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Interpersonal Trauma and Mental Health among LGBTQ+ College Students: Examining Social
Support and Trauma-related Drinking as Mediators

A dissertation defense submitted in partial fulfillment of the requirements for the degree
of Doctor of Philosophy at Virginia Commonwealth University

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Abstract

Despite the increased risk of childhood, adulthood, and lifetime interpersonal trauma among LGBQ+ individuals, existing research that has examined the influence of interpersonal trauma on mental health has primarily focused on LGBQ+ adolescents and samples of LGBQ+ community-based adults, and less on LGBQ+ emerging adults in college. Additionally, limited work has focused on mechanisms that might explain the relations between these variables. Thus, the current study tested the relations between interpersonal trauma (i.e., childhood sexual abuse, adulthood sexual victimization, and lifetime physical assault and IPV) and mental health outcomes (i.e., anxiety symptoms, depressive symptoms, and PTSD symptoms), and examined social support and trauma-related drinking as mediators of these associations among LGBQ+ college students. Participants included 179 LGBQ+ college students ($M = 19.48$, $SD = 0.74$) who completed measures of interpersonal trauma, social support, trauma-related drinking, and mental health. Results indicated that each form of interpersonal trauma, except intimate partner violence, was related to at least one mental health symptom. Additionally, trauma-related drinking mediated the relations between adulthood sexual victimization and anxiety symptoms, depressive symptoms, and PTSD symptoms. Similarly, social support partially mediated the association between lifetime physical assault and PTSD symptoms. Findings have research and intervention implications by highlighting the ways that interpersonal trauma and social/ coping processes affect LGBQ+ college students' mental health.

Interpersonal Trauma and Mental Health among LGBQ+ College Students: Examining Social Support and Trauma-related Drinking as Mediators

LGBQ+ individuals (e.g., people who identify as, but not limited to, lesbian, gay, bisexual, and queer; National Institutes of Health, 2019) are more likely to experience forms of interpersonal trauma, such as childhood sexual abuse, intimate partner violence (i.e., IPV), sexual victimization (e.g., sexual assault, sexual violence, and/or unwanted or uncomfortable sexual experiences), and physical assault compared to their straight-identified counterparts (e.g., Friedman et al., 2011; Reuter et al., 2017). This prevalence is consistent with prior research that has demonstrated that LGBQ+ individuals are particularly at high risk for victimization, including in college settings (e.g., Edwards et al., 2015). In light of this disparity, the prevalence of childhood and adulthood interpersonal trauma among LGBQ+ individuals is a concern given the harmful effects of these types of trauma on various mental health outcomes. For example, sexual victimization has been related to greater depression, anxiety, and PTSD symptoms (e.g., Hedit et al., 2005). Despite the alarming increased risk of childhood and adulthood interpersonal trauma among LGBQ+ individuals, existing research has primarily focused on LGBQ+ adolescents and samples of LGBQ+ community-based adults (i.e., individuals who are not solely attending college), and less on LGBQ+ emerging adults in college.

Arnett (2000) proposes that emerging adulthood, which is the period between ages 18-25 years of age, is a critical time for identity formation when individuals are continuing to explore who they are and how they fit in the world. One aspect of identity is sexual identity formation, which is prominent during this developmental period because young adults are experiencing a dramatic increase in their sexual autonomy and exploration and making decisions around coming out and opportunities to disclose their sexual orientation (McAnulty, 2012; Rhoads, 1994), which

can sometimes be stressful based on one's experiences. For example, heterosexism is manifested on college campuses via discrimination and cultural norms that devalue LGBTQ+ individuals and perpetuate heterosexuality as normative and superior (Rankin et al., 2010). Further, LGBTQ+ college students also have limited access to inclusive academic, mental health, and physical health services (Bouris et al., 2017). Given the stress associated with negotiating one's sexual identity, as well as the lack of resources during this time, it is possible that sexual minority college students face greater pressure from institutions (e.g., heterosexist harassment), that puts them at greater risk for victimization, including sexual victimization (McCauley et al., 2018).

Emerging adulthood also represents a critical risk period for trauma exposure, including sexual assault and IPV, as demonstrated by a drastic increase in prevalence across trauma types during this time (Acierno et al., 2001; Breslau et al., 1998; Norris, 1992). Additionally, emerging adulthood is a developmental period during which harassment (Woodford et al., 2014), risk behavior (i.e., alcohol use; Eliason et al., 2011) and psychological distress (Oswalt & Wyatt, 2011) continue to be critical among LGBTQ+ individuals. Thus, given the prevalence and increased risk for negative traumatic experiences and psychological distress, particularly among LGBTQ+ individuals, research is warranted that tests how traumatic experiences impact mental health among LGBTQ+ college students. Moreover, prior research with college students has shown that anxiety, depression and PTSD are among the most prevalent mental health outcomes (Pedrelli et al., 2015) and are associated with lower academic success and retention (Eisenberg et al., 2009). Therefore, guided by the minority stress model (Meyer, 2003), which suggests that distal stressors (e.g., victimization) affect mental health outcomes (e.g., depressive symptoms), the current study examined the effects of childhood (i.e., childhood sexual abuse), adulthood (i.e., sexual victimization), and lifetime interpersonal trauma (i.e., physical assault and IPV) on

mental health (e.g., anxiety symptoms, depressive symptoms, and PTSD symptoms) among LGBQ+ college students.

Further, although prior research has found that various forms of interpersonal trauma are associated with worse mental health outcomes among LGBQ+ adolescents and community-based adults (e.g., Balsam et al., 2010; Reuter et al., 2017), an area that has received less attention is the mechanisms that might explain the relation between these variables. Meyer (2003) recommends that future studies should identify mediators that might influence the relations between stressors (e.g., IPV) and mental health outcomes (e.g., anxiety) among LGBQ+ individuals. Thus, consistent with the notions posited by the psychological mediation framework (Hatzenbuehler, 2009) regarding the important role of social and coping processes, the current study also tested whether social support (i.e., a social process) and trauma-related drinking (i.e., use of alcohol as a means to escape, avoid, or otherwise regulate negative emotions from traumatic experiences; Cooper et al., 1995), mediated the relations between how interpersonal trauma from childhood (i.e., childhood sexual abuse), adulthood (i.e., sexual victimization), and lifetime experiences (i.e., physical assault and IPV) predicted mental health outcomes (See Figure 1 for conceptual model).

In the sections that follow, the conceptual rationale and related empirical support for the hypothesized associations will be reviewed. First, the conceptualizations of LGBQ+ individuals and the prevalence of childhood sexual abuse, IPV, physical assault, and sexual victimization among LGBQ+ individuals will be provided. Additionally, a description of the minority stress model (Meyer, 2003) will be provided to help clarify how interpersonal trauma is expected to influence mental health outcomes, and empirical research that has tested this relation will be reviewed. Further, the psychological mediation framework (Hatzenbuehler, 2009) will be

presented with a discussion of how tenets from this theoretical framework are applicable for the inclusion of mediators (i.e., social support and trauma-related drinking) in the hypothesized model. Finally, the limited empirical research that has examined social support and trauma-related drinking as mediators in different associations will be reviewed..

LGBQ+ Individuals and Interpersonal Trauma

LGBQ+ is a broad term that refers collectively to a range of diverse sexual orientation groups, each with their own unique experiences and health needs. Included under the LGBQ+ umbrella are individuals who identify as “lesbian,” “gay,” “bisexual” or whose sexual or romantic attractions and behaviors focus exclusively or primarily on members of the same sex or both sexes (Institute of Medicine, 2011; Mink et al., 2014). Additionally, individuals who use labels such as “bi-curious,” “pansexual,” “questioning,” or “asexual,” or use no label at all when discussing their sexual orientation are also included under this LGBQ+ umbrella (Austin et al., 2007; Lindley et al., 2012; Savin-Williams & Ream, 2007).

However, it is important to note that the term is not intended to be used to treat all individuals who fall under the LGBQ+ umbrella as though they share precisely the same experiences (Worthen, 2013). Important distinctions exist between individuals in the subgroups (e.g., lesbian women, bisexual women, and gay men have many similarities and differences). Further, intersections of identities, such as sex, race/ethnicity, and/or socioeconomic status exist among individuals’ intersectional identities and can influence their experiences with stress, stigma, and health outcomes. Thus, there are several cases in which grouping LGBQ+ populations together may be warranted; however, other instances for which it is important to understand specific groups’ experiences (Worthen, 2013). For the purpose of this study, the term LGBQ+ will be used to collectively capture the experiences that individuals go through due to

their membership in the LGBTQ+ community. Throughout the literature review, the specific terms offered by the original authors will be used when discussing particular studies.

Interpersonal trauma refers to traumatic experiences that occur between people and are more damaging than non-interpersonal forms of trauma (López-Martínez et al., 2018). Trauma that occurs in the context of interpersonal relationships can be particularly damaging because of the betrayal involved in the violation of basic assumptions underlying interpersonal and social relationships (Freyd, 1996). For example, betrayal trauma, or trauma perpetrated by someone with whom a victim is close, is strongly associated with a range of physical and mental health difficulties (e.g., depression, anxiety, alexithymia, doctors visit, and days of sickness; Goldsmith et al., 2012). The more frequent forms of interpersonal trauma are being a survivor of emotional, physical, and sexual abuse in childhood and adulthood and experiencing emotional and physical neglect during childhood; these types of trauma could co-occur and recur over the life span of an individual (Anda et al., 2010). The focus in the present study was on childhood sexual abuse, adulthood sexual victimization, lifetime physical assault, and lifetime IPV because they are some of the most frequent forms of interpersonal trauma experienced among LGBTQ+ individuals (López-Martínez et al., 2018; Reuter et al, 2015; Schneeberger et al., 2014). Given the limited research on prevalence of these types of interpersonal trauma among LGBTQ+ college students, the present literature review also included prior work on LGBTQ+ adolescents and LGBTQ+ adults who are not in college.

Childhood Interpersonal Trauma and its Prevalence among LGBTQ+ individuals.

Psychological, physical, and sexual abuse, neglect, and witnessing interparental violence before 18 years of age constitutes different forms of childhood interpersonal trauma. They result in actual or potential harm to a child's health, survival, development, or dignity in the context of a

relationship of responsibility, trust, or power (World Health Organization, 2015). Studies have shown that childhood exposure to interpersonal traumatic events is common and has been described as a silent epidemic (Kaffiman, 2009). Worldwide, approximately one third of children are estimated to experience physical abuse and approximately one in four girls and one in five boys experience sexual victimization (Felitti et al., 1998; Putnam, 2003; Rutkow & Lozman, 2006). The literature about victimization experiences in childhood, including sexual abuse, among LGBTQ+ individuals has been a more recent focus of research over the years. For example, a study that examined the incidence of childhood sexual molestation (including sexual abuse) demonstrated increased rates of childhood sexual contact among homosexual college students when compared to heterosexual college students (Tomeo et al., 2001).

More recently, systematic reviews focusing mainly on sexual assault (childhood and adulthood), as well as childhood sexual abuse, emotional abuse, and physical/ emotional neglect found higher prevalence of childhood sexual abuse among men (e.g., 22.7%) and women (e.g., 34.5%) in adult LGB populations (Rothman et al., 2011; Schneeberger et al., 2014). Additionally, a meta-analysis of disparities in child sexual abuse, parental physical abuse, and peer victimization among sexual minority and sexual non-minority individuals found that sexual minority individuals were 3.8 times more likely to experience childhood sexual abuse when compared to sexual non-minority individuals (Friedman et al., 2011). Collectively, these studies demonstrate that LGBTQ+ individuals are at risk to be survivors of childhood sexual abuse when compared with straight-identified individuals.

Adulthood and Lifetime Interpersonal Trauma and its Prevalence among LGBTQ+ individuals. Numerous empirical studies have demonstrated that interpersonal trauma, such as IPV, sexual victimization, and physical assault, occur at increased rates among LGBTQ+

individuals (Coulter & Rankin, 2017; Reuter et al., 2015; Swann et al., 2018). IPV is typically defined as abusive behavior (i.e., physical, emotional, and sexual abuse) occurring within the context of a romantic relationship (Reuter et al., 2017). Several empirical studies have shown that LGBQ+ individuals are more likely to experience IPV than straight-identified individuals (Breiding et al., 2015; Edwards et al., 2015; Halpern et al., 2004; Martin-Storey, 2015). For example, data from the National Intimate Partner and Sexual Violence Survey showed that lifetime prevalence rates of IPV occur at higher rates among LGB adults (bisexual women: 61.1%; lesbian women: 43.8%; bisexual men: 37.3%; gay men: 26%) than heterosexual adults (women: 35%; men: 29%; Walters et al., 2013). Additionally, all forms of IPV victimization (i.e., physical, psychological, and sexual) were greater for LGB individuals than heterosexual individuals (Messinger, 2011).

Extant research supports that LGBQ+ students experience even greater rates of IPV compared with straight-identified individuals (Edwards et al., 2015; Edwards, Sylaska, & Neal, 2015). For example, in a study with 4129 college students across New England, Edwards and colleagues (2015) found that compared to heterosexual students, LGBTQ+ students reported significantly higher six-month incidence rates of sexual assault/coercion (heterosexual: 10.9%; LGBTQ+: 24.3%), physical IPV (heterosexual: 18.4%; LGBTQ+: 29.8%), and unwanted pursuit victimization (e.g., stalking; heterosexual: 32.1%; LGBTQ+: 47.6%). Similar to the high rates of IPV among LGBQ+ individuals, studies have also shown that LGBQ+ youth experience physical assault at a higher prevalence rate than straight-identified individuals (D'Augelli et al., 2002).

Numerous studies have documented the prevalence of harassment and violence directed toward LGBQ+ adults (Berrill, 1992; D'Augelli, 1992; Evans, 2001; Herek, 1989), as well as LGBQ+ youth (Birket et al, 2009; D'Augelli et al., 2002; Kosciw et al., 2010). Based on a

synthesis of findings from 24 studies that examined victimization among lesbian, gay, and bisexual adults, 80% reported experiencing verbal harassment, 44% reported threats of violence, 33% reported being chased or followed, 13% reported being spat on, 17% reported physical assault, and 9% reported experiencing an assault with a weapon (D'Augelli, 1992). Additionally, a meta-analysis that compared the prevalence of bullying between sexual minority (i.e., gay, lesbian, bisexual, and same-sex attraction) and heterosexual youth found that sexual-minority youth were 2.24 times more likely to be bullied and 1.82 times more likely to be victimized when compared to heterosexual youth (Fedewa & Ahn, 2011). These findings align with other studies that document the frequent experiences of physical assault that LGBTQ+ youth face (Birket et al., 2009; Toomey & Russell, 2016). Overall, research suggests that LGBTQ+ individuals are often survivors of violence, including physical assault, and are experiencing these types of violence at higher rates when compared to straight-identified individuals.

Furthermore, research has shown that sexual victimization (e.g., sexual assault, sexual violence, and/or unwanted or uncomfortable sexual experiences) among LGBTQ+ individuals is pervasive (Edwards et al., 2015; McCauley et al., 2018; Rothman et al., 2011; Todahl et al., 2009). A systematic review among gay, lesbian, and bisexual survivors of sexual assault showed elevated rates of victimization with gay males having 11.8% to 54% victimization rates, compared to 2% to 3% among heterosexual males. Lesbians were victimized at rates of 15.6% to 85%, compared to 11% to 17% of heterosexual women (Rothman et al., 2011). Further, studies have demonstrated that sexual minority college students are two to four times more likely to experience sexual victimization and sexual assault when compared to their straight-identified counterparts (Beaulieu et al., 2017; Edwards et al., 2015). This prevalence is consistent with prior research that has found LGBTQ+ individuals to be at particularly high risk for sexual assault

in college settings (e.g., McCauley et al., 2018). However, some research on LGBTQ+ college students indicate that they experience sexual violence at least as often as their straight-identified peers (Johnson et al., 2016; Martin et al., 2011). For example, compared to heterosexual students, gay men and bisexual men and women were more likely to report sexual victimization. However, lesbian students were no more likely to report any type of sexual victimization compared to heterosexual students (Johnson et al., 2016). Nevertheless, these studies demonstrate that sexual victimization among LGBTQ+ individuals continues to be a prevalent issue.

Forms of Interpersonal Trauma as Predictors of Mental Health

The minority stress model (Meyer, 2003) is a useful theoretical framework to understand the relations between childhood (i.e., childhood sexual abuse), adulthood (i.e., sexual victimization), and lifetime interpersonal trauma (i.e., physical assault and IPV) and mental health outcomes among LGBTQ+ college students. Broadly, the minority stress model (Meyer, 2003) details the different ways in which people who identify as, but not limited to, LGBTQ+ experience unique and chronic stressors and how those stressors are related to adverse health outcomes, including mental health and physical disorders (Meyer & Frost, 2013). Specifically, the minority stress model suggests that limited access to resources and heightened conflict with social environments are significant causes of risk and victimization among marginalized groups (e.g., LGBTQ+ college students; Meyer, 2003). Further, the minority stress model posits that distal stressful experiences, which are referred to as life events (e.g., victimization), chronic strains (e.g., homonegativity, which is defined as stereotypes and prejudiced attitudes and discriminatory behaviors toward individuals in the LGBTQ+ community; Herek, 2004), everyday discrimination (e.g., heterosexism) and/or microaggressions, can lead to poor health

outcomes. Therefore, drawing from this theoretical framework, childhood sexual abuse, adulthood sexual victimization, and lifetime physical assault and IPV is expected to be associated with higher levels of depressive symptoms, anxiety symptoms, and PTSD symptoms among LGBQ+ college students. Although the current study did not assess the level of stress associated with these experiences directly, previous studies have suggested that these forms of interpersonal experiences are traumatic and stressful among LGBQ+ individuals (e.g., Balsam et al., 2010; Reuter et al., 2017). Therefore, the present study conceptualizes these experiences as stressful and traumatic, which maps onto previous work. Additionally, prior research examining these relations are in line with the notions from Meyer's (2003) minority stress model (e.g., Balsam et al., 2010; Heidt et al., 2005; Willis, 2004).

Childhood Sexual Abuse. As noted, several studies have found a positive relation between childhood sexual abuse and mental health outcomes among LGBQ+ individuals. For example, Balsam and colleagues (2010) conducted a study that assessed the role of childhood abuse on mental health indicators among a national sample of ethnically diverse lesbian, gay, and bisexual adults. The findings demonstrated that childhood sexual abuse was positively related to higher levels of PTSD, anxiety, depression, and perceived stress. Similarly, Hughes and colleagues (2007) examined the relations between childhood risk factors (i.e., sexual abuse and physical abuse) and alcohol abuse and psychological distress (i.e. depression and anxiety) among adult lesbians. The bivariate results indicated that lesbians who were sexually abused in childhood were more likely than those who did not experience childhood sexual assault to report lifetime depression.

Arreola et al. (2008) conducted a study among adult men who have sex with men to explore the influence of childhood sexual experiences on health outcomes. The findings

demonstrated that childhood sexual abuse directly predicted psychological distress (i.e., anxiety and depression) and suicidality. Additionally, childhood sexual abuse was associated with higher levels of PTSD, alcohol use, and depression among adult men who have sex with men (Boroughs et al., 2015). Furthermore, Anderson and Blosnich (2013) found that traumatic childhood experiences, including sexual abuse, were associated with mental distress among lesbian, gay, and bisexual adults. These findings suggest that childhood sexual abuse is associated with poorer mental health outcomes in adulthood, such as anxiety, depression, and PTSD among LGBTQ+ individuals.

Adulthood and Lifetime Interpersonal Trauma. Prior studies have demonstrated relations between adulthood and lifetime interpersonal trauma (e.g., IPV, physical assault, and sexual victimization) and mental health outcomes among LGBTQ+ individuals. In regards to IPV, Reuter and colleagues (2017) conducted a longitudinal study that examined the relation between IPV and health behaviors (i.e., sexual risk taking, mental health symptoms, binge drinking and marijuana use) among a diverse sample of lesbian, gay, bisexual, and transgender young adults. The findings indicated that IPV was associated with future sexual risk taking and mental health symptoms (e.g., depression and anxiety). Additionally, Koeppel & Bouffard (2014) found that IPV was positively associated with depression, alcohol, and drugs among gay, lesbian, and bisexual adults 18 years old and older. Similarly, Houston and McKirnan (2007) examined the influence of psychological and demographic factors generally associated with IPV on various health problems among men who have sex with men. The findings demonstrated that men who experienced IPV reported higher levels of lifetime mental health problems (e.g., depression). Furthermore, Miller and Irvin (2017) found that lesbian, gay, and bisexual adults who experienced IPV were likely to report a history of depression and anxiety when compared to

heterosexual survivors. Several studies have also indicated that physical assault outside of an intimate relationship and sexual violence is associated with worse mental health outcomes among LGBTQ+ adults (Kammer-Kerwick et al., 2019; Swan et al., 2019)

Physical assault and sexual victimization serve as significant sources of physical and psychological trauma with far-reaching mental health consequences among LGBTQ+ individuals. For example, Hedit and colleagues (2005) conducted a study that examined patterns of sexual assault and its psychological correlates among gay, lesbian, and bisexual men and women. Findings demonstrated that sexual victimization was related to greater psychological distress (i.e., depression, anxiety, and PTSD symptoms). In regards to college students, Kammer-Kerwick and colleagues (2019) found that gender and sexual minority survivors of sexual victimization experienced significantly higher rates of PTSD, depressive symptoms, and greater disengagement than cisgender heterosexual students. Further, Herek and colleagues (1997) conducted an investigation of the prevalence, nature, and psychological costs of antigay crimes against gay men. They found that compared to non-bias crime survivors (i.e., individuals who experienced hate crimes that were not based on their sexual orientation) and non-survivors, survivors who experienced hate crimes based on their sexual orientation, including physical assault, reported higher levels of depression, anxiety, anger, and PTSD symptoms.

Similarly, Hershberger and D'Augelli (1995) found that victimization, including physical assault, was related to higher levels of poorer mental health symptoms (i.e., depression and anxiety) among lesbian, gay, and bisexual youth 15-21 years old. More recently, Swan and colleagues (2019) examined the influence of victimization on mental health and substance use trajectories in young sexual minority men. The findings indicated that higher levels of victimization, including physical assault, was a significant predictor of internalizing symptoms

(i.e., anxious/depressed, withdraw, and somatic complaints). Although findings from these studies indicate that violence broadly, which has tended to include physical assault in the measure, is related to worse mental health outcomes among LGBQ+ individuals, no studies to our knowledge have exclusively examined the effects of physical assault on mental health outcomes among LGBQ+ college students.

In sum, across the past three decades, research has shown that childhood sexual abuse, adulthood sexual victimization, and lifetime physical assault and IPV often contribute to worse mental health outcomes (e.g., depression, anxiety, and PTSD) among LGBQ+ individuals (Balsam et al., 2010; Kammer-Kerwick et al., 2019; Reuter et al., 2017; Swan et al., 2019). However, less work has focused on these associations among emerging adults, particularly college students, which is a notable gap in the literature. It is critical to test these relations in emerging adulthood because this developmental period involves sexual identity development, as well as greater risk for potential trauma exposure, risky behavior, and psychological distress. In addition, Meyer (2003) posited that in order to better understand nuances in individuals' lived experiences, research needs to focus on the mechanisms (e.g., mediators) through which stressors affect mental health among LGBQ+ individuals.

Consideration of Coping and Social Processes as Mediating Mechanisms

The psychological mediation framework (Hatzembuehler, 2009) is useful for understanding how coping and social processes may influence the associations between interpersonal trauma (retrospectively from childhood and currently in adulthood) and mental health outcomes. In particular, this framework proposes that sexual minorities deal with increased stress related to stigma, and those stressors increase risk for psychopathology through coping/emotion dysregulation, social/interpersonal problems, and cognitive processes

(Hatzenbuehler, 2009). Specifically, Hatzenbuehler suggests that coping and social support processes should be considered as mediators in the relations between distal stressors and mental health outcomes. Following this notion, two coping and social processes that may help explain how childhood, adulthood, and lifetime interpersonal trauma (i.e., distal stressors) lead to worse mental health outcomes are social support and trauma-related drinking. In the context of the present study, it is possible that when LGBQ+ individuals experience traumatic experiences, they perceive less social support and engage in trauma-related drinking as a coping mechanism. Thus, the lack of perceived social support and trauma-related drinking, may mediate the relations between distal stressors (i.e., childhood sexual abuse, adulthood sexual victimization, and lifetime physical assault and IPV) and mental health outcomes (i.e., anxiety symptoms, depressive symptoms, and PTSD symptoms) among LGBQ+ college students.

Social Support. Social support has been identified as an important mechanism that provides a sense of acceptance, social connectedness, and a network among LGBQA college students (Sheets & Mohr, 2009). Research has shown that social support acts as a moderator between stressors and mental health outcomes among LGBQ+ individuals (Bissonette & Szymanski, 2019; Sattler et al., 2016). However, besides a few noteworthy exceptions, there has been little attention to whether perceived social support functions as a mediator of the relations between forms of interpersonal trauma and mental health outcomes. For example, Hershberger and D'Augelli (1995) found that antigay victimization (e.g., physical assault) was associated with greater family support, which was, in turn, associated with fewer mental health concerns among lesbian, gay, and bisexual youth. Similarly, Lehavot and Simoni (2011) examined the direct and indirect effects of minority stress on mental health and substance use among sexual minority women. They found that minority stressors (e.g., LGB victimization) were negatively

associated with social-psychological resources (e.g., social support), which was, in turn, negatively associated with both mental health problems (i.e., depression and anxiety) and substance use (e.g., alcohol abuse).

Related work also provides support for the mediating role of social support more generally. For example, Hatzenbuehler and colleagues (2010) found that distal stressors (e.g., perceived danger to being gay) predicted less social support, which led to an increase in depressive and anxiety symptoms over 18 months among bereaved gay men. Similarly, over a course of 10 days, LGB young adults reported more isolation and less perceived social support subsequent to experiencing distal stressors (e.g., discrimination), which in turn, increased psychological distress (Hatzenbuehler et al., 2009). Again, while these studies (i.e., Hatzenbuehler et al., 2010; Hatzenbuehler et al., 2009; and Hershberger & D'Augelli, 1995) did not specifically examine childhood or adulthood interpersonal trauma as predictors, it provides evidence that social support may mediate the relations between distal stressors and mental health outcomes among LGBQ+ individuals.

Furthermore, related work has supported parts of Hatzenbuehler's (2009) proposed mediation process, including (1) distal stressors predicting social support and (2) social support predicting mental health. For example, Kawachi and Berkman (2001) suggests that individuals rely on others as a source of support when stressful events occur. However, it is possible that distal stressors could diminish perceived social support among LGBQ+ individuals because it may lead them to isolate themselves from others to avoid future rejections (Link et al., 1997). Further, research has demonstrated that social support mitigates adverse mental health outcomes (e.g., Al-khouja et al., 2019; Sheets & Mohr, 2009). For example, Al-khouja and colleagues

(2019) found that relationships with family, friends, and partners predicted better mental health over a two-year period among lesbian, gay, and bisexual adults.

Overall, research tends to support notions posited by the psychological mediation framework (Hatzenbuehler, 2009), however, no studies to our knowledge have tested social support as a mediator between various forms of interpersonal trauma and mental health outcomes. Therefore, based on related work that found that social support was a significant mediator of distal stressors and mental health more broadly, the current study tested whether social support mediated the relations between distal stressors (i.e., childhood sexual abuse, adulthood sexual victimization, and lifetime physical assault and IPV) and mental health outcomes (i.e., anxiety symptoms, depressive symptoms, and PTSD symptoms) among LGBQ+ college students. It was hypothesized that greater childhood, adulthood, and lifetime interpersonal trauma would be associated with less perceived social support, which would, in turn, increase anxiety symptoms, depressive symptoms, and PTSD symptoms.

Trauma-related Drinking. As noted, the psychological mediation framework (Hatzenbuehler, 2009) proposes that coping motives mediate relations between distal stressors (e.g., victimization) and mental health outcomes among LGBQ+ individuals. One such coping motive may be trauma-related drinking. Although no study has tested trauma-related drinking as a mediator of the relations between childhood, adulthood, and lifetime interpersonal trauma and mental health outcomes specifically, related work provides support for coping motives for drinking as a mediator more generally. For example, Hatzenbuehler, Corbin, and Fromme (2011) examined risk factors (i.e., drinking motives) as mediators of the effects of discrimination on alcohol-related behaviors among college students, including lesbian, gay, and bisexual respondents. They found that discrimination was associated with more drinking as a way to cope,

which resulted in higher levels of alcohol-related problems. Even though this study did not specifically examine childhood or adulthood interpersonal trauma as predictors, it provides evidence that coping motives may mediate the relation between distal stressors and health outcomes.

Although limited work has tested the mediation process proposed by the psychological mediation framework (Hatzenbuehler, 2009) more generally, supporting work has examined whether (1) distal stressors predict trauma-related drinking and (2) trauma-related drinking predicts mental health outcomes. For example, research has suggested that stressful life events, including victimization, are believed to challenge LGBTQ+ individuals' coping resources leading to the use of alcohol in an effort to cope with those stressful life events (Condit et al., 2011; Drabble et al., 2013; Hughes et al., 2014; Hughes et al., 2007). For example, Condit and colleagues (2011) used qualitative interviews to explore sexual minority women's experiences and perceptions of alcohol. They found that traumatic experiences (e.g., sexual violence, child abuse, and domestic violence) contributed to heavy or problem drinking. Additionally, they suggested that future research should consider the role of alcohol in managing stressful situations. Similarly, in a longitudinal study with young sexual minority women, Rhew and colleagues (2017) found that sexual assault victimization was associated with higher levels of alcohol use two years later. Additionally, Hughes et al. (2007) examined the associations between childhood and family background variables, including sexual and physical abuse, and alcohol abuse and psychological distress among adult lesbians. They found that childhood sexual abuse predicted lifetime alcohol abuse.

Further, turning to relations between alcohol use and mental health outcomes, the majority of prior work has focused on the susceptibility hypothesis and predominantly PTSD

symptoms as the outcome among straight-identified individuals (Back et al., 2006; Jacobsen et al., 2001). The susceptibility hypothesis states that substance use, including alcohol, increases an individual's susceptibility to developing PTSD following a trauma (Brady et al., 2004). For example, Jacobsen and colleagues (2001) suggest that substance use, including alcohol, may result in a higher level of vulnerability to the development of PTSD after exposure to trauma. Additionally, Read et al. (2013) examined the bidirectional associations between PTSD and alcohol involvement over three years. Part of their findings indicated that alcohol use predicted PTSD symptoms over time. Further, research has shown that hazardous drinking can also increase depressive and anxiety symptoms among straight-identified individuals (Jane-Llopis & Matysina, 2006; Rao et al., 2000). In limited work with sexual minority individuals, Johnson and colleagues (2013) found that hazardous drinking was associated with depression, but not with anxiety among sexual minority women.

Taken together, this literature suggests that distal stressors (e.g., victimization) may contribute to the development of coping motives for drinking, which subsequently influence mental health outcomes. However, no studies to our knowledge have tested trauma-related drinking as a mediator between childhood, adulthood, and lifetime interpersonal trauma and mental health outcomes. Grounded in the psychological mediation framework (Hatzenbuehler, 2009) and previous work that has tested parts of the proposed model (e.g., Condit et al., 2011; Read et al., 2013), the current study tested these relations and hypothesized that greater childhood, adulthood, and lifetime interpersonal trauma would be associated with greater trauma-related drinking, which, in turn, would increase anxiety symptoms, depressive symptoms, and PTSD symptoms.

The Current Study and Hypotheses

We have yet to fully understand the influence of various forms of interpersonal trauma on mental health outcomes among LGBTQ+ college students. Therefore, the first goal of the present study was to extend prior research by testing the associations between interpersonal trauma in childhood (i.e., childhood sexual abuse), adulthood (i.e., sexual victimization), and lifetime experiences (i.e., physical assault and IPV) predicting mental health (i.e., anxiety symptoms, depressive symptoms, and PTSD symptoms). Based on theoretical notions posited by the minority stress model (Meyer, 2003), it was hypothesized that higher levels of these types of interpersonal trauma would be positively associated with worse mental health outcomes.

Second, we also tested mediators of the relations between these forms of interpersonal trauma and mental health outcomes. Consistent with notions posited by the psychological mediation framework regarding the role of social and coping processes (Hatzenbuehler, 2009), it was expected that social support (i.e., social factor) and trauma-related drinking (i.e., coping motive) would mediate the relations interpersonal trauma and mental health outcomes. Specifically, it was hypothesized that greater childhood sexual abuse, adulthood sexual victimization, and lifetime physical assault and IPV would be associated with lower levels of social support, which would, in turn, increase anxiety symptoms, depressive symptoms, and PTSD symptoms. Additionally, it was hypothesized that greater childhood sexual abuse, adulthood sexual victimization, and lifetime physical assault and IPV would be associated with greater trauma-related drinking, which would, in turn, increase anxiety symptoms, depressive symptoms, and PTSD symptoms.

Method

Participants

The sample from the current study was from a spinoff study called Life Events and Alcohol Use (LEAU; Hawn, Bountress, Sheerin, & Amstadter, 2020) from a larger parent study, the Spit for Science (S4S) project. S4S is an on-going, university-wide longitudinal study of the behavioral and emotional well-being of four cohorts of college students at a southeastern urban university (2011-2014; 2017-2018; Dick et al., 2014). The goal of the spinoff study was to assess detailed trauma history and trauma-related drinking among this population. The current study focused on 179 students from the spinoff study who identified as lesbian or gay, bisexual, asexual, questioning, and queer (LGBQ+) and completed follow-up surveys in Spring 2017. We used data from Spring 2017 because this year of data collection included additional assessments from the spinoff study that we focused on in the present study (i.e., trauma-related drinking, interpersonal trauma, and PTSD symptoms). The current sample of 179 LGBQ+ students were 18-24 years old ($M = 19.48$, $SD = .74$). Additionally, about half (56%) of the participants self-identified as White ($n = 101$), 17.2% as Black or African American ($n = 31$), 10% as Asian ($n = 18$), 1.2% as American Indian or Native Alaskan ($n = 2$), 4% as Hispanic or Latino ($n = 7$), 0.6% as Native Hawaiian or Other Pacific Islander ($n = 1$), and 11% as Multiracial ($n = 19$). Thirty-seven percent of students reported having a female caregiver who graduated from college or a university, and 34% reported having a male caregiver who graduated from college. Also, eighty percent of participants lived in on-campus housing.

Procedure

S4S Parent Study. The larger S4S study was approved by the Institutional Review Board at Virginia Commonwealth University. In the S4S study, each cohort of freshman starting in 2011 and continuing through 2014 who were aged 18 and older were invited to participate in the study by completing an online survey. Specifically, in the study, cohort refers to the group of

students who entered college in the same year in either 2011 (i.e., cohort 1), 2012 (i.e., cohort 2), 2013 (i.e., cohort 3), or 2014 (i.e., cohort 4). Then, they were invited to complete a follow-up survey every subsequent Spring semester while they were enrolled in college. Thus, participants in the present study were students from one of these four cohorts who completed a follow-up survey in 2017. During each survey, participants were provided an explanation of the study, and students who chose to participate provided informed consent online. Then, participants completed the online survey, which took approximately 15-30 minutes. Once the survey was completed, participants received \$10 compensation. Approximately 70% of incoming freshmen participated in the S4S study each year since it began (Spindle et al., 2017). Study data were collected and managed using REDCap (Research Electronic Data Capture) electronic data capture tools. REDCap is a web-based application designed to assist data collection for research studies (Harris et al. 2009).

LEAU Spinoff Study Sample. The intention of the LEAU study was to gather more in-depth information about participants' PTSD symptoms, trauma history, and trauma-related drinking. Individuals from the parent study who reported at least one lifetime traumatic event during a prior survey and reported any lifetime alcohol use on a prior survey were invited to participate in the LEAU spinoff study ($N = 7,423$) in the fall of 2016 or the spring of 2017. Of those invited, 2,175 (29%) expressed an interest in participating, and were emailed a survey link. Of these students, 1,896 (87%) provided data for the spin-off study. The current analytic sample included 179 students who identified as LGBQ+. The LEAU survey took approximately 20 minutes to complete, after which participants were given the option to collect \$20 compensation via cash in person or electronically via an Amazon gift card. The majority of students (60%) preferred to be compensated via cash.

Measures

Childhood sexual abuse. Three items from the Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000) were used to assess for the frequency of childhood sexual abuse (e.g., “After your 13th birthday and before your 18th birthday: Did anyone touch sexual parts of your body or make you touch sexual parts of his or her body against your will or without your consent?”). If participants indicated that they had experienced any childhood sexual abuse, they were given the follow-up response option ranging from 1 = *once* to 6 = *more than 5 times* or “I prefer not to answer” for each item. Prefer not to answer endorsement of an item was coded as a 0, and items were summed to yield a total score ranging from 0-18. Prior research with the full TLEQ has demonstrated good test-retest reliability and good convergent validity among trauma exposure survivors (Kubany et al., 2000).

Lifetime intimate partner violence. One item from the Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000) was used to assess participants’ frequency of experiencing domestic violence in their lifetime (i.e., “How often have you ever been slapped, punched, kicked, or beaten up, or otherwise physically hurt by your spouse (or former spouse), a boyfriend or girlfriend, or some other intimate partner?”). If participants indicated that they had experienced domestic violence, then they were given the follow-up response option ranging from 1 = *once* to 6 = *more than 5 times* or “I prefer not to answer”. Prefer not to answer endorsement of an item was coded as a 0, and items were summed to yield a total score ranging from 0-6. Prior research has demonstrated good test-retest reliability and good convergent validity of the full TLEQ among trauma exposure survivors (Kubany et al., 2000).

Lifetime physical assault. One item from the Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000) was used to assess participants’ frequency of experiencing physical

assaults in their lifetime (i.e., “How often have you ever been HIT OR BEATEN UP AND BADLY HURT by a stranger or someone you didn’t know very well?”). If participants indicated that they had experienced a physical assault, they were given the follow-up response option ranging from 1 = *once* to 6 = *more than 5 times* or “I prefer not to answer”. Prefer not to answer endorsement of an item was coded as a 0, and items were summed to yield a total score ranging from 0-6. Prior research has demonstrated good test-retest reliability and good convergent validity of the TLEQ among trauma exposure survivors (Kubany et al., 2000).

Adulthood sexual victimization. Two items adapted from the Life Events Checklist (LEC; Gray et al., 2004) were used to measure participants’ experiences with a sexual assault (e.g., rape, attempted rape, made to perform any type of sexual act through force or threat of harm) or unwanted or uncomfortable sexual experiences (e.g., touching, cornering, pressure for sexual favors, verbal remarks). Participants indicated if they experienced any of these experiences after the age of 18. Participants were given the response option of “Yes” or “No.” No endorsement of an item or an endorsement of “I choose not to answer” was coded as a 0, and a positive endorsement of an item was coded as a 1. Items were summed to yield a total score ranging from 0-2. Prior studies have demonstrated good construct validity for this measure among college students (Hawn et al., 2018).

Trauma-related drinking. A four-item measure of trauma-related drinking to cope was created for and administered as part of the spin-off study given that one did not exist in the literature. Specifically, individuals indicated the extent to which they drank alcohol to cope with repeated feelings or memories of the event, drank to avoid reminders of the event, drank to cope with negative cognitions related to the event, or drank to avoid aversive emotional and physiological aspects of the event. Participants responded regarding the frequency of alcohol to

cope with symptoms specific to each of four PTSD clusters (i.e., re-experiencing, avoidance, negative cognitions and mood, and arousal) on a five-point rating scale ranging from 1 = *never/ almost never* to 5 = *always/ almost always*. A sum score was computed ranging from 4-20, with higher scores indicating higher trauma-related drinking. Prior research has demonstrated good validity and reliability ($\alpha = .88$) among college students (Bountress et al., 2019).

Social support. Social support was measured using three items adapted from the 19-item Social Support Survey of the Medical Outcomes Study module (Sherbourne & Stewart, 1991). Items asked about experiences in the past 12 months and included: “How often was someone available to give good advice about a crisis?” Responses were on a Likert scale of 1 = *none of the time* to 4 = *all of the time*. A sum score was computed ranging from 1-12, with higher scores indicating greater perceived social support. Previous research has demonstrated good validity and reliability with these items among diverse college students (Hawn et al., 2018).

Depressive symptoms. A subset of four items from the Symptoms Checklist (SCL-90; Derogatis et al., 1973) was used to assess depressive symptoms (e.g., “feeling hopelessness about the future”) within the last 30 days. Previous work has shown support for the validity and reliability of SCL-90 with a diverse college population (Spindle et al., 2017). Participants responded regarding how much each symptom caused them discomfort on a five-point rating scale ranging from 1 = *not at all* to 5 = *extremely*. A mean score was computed ranging from 1-5, with higher scores indicating higher depressive symptoms. Prior research has shown good reliability for the 4-item depression scale ($\alpha = .89$), as well as convergent and discriminant validity among college students (Dick et al., 2014).

Anxiety symptoms. A subset of four items from the Symptoms Checklist (SCL-90; Derogatis et al., 1973) was used to assess anxiety symptoms (e.g., “spells of terror or panic”)

within the last 30 days. Previous work has shown support for the validity and reliability of SCL-90 with a diverse college population (Spindle et al., 2017). Participants responded regarding how much each symptom caused them discomfort on a five-point rating scale ranging from 1 = *not at all* to 5 = *extremely*. A mean score was computed ranging from 1-5, with higher scores indicating higher anxiety symptoms. Prior research has shown good reliability for the 4-item anxiety scale ($\alpha = .85$), as well as convergent and discriminant validity among college students (Dick et al., 2014).

PTSD symptoms. Twenty items from the PTSD Checklist-5 (PCL-5; Belvins et al., 2015) was used to screen for the presence of PTSD symptoms, corresponding to the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5) symptom criteria for PTSD. Participants responded regarding the degree to which they were bothered by each symptom within the past 30 days on a four- point rating scale ranging from 0 = *not at all* to 4 = *extremely*. A total symptom severity score (0-80) was obtained by summing the scores for each of the 20 items, which was used to index PTSD symptoms; higher scores indicate greater probable PTSD symptoms. Previous research has shown good reliability ($\alpha = .82$) and good discriminant and convergent validity among trauma-exposed college students (Blevins et al., 2015).

Control variable. Given that prior research has shown gender differences in regards to alcohol use and in the relation between interpersonal trauma and mental health (e.g., Hughes et al., 2016), we considered the possibility that processes may vary by individuals' gender identity. However, given the limited sample size of individuals who identified as cisgender males ($n = 39$), transgender ($n = 2$), genderqueer ($n = 22$), and questioning ($n = 15$), we were unable to test differences in our hypothesized models based on gender identity. Therefore, we controlled for gender identity of participants in all analyses. Given sample size, participants' gender was coded

as 1 = cisgender female ($n = 101$) and 2 = cisgender male, transgender, genderqueer, or questioning.

Results

Power analysis. A post-hoc power analysis was conducted using G*Power software (Faul, Erdfelder, Buchner, & Lang, 2009) to determine the necessary sample size for the study. In the current study, the maximum number of predictors that were tested in any model will be 4 predictors (i.e., two independent variables and two mediators), so the power analysis was conducted with 4 predictors. Thus, with 4 predictors, and a medium effect size (0.15; Cohen, 1988), the total sample size should be 129 in order to detect an effect with a power of 0.95 and an alpha of 0.05. Since this current study is part of a larger study in which data has already been collected, the actual number of participants ($n = 179$) exceeded the minimum necessary sample. Therefore, there was sufficient power to detect a medium effect size for the associations that would be tested in the present study. In addition, a Cronbach level of 0.05 will be used for all statistical tests due to its conventional use as the maximum acceptable probability for determining statistical significance (Cowles & Davis, 1982).

Preliminary analyses. Prior to running the main analyses, descriptive statistics, including correlations, means, and standard deviations, were calculated for all study variables (see Table 1). Additionally, skewness and kurtosis were examined, which indicated that all measures were normally distributed (i.e., skewness less than two and kurtosis less than seven; Tabachnick & Fidell, 2006).

Analytic approach. We ran all of the subsequent analyses using path analysis in Mplus version 8.0 (Muthén & Muthén, 1998–2017) with full information maximum likelihood to handle missing data. Three primary fit indices were used to examine overall model fit for each

model: the comparative fit index (CFI), the root-mean-square-error of approximation (RMSEA), and the standardized root-mean-square residual (SRMR). Model fit was considered to be good (acceptable) if the CFI was greater than or equal to .95 (.90), the RMSEA was less than or equal to .05 (.08), and the SRMR was less than or equal to .05 (.08; Hu & Bentler, 1999).

In order to test the hypothesized associations, four different models (each with a different predictor) were used that included gender as a control. The four models each tested relations between a childhood and adulthood interpersonal trauma variable predicting anxiety symptoms, depressive symptoms, and PTSD symptoms with both social and coping processes as mediators (i.e., social support and trauma-related drinking). For example, one model consisted of adulthood sexual victimization predicting anxiety symptoms, depressive symptoms, and PTSD symptoms with social support and trauma-related drinking as mediators. Any significant mediation pathways were tested to determine if mediation was significant. To formally test for mediation, the RMediation web application was utilized to compute confidence intervals for any significant mediated effects (Tofighi & MacKinnon, 2011). Using this method, mediation was significant if the confidence interval did not contain zero. Based on these final four models, several findings emerged (see Figures 2-5 for standardized regression coefficients and text below for unstandardized coefficients).

Model 1: Adulthood Sexual Victimization Predicting Mental Health via Social and Coping Processes

The hypothesized model demonstrated good fit: $\chi^2 (df = 2) = 1.44, p = .49$; CFI = 1.00; RMSEA = .00 90% C.I. [.00, .14]; SRMR = .02 (see Figure 2). Results indicated that adulthood sexual victimization experiences were positively associated with trauma-related drinking ($b = 0.20; p = 0.01$), and, in turn, positively associated with anxiety symptoms ($b = 0.08; p < .001$),

depressive symptoms ($b = 0.08$; $p = 0.01$), and PTSD symptoms ($b = 3.03$; $p < 0.001$). However, adulthood sexual victimization experiences were not significantly associated with social support ($b = 0.03$; $p = 0.31$). Social support was negatively associated with anxiety symptoms ($b = -0.23$; $p = 0.02$) and depressive symptoms ($b = -0.38$; $p < 0.001$), but not significantly associated with PTSD symptoms ($b = -3.13$; $p = 0.06$). Additionally, there was a significant direct effect between adulthood sexual victimization experiences predicting anxiety symptoms ($b = 0.06$; $p = 0.04$). However, adulthood sexual victimization experiences did not directly predict depressive symptoms ($b = 0.04$; $p = 0.20$) or PTSD symptoms ($b = 0.22$; $p = 0.60$). Regarding gender identity as a control, gender identity did not predict anxiety symptoms ($b = 0.07$; $p = 0.61$), depressive symptoms ($b = -0.07$; $p = 0.64$), or PTSD symptoms ($b = 1.35$; $p = 0.56$).

Regarding mediation, three mediation paths were significant. Specifically, findings indicated that the association between adulthood sexual victimization experiences and anxiety symptoms was significantly mediated by trauma-related drinking (unstandardized 95% confidence interval for the mediated effect = .003, .034). Additionally, trauma-related drinking significantly mediated the relations between adulthood sexual victimization experiences and depressive symptoms (unstandardized 95% confidence interval for the mediated effect = .002, .035). Furthermore, the relations between adulthood sexual victimization experiences and PTSD symptoms were significantly mediated by trauma-related drinking (unstandardized 95% confidence interval for the mediated effect = .138, 1.11).

Model 2: Lifetime Physical Assault Predicting Mental Health via Social and Coping Processes

The hypothesized model demonstrated good fit: $\chi^2 (df = 2) = 0.40$, $p = .82$; CFI = 1.00; RMSEA = .00 90% C.I. [.00, .09]; SRMR = .04 (see Figure 3). Results indicated that lifetime physical assault experiences were negatively associated with social support ($b = -0.22$; $p <$

0.001), and, in turn, positively associated with PTSD symptoms ($b = 7.04; p = 0.03$). However, social support was not significantly associated with anxiety symptoms ($b = 0.12; p = 0.51$) and depressive symptoms ($b = 0.19; p = 0.29$). Further, lifetime physical assault experiences were not significantly associated with trauma-related drinking ($b = -0.26; p = 0.30$). Trauma-related drinking was positively associated with anxiety symptoms ($b = 0.13; p < 0.001$), depressive symptoms ($b = 0.15; p = 0.001$), and PTSD symptoms ($b = 4.20; p < 0.001$). Additionally, there were significant direct effects between lifetime physical assault experiences predicting depressive symptoms ($b = 0.48; p < 0.001$) and PTSD symptoms ($b = 8.72; p < 0.001$). However, lifetime physical assault experiences did not directly predict anxiety symptoms ($b = 0.28; p = 0.08$). Regarding gender identity as a control, gender identity did not predict anxiety symptoms ($b = 0.14; p = 0.38$), depressive symptoms ($b = 0.07; p = 0.76$), or PTSD symptoms ($b = 4.02; p = 0.26$).

Regarding mediation, one mediation path was significant. Specifically, findings indicated that the association between lifetime physical assault experiences and PTSD symptoms was significantly mediated by social support (unstandardized 95% confidence interval for the mediated effect = -3.39, -.142).

Model 3: Childhood and Adolescence Sexual Abuse Predicting Mental Health via Social and Coping Processes

The hypothesized model demonstrated good fit: $\chi^2 (df = 2) = 1.14, p = .56$; CFI = 1.00; RMSEA = .00 90% C.I. [.00, .13]; SRMR = .02 (see Figure 4). Results indicated that childhood sexual abuse experiences were not significantly associated with trauma-related drinking ($b = 0.01; p = 0.85$). Trauma-related drinking was positively associated with anxiety symptoms ($b = 0.10; p < 0.001$), depressive symptoms ($b = 0.10; p = 0.001$), and PTSD symptoms ($b = 3.11; p <$

0.001). Additionally, childhood sexual abuse experiences were not significantly associated with social support ($b = -0.03$; $p = 0.23$). Social support was negative associated with depressive symptoms ($b = -0.31$; $p = 0.006$), but not significantly associated with anxiety symptoms ($b = -0.17$; $p = 0.11$) and PTSD symptoms ($b = -2.05$; $p = 0.25$). Furthermore, there were significant direct effects between childhood sexual abuse experiences predicting depressive symptoms ($b = 0.06$; $p = 0.03$) and PTSD symptoms ($b = 0.88$; $p = 0.04$). However, childhood sexual abuse experiences did not directly predict anxiety symptoms ($b = 0.03$; $p = 0.27$). Regarding gender identity as a control, gender identity did not predict anxiety symptoms ($b = 0.04$; $p = 0.79$), depressive symptoms ($b = -0.12$; $p = 0.47$), or PTSD symptoms ($b = 0.83$; $p = 0.73$). In regards to mediation, none of mediation paths were significant.

Model 4: Lifetime Intimate Partner Violence Predicting Mental Health via Social and Coping Processes

The hypothesized model demonstrated good fit: $\chi^2 (df = 2) = 0.54$, $p = .76$; CFI = 1.00; RMSEA = .00 90% C.I. [.00, .10]; SRMR = .01 (see Figure 5). Results indicated that lifetime domestic violence experiences were not significantly associated with trauma-related drinking ($b = -0.31$; $p = 0.09$). Trauma-related drinking was positively associated with anxiety symptoms ($b = 0.12$; $p < 0.001$), depressive symptoms ($b = 0.10$; $p = 0.003$), and PTSD symptoms ($b = 3.35$; $p < 0.001$). Additionally, lifetime domestic violence experiences were not significantly associated with social support ($b = 0.02$; $p = 0.79$). Social support was negative associated with depressive symptoms ($b = -0.31$; $p = 0.001$), but not significantly associated with anxiety symptoms ($b = -0.21$; $p = 0.08$) and PTSD symptoms ($b = -3.00$; $p = 0.09$). Furthermore, there were no significant direct effects between domestic violence experiences predicting anxiety symptoms ($b = 0.16$; $p = 0.06$), depressive symptoms ($b = 0.03$; $p = 0.78$), and PTSD symptoms ($b = 1.47$; $p = 0.26$).

Regarding gender identity as a control, gender identity did not predict anxiety symptoms ($b = 0.14$; $p = 0.46$), depressive symptoms ($b = -0.07$; $p = 0.67$), or PTSD symptoms ($b = 2.06$; $p = 0.43$). In regards to mediation, none of mediation paths were significant.

Discussion

LGBQ+ individuals are more likely to experience childhood sexual abuse, IPV, sexual victimization, and physical assault compared to their straight-identified counterparts, and these types of interpersonal trauma are expected to be associated with worse mental health outcomes (e.g., Hedit et al., 2005). However, previous research that has examined these associations has primarily focused on LGBQ+ adolescents and samples of LGBQ+ community-based adults, and less on LGBQ+ emerging adults in college. Additionally, limited work has focused on identifying mediators that might influence the relations between distal stressors (e.g., IPV) and mental health outcomes (e.g., anxiety) among LGBQ+ individuals. Thus, the current study addressed these gaps.

First, based on theoretical notions posited by the minority stress model (Meyer, 2003), we hypothesized that that higher levels of childhood sexual abuse, adulthood sexual victimization, and lifetime IPV and physical assault would be positively associated with higher levels of anxiety symptoms, depressive symptoms, and PTSD symptoms. Second, guided by the psychological mediation framework (Hatzenbuehler, 2009), we hypothesized that social support and trauma-related drinking would mediate these relations. Overall, some of our expectations were supported, and others were not. Below we discuss (a) results for the relations between the forms of interpersonal trauma and mental health outcomes, (b) results for mediation findings, (c) implications, (d) limitations and future directions, and (e) conclusion.

Forms of Interpersonal Trauma Directly Predicting Mental Health Outcomes

Childhood Sexual Abuse Predicting Anxiety, Depressive, and PTSD Symptoms

Based on the minority stress model (Meyer, 2003), childhood sexual abuse was hypothesized to be associated with poorer mental health outcomes. Findings were partially supported. Specifically, childhood sexual abuse was positively associated with depressive symptoms and PTSD symptoms. This finding is consistent with previous work among LGBQ+ community samples (e.g., Boroughs et al., 2010). Additionally, consistent with scholars' notions about the importance of emerging adulthood, and especially the college context, for increased risk of psychological distress (Arnett, 2000; Oswalt & Wyatt, 2011), the current study builds on the knowledge in this area by demonstrating the long-term detrimental effects of childhood sexual abuse experiences on PTSD symptoms and depressive symptoms among LGBQ+ emerging adults in college. These associations, combined with higher reports of childhood sexual abuse compared to their straight-identified peers (e.g., Rothman et al., 2011), suggests the importance of considering the potential connections between childhood sexual abuse and mental health outcomes among LGBQ+ individuals in college. Emerging adulthood is a critical developmental period for identity formation, including coming into terms with one's own sexual orientation and the stigma associated with it. Thus, interventions that explore the stigma and oppression related to sexual orientation and the impact on mental health outcomes among this population is warranted. More specifically, clinicians and practitioners in university counseling centers could benefit from exploring the potential mental health impact of two stigmatized identities, such as those experienced by LGBQ+ survivors of childhood sexual abuse, and provide culturally-sensitive care that addresses the needs of these survivors.

Although childhood sexual abuse was associated with greater depressive symptoms and PTSD symptoms, it did not predict anxiety symptoms. Findings from prior work that has

examined the effects of childhood sexual abuse on anxiety are mixed among LGBQ+ adults (Balsam et al., 2010; Hughes et al., 2007). For example, Balsam and colleagues (2010) found that childhood sexual abuse was positively associated with anxiety among LGB adults, including college students, while Hughes et al. (2007) demonstrated that childhood sexual abuse was not associated with long-term psychological distress (e.g., anxiety) among adult lesbians, including college-aged women. Although previous have included college students, no studies to my knowledge have addressed these associations among exclusively LGBQ+ emerging adults attending college, making it possible that there are important sample differences to consider in future research. It is possible that LGBQ+ emerging adults in college may experience different types of acute mental health outcomes when reporting sexual retrospective events during childhood (e.g., childhood sexual abuse) than LGBQ+ adults broadly in the community. These mixed findings also show that the relation between childhood sexual abuse and mental health outcomes are complex and nuanced among LGBQ+ adults in the community and limited among LGBQ+ emerging adults in college. Thus, it is important for additional work to examine these relations among LGBQ+ college students.

Furthermore, our study only focused on one type of childhood interpersonal trauma (i.e., sexual abuse). However, prior work has suggested that childhood emotional abuse is the strongest predictor of current mental health (i.e., depression, PTSD, perceived stress, and anxiety) among LGB adults when compared to childhood physical and sexual abuse (Balsam et al., 2010). Given that studies on the associations between childhood emotional abuse and mental health outcomes is limited among LGBQ+ college students, future research is needed to continue to test these relations in nuanced ways by including multiple indicators of childhood

interpersonal trauma (e.g., childhood emotional, physical, and sexual abuse), and tests these relations over time.

Adulthood and Lifetime Interpersonal Trauma Predicting Anxiety, Depressive, and PTSD symptoms

Based on the minority stress model (Meyer, 2003), adulthood and lifetime interpersonal trauma were expected to influence poorer mental health outcomes. Specifically, higher levels of adulthood sexual victimization and lifetime physical assault and IPV were hypothesized to be associated with higher levels of anxiety symptoms, depressive symptoms, and PTSD symptoms; however, findings were partially supported. Consistent with expectations, adulthood sexual victimization was positively associated with anxiety symptoms but not depressive symptoms or PTSD symptoms. This finding was consistent with prior work among LGBTQ+ adults, including college students (Hedit et al., 2005; Kammer-Kerwick et al., 2019). For example, Hedit and colleagues (2005) found that sexual victimization was related to greater psychological distress (e.g., anxiety). Thus, the current finding adds to the growing body of literature by documenting the harmful effects of sexual victimization during adulthood on acute anxiety symptoms. This association, combined with higher reports of heterosexism and discrimination, as well as institutional betrayal on college campuses (Smith & Freyd, 2013) suggests the importance of intersectionality. Specifically, interventions on college campuses may need to consider how the intersection of sexual victimization experiences, institutional and structural oppression, and sexual identities influence anxiety symptoms among this population. Given that sexual victimization negatively affected anxiety symptoms among a population that is already at risk for sexual victimization, more attention to risk and protective factors is needed with sexual assault preventive and intervention on college campuses. Additionally, interventions may want to

identify mechanisms that may reduce anxiety symptoms among LGBTQ+ survivors of sexual victimization.

However, contrary to expectations, adulthood sexual victimization did not predict depressive symptoms or PTSD symptoms. Prior studies have suggested that a person who has one form of psychological distress tends to have another, although not necessarily at the same time (Hughes et al., 2007). Additionally, previous research has indicated that the onset of mental health disorders often differs from one another among LGBT youth (Russell et al., 2016) and college students (Kessler et al., 2005). Thus, it is possible that when LGBTQ+ college students experience sexual victimization, the onset of their anxiety symptoms may occur before the onset of their depressive symptoms or PTSD symptoms. Indeed, prior studies have shown that sexual victimization experiences influence depressive symptoms and PTSD symptoms over a period of time among sexual assault survivors (e.g., Dworkin et al., 2017; Krahe & Berger, 2017), which was not assessed in the current study. Therefore, additional longitudinal research is needed to examine the longitudinal effects of sexual victimization on mental health outcomes among LGBTQ+ college students. For example, researchers can examine the influence of sexual victimization that occurred within a three-month period on mental health outcomes over four time points (e.g., 30 days, 3 months, 6 months, and 12 months).

Turning to results for the other form of interpersonal trauma tested in the current study, lifetime physical assault was positively associated with depressive symptoms and PTSD symptoms, which is consistent with prior work among LGB individuals (Herek et al., 1997). For example, Hershberger and D'Augelli (1995) found that victimization, including physical assault, was related to poorer mental health symptoms (e.g., depression) among lesbian, gay, and bisexual youth 15-21 years old. Consistent with scholars' notions about the importance of

emerging adulthood, and especially the college context, for increased risk of victimization and psychological distress among LGBQ+ college students (McCauley et al., 2018; Oswalt & Wyatt, 2011), the current study builds on our knowledge in this area by indicating that lifetime physical assault is a critical mechanism for higher levels of depressive symptoms and PTSD symptoms in emerging adulthood for LGBQ+ individuals. Given the limited research that exclusively examines the effects of physical assault on mental health outcomes among LGBQ+ college students, additional work that continues to examine these relations, as well as identify resilience and risk factors that influence these relations, is needed.

Although lifetime physical assault was associated with higher levels of depressive symptoms and PTSD symptoms, it was not related to anxiety symptoms, which is inconsistent with expectations based on the minority stress model (Meyer, 2003) and prior work (e.g., Hershberger & D'Augelli, 1995). Prior research has suggested that anxiety and PTSD frequently co-occur, which often results in the comorbidity of PTSD and anxiety among straight-identified emerging adults, including college students (Cusack et al., 2019; Spinhoven et al., 2014). Furthermore, prior work indicates that interpersonal trauma broadly is a risk factor predicting comorbidity of anxiety with PTSD (Spinhoven et al., 2014). Therefore, this null finding could be attributed to the simultaneous presence of anxiety symptoms and PTSD symptoms that may be manifesting only as PTSD symptoms among LGBQ+ college students who have experienced physical assault. It will be important for additional research to examine how physical assault affects mental health outcomes differently vs. similarly among LGBQ+ college students who struggle with both anxiety and PTSD vs. those who only experience symptoms of PTSD or anxiety.

Furthermore, it was hypothesized that higher levels of IPV would be associated with higher levels of anxiety symptoms, depressive symptoms, and PTSD symptoms; however, findings were not supported. Specifically, IPV did not predict anxiety symptoms, depressive symptoms, or PTSD symptoms, which is inconsistent with tenets from the minority stress model (Meyer, 2003) and prior studies with LGBQ+ young adults (e.g., Reuter et al., 2017). Prior research has suggested that survivors of domestic violence in the LGB community sometimes deny the violence (Duke & Davidson, 2009) as a way to protect their relationship and maintain a positive image of same-sex relationships for the prospect of future acceptance into society (West, 2002). Further, being in an intimate relationship is a secure way of connecting to the LGBTQ+ community for same-sex partners and same-sex couples tend to share the same friends (Girshick, 2002). Additionally, individuals engage in several emotional and behavioral responses to domestic violence as coping mechanisms, such as neglect or minimalism of abuse, impulsiveness, helplessness, emotional avoidance (Avdibegovic et al., 2017). Thus, it is possible that LGBQ+ college students who experience IPV may be predominately focusing on upholding a positive image of same-sex relationships to dispel stereotypes and myths regarding the LGBQ+ community and maintaining their friendships and connection to the LGBQ+ community that they engage in emotional avoidance or desensitization as ways to cope with their abuse. An important future research direction will be to conduct mixed-methods research studies that interview LGBQ+ survivors of domestic violence who are attending college to better understand the nuances of what they are processing and feeling as it pertains to their experiences of domestic violence. Further, it will be important to examine how the messages related to sexual orientation and being in a same-sex relationship, as well as coping mechanisms may be influencing mental health symptoms among LGBQ+ survivors of IPV who are attending college.

Coping and Social Processes as Mediators

Childhood Sexual Abuse and Outcomes Mediated by Social Support and Trauma-related

Drinking

Based on the psychological mediation framework (Hatzenbuehler, 2009), it was hypothesized that greater childhood sexual abuse would be associated with lower levels of social support and higher levels of trauma-related drinking, which would, in turn increase anxiety symptoms, depressive symptoms, and PTSD symptoms. However, hypotheses were not supported because neither social support nor trauma-related drinking were mediators of these relations. It may be that other factors play a role. A research review indicated that childhood sexual abuse is associated with adult emotional distress via shame or self-blame, interpersonal difficulties, and avoidant coping strategies among survivors (Whiffen & MacIntosh, 2005). Therefore, additional research is needed that tests whether other indicators of coping and social processes (e.g., avoidant coping strategies) instead mediate these associations.

Although mediation was not significant, our findings did indicate that greater social support was associated with lower depressive symptoms and PTSD symptoms. These findings add to growing literature findings that social support is important for better mental health among LGBQ+ college students (e.g., Al-khouja et al., 2019; McDonald, 2018; Sheets et al., 2009). Given that the majority of research that has examined the effects of social support on mental health outcomes among LGBQ+ college students tends to focus on either general mental health or depression, additional work with larger samples that examines these relations are needed. Existing work, along with continued empirical support, suggest that interventions may benefit from identifying the types of social support that LGBQ+ survivors of childhood sexual abuse use in order to improve their mental health outcomes.

Furthermore, results demonstrated that trauma-related drinking were associated with greater anxiety symptoms, depressive symptoms, and PTSD symptoms among LGBTQ+ college students who experienced childhood sexual abuse, which is consistent with previous work among straight-identified individuals (Back et al., 2006). Jacobsen and colleagues (2001) suggest that substance use, including alcohol, may result in a higher level of vulnerability to the development of PTSD after exposure to trauma. This finding adds to the literature by indicating that alcohol use related to trauma continues to be a critical mechanism that leads to worse mental health outcomes among a population that is already at risk for alcohol misuse and psychological distress (McDonald, 2018). Thus, more attention to the reduction of alcohol use and promotion of protective/resilience factors among LGBTQ+ college students who experience childhood sexual abuse are warranted. For example, clinicians may want to explore the potential connection between the intersection of stigmatized identities and alcohol use as a coping strategy among LGBTQ+ survivors of sexual childhood abuse, as well as identify protective factors that may mitigate their mental health symptoms.

Adulthood Sexual Victimization and Outcomes Mediated by Social Support and Trauma-related Drinking

Consistent with the notions posed by the psychological mediation framework (Hatzenbuehler, 2009), it was hypothesized that greater adulthood sexual victimization would be associated with higher levels of trauma-related drinking, which would, in turn increase anxiety symptoms, depressive symptoms, and PTSD symptoms. Results indicated that trauma-related drinking fully mediated the associations between adulthood sexual victimization and depressive symptoms, as well as the relation between adulthood sexual victimization and PTSD symptoms. In other words, as aforementioned, the relation between adulthood sexual victimization and

depressive symptoms, as well the relation between adulthood sexual victimization and PTSD symptoms were not significant, therefore, these findings indicate full mediations. Furthermore, given that adulthood sexual victimization significantly predicted anxiety symptoms, trauma-related drinking partially mediated the relation between adulthood sexual victimization and anxiety symptoms, which indicates that trauma-related drinking accounts for some, but not all, of this association. Research has suggested that stressful life events, such as victimization, can challenge LGBTQ+ individuals' coping resources leading to the use of alcohol in an effort to cope with those stressful life events (Rhew et al., 2017). Further, prior work has indicated that college life may be associated with greater substance use, including drinking, because of greater availability of sources, as well as alcohol expectancies and social norms among lesbian, gay, and bisexual college students (Eliason et al., 2011; Hatzenbuehler et al., 2008; Rosario et al., 2004). Therefore, LGBTQ+ college students who experience sexual victimization may use alcohol as a coping motive due to the availability of alcohol and the normative social aspects of drinking alcohol, which leads to poorer mental health outcomes.

These findings highlight the importance of research and interventions that dually target improving mental health outcomes while promoting healthy coping strategies and coping motives among LGBTQ+ college students who experience adulthood sexual victimization. Given that previous work has not tested trauma-related drinking as a mediator of the relations between adulthood sexual victimization and mental health outcomes, more research is needed that focuses on understanding how the role of developing identities (e.g., sexual orientation) and navigating role transitions and normative social-cognitive processes within a college context (i.e., social norms related to drinking) influence alcohol use and mental health outcomes among LGBTQ+ college students who are survivors of adulthood sexual victimization and examine how these

processes may vary based on alcohol use among this population. Furthermore, it is essential that future research and interventions focus on exploring and implementing positive coping/ emotion regulation strategies (e.g., seeking affirmative therapy), as well as improving mental health outcomes among LGBQ+ survivors of adulthood sexual victimization attending college.

Additionally, it was hypothesized that greater adulthood sexual victimization would be associated with lower levels of social support, which would, in turn, increase anxiety symptoms, depressive symptoms, and PTSD symptoms. However, results indicated that social support was not a significant mediator of these relations. Previous work has indicated that social support acts as a moderator between sexual victimization and mental health outcomes among LGBQA college students (DeLaney et al., 2020). Thus, it appears that experiencing sexual victimization may not impact subsequent perceptions of social support, but instead affect the way in which sexual victimization impacts mental health. However, given the limited work in this area, it is important to continue testing the different ways in which social support may play a role. Additionally, it will be important for future studies to examine different social/interpersonal factors, such as social norms or LGBQ+ organizations, that might mediate the relation between adulthood sexual victimization and mental health outcomes in order to better understand LGBQ+ survivors' mental health and social development during college.

Although social support did not mediate the association between adulthood sexual victimization and mental health outcomes, it was associated with lower anxiety symptoms and depressive symptoms. Thus, social support appears to have a more direct influence on mental health outcomes, instead of an indirect effect, among LGBQ+ survivors of adulthood sexual victimization. This result is consistent with prior work among LGBQ+ individuals (Pflum et al., 2015), which suggests that social support continues to be a protective factor against adverse

mental health outcomes among LGBTQ+ college students who experienced adulthood sexual victimization. Interestingly, social support was not significantly associated with PTSD symptoms. Previous research has demonstrated that social support from family specifically is associated with less PTSD among LGB college students and sexual assault survivors (Guay et al., 2006; Travers et al., 2020). Therefore, it is possible that family support, instead of general support, might be related to lower levels of PTSD symptoms. Given that the current study used a general social support measure, future studies should examine these relations by including separate, specific types of social support (e.g., support from family, peers, partner,) to determine which forms of social support may play a bigger role.

Lifetime Physical Assault and Outcomes Mediated by Social Support and Trauma-related Drinking

Consistent with the notions posed by the psychological mediation framework (Hatzenbuehler, 2009), it was hypothesized that greater lifetime physical assault would be associated with lower levels of social support, which would, in turn increase anxiety symptoms, depressive symptoms, and PTSD symptoms. However, findings were partially supported. Specifically, given that the relation between lifetime physical assault and PTSD symptoms was significant, social support partially mediated this association. This finding extends prior work by showing that social support has a mediating effect in the relation between lifetime physical assault and PTSD symptoms among LGBTQ+ college students who experience lifetime physical assault. However, social support did not fully mediate this relation, suggesting that there may be other processes playing a role in this association. Further, the relation between lifetime physical assault and anxiety symptoms and the relation between lifetime physical assault and depressive symptoms were not significantly mediated by social support. These findings may have emerged

because LGBTQ+ college students who experience a physical assault in their lifetime may be more likely to use other forms of social and coping processes, that would, in turn, reduce their mental health outcomes. Examining multiple types of social and coping processes (e.g., social norms and rumination) as mediators in these relations is an important area of future research.

Furthermore, there were no significant associations between social support and anxiety symptoms, as well as between social support and depressive symptoms among LGBTQ+ college students who experienced a physical assault in their lifetime. To our knowledge, the current study is the first to test the direct effects of social support on these mental health outcomes among LGBTQ+ survivors of physical assault who are attending college. These null findings may be attributed to how social support was measured (i.e., structural). Prior research has suggested the importance of distinguishing between structural support (i.e., the availability/frequency of one's social network) and functional support (i.e., the quality or provision of support) on psychological adjustment among LGB individuals (Frost et al., 2016). Limited work examining the relation between social support and mental health outcomes among physical assault survivors has found that high levels of functional social support is associated with lower levels of psychological distress (e.g., PTSD symptoms; Johansen et al., 2020). Thus, it is possible that the quality of support, instead of the availability of support (i.e., structural), acts as a protective factor against adverse mental health outcomes among LGBTQ+ survivors of physical assault attending college. Therefore, future work should examine the relations between functional support and mental health among LGBTQ+ physical assault survivors attending college.

Additionally, it was hypothesized that greater lifetime physical assault would be associated with higher levels of trauma-related drinking, which would, in turn increase anxiety symptoms, depressive symptoms, and PTSD symptoms. Findings were not supported. Trauma-

related drinking was not a significant mediator of these relations. However, work in this area is limited. An important future research direction will be to conduct mixed-methods research that interviews LGBQ+ survivors of physical assault who are attending college to better understand the common reactions and coping strategies as it relates to their physical assault experiences and mental health outcomes. Further, it will be important to examine the effect of these coping mechanisms on the relations between physical assault and mental health outcomes.

Even though trauma-related drinking did not significantly mediate the relations between lifetime physical assault and mental health outcomes, it was directly associated with higher levels of anxiety symptoms, depressive symptoms, and PTSD symptoms. Study findings extend prior work among straight-identified individuals (Back et al., 2006) by indicating that trauma-related drinking (i.e., a coping motive) informs poorer mental health outcomes among LGBQ+ college students with physical assault experiences, which is an understudied at-risk population. In line with previous work (Jacobsen et al., 2001) and study hypotheses, LGBQ+ college students' mental health may be influenced by alcohol use after a physical assault experience. It is possible that LGBQ+ college students are more likely to use alcohol as a coping motive after a physical assault experience, which results in poorer mental health outcomes. Given the increased availability of alcohol, as well as alcohol expectancies and social norms among lesbian, gay, and bisexual college students (e.g., Eliason et al., 2011), interventions that focus on identifying positive social/ coping processes that are available on college campuses, while understanding the motive of alcohol use is warranted. For example, clinicians may consider exploring the potential connections between alcohol use and mental health among LGBQ+ survivors of physical assault. Additionally, future research with LGBQ+ college students should examine the prevalence of

alcohol use after a physical assault experience, as well as how drinking may manifest differently between sexual assault exposure and physical assault exposure.

Lifetime Intimate Partner Violence and Outcomes Mediated by Social Support and Trauma-related Drinking

In accordance with the psychological mediation framework (Hatzenbuehler, 2009), it was hypothesized that greater lifetime IPV would be associated with lower levels of social support and higher levels of trauma-related drinking, which would, in turn increase anxiety symptoms, depressive symptoms, and PTSD symptoms. However, findings did not support the hypothesis based on theory. Social support and trauma-related drinking did not significantly mediate the associations between lifetime IPV and mental health outcomes. Prior work has demonstrated that hope agency (i.e., a cognitive process that involves the belief that one can reach his or her goals) is a significant mediator in the relation between IPV and suicidal risk (i.e., depression and suicide ideation) among minority women (Muyan & Chang, 2019). Therefore, future studies may want to examine how cognitive processes (e.g., hope agency) alongside social and coping processes may mediate the relations between IPV and mental health outcomes among LGBQ+ college students. Additionally, previous research has shown that low levels of social support mediated the association between partner violence and distress among minority women (Thompson et al., 2000). Thus, future work should examine these relations using LGBQ+ college students who indicate low levels of support and test these relations over time.

Furthermore, social support was associated with less depressive symptoms, but not significantly associated with anxiety symptoms and PTSD symptoms, which is inconsistent with prior work (Coker et al., 2003). Individuals who experience depressive symptoms are more likely to be cognitively aware of negativity, more likely to report feeling helplessness, and more likely

to internalize negative evaluations (Eisenberg et al., 2009; Gotlib & Joorman, 2010; Hishinuma et al., 2012). As noted, survivors of domestic violence in the LGB community often strive to maintain a positive image of same-sex relationships in society (Duke & Davidson, 2009; West, 2002). Thus, it is possible that LGBQ+ college students who experience IPV may be more likely to use their social support network to reduce developing negative self-evaluations and a sense of helplessness based on negative stereotypes and messages due to their sexual orientation, in order to maintain a positive image of same-sex relationships in the community. Future work that examines how stigma and stereotypes play a role in the relation between social support and depressive symptoms among LGBQ+ college students who experience IPV is warranted. Furthermore, given that the majority of research that has examined the effects of social support on mental health outcomes among LGBQ+ college students tends to focus on either general mental health or depression, additional work focused on specific forms of mental health beyond depression that includes larger samples is needed.

Additionally, results demonstrated that trauma-related drinking was associated with greater anxiety symptoms, depressive symptoms, and PTSD symptoms. It is possible that LGBQ+ college students who experience IPV are more likely to use alcohol as a coping motive, which results in poorer mental health outcomes. Given the increased availability of alcohol on college campuses (Eliason et al., 2011), as well as the possible expectations to maintain a positive-image of same-sex relationships, paired with the possibility of having a connection to the LGBQ+ community through one's relationship and having shared friendships, interventions that focus on identifying positive social/ coping resources that are available on college campuses, as well as exploring the coping motive of alcohol use is warranted. Further, additional research is

needed to identify what LGBQ+ college students who experience IPV find to be supportive more generally or in the context of disclosure.

Research and Intervention Implications for Higher Education Institutions

Importantly, there a number of study strengths and implications for research and clinical interventions. Specifically, the finding that each form of interpersonal trauma influenced at least one mental health outcome among LGBQ+ college students suggests that research and interventions on interpersonal trauma should continue to focus on the psychological consequences of different forms of interpersonal trauma. In particular, higher education institutions should examine and address how a culture of heterosexism and the perpetuation of heterosexuality as normative and superior is perpetuated on their college campuses. For example, it will be critical to address the specific ways in which they can develop an inclusive environment that contributes to better psychological outcomes of LGBQ+ college students who experience interpersonal trauma.

Additionally, the finding that IPV did not predict any mental health outcomes among LGBQ+ college students suggests a need for further research that consider the multiple intersections between sexual orientation, the societal context, and internalized narratives about relationships for LGBQ+ individuals at higher education institutions. Such a focus would provide insight for clinicians and researchers regarding the circumstances and contexts under which LGBQ+ college students engage in emotional/ psychological work, as well as coping strategies. Future research and interventions on this topic should also further examine the relations between the experiences of LGBQ+ survivors of IPV and their engagement in positive and negative emotion regulation and management.

Finally, the finding that adulthood sexual victimization predicted higher levels of trauma-related drinking and, in turn, increased anxiety, depressive, and PTSD symptoms highlights the importance of research and interventions that focus on negative and positive coping mechanisms. Interventions on college campuses need to focus on identifying and implementing positive coping/ emotion regulation strategies that are available for LGBQ+ college students who experience adulthood sexual victimization.

Broaden Awareness of Trauma-related Drinking. Despite the increased risk of childhood, adulthood, and lifetime interpersonal trauma on mental health outcomes among LGBQ+ individuals (e.g., Balsam et al., 2010; Koeppel & Bouffard, 2014), limited work to date has examined or considered trauma-related drinking with respect to LGBQ+ college students' mental health who experience interpersonal trauma. For educational institutions and clinicians to address drinking as a coping motive in regards to trauma, they must know that it exists and understand its effects on LGBQ+ college students' mental health. Findings from the current study demonstrate that trauma-related drinking is a significant predictor of poorer mental health outcomes among LGBQ+ college students who experience interpersonal trauma. Thus, these findings suggest a need for researchers and clinicians to closely investigate the relations between LGBQ+ college students' experiences, including the drinking culture, and mental health within an intersectionality framework, particularly in the case of multiple marginalized identities such as LGBQ+ college students who are survivors of interpersonal trauma. Prior studies have indicated that increased alcohol use among LGBT individuals may also be way to engage socially within the LGBTQ community (Emslie et al., 2015). Therefore, given the availability of alcohol on college campuses, as well as alcohol expectancies and the drinking culture within the social context among LGBT college students (Ebersole et al., 2012; Eliason et al., 2011; Emslie et al.,

2015), educational institutions and clinicians must consider the contexts in which drinking occurs and the coping motives of drinking among LGBQ+ college students, particularly those who experience interpersonal trauma.

Provide Support and Resources. Based on our results, it appears that social support and trauma-related drinking influences adverse mental health outcomes among LGBQ+ college students who experience interpersonal trauma. This is particularly useful in light of this population's increased risk for substance use (Reed et al., 2010). Perhaps more importantly, it highlights the importance of exploring constructive coping strategies for mental health outcomes, as well as motives of drinking alcohol among LGBQ+ college students who experience interpersonal trauma. Clinicians may want to create an inclusive environment in which clinicians recognize that LGBQ+ college students may not cope with stressors in ways similar to other straight-identified students, especially stressors that may relate to their marginalized statuses. Therefore, clinicians need to consider the potential for students to use alcohol to cope with their traumatic experiences and/or stigma associated with their sexual orientation. Attention to the motivations behind students' alcohol use and the availability of social support may be important when working with LGBQ+ college students who experience interpersonal trauma. Additionally, it might be important for clinicians to consider how the clients' thoughts about their sexual orientations may influence their interpersonal traumatic experiences. Clinicians should assess the extent to which survivors of interpersonal trauma have disclosed their sexual orientation and the extent to which they may demonstrate internalized homonegativity. Thus, when working with LGBQ+ college students who experience interpersonal trauma, clinicians need to consider multiple intersections between the societal context, their clients' sexual orientations, and clients' internalized narratives or scripts. Additionally, clinicians in counseling centers may want to

develop culturally- sensitive recommendations and interventions in order to support this population. Lastly, clinicians can provide psychoeducation to survivors regarding these forms of interpersonal trauma to help them understand how their experiences might relate to their coping strategies and mental health.

Develop Inclusive, Trauma-Focused Interventions. In order to address and prevent the negative psychological consequences of interpersonal traumatic experiences among LGBTQ+ college students, higher education institutions should develop and implement ongoing inclusive trauma-focused interventions. For example, interventions are needed that individualize harm reduction efforts while also addressing the trauma and contextual concerns LGBTQ+ college students encounter related to their drinking. Additionally, evidence-based interventions are warranted that foster effective (and discourage ineffective) coping strategies among LGBTQ+ college students who experience these forms of interpersonal trauma. Furthermore, the provision of safe and anonymous resources for LGBTQ+ students to report traumatizing interpersonal experiences on college campuses, such as sexual victimization, is warranted. Additionally, response teams that seek to move beyond heterosexual normativity is needed in order to enact structural change, which may further institutional efforts to understand interpersonal trauma and its consequences. Finally, student support personnel and university administrators need to make efforts to develop a campus setting that is welcoming and supportive for LGBTQ+ individuals. Unwelcoming campus environments and the associated consequences (e.g., threats) have been linked to heavy alcohol use and negative consequences (Reed et al., 2010). Therefore, social justice advocacy efforts must be implemented on campuses to create a better environment for LGBTQ+ college students. Taken together, these measures may go a long way in helping researchers, clinicians, and academic institutions understand and mitigate LGBTQ+ college

students' experiences of interpersonal trauma and the negative mental health outcomes with which it is associated.

Limitations and Future Directions

While the current study contributes to our understanding of nuanced ways in which different forms of interpersonal trauma, social support, and trauma-related drinking inform mental health outcomes among LGBTQ+ college students, there are various limitations to acknowledge. First, it is important to consider limitations in the measures used to assess social support, mental health, and the forms of interpersonal trauma. For example, general social support based on availability was measured, which limits the ability to capture specific forms of social support and the quality or provision of support within a social support network. Thus, future research should use specific forms of social support when examining how interpersonal trauma and social/coping processes inform mental health outcomes. Further, to reduce participant burden, many of the measures in the current study were shortened. For example, anxiety and depression were each assessed with four items from the original measure, which bounds the capacity to assess the clinical diagnoses of anxiety and depression. Therefore, future studies should use the full measure of anxiety and depression to understand the role of clinical diagnostic anxiety and depression in interpersonal trauma and social/coping processes. Additionally, the measures used for the different types of interpersonal trauma do not assess the stress appraisal of each. A future direction would be to test the stress appraisal of each of the different types of interpersonal trauma and examine how stressful those experiences inform mental health outcomes and whether social/ coping processes mediate those relations.

Furthermore, given that the current study was part of a larger study, we were limited to an assessment of childhood sexual abuse, however, there are other forms of childhood interpersonal

trauma that also need to be included. Prior studies have demonstrated that childhood emotional/psychological abuse influences mental health outcomes among LGB adults (Balsam et al., 2010). Thus, future studies should consider childhood emotional/ psychological abuse when studying factors related to mental health outcomes among LGBQ+ college students.

Furthermore, the different forms of interpersonal trauma cannot be specifically related to sexual orientation or heterosexism, which limits the ability to capture minority stress constructs. Prior work has demonstrated that minority stress processes (e.g., internalized stigma) are related to poorer mental health among LGB youth, including college students (Dürbaum & Sattler, 2020). Therefore, future work should examine these associations using minority stress factors, such as internalized homophobia or expectations of rejection.

Additionally, given limited sample sizes, we were unable to test differences in our models based on sexual orientation and gender. Specifically, reported identifying as lesbian or gay ($n = 29$), bisexual ($n = 71$), queer ($n = 33$), asexual ($n = 7$), and questioning ($n = 39$), and each group was too small to analytically test differences. Further, in terms of gender identity, there was an overrepresentation of cisgender females ($n = 101$), and limited individuals who identified as cisgender males ($n = 39$), transgender ($n = 2$), genderqueer ($n = 22$), and questioning ($n = 15$). Prior work has demonstrated that bisexual individuals often report greater sexual victimization, depressive symptoms, alcohol use, and PTSD symptoms when compared to lesbian, gay, and heterosexual individuals (Sigurvinsdottir & Ullman, 2015). Further, the majority of studies have shown gender differences in the relations between interpersonal trauma and mental health among straight-identified individuals (Choudhary et al., 2008) and in regards to alcohol use among LGBQ+ individuals (Hughes et al., 2016). Thus, future research with

larger, more diverse samples should assess variability in these relations based on sexual orientation and gender.

Finally, given the cross-sectional design of the current study, the longitudinal effects of adulthood sexual victimization, lifetime physical assault, and IPV on mental health outcomes could not be explored. Sexual victimization has been shown to continue to influence health outcomes over time as survivors recover (Sigurvinsdottir & Ullman, 2015). Therefore, future work should examine how these different types of interpersonal trauma may prospectively influence mental health outcomes over time, and how social support and trauma-related drinking may mediate these relations.

Conclusion

Despite limitations, the current study attempts to bridge an important gap between interpersonal trauma, social/coping processes, and mental health outcomes among LGBQ+ college students. In doing so, the present study highlights the varied effects of different forms of interpersonal trauma on adverse mental health outcomes. Understanding the detrimental effects that interpersonal trauma has on mental health outcomes during emerging adulthood is important for informing intervention and prevention development that may affect LGBQ+ college students' mental health. Furthermore, this study provides evidence that LGBQ+ college students who experience more adulthood sexual victimization are likely to increase their drinking of alcohol, which results in poorer mental health outcomes. This pattern suggests that adulthood sexual victimization informs adverse mental health outcomes via trauma-related drinking. Future research should build upon this work by examining gender differences, and developing intervention efforts to improve LGBQ+ college students' mental health outcomes. Moreover, the present study highlights social/ coping processes that influence mental health outcomes among

LGBQ+ college students who experience interpersonal trauma. Therefore, it is important to consider social support and trauma-related drinking in intervention efforts and mental health services. In conclusion, the current study provides insights into the ways in which interpersonal traumatic experiences inform mental health outcomes among LGBQ+ college students via social support and trauma-related drinking, and highlight the importance of continued research in this area.

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Table 1

Bivariate Correlations, Means, and Standard Deviations among Study Variables and Control (N= 179)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---------------------------------------|-----------|--------|--------|-------|--------|---------|--------|--------|------|-------|------|
| 1. Adulthood Sexual Victimization | -- | | | | | | | | | | |
| 2. Lifetime Physical Assault | .01 | -- | | | | | | | | | |
| 3. Childhood Sexual Abuse | .18* | .03 | -- | | | | | | | | |
| 4. Lifetime Intimate Partner Violence | .13 | .26*** | .30*** | -- | | | | | | | |
| 5. Trauma-related Drinking | .22** | .05 | .17* | .10 | -- | | | | | | |
| 6. Social Support | -.09 | -.08 | -.19* | .07 | -.11 | -- | | | | | |
| 7. Anxiety Symptoms | .22** | .16* | .22** | .12 | .29*** | -.19* | -- | | | | |
| 8. Depressive Symptoms | .26*** | .01 | .25*** | .11 | .27*** | -.28*** | .61*** | -- | | | |
| 9. PTSD symptoms | .28*** | .14 | .34*** | .21** | .55*** | -.19* | .41*** | .41*** | -- | | |
| 10. Gender | .10 | .13 | -.05 | -.02 | .07 | .02 | .05 | -.03 | .06 | -- | |
| | <i>M</i> | 3.21 | .08 | 1.61 | .38 | 5.79 | 2.90 | 2.08 | 2.86 | 18.83 | 1.31 |
| | <i>SD</i> | 2.95 | .53 | 2.95 | 1.24 | 2.60 | .70 | .92 | .99 | 16.32 | .46 |

Note. Gender was coded as 1 = Cisgender Female, 2 = Cisgender Male, Transgender, Genderqueer, or Questioning.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

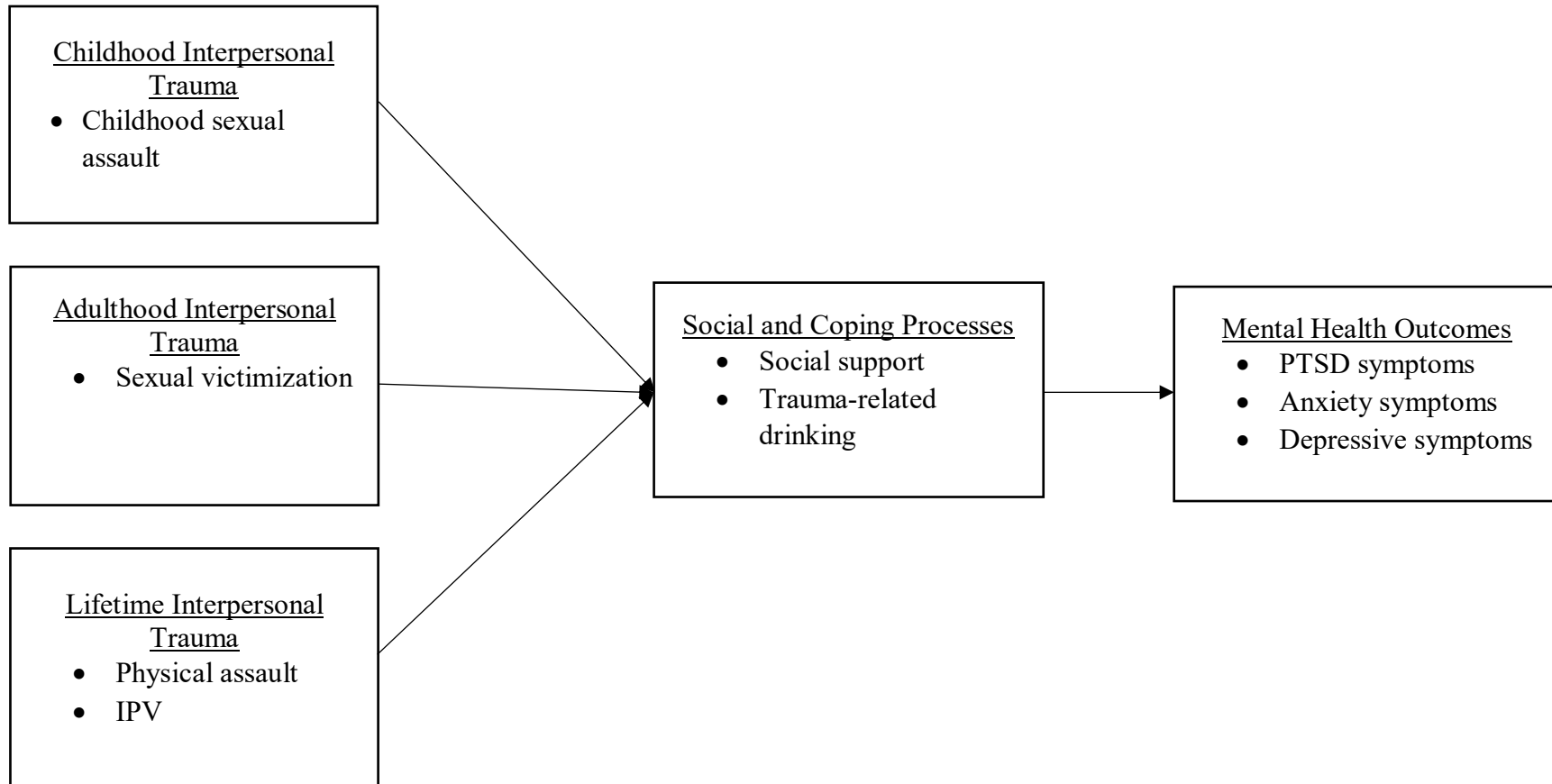


Figure 1. Conceptual model examining the mediating roles of social and coping processes in the relations between forms of interpersonal trauma and mental health outcomes among LGBTQ+ college students.

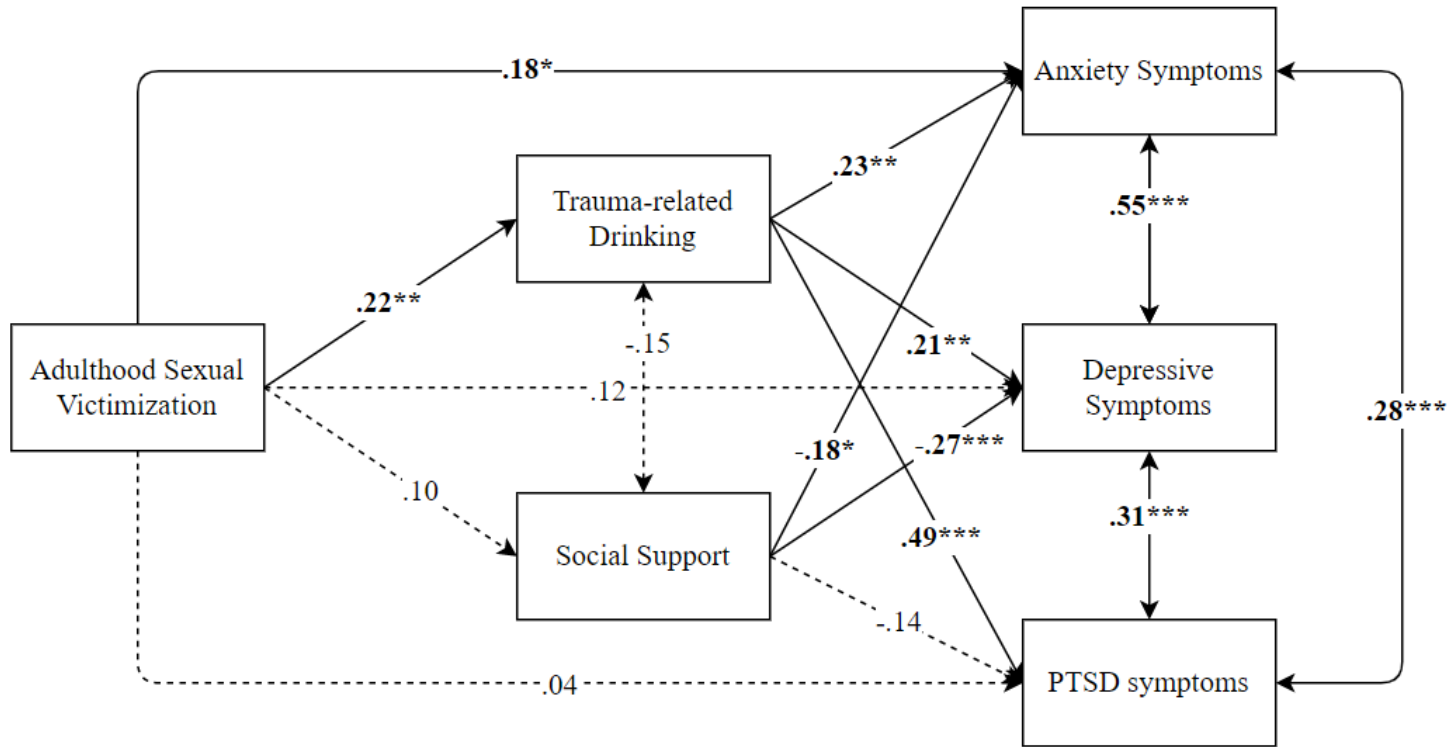


Figure 2. Mediation model of associations between adulthood sexual victimization and mental health symptoms via trauma-related drinking and social support.

Note. Standardized coefficients are displayed. Solid lines indicate significant paths. Dashed lines indicate non-significant paths. Gender as a control was included predicting mental health symptoms, but is not shown here for ease of illustration. $*p \leq .05$. $** p \leq .01$. $*** p \leq .001$.

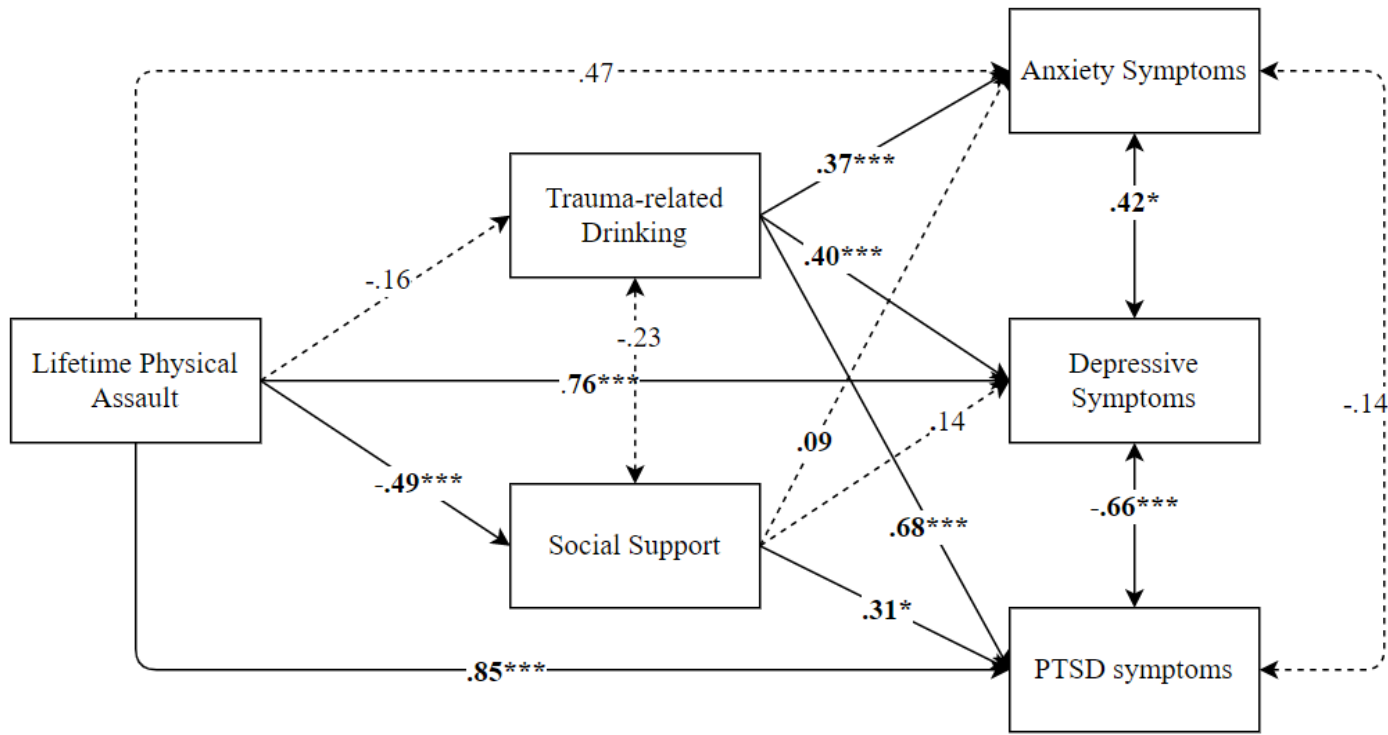


Figure 3. Mediation model of associations between lifetime physical assault and mental health symptoms via trauma-related drinking and social support.

Note. Solid lines indicate significant paths. Dashed lines indicate non-significant paths. Gender as a control was included predicting mental health symptoms, but is not shown here for ease of illustration.

* $p \leq .05$. *** $p \leq .001$.

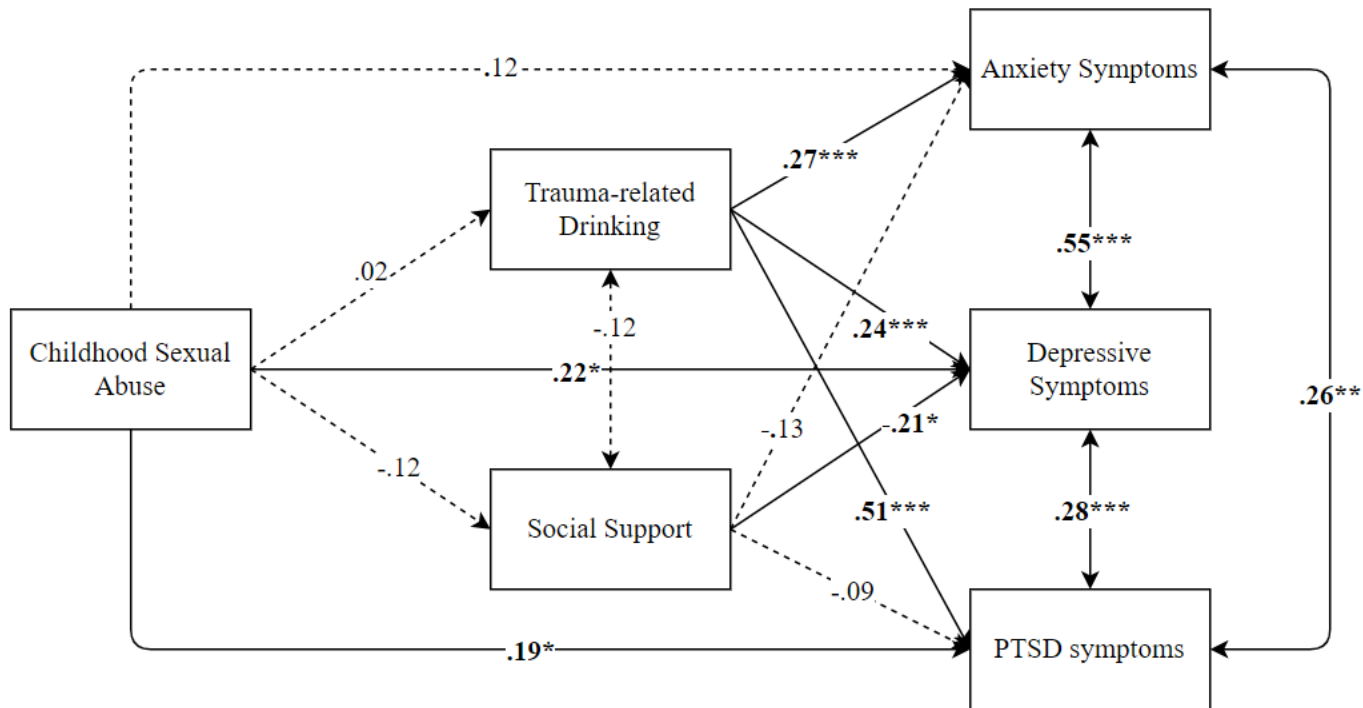


Figure 4. Mediation model of associations between childhood sexual abuse and mental health symptoms via trauma-related drinking and social support.

Note. Solid lines indicate significant paths. Dashed lines indicate non-significant paths. Gender as a control was included predicting mental health symptoms, but is not shown here for ease of illustration.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

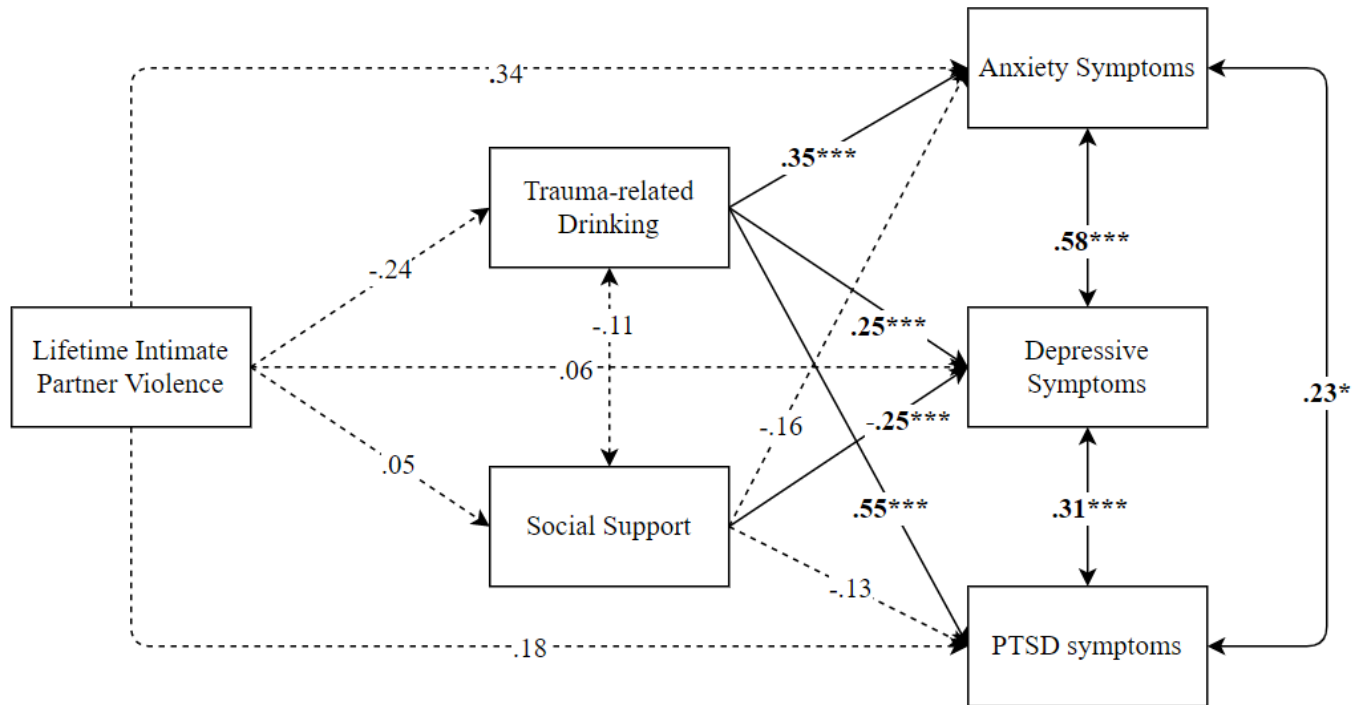


Figure 5. Mediation model of associations between lifetime intimate partner violence and mental health symptoms via trauma-related drinking and social support.

Note. Solid lines indicate significant paths. Dashed lines indicate non-significant paths. Gender as a control was included predicting mental health symptoms, but is not shown here for ease of illustration.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Appendix

Research Measures

Traumatic Life Events

Likert response scales is as follows: If yes, how often?

(1) Once; (2) Twice; (3) 3 times; (4) 4 times; (5) 5 times; (6) More than 5 times; I prefer not to answer

Childhood Sexual Abuse

1. BEFORE YOUR 13th BIRTHDAY: Did anyone who was at least 5 years older than you touch or fondle your body in a sexual way or make you touch or fondle his or her body in a sexual way?
2. BEFORE YOUR 13th BIRTHDAY: Did anyone close to your age touch sexual parts of your body or make you touch sexual parts of his or her body against your will or without your consent?
3. AFTER YOUR 13th BIRTHDAY AND BEFORE YOUR 18TH BIRTHDAY: Did anyone touch sexual parts of your body or make you touch sexual parts of his or her body against your will or without your consent?

Physical Assault

1. Have you ever been HIT OR BEATEN UP AND BADLY HURT by a stranger or someone you didn't know very well?

Intimate Partner Violence

1. Have you ever been slapped, punched, kicked, or beaten up, or otherwise PHYSICALLY HURT by your spouse (or former spouse), a boyfriend or girlfriend, or some other intimate partner?

Kubany, E. S., Leisen, M. B., Kaplan, A. S., Watson, S. B., Haynes, S. N., Owens, J. A., & Burns, K. (2000). Development and preliminary validation of a brief broad-spectrum measure of trauma exposure: The Traumatic Life Events Questionnaire. *Psychological Assessment*, 12(2), 210–224. <https://doi.org/10.1037/1040-3590.12.2.210>

Life Events Checklist (Sexual Victimization)

Nominal response scale is as follows: (0) No, (1) Yes, I choose not to answer

Please indicate whether you have experienced the following events since after the aged of 18.

1. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm).
2. Other unwanted or uncomfortable sexual experience.

Developed for Spit for Science (VCU) and adapted by Gray, M. J., Litz, B. T., Hsu, J. L., & Lombardo, T. W. (2004). Psychometric properties of the life events checklist. *Assessment*, 11(4), 330-341. <https://doi.org/10.1177/1073191104269954>

Trauma-related drinking

Likert response scales is as follow: (1) Almost never/ Never, (2) Some of the time, (3) Half of the time, (4) Most of the time, (5) Almost always/ Always, I prefer not to answer

We just asked you about some symptoms that you may experience. How often do you drink alcohol to cope with symptoms including

1. Repeated, disturbing, and unwanted memories of the stressful experience?
2. Avoiding memories, thoughts, or feelings related to the stressful experience?
3. Strong negative beliefs about yourself or the world; feelings of blame, shame, or guilt; loss of interest in activities you used to enjoy; feeling distant or cut off from other people; or trouble experiencing positive feelings?
4. Irritability, anger, risk-taking, alertness, jumpiness, difficulty concentrating, or difficulty falling asleep?

Developed as part of spin-off study *LEAU*

MOS Social Support Survey (Social Support)

Likert response scale: (1) None of the time, (2) Some of the time, (3) Most of the time, (4) All of the time

1. How often was someone available to give good advice about a crisis?
2. How often was someone available to get together with you for relaxation?
3. How often was someone available to confide in or talk about your problems?

Developed for Spit for Science (VCU) and adapted from Sherbourne, C. D., & Stewart, A. L. (1991). The MOS social support survey. *Social Science & Medicine*, 32(6), 705-714. [https://doi.org/10.1016/0277-9536\(91\)90150-b](https://doi.org/10.1016/0277-9536(91)90150-b)

SCL-90 (Anxiety)

Likert response scale: (1) Not at all, (2) A little bit, (3) Moderately, (4) Quite a bit, (5) Extremely

Please give the answer which best describes how much discomfort that problem has caused you during the last 30 days, including today.

- a. Nervousness or shakiness inside
- b. suddenly scared for no reason
- c. worrying too much about things
- d. spells of terror or panic

Developed for Spitz for Science and adapted from Derogatis, L., Lipman, R., & Covi, L. (1973). SCL-90: An outpatient psychiatric rating scale—Preliminary report. *Psychopharmacology Bulletin*, 9, 13-28. <https://doi.org/10.1037/t48311-000>.

SCL-90 (Depression)

Likert response scale: (1) Not at all, (2) A little bit, (3) Moderately, (4) Quite a bit, (5) Extremely

Please give the answer which best describes how much discomfort that problem has caused you during the last 30 days, including today.

- a. Feeling blue
- b. Feeling no interest in things
- c. feeling hopeless about the future
- d. feeling fearful

Developed for Spitz for Science and adapted from Derogatis, L., Lipman, R., & Covi, L. (1973). SCL-90: An outpatient psychiatric rating scale—Preliminary report. *Psychopharmacology Bulletin*, 9, 13-28. <https://doi.org/10.1037/t48311-000>.

PCL-5 (PTSD)

Likert response scale is as follows: (1) Not at all, (2) A little bit, (3) Moderately, (4) Quite a bit, (5) Extremely, I prefer not to answer

In the past month, how much were you bothered by:

1. Repeated, disturbing, and unwanted memories of the stressful experience?
2. Repeated, disturbing dreams of the stressful experience?
3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?
4. Feeling very upset when something reminded you of the stressful experience?
5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?
6. Avoiding memories, thoughts, or feelings related to the stressful experience?
7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?
8. Trouble remembering important parts of the stressful experience?
9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?
10. Blaming yourself or someone else for the stressful experience or what happened after it?
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?
12. Loss of interest in activities that you used to enjoy?
13. Feeling distant or cut off from other people?

14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?
15. Irritable behavior, angry outbursts, or acting aggressively?
16. Taking too many risks or doing things that could cause you harm?
17. Being “superalert” or watchful or on guard?
18. Feeling jumpy or easily startled?
19. Having difficulty concentrating?
20. Trouble falling or staying asleep?

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<https://doi.org/10.1002/jts.22059>

Vita

Eryn DeLaney was born on June 29, 1990 and lived in Decatur, Georgia. She graduated from Holy Innocents' Episcopal School, Atlanta, Georgia in 2009. She received her Bachelor of Science in Psychology and Bachelor of Arts in Sociology from the University of Georgia, Athens, Georgia in 2013. She received a Master of Education in Counseling Psychology with an emphasis in Sport Psychology from the University of Missouri, Columbia, Missouri in 2015. She received a Master of Science in Counseling Psychology from Virginia Commonwealth University, Richmond, Virginia in 2018. Throughout Eryn's undergraduate and postbaccalaureate career, she worked in various research labs that focused on risk and resilience factors among individuals with marginalized identities.