5.43) compared to those whose sex assigned at birth was male, consistent with past research (Bogaert, 2004; Houdenhove et al., 2015). Individuals who reported that their gender identity was an identity other than male or female were more likely to report an asexual identity (OR 18.34, 95% CI 11.95, 28.16) than individuals whose gender identity was male or female. Age was inversely associated with identifying as asexual (OR 0.93, 95% CI 0.88, 0.99). Consistent with the overall demographics of the HMS sample, most participants (73%) identified as White/Caucasian; individuals who identified as asexual were not more likely to report belonging to a specific racial/ethnic group.

Next, we examined Hypothesis 1. Asexual individuals were more likely to report having been diagnosed with PTSD, $F(1, 33{,}450) = 19.76$, $p < .001$; OR 4.35 (95% CI 2.28, 8.32). When natal sex was included in this model, the association between asexual identity and self-report of PTSD diagnosis remained significant, $F(1, 33{,}385) = 9.40$, $p = .002$. However, the effect of natal sex was not significant, $F(1, 33{,}385) = 1.15$, $p = .28$, nor was the interaction, $F(1, 33{,}385) = 1.17$, $p = .28$. Thus, Hypothesis 1 was supported, and no moderation of the effect by participant sex was indicated.

Table 1 Demographics of the total sample and asexual-identified individuals

	Not asexual identified *N* (% total)	Asexual identified *N* (% total)
Natal sex		
Male	12,117 (36.29%)	31 (0.09%)
Female	21,040 (63.02%)	197 (0.59%)
Gender		
Man	11,972 (35.29%)	27 (0.08%)
Woman	20,791 (62.32%)	161 (0.48%)
Another identity	369 (1.11%)	40 (0.12%)
Age (in years)	*M* (95% CI)	*M* (95% CI)
	22.46 (22.38–22.54)	21.02 (20.30–21.74)

Next, we examined Hypothesis 2. Asexual individuals were more likely to report a sexual trauma in the past 12 months, $F(1, 33{,}450) = 5.77$, $p = .016$; OR 2.48 (95% CI 1.18, 5.18). When natal sex was included in this model, the association between asexual identity and sexual trauma in the past 12 months remained significant, $F(1, 33{,}385) = 4.29$, $p = .038$. However, the effect of natal sex was not significant, $F(1, 33{,}385) = 3.30$, $p = .07$, nor was the interaction of these two variables significant, $F(1, 33{,}385) = 1.52$, $p = .22$. Thus, Hypothesis 2 was supported, and no moderation of the effect by participant sex was indicated.

Discussion

Asexuality is an increasingly common and visible identity. Yet, it is important to understand whether and to what degree asexual identity co-occurs with a diagnosis of PTSD and a history of sexual trauma. Understanding this co-occurrence can help in efforts to advocate for asexual individuals. For example, efforts to facilitate understanding of issues related to consent and sexual assault might incorporate information on asexuality. The present study indicates that asexual identification was related to both self-reported professional diagnosis with PTSD and to self-reported history of recent (i.e., past year) sexual trauma. Individuals who identified as asexual were 4.4 times more likely than non-asexual-identified persons to report a diagnosis of PTSD and were 2.5 times more

likely than non-asexual-identified persons to report sexual trauma within the past 12 months. These effects persisted after adding natal sex to the model, and there was no significant interaction between natal sex and asexual identification in associations with either PTSD diagnosis or sexual trauma within the past 12 months. Thus, there was no significant difference by natal sex in the increased likelihood for men and women who identified as asexual to report a prior diagnosis of PTSD or a history of sexual trauma in the past 12 months.

The results of this study suggest that there is overlap between asexual identity and a history of sexual trauma in the past 12 months. Further research on the conceptualization and definition of sexual coercion and sexual trauma among asexual-identified persons may be useful in understanding if potential differences in concepts of sexual coercion and assault exist among this population. An asexual identity may facilitate greater exploration and self-reflection on one's sexuality (MacNeela & Murphy, 2015), potentially leading to the recognition that prior aggressive sexual experiences were sexual assault. Another possibility is that, for some individuals who identify as asexual, a history of sexual trauma may influence their identification as asexual. At an extreme level, identification as asexual may be used to facilitate disengagement with interventions aimed to reduce sexual aversion resulting from sexual trauma, as well as therapeutic interventions related to sexual trauma, consistent with the avoidance symptoms of PTSD (van Berlo & Ensink, 2000).

It is important that efforts to advocate for the legitimacy of asexuality not result in individuals using an asexual identification to avoid seeking treatment for a sexual aversion disorder. Such a process would place some individuals at risk for avoiding interventions aimed at helping them deal with sexual trauma and may ultimately have negative implications for efforts to advocate for asexuality. At the same time, it is important to note that it is clearly possible for individuals to be asexual and to have a sexual trauma history, and the present results should not be construed to suggest that an asexual identity reflects an automatic history of sexual trauma. Indeed, the vast majority of asexual-identified participants in this study, like non-asexual participants, reported no history of sexual trauma in the past 12 months and no PTSD diagnosis. As well, despite beliefs that sexual activity is crucial to well-being, this does not appear to be the case either in general or specific to asexual individuals (Kim, Tam, & Muennig, 2017; Yule et al., 2013).

The present data suggest that assessing individuals who self-identify as asexual for a trauma history, and giving appropriate referrals for psychotherapeutic intervention, appears warranted. At the same time, it must be noted that the occurrence of PTSD and reported sexual trauma within the asexual group in this study while elevated was still relatively low. Thus, while it may be worthwhile to assess for the presence of a history of sexual trauma among persons who identify as asexual, providers should not assume that persons who identify as asexual inevitably have a sexual trauma history.

The present data avoided use of social network groups aimed toward asexual persons to collect data, but was dependent on asexual individuals choosing to self-report that identity as a free response rather than choosing it from among a set of options available. Thus, while individuals of some sexual orientations were able to simply check a box for their identity, asexual individuals had to write in "asexual" or similar. Such large data sets do not contain measures that would be useful to better understand the context of an asexual identity, such as the Asexuality Identification Scale (Yule, Brotto, & Gorzalka, 2015). Individuals may identify as asexual for reasons other than lack of sexual attraction or may be at different stages in recognition of an asexual identity (Cranney, 2016; Levine, 2017; Robbins, Low, & Query, 2016). The present data included assessment only of sexual trauma within the past 12 months, and we were unable to assess relationships with earlier sexual assault or childhood sexual abuse. Such data would be important to fully understanding the development of asexual identity development in the presence of a sexual trauma history. The items used to assess history of sexual trauma were the items that were included in the HMS. These items addressed sexually abusive relationships and "unwanted" sexual intercourse from a person who was not an intimate partner. These two items do not capture the full range of possible manifestations of sexual trauma, and individuals who have experienced such trauma may not label it the same way as the questions in the study do (e.g., may not label sexual assault by an intimate partner as assault, may not label "unwanted" sexual activity as traumatic). Thus, the estimates of sexual trauma history are limited by the wording of these items, and future research may more clearly assess for experiences of sexual trauma. We assessed diagnosis of PTSD, but were unable to detect the reason for the onset of PTSD using the present data. Future research may use measures such as the Life Events Checklist (Gray et al., 2004) to separate individuals with sexual trauma history from individuals who may have PTSD arising from other events (e.g., car accidents, witnessing a sudden death, etc.). Finally, as the HMS does not include an assessment of PTSD, we relied on self-report of diagnosis. This is problematic, as people with symptoms of PTSD may not recognize them as such and may never have seen a health-care provider about them, people may have been diagnosed with PTSD but not had the diagnoses communicated to them, people may misremember diagnoses, and people may rely on Internet tests of questionable validity to self-diagnose. Further examination of this question (e.g., through studies accessing medical records) may provide one avenue to investigate this question.

We have demonstrated an association between asexual identity and increased likelihood for reporting having been

diagnosed with PTSD and reporting a history of sexual trauma within the past 12 months. Future work should investigate the longitudinal associations between sexual trauma history and asexuality identity, as well as more varied manifestations of sexual abuse history such as childhood sexual abuse. The results of the present study suggest that it may be useful to inquire about history of sexual trauma with patients who identify as asexual and that asexual advocacy groups may be helpful in aiding individuals who may have sexual trauma histories to explore the potential for confusing sexual aversion disorders and asexual identity.

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