

CONTEXTUAL FACTORS INFLUENCING
POSTTRAUMATIC STRESS AFTER CAMPUS SEXUAL ASSAULT

by

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DISSERTATION ABSTRACT

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Title: Contextual Factors Influencing Posttraumatic Stress After Campus Sexual Assault

Sexual assault has been repeatedly associated with multiple types of psychological distress, including posttraumatic stress. Post-assault outcomes are frequently linked to intrapersonal or psychological processes (e.g., cognitions, behaviors, biology), yet contextual factors also play important roles. In this dissertation, I examine how intrapersonal and contextual factors are associated with posttraumatic stress among student survivors of campus sexual assault – a specific type of sexual violence that occurs within the context of important interpersonal and institutional relationships.

In Chapter I, I review the extant theory and research on psychological outcomes of sexual assault, with an emphasis on socioecological and betrayal trauma theories and their application to campus sexual assault. Using prior theory and research as justification, I then describe two components of one empirical project that investigate how intrapersonal and contextual factors influence posttraumatic stress among survivors of campus sexual assault at the University of Oregon. The first analysis (Chapter II) examines how factors at various layers of the social ecology are related cross-sectionally to posttraumatic stress in a large student sample. Results suggest that intrapersonal factors (e.g., self-blame cognitions, avoidance coping), relational factors (e.g., relationship with perpetrator, reactions to disclosure), and institutional betrayal each explain unique variance in posttraumatic stress. The second analysis (Chapter III) examines the

relationships between campus sexual assault victimization, institutional betrayal, and posttraumatic stress among a subsample of women and gender minority students across a period of six months. Results suggest that campus sexual violence victimization and institutional betrayal are consistently associated with posttraumatic stress across time, with the highest levels of posttraumatic stress experienced by sexual assault survivors in a context of institutional betrayal. Chapter IV closes by discussing the results and limitations of both analyses within the context of the larger empirical and theoretical literature.

Overall, this dissertation supports the feasibility and value of taking a socioecological and betrayal-informed approach to understanding and researching campus sexual assault and points to avenues for prevention and intervention efforts at multiple levels of the social ecology.

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CHAPTER I

INTRODUCTION

Sexual assault remains widespread across college campuses in the United States (Smith et al., 2018), particularly for women and gender nonconforming students. Approximately 20-25 percent of college women experience sexual assault (Fedina et al., 2018; Muehlenhard et al., 2017), and preliminary research suggests particularly high rates among nonbinary and gender-nonconforming students (Mellins et al., 2017). These rates are significant, given the preponderance of research indicating that sexual assault causes harm that substantially impacts students' lives. Sexual violence¹ has been linked to multiple types of psychological distress, including posttraumatic stress, anxiety, depression, substance use, and disordered eating (Carey et al., 2018; Dworkin, 2020; Dworkin et al., 2017a; Ganson et al., 2020), which can persist long after the assault (Najdowski & Ullman, 2009). Sexual assault has also been associated with other

¹ Under the umbrella of sexual violence exists a wide range of abusive behaviors related to sexuality and gender/sex. Contemporary definitions of sexual violence typically include: sexual harassment (i.e., sexual coercion, unwanted sexual attention, or sexist or crude hostility; Cook et al., 2018; Fitzgerald et al., 1995); sexual assault (i.e., nonconsensual sexual contact in any form); and rape (i.e., nonconsensual oral, anal, or vaginal penetration obtained through force or incapacitation). Although harassment, assault, and rape are often discussed as distinct phenomena, their definitions are not mutually exclusive. Rape is a severe type of sexual assault, and sexual assault is a severe type of unwanted sexual attention. Although intimate partner violence and domestic violence commonly involve sexual violence, these phenomena may also involve non-sexual components, such as other physical, psychological, or emotional abuse. The majority of research discussed in this dissertation involves experiences of sexual assault, which include nonconsensual sexual contact and rape (see Methods section in Chapter II and Chapter III for how these terms are defined in terms of data collection). It should be noted that societal definitions of sexual violence (e.g., what counts as violence, who can be a victim, who can be a rapist) have shifted across time and place, largely reflecting the norms of those who hold power in society (for a review, see Armstrong et al., 2018). Historically, sexual violence was most frequently thought of as a property *crime* (Collins, 1998; Freedman 2013). Even as rape laws were revised during the Women's movement of the twentieth century, and the legal lens transitioned from property rights to human and civil rights, such definitions remained limited and variable. For instance, the Federal Bureau of Investigation (FBI) defined rape as "the carnal knowledge of a female forcibly and against her will" from 1927 to 2014 (Federal Bureau of Investigation, 2014), which is undeniably vague and exclusionary. Even today, definitions of what constitutes specific sexual crimes vary from state to state in the United States. Thus, conceptualizations of sexual violence presented in this paper do not necessarily reflect sexual assault and rape as identified by the criminal and civil justice systems. Acts of sexual violence need not be crimes in order to cause psychological distress. Theorizing the legal demarcations of sexual crimes is beyond the scope of this dissertation, yet I also acknowledge that legal authority likely influences how sexual violence is thought about in the field of psychology. It is also beyond the scope of this dissertation to address the relative benefits and costs of the criminal justice system to prevent sexual violence and/or as a source of justice and healing.

negative outcomes, including chronic health conditions (Basile et al., 2020; Santaularia et al., 2014), high blood pressure (Thurston et al., 2019), sleep issues (Thurston et al., 2019), self-blame (Koss et al., 2002), difficulties in romantic and sexual relationships (Rothman et al., 2019), and impaired academic performance (Baker et al., 2016; Jordan et al., 2014). Although outcomes of campus sexual violence are readily established, they also vary considerably. Many sexual assault survivors² suffer prolonged negative effects, yet others may experience few symptoms (Reich et al., 2010) or have diverging symptom trajectories (Ponce-Garcia et al., 2016; Steenkamp et al., 2012).

Given this variability, there is an increasing need to theorize about and conduct research on factors that predict campus sexual violence outcomes among student survivors. Traditional psychological theories in trauma psychology prove useful for explaining some variance in outcomes, in that they demonstrate (in both community and college student samples) how an individual's biology, cognition, and behavior may protect against or exacerbate distress after a traumatic event like sexual assault. However, such intrapersonal approaches can be limited because they often fail to appreciate the role of relationships, institutional interactions, and sociocultural context. This is an unfortunate oversight, given that college students live and study within the unique context of the university environment that shapes their day-to-day lives. Other

² I use the terms *victim* and *survivor* interchangeably in this dissertation, as well as “individual who has experienced sexual violence” and “individual who is perpetrated against.” I credit Brodsky (2021) for succinctly articulating my reasoning when she states in her book *Sexual Justice*, “I switch back and forth between ‘victim’ and ‘survivor.’ Often ‘survivor’ is used as a term that acknowledges the strength and resilience of people who experience harassment, where ‘victim’ focuses on the harm they have experienced. Some people prefer one over the other because it fits better with their experiences. Other reject the dichotomy between the two terms, which they see as suggesting a particular linear narrative: someone is harassed, they are a victim, they grow and thrive, and then they are a survivor...healing is not so straightforward. We get better, but then sometimes we get worse. You might be a victim one day, a survivor the next, and then a victim again. You may be both at the same time. Because these terms are loaded, and because people have different preferences, I use both words in an attempt to acknowledge that experience and reactions to harassment vary widely. That’s not a perfect solution, but it’s the best that I have” (p. 14-15).

theoretical frameworks, such as betrayal trauma theories (e.g., Freyd, 1996; Smith & Freyd, 2014) and socioecological theories (e.g., Campbell et al., 2009; Neville & Heppner, 1999), are useful for conceptualizing how specific factors outside of the individual influence sexual violence sequelae. The first chapter of this dissertation will review the extant theory and research in the general sexual violence and trauma literatures, highlighting how both 1) intrapersonal factors (e.g., biology, cognition, and behavior) and 2) contextual factors (e.g., relational, institutional, and sociocultural) are linked to psychological distress among sexual assault survivors. The majority of this research is conducted using college student samples in the United States and/or Western Europe,³ but some use community samples.

Intrapersonal Predictors of Sexual Violence-Related Sequelae

Psychological research on sexual violence, both inside and outside the domain of campus sexual assault, provides insight into specific factors that may impact student victim outcomes. Much of this research draws from trauma-related theoretical frameworks that are currently popular among clinical psychologists, and that have served as the theoretical foundation of trauma psychotherapies. These theories, which include the *fear paradigm* and the *shattered assumptions paradigm*, examine intrapersonal factors (i.e., factors within the person) that contribute to, or protect against, psychological distress after sexual assault.

Theoretical Frameworks

³ I would like to include a brief note on scope. I want to acknowledge that many of the ideas presented in this manuscript cannot be separated from the author's residence and educational experiences located exclusively within the United States. Taken together with the fact that empirical research on sexual violence (and psychology in general) contains an overrepresentation of participants (and researchers) from the United States and Western Europe, I must be careful about conclusions that I draw. Although I aim to specifically highlight contextual factors that play a role in understanding the impact of individuals' experiences of sexual violence with the hope of expanding the investigative scope, I often use examples reflecting my locations and experiences. Many of the broad patterns I discuss may only apply to university environments in the United States. I hope that future authors can build upon these ideas and expand to other areas.

Fear paradigm. One of the most predominant theories of Post-Traumatic Stress Disorder (PTSD) is the *fear paradigm*. The fear paradigm proposes that there is one defining characteristic of traumatic experiences – intense fear/terror. It is this experience of intense fear/terror that paves the way for later psychological “dysfunction,” typically in the form of PTSD. In its purest form, this model treats all types of traumatic events (non-relational, relational, sexual, and non-sexual) similarly, so long as each event elicits fear/terror within the individual victim. Models reflecting the fear paradigm, such as the Emotion Processing Model, implicate “pathological” fear and memory networks within the brain and body (Foa et al., 1989). These networks are believed to cause elevated fear-related reactivity among trauma victims long after the event is over. These fear structures become “pathological” when they become over-activated in situations that do not warrant this response, such as when one encounters objects, smells, or sounds reminiscent of the assault (Foa et al., 1989). This over-activation continues as trauma victims attempt to avoid the feared stimuli that remind them of the event and begin to rigidly restrict their lives (Foa et al., 1989). Using this framework, differential mental health symptoms experienced after sexual violence victimization are related to an individual’s biological and/or hormonal factors that contribute to more “vulnerable” fear networks, or alternatively, to situational aspects of the assault that may produce greater levels of “fear” or life-threat within the individual (e.g., physical violence, presence of a weapon; Foa et al., 1989). These symptoms are then prolonged and intensified when individuals use avoidance coping strategies that reinforce overactive fear responses. A common psychotherapeutic treatment that corresponds to this model is Prolonged Exposure Therapy (Foa & Rothbaum, 1998).

Shattered assumptions paradigm. Other popular and influential theories of trauma reactions implicate social-cognitive processes. In the *shattered assumptions paradigm* (Janoff-

Bulman, 1989), trauma can involve fear, but it is predominantly characterized by profound internal disruptions in core assumptions regarding the self (e.g., “the self is worthy”) and the world (e.g., “the world is a benevolent and meaningful”). When a traumatic event occurs, there is a conflict between this new information and these pre-existing schemas. To resolve this conflict, many victims may engage in self-blame (e.g., “if the world is fair and good things happen to good people, I must have done something to cause or deserve this”; Janoff-Bulman, 1989). Such resolutions can lead to multiple manifestations of trauma-related reactions, including depression, anxiety, and PTSD (Janoff-Bulman, 1989). Similar cognitive models, such as the cognitive model of PTSD (Ehlers & Clark, 2000) and Dual Representation Theory (Brewin et al., 1996), highlight the role of both maladaptive beliefs and disrupted memory representation systems. Using these frameworks, differential mental health symptoms experienced after sexual violence victimization are related to an individual’s unhelpful cognitive appraisals of the traumatic event (e.g., “this event happened because of something I did”), pre-existing maladaptive schemas or beliefs, and/or post-trauma coping strategies that reinforce maladaptive beliefs. A common psychotherapeutic treatment that corresponds to these models is Cognitive Processing Therapy (Resick & Schnicke, 1993).

Research Evidence

Biological factors. Although there is a large literature regarding the relationship between biology and traumatic reactions generally, there is little research regarding the influence of biology on sexual assault outcomes specifically. The research that does exist examines the hypothalamic-pituitary-adrenal (HPA) axis and its influence on post-sexual assault outcomes. The HPA axis is an important component of the body’s stress response and helps to mobilize the body’s response to threat, including the regulation of the stress hormone cortisol (Zoladz &

Diamond, 2013). This system may be disrupted with exposure to chronic or severe stress, such as sexual violence (Zoladz & Diamond, 2013). Some studies have linked individuals' high post-sexual assault cortisol levels to their later development of PTSD (Bremner et al., 2007; Resnick et al., 1997; Yehuda et al., 1998), but other studies have failed to replicate this finding (Resnick et al., 1995). Currently, little consensus exists regarding this relationship.

Cognitive factors. A substantial amount of research examines cognitive factors. Research suggests that cognitive factors (i.e., individuals' beliefs, attributions, or cognitive styles) may influence sexual assault survivors' distress levels. In a sample of rape victims who sought treatment in a hospital emergency room, Frazier (2003) found that victims who attributed the assault to their controllable, past behaviors (i.e., blamed their own actions for the assault occurring) reported higher levels of general psychological distress. As these self-blaming interpretations decreased in intensity, distress also dissipated over time (Frazier, 2003). The crucial role that self-blame plays in psychological distress and PTSD symptoms after sexual assault has been replicated in multiple studies (Frazier et al., 2005; Najdowski & Ullman, 2009; Ullman et al., 2007a; Ullman et al., 2007b).

In addition to investigating the role of self-blame, Dunmore and colleagues (1999) investigated the influence of other types of cognition among a sample of sexual and physical violence victims. Specifically, they examined thoughts during the assault, thoughts about the assault itself, and thoughts about one's reaction to the assault. Participants who reported having thoughts related to confusion during the assault (e.g., "I couldn't believe this was happening to me") and defeat during the assault (e.g., "I didn't feel like I was a human being anymore") reported more PTSD symptoms than those who did not endorse these thoughts. Beliefs regarding permanent change because of the assault (e.g., "my life has been destroyed by the assault") and

regarding their initial reactions to the assault (e.g., “my reactions since the assault mean that I am losing my mind”) also predicted PTSD symptoms. These patterns have been replicated in a similar prospective study (Dunmore et al., 2001) and are supportive of the cognitive model of PTSD (Ehlers & Clark, 2000).

Frazier (2003) has highlighted the importance of survivors’ interpretations of control. In their study, beliefs regarding control over future assaults – and subsequent engagement in safety behaviors to prevent future assaults – did not offer any substantial relief from distress among a sample of rape victims. However, higher levels of present-related control – beliefs regarding one’s control over the current recovery process – were related to lower levels of distress (Frazier, 2003). The importance of present-focused control over recovery has been further substantiated by Frazier and colleagues (2004) and Ullman and colleagues (2007a).

Other studies have found that victims’ endorsement of global maladaptive beliefs – beliefs not necessarily related to the assault – are related to distress levels post-assault. Wenninger and Ehgler (1998) found that child sexual abuse survivors who tended to attribute events to internal, stable, and global sources also reported higher levels of PTSD symptoms in adulthood. Additional research has pointed to the detrimental influence of global beliefs in a wide variety of domains. These include beliefs regarding safety (e.g., “danger is always present”), trust-dependency (e.g., “other people are no good”), control (e.g., “I cannot control what happens to me”), esteem (e.g., “I’m a bad person”), and intimacy (e.g., “I can’t be close to others”). These five categories of beliefs have been found to be significantly related to distress among rape victims (Koss et al., 2002; Koss et al., 2004). In one sample, such beliefs accounted for nearly half of the variance in initial distress post-assault and explained 36% of the variance in the decrease of distress symptoms over a period of two years (Koss et al., 2004).

Coping behaviors. Research also suggests that the behavioral strategies that individual survivors use to cope influence and exacerbate their mental health symptoms. Multiple studies have found that coping strategies involving the avoidance of emotions or experience, including substance use, isolation, and withdrawal, exacerbate symptoms of PTSD and impede recovery specifically among sexual assault survivors (Dunmore et al., 1999; Frazier et al., 2005; Gutner et al., 2006; Najdowski & Ullman, 2009; Ullman et al., 2007b; Ullman et al., 2013; Valentiner et al., 1996). However, research also suggests that there are more adaptive and helpful methods that sexual assault survivors can use to cope and alleviate distress. Coping strategies that involve problem solving, cognitive restructuring, expressing emotions, and relying on social support have been found to attenuate distress in multiple studies (Frazier et al., 2005; Gutner et al., 2006; Valentiner et al., 1996).

Assault characteristics. Research has also found that several characteristics of the individual assault itself have been associated with significantly higher posttraumatic stress and distress symptoms⁴ (Campbell et al., 2009). These characteristics include: presence of physical injury (Bownes et al., 1991; Dworkin et al., 2017a; Epstein et al., 1997; Kilpatrick et al., 1989; Möller et al., 2014; Resnick et al., 1993; Ullman et al., 2007b; Stein et al., 2000); use of physical violence or weapon (Bownes et al., 1991; Brown et al., 2009; Dworkin et al., 2017a; Peter-Hagene & Ullman, 2015; Ullman, et al., 2007b; Zinzow et al., 2010); perpetration by more than one person (Möller et al., 2014); perception of life threat (Elklit & Christiansen, 2013; Epstein et al., 1997; Kilpatrick et al., 1989; Resnick et al., 1993; Ullman & Filipas, 2001; Ullman et al., 2007a; Stein et al., 2000); and a “freeze” response during the assault (Bovin et al., 2008; Rizvi et

⁴ Although event-specific factors are not directly intrapersonal, they have often been theoretically linked to intrapersonal processes (e.g., an assault that involves more life threat or weapon produces more fear in the individual). These factors have also been grouped under this domain in prior literature reviews (see Campbell et al., 2009), so I include this section in the discussion of intrapersonal factors for consistency with the prior literature.

al., 2008; Rocha-Rego et al., 2009). However, many studies have also failed to find significant relationships between these same assault characteristics and distress (Campbell et al., 2009; Ullman et al., 2007a). In addition, posttraumatic stress has not substantially differed based on type of tactic used by the perpetrator (e.g., force, coercion, or incapacitation; Dworkin et al., 2017a; Zinzow et al., 2010). An early meta-analysis of assault characteristic associations suggested that, despite statistical significance, presence of a weapon and physical injury may only have small effects on sexual violence outcomes, whereas degree of force may be the only situational factor that has a moderate influence (Weaver & Clum, 1995). The same meta-analysis also suggested that individual victims' perceptions of the assault, such as perceived life threat, self-blame, perceived controllability, and perceived safety, contribute to high levels of distress post-assault (Weaver & Clum, 1995).

Demographic/identity characteristics. Finally, there is a small literature suggesting mixed relationships between individual demographic/identity characteristics⁵ and mental health outcomes after sexual assault. Gender appears to be related to PTSD rates generally (Tolin & Foa, 2006), but there is little substantial evidence for gender differences in PTSD symptoms specifically after sexual assault (Dworkin et al., 2019). Similarly, racial differences have been found in the overall PTSD literature (when all types of trauma are included; Roberts et al., 2011), but most studies focusing exclusively on sexual assault have found few differences by race/ethnicity in PTSD symptoms (Campbell et al., 2009; Dworkin et al., 2017a; Elliott et al., 2004), depressive symptoms (Elliott et al., 2004; Frank & Stewart, 1984; McFarlane et al.,

⁵ There is disagreement in the literature on conceptualizing demographic factors as individual/intrapersonal factors (see Campbell et al., 2009). Although an individual may hold a particular identity, the meaning and experience of these identities are inextricably linked to sociocultural practices and norms. Individual identity factors are discussed in this section. However, more discussion of cultural and social context is discussed in the section on contextual factors.

2005), or fear/anxiety symptoms (McFarlane et al., 2005). However, there are several notable exceptions. One longitudinal study of sexual assault outcomes found higher levels of PTSD symptoms among Black women who experienced sexual assault than white women who experienced sexual assault (Littleton & Ullman, 2013). Another study found that violence-exposed Black women reported higher levels of depression, PTSD symptoms, and substance use than white women (Sigurvinsdottir & Ullman 2015a), but these results did not replicate in another study (Sigurvinsdottir & Ullman 2016a). Ullman and Brecklin (2002) found that women with an ethnic minority identity and who experienced child sexual abuse (but not adult sexual abuse), had higher PTSD symptoms than those who did not have an ethnic minority identity. Additional research is needed to clarify these relationships.

Sexual identity, however, has been repeatedly linked to higher levels of distress after sexual assault, particularly for bisexual women. In one study, the “impact” of sexual assault, (i.e., operationalized by several factors, including level of PTSD symptoms and number of work obligations missed) was higher for sexual minority women than for heterosexual women. The study found that 57.4% of bisexual women, 33.5% of lesbian women, and 28.2% of heterosexual women reported at least one major impact (Walters et al., 2013). Similar research mirrors this pattern, documenting higher levels of PTSD and depression symptoms among bisexual women exposed to sexual violence, compared to heterosexual women exposed to sexual violence (Sigurvinsdottir & Ullman, 2016b). These results have been replicated in other samples of bisexual and gender minority individuals (Hughes et al., 2010; Logie et al., 2014; Long et al. 2007; Sigurvinsdottir & Ullman, 2015a; Tornello et al., 2014). Other investigations indicate that Black sexual minority women may be particularly at risk for negative outcomes (Sigurvinsdottir & Ullman, 2015a; Sigurvinsdottir & Ullman, 2016a).

Rather than assault characteristics or demographic characteristics, it appears that prior victimization experiences are some of the most robust predictors of symptom severity (although, importantly, victimization frequency itself appears to be closely linked to demographic factors⁶). Those who have multiple victimization experiences report significantly elevated levels of PTSD symptoms and greater difficulties with recovery than those with single victimization experiences (Messman-Moore et al., 2000; Ullman, 2016; Ullman & Brecklin, 2002; Walker et al., 2021).

Relevance to Campus Sexual Assault Outcomes

The research reviewed above provides a useful first step in conceptualizing student outcomes after campus sexual assault victimization. Specifically, students may report high levels of distress and harm after campus sexual assault because of their biology, the way that they think about the assault, the way they cope with trauma, factors related to the assault (e.g., high degree of life threat, level of violence, coercion tactics), their demographic/identity characteristics, or their prior victimization experiences either on campus or during childhood. Such factors are important in explaining sexual violence outcomes, and they likely interact with one another to create unique constellations of posttraumatic sequelae among campus sexual assault survivors. As reviewed in the previous section, research strongly suggests that unhelpful coping strategies,

⁶ A more substantial literature examines how demographic and identity characteristics predict risk of sexual victimization. Typically, those with less social power and status experience violence at disproportionate rates. Age is one of the most robust predictors of sexual violence. In the United States, 40-60% of women who are raped were assaulted prior to the age of 18 (Basile et al., 2007; Smith et al., 2018), and 81% prior to the age of 25 (Black et al., 2011). Other studies estimate that 25% of initial rape experiences occur prior to age 12 (Tjaden & Thoennes, 2000). Research also suggests that prevalence rates differ by race/ethnicity and other social identities. Native American and Alaskan Native women are at a particularly high risk for sexual violence compared with white, non-Hispanic women (Tjaden & Thoennes, 2000; Smith et al., 2018; Wahab & Olson, 2004). Other studies provide evidence for elevated risk of sexual violence among Black women (Gross et al., 2006; Nagy et al., 1994), and Black women often experience incommensurate rates of specific types of sexual violence, such as sexual assault by police officers (Ritchie, 2017). Lesbian, gay, bisexual, transgender, and queer (LGBTQ) individuals are also systematically perpetrated against (Mellins et al., 2017; Messinger & Koon-Magnin, 2019; Peterson et al., 2011), as well as those who have received less formal education (Axinn et al., 2018), have fewer financial resources (Runarsdottir et al., 2019), have disabilities (Smith & Pick, 2015), and have past victimization histories (Walker et al., 2019).

such as avoidance, and unhelpful cognitive attributions, such as self-blame, may be particularly potent areas for study and intervention on campus sexual assault outcomes.

Contextual Predictors of Sexual Violence-Related Sequelae

Although the intrapersonal and event-specific factors discussed above are useful first steps in explaining variance in outcomes after campus sexual assault, there are also important contextual factors to consider, such as relationships, institutional interactions, and sociocultural norms and practices. There are several useful theoretical frameworks in the overarching sexual violence and trauma literatures that conceptualize contextual factors related to sexual assault outcomes, and that are supported by empirical research. Such approaches include 1) socioecological models of sexual assault recovery (Campbell et al., 2009; Neville & Heppner, 1999) and 2) betrayal trauma (and related) theories (Freyd, 1996; Gómez, 2012; Gómez, 2020; Gómez & Gobin, 2020; Smith & Freyd, 2014).

Theoretical frameworks

Socioecological models. The most prominent socioecological models of sexual assault outcomes were proposed by Neville and Heppner (1999) and Campbell and colleagues (2009), which build off prior work by Koss and Harvey (1991) and Harvey (1996) and draw from existing socioecological theories in the broader psychology literature. These theories include community psychology's ecological theory (Kelly, 1966), which emphasizes the interdependent nature of individuals and community practices/values. They also include developmental psychology's socioecological theory (Bronfenbrenner, 1979), which underscores the interaction between multiple layers of the social ecology. Although slight differences exist between these contextual models of sexual violence, they share a central component in common, namely, extending the source and harm of trauma beyond the individual and the specific event itself

(Wasco, 2003). They do this by implicating the role that interpersonal disclosures, interactions with institutions/agencies, and sociocultural contexts play in sexual violence outcomes.

Koss and Harvey (1991) and Harvey (1996) provided the foundation for the later socioecological models of Neville and Heppner (1999) and Campbell and colleagues (2009). In their early model, Koss and Harvey (1991) argued that the psychological outcomes of rape are influenced by four distinct components, rather than primarily by intrapersonal factors alone. These four components include: individual characteristics (e.g., functioning prior to trauma, demographic characteristics, interpretations of the assault), assault characteristics (e.g., degree of violence, physical injury), environmental characteristics (e.g., social support, community support), and intervention (e.g., degree and type of clinical care received). Although not specific to sexual violence, Harvey (1996)'s ecological theory of trauma and recovery built upon this prior work by Koss and Harvey (1991). It asserts that, "each individual's reaction to violence and traumatic events will be influenced by the combined attributes of those communities to which [they belong] and from which [they draw] identity" (Harvey, 1996, p. 5). Harvey's model (1996) specifically highlights the interaction between intrapersonal factors, event factors, and environmental factors in the production of traumatic responses. It attributes failures in recovery to deficits in community responses (Harvey, 1996).

Neville and Heppner (1999)'s culturally inclusive model of sexual assault recovery (CIEMSAR) is based on the Bronfenbrenner's (1979) socioecological theory and prioritizes the role of cultural context. According to this model, sexual assault outcomes are intricately influenced by a complex web of relationships between the microsystem (intrapersonal factors, assault characteristics, coping strategies), mesosystem (informal social support, formal support agencies), and macrosystem (sociocultural values and practices). Importantly, conceptualizations

of the mesosystem draw from the research on disclosures of sexual violence (Ullman, 1996) and on theories of “secondary victimization” (Symonds, 1980) and “secondary assaults” by agencies and institutions (Williams & Holmes, 1981). In describing their model, Neville and Heppner (1999) delineate how their approach informs understandings of Black women’s distress after sexual violence, in particular. For instance, Black women exist in a sociocultural context that perpetuates both general myths about rape and stereotypes regarding Black women’s sexuality (e.g., the “Jezebel”; Neville & Heppner, 1999). Coupled with the historical legacy of slavery, during which white men had unrestricted access to Black women’s bodies, these larger sociocultural values not only likely influence their own interpretations of assault, but also influence the responses of close others and their access to formal resources (Neville & Heppner, 1999). Campbell and colleagues (2009) updated this model by re-categorizing informal social support, including reactions to disclosures in relationships, as aspects of the microsystem, rather than grouping it with formal support agencies and institutions in the meso/exosystem.

Finally, Dworkin and Weaver (2021) recently elaborated upon Campbell and colleagues’ (2009) model by articulating how specific sociocultural elements within the highest level of the social ecology may influence sexual assault outcomes. In their article, they contend that sexual violence outcomes are directly and indirectly impacted by three specific components of the macrosystem – *norms* (e.g., violence-supportive norms, such as sex role stereotypes and rape myths; oppressive belief systems, such as racism, sexism, heterosexism; cultural values, such as beliefs regarding personal responsibility, group well-being, and emotional expressiveness; and cultural beliefs specific to mental health, such as beliefs regarding appropriate expression and management of emotions), *structures* (e.g., concrete societal and cultural systems, such as laws, policies, and the media), and *environmental stressors* (e.g., environmental conditions, such as

poverty; Dworkin & Weaver, 2021). These factors may impede a survivor's recovery indirectly through their influence at lower levels of the social ecology by influencing their own perceptions of the assault, the reactions that they receive from others during a disclosure, and/or their interactions with larger organizations and institutions (Dworkin & Weaver, 2021). In addition, these factors may also have a direct effect on survivors' experiences, even when not specifically related to the assault, because they cause additional hardship or, alternatively, provide a source of refuge (Dworkin & Weaver, 2021).

Betrayal trauma theories. Betrayal trauma theory (BTT; Freyd, 1996), as well as the related theory of institutional betrayal and cultural betrayal trauma theory, is complementary to, and often overlaps with, socioecological models of sexual violence previously described (Adams-Clark et al., 2020). At the core of BTT is an emphasis on the relational context of a traumatic event (Freyd, 1996; Freyd et al., 2005). Because the relational nature of trauma matters, yet is frequently neglected, Freyd (1996) proposes two primary, distinct dimensions of traumatic events. Similar to existing trauma theories, she suggests that one of these dimensions is the degree of fear/terror involved. Unlike prior theories, however, Freyd (1996) asserts that fear/terror does not necessarily need to be present for an event to be traumatic. Instead, she proposes a second key dimension of trauma – the degree of social betrayal involved. Using this framework, events may be traumatic if they involve high levels of fear/terror (e.g., natural disasters, accidents), high levels of social betrayal (e.g., grooming, emotional abuse), or both (e.g., violent sexual abuse; Freyd, 1996). In order to comprehensively understand the effects of a traumatic event, one must locate its position across these two dimensions (DePrince & Freyd, 2002).

According to BTT, the distinction between fear/terror and social betrayal is key to varied posttraumatic outcomes of interpersonal violence, such as sexual assault. In its initial conception, BTT was proposed as an explanatory framework for the reason why memories of childhood sexual abuse may be isolated from awareness (Freyd, 1996). Drawing from attachment theory (Bowlby, 1969) and social contract theory (Cosmides, 1989), BTT highlights two competing relational tasks that humans must engage in throughout development: 1) it is important to maintain relationships for survival; and 2) it is necessary to be able to detect “cheaters” within relationships (Freyd, 1996). Thus, when a child is engaged in a necessary relationship with their primary caregiver, and is simultaneously being abused by that same caregiver, there is a fundamental psychological conflict between needs. The child, who is dependent on the caregiver, is not empowered to leave the relationship or confront the perpetrator of abuse (Freyd, 1996). Therefore, their most adaptive option may be to *not* know about the abuse by activating dissociative processes. One such process is betrayal blindness (Freyd, 1996; Freyd & Birrell, 2013). According to BTT, such efforts are not innately pathological, but, rather, serve adaptive functions, despite the fact that they may cause distress in other domains (Freyd, 1996; Freyd & Birrell, 2013).

As betrayal trauma research evolved, the scope of research expanded beyond dissociation and memory impairment to include a diverse range of trauma-related symptoms. This research suggests that the noxious effects of social betrayal are not limited to cognitive processes. Because sexual violence is at its core a relational phenomenon, social betrayal is fundamental to understanding the wide array of sexual violence outcomes. This is particularly the case because sexual violence is most likely perpetrated by someone already known to the victim (Tjaden & Thoennes, 2006). Take two examples (previously described in Adams-Clark et al., 2020): 1)

someone is walking alone at night, held at gunpoint, and raped by a stranger and 2) a child is sexually molested by their father, on whom the family depends financially and as a parent. Although both involve sexual assault, the relational dynamics of these two events substantially differ, which may impact specific posttraumatic outcomes (Adams-Clark et al., 2020). Such an approach differs from individual trauma theory, which tends to treat all events, similarly regardless of the degree of social betrayal (Adams-Clark et al., 2020).

Related theories have emerged regarding how betrayal is perpetrated by the larger social arrangements that orbit the initial act of violence. The concept of institutional betrayal was proposed to describe the betrayal of individuals by the larger societal institutions on which they depend and/or have trust in (Smith & Freyd, 2013; Smith & Freyd, 2014). Just as individuals must depend upon important relationships, they also depend on institutions like the government, justice system, universities, or healthcare system to provide them with necessary services and safekeep their well-being (Smith & Freyd, 2014). When violence occurs within the context of a trusted institution, and an institution has failed to prevent it or responds inadequately to it, institutional betrayal may occur. Such institutional actions can be actions of omission (e.g., failed to fulfill a responsibility) or commission (e.g., actively engaging in wrongdoing; Smith & Freyd, 2014).

Finally, cultural betrayal trauma theory (CBTT; Gómez, 2012; Gómez, 2019a; Gómez, 2019b; Gómez, 2019c; Gómez, 2019d; Gómez, 2020; Gómez & Freyd, 2018; Gómez & Gobin, 2020) is another related theory that examines the impact of betrayal within the larger context of societal inequality, discrimination, and oppression. Within this theory, Gómez and Gobin (2020) highlight the importance of (intra)cultural trust among members of the same marginalized group, which serves as a protective factor from the impact of societal trauma at the macrosystem level.

When violence is perpetrated within the marginalized group, there is a breach in this (intra)cultural trust, in addition to the initial act of violence (Gómez & Gobin, 2020). This breach in trust also occurs within the context of cultural values that promote minority group protection, as well as larger systems of institutional racism, such as the criminal justice system. Thus, the victim must navigate the competing demands of safeguarding their marginalized community by keeping silent (termed (intra)cultural pressure), and/or choosing to disclose their experience (Gómez & Gobin, 2020). Such an occurrence is considered a *cultural betrayal trauma* and can lead to a diverse range of posttraumatic outcomes. These include both trauma-related outcomes (e.g., PTSD, depression, dissociation), cultural outcomes (e.g., internalized prejudice), and help-seeking behaviors, particularly as they function to maintain connections with their larger marginalized communities (Gómez & Gobin, 2020).

Research Evidence

Relational/Interpersonal factors. Empirical research using both socioecological models and betrayal trauma theories have indicated that relational context does indeed matter for sexual violence outcomes. Investigations suggest that high betrayal trauma (emotional, physical, or sexual abuse perpetrated by a close and trusted other) is related to: PTSD symptoms (Goldsmith et al., 2013; Kelley et al., 2012; Tang & Freyd, 2012); depression (Edwards et al., 2012; Freyd et al., 2005; Goldsmith et al., 2012; Klest et al., 2013); anxiety (Edwards et al., 2012; Goldsmith et al., 2012; Freyd et al., 2005; Klest et al., 2013); dissociation (Freyd et al., 2005; Klest et al., 2013); hallucinations (Gómez et al., 2014; Gómez & Freyd, 2017); borderline personality tendencies (Kaehler & Freyd, 2009; Yalch & Levendosky, 2019); anger (Edwards et al., 2012); substance use problems (Delker & Freyd, 2014); sleep problems (Klest et al., 2013); and suicidality (Edwards et al., 2012). Gómez (2021) replicated these patterns specifically in relation

to campus sexual assault. In a study of 368 university students, experiences of high betrayal sexual trauma were related to dissociative symptoms, even when accounting for the influence of *medium betrayal sexual trauma* (i.e., sexual violence perpetrated by someone not close to the victim). Results of this study also indicated an interaction between gender and sexual assault history; the relationship between high betrayal sexual trauma and dissociative symptoms was stronger for women than for men (Gómez, 2021).

Furthermore, immediate social support plays an important role in post-assault experiences. General social support (i.e., having close friends, family members, or intimate relationships) has been found to protect against posttraumatic stress among sexual assault survivors (Bryant-Davis et al., 2011; Ullman, 1999; Ullman et al., 2007b). Reactions to disclosure of sexual violence within relationships and social support networks have also been key factors studied in the literature. Although positive responses to disclosure (e.g., validation, listening, emotional or informational support) have been found to be related to fewer PTSD symptoms and psychological distress in some research on sexual violence (Campbell et al., 2001; Coker et al., 2002; Filipas & Ullman, 2001), research suggests that negative responses to disclosure are more robustly linked to harmful outcomes (Dworkin et al., 2019; Ullman, 2010). Multiple types of negative responses have been studied in depth within the sexual assault literature (Ullman, 2000), including: treating differently/stigmatize reaction (e.g., avoiding them or telling them they are “damaged”); egocentric reactions (e.g., responding with such distress that the survivor must comfort them); distraction reactions (e.g., attempts to divert the conversation to another topic); taking control reactions (e.g., making decisions in place of the survivor); and victim blame reactions (e.g., telling the survivor they could have prevented their assault). These negative responses have been grouped into two main categories by Ullman

(2000), which include Turning Against responses (i.e., stigmatizing, infantilizing, or blaming) and Unsupportive Acknowledgment responses (i.e., distracting, controlling, or egocentric responses). Relationships between negative reactions to disclosure and higher rates of PTSD symptoms, depression, substance use, and general distress have been found in both cross-sectional (Borja et al., 2006; DeCou et al., 2017; Hakimi et al., 2018; Nikulina et al., 2019; Ullman, 2000; Ullman, 2007; Sigurvinsdottir & Ullman, 2015b; Milliken et al., 2016) and longitudinal studies (Littleton, 2010). The potency of negative responses is especially important to note, given that most sexual violence victims report receiving both helpful and unhelpful responses to disclosures (Filipas & Ullman, 2001). Such research is also particularly relevant because most survivors of sexual violence report disclosing their experience to at least one other person (Ahrens et al., 2007; Jacques-Tiura, et al., 2010).

Institutional factors. Empirical research studying meso/exosystem factors and institutional betrayal suggests that institutional context has important effects on individuals' sexual violence outcomes. Research indicates that a minority of survivors reach out to larger institutions for support. Across two studies, only 24% of adult survivors and 8-15% of adolescent survivors reached out to formal institutions, such as the criminal justice system, healthcare system, university Title IX office, or advocacy organizations (Casey & Nurius, 2006; Jacques-Tiura et al., 2010). These low rates exist for several reasons, including lack of accessibility, and fears of negative responses from service providers (Logan et al., 2005). In initial research on help-seeking from formal service agencies, insensitive responses by police and the justice system, such as asking victim-blaming questions and inadequate follow-up, were associated with higher levels of PTSD symptoms (Campbell et al., 1999; Campbell et al., 2001; Campbell & Raja, 2005). A similar pattern of relationships was found among victims who sought help from

the medical/healthcare system (Campbell et al., 1999; Campbell et al., 2001; Campbell & Raja, 2005).

Research using an institutional betrayal framework aligns with these patterns. The first study on institutional betrayal was conducted within the context of campus sexual assault (Smith & Freyd, 2013). Results from this study found that experiences of institutional betrayal by the university exacerbated the pre-existing relationships between sexual assault victimization and anxiety, dissociation, and sexual symptoms (Smith & Freyd, 2013). These associations were replicated, even when controlling for experiences of interpersonal betrayal (Smith & Freyd, 2017). Institutional betrayal has also been found to be an independent predictor of sexual violence-related outcomes within the context of the military (Andresen et al., 2019; Holliday & Monteith, 2019; Monteith et al., 2016) and high schools (Lind et al., 2020). Additional research suggests that sexual and racial/ethnic minority individuals may be at particular risk for institutional betrayal and its negative impacts (Cromer et al., 2017; Gómez, 2015; Smidt et al., 2021; Smith et al., 2016).

Sociocultural factors. Compared to other levels of the social ecology, relatively little empirical research exists within the field of psychology linking sociocultural contexts directly to individual outcomes of sexual violence. However, the research that does exist makes a compelling argument for the complex influence of sociocultural factors on sexual violence outcomes. There is evidence suggesting that cultural and societal norms can directly and indirectly affect survivor distress (Dworkin & Weaver, 2021). In one study, Asian American women who experienced sexual trauma were more likely to report self-blaming beliefs than white American women, which corresponded to higher levels of distress (Koo et al., 2014). Such beliefs were hypothesized to relate to higher levels of rape myth acceptance and gendered norms

within Asian American communities (Koo et al., 2014). In a qualitative study of Orthodox Jewish male sexual abuse survivors in Israel, norms supporting taboos of male vulnerability and silencing of sexuality were directly related to survivor distress and disclosure (Zalcberg, 2017). Similarly, the pervasiveness of rape-supportive norms in society can influence symptoms, even when not directly endorsed by themselves. In one study, survivors' perceptions of higher rape myth acceptance and traditional gendered expectations among their peers, but not their own endorsement of these beliefs, were related to their trauma symptomatology (Dworkin et al., 2017b; Paul et al., 2009). However, another study suggested that a victim's rape myth acceptance may be *protective* against developing depression and PTSD after a sexual assault (Valdespino-Hayden et al., 2021).

Norms also need not specifically relate to sexual violence or gender to influence recovery (Dworkin & Weaver, 2021). Some evidence suggests individuals who hold cultural beliefs that emphasize responsibility for the well-being of the collective group may experience increased levels of self-blame and subsequent psychological distress after an assault (Fontes, 2007). Yet other studies link collectivist values, as well as pride in one's ethnic identity, to supportive community responses that could facilitate recovery (Fontes & Plummer, 2010; Low & Organista, 2000; Singh et al., 2010). Similarly, norms regarding general expected emotional responses have been documented to influence survivors' outcomes after sexual assault. For instance, the internalization of the "strong Black women" or "Black superwomen" stereotype can affect Black women's emotional reactions to sexual assault (Fontes & Plummer, 2010; McGuffey, 2013; Neville et al., 2004; Tillman et al., 2010; Ullman & Lorenz, 2020). These stereotypes are also linked to lower rates of disclosure and reporting (Donovan & Williams, 2008).

Research also indicates that oppressive beliefs, such as sexism, racism, classism, and heterosexism, can uniquely shape and exacerbate distress symptoms of members of marginalized groups in complex ways. On their own, experiences with sexism, racism, and heterosexism have been linked PTSD symptoms (e.g., Dworkin et al., 2018a). These experiences likely add to the stress of sexual violence (Dworkin & Weaver, 2021). Furthermore, those who exist at the intersections of multiple marginalized identities (for a discussion of intersectionality, see Crenshaw, 1991) report being burdened by multiple forms of violence (e.g., racialized sexual violence; Buchanan et al., 2018; Buchanan & Ormerod, 2002). Individuals with marginalized identities also report being hesitant to seek help after sexual assault (Campbell et al., 2001; Neville & Heppner, 1999; Taylor & Putt, 2007). This suggests that they may perceive formal resources to be inadequate, discriminatory, or culturally incompetent, and/or they may need to protect their group from additional discrimination (e.g., Gómez & Gobin, 2020).

Although research on structural considerations is lacking in current research, research regarding compelled disclosure policies on university campuses (e.g., Holland et al., 2018) is increasing. In one study (Holland et al., 2021a), participants evaluated university sexual assault policies that contained either compelled police disclosure (i.e., a report is filed with the police, regardless of the victim's wishes) and consented police disclosure (i.e., a report is filed with the police only if the victim consents). Prior sexual assault exposure and lower trust in police was related to lower support for the compelled disclosure policy than the consented police disclosure policy. This study provides evidence that victims of sexual violence prefer structural policies that account for survivor consent (Holland et al., 2021a). Allowance of individual agency when reporting sexual violence may re-establish a sense of control and influence help-seeking behaviors (Holland et al., 2021a). Other promising research has identified factors influencing the

barriers survivors experience when deciding to reach out to university support after sexual assault, such as minimization. This research also links these decisions to societal factors perpetuating this minimization (Holland et al., 2021b).

Relevance to Campus Sexual Assault Outcomes

Given this general research on sexual violence, multiple contextual factors presumably impact outcomes specifically among college student victims of campus sexual assault. College students, particularly first-year students, live and study in close proximity to each other, and they rely on each other for important sources of social support. However, when college students experience sexual violence, they usually are familiar with or share a social circle with their assailant, with the majority of victims reporting some additional contact with their assailant after the assault (Rosenthal & Freyd, 2022). Often, interactions with assailants involve additional invalidation and denial of their experiences (Rosenthal & Freyd, 2022). Other college students may choose to disclose their assault to close friends, who may or may not respond to this disclosure supportively. Based on prior research, negative reactions to disclosure, including Turning Against responses and Unsupportive Acknowledgment responses, may be particularly potent predictors of distress after campus sexual assault. Thus, a victim's relational familiarity with the perpetrator, continued contact with the perpetrator, and social reactions of fellow university students likely play a crucial role in campus sexual violence outcomes.

In addition, college students are at high risk for experiencing institutional betrayal, as universities have a history of failing to prevent sexual violence from occurring and failing to provide an adequate response (Smith & Freyd, 2014). This institutional betrayal manifests in many forms. Institutional betrayal may exist within a university's continued endorsement and promotion of organizations (e.g., Greek life, athletics) that have high rates of sexual violence,

frequently perpetuate “rape culture” and “party culture” (Armstrong et al., 2006), or that actively cover up reports of sexual assaults (Smith & Freyd, 2014). Institutional betrayal may also be exhibited in sexual violence prevention programs that are re-traumatizing or appear irrelevant (Karunaratne & Harris, 2022; Worthen & Wallace, 2021), or reporting policies that are invalidating, coercive, and paternalistic (e.g., Holland, 2020; Holland et al., 2018). Still other experiences may involve mistreatment from university resources, including the Title IX office, counseling center, or health center – the very same resources that are supposed to provide students with guidance and aid (Smith & Freyd, 2014). Yet, universities can also promote healing to many students through the very same mechanisms when policies and services are implemented in an intentional, victim-centered, and courageous way (Freyd, 2014).

These complex institutional interactions, complicated by the power dynamics that exist between university authorities and students, likely influence survivors’ outcomes above and beyond peer support or disclosures, and thus should be investigated in tandem. At the same time, universities also exist in the larger sociocultural environment, which, in the United States, is rife with individualism, rape myth acceptance, and oppressive beliefs (e.g., racism, classism, ableism). When a student is perpetrated against someone who shares a marginalized identity, cultural betrayal (Gómez & Gobin, 2020) may also be a relevant factor to consider, particularly when the identity is minoritized within the university institution (e.g., a Black victim of sexual assault perpetrated by another Black student within the context of a predominantly white-serving institution that employs an on-campus police presence).

Focus of Dissertation Chapters II-IV

Building from and integrating the theories of trauma-related distress and recovery described above, the remainder of this dissertation examines how several intrapersonal and

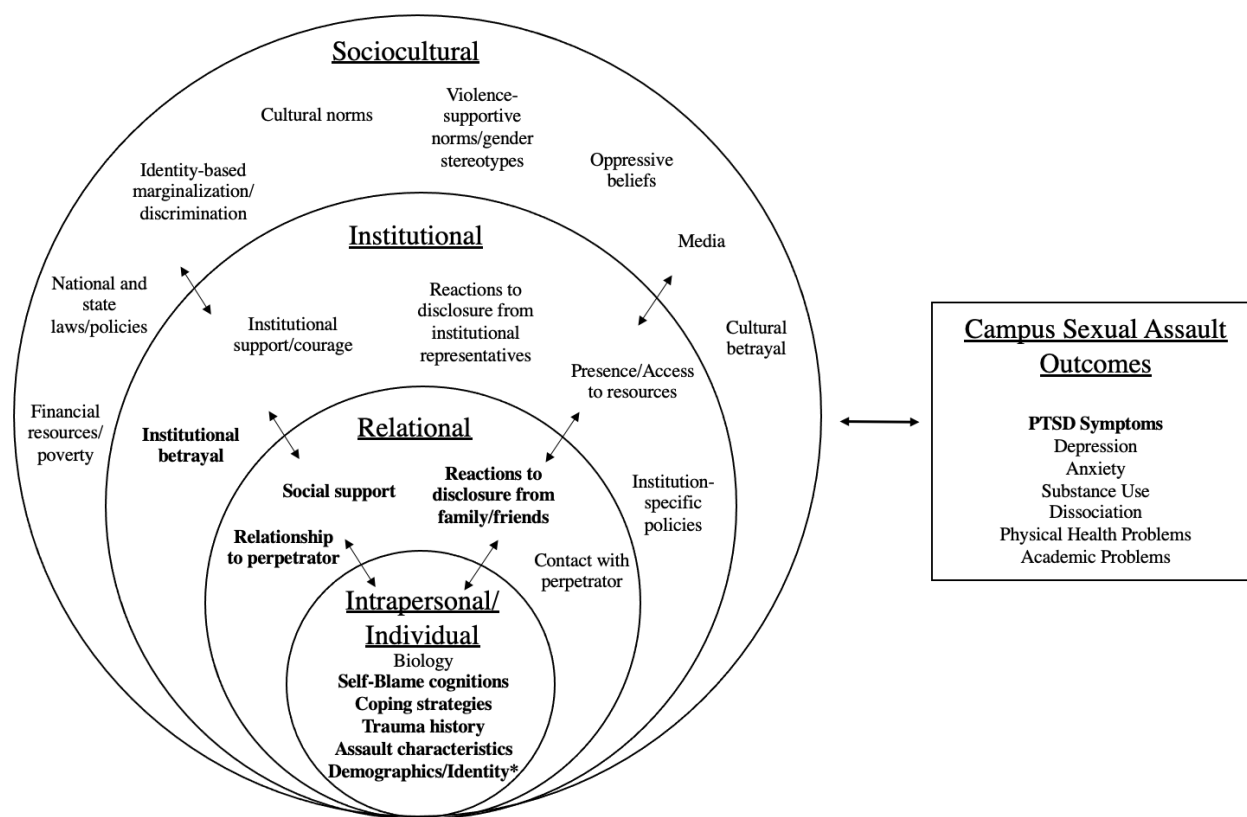
contextual factors predict posttraumatic stress among sexual assault survivors at the University of Oregon, a large public university located in the Pacific Northwest. This dissertation uses both a socioecological and betrayal trauma lens and reports on the results of two components of a single empirical project. The first component involves a cross-sectional analysis of data from an initial survey. This serves as the focus of Chapter II (Dissertation Aims 1-2). In this chapter, I investigate how multiple individual and contextual factors⁷ are uniquely associated with posttraumatic stress among a large sample of undergraduate students with a variety of campus sexual assault victimization experiences. Variables examined in Chapter II include commonly studied intrapersonal factors (e.g., self-blame cognitions, coping behaviors, assault characteristics, demographics), relational factors (e.g., relationship to perpetrator, general social support, negative reactions to disclosures), and institutional factors (e.g., institutional betrayal). The factors selected for study were chosen because of their close ties to trauma theory and prior research. The second component involves a longitudinal analysis of data from several follow-up surveys. This is the focus of Chapter III (Dissertation Aims 3-4). In this chapter, I investigate the relationships between posttraumatic stress, campus sexual assault victimization, and a specific contextual factor of interest – institutional betrayal – across a period of six months among a small subsample of students. Chapter IV consists of an integrated discussion of these two analyses within the context of prior theory and literature. As a whole, this dissertation attempts to replicate relationships found in the general sexual violence literature discussed above and clarify how factors at multiple layers of the social ecology contribute to posttraumatic stress among campus sexual assault survivors. A visual depiction of the variables examined in the remaining

⁷ Unfortunately, the ability to examine sociocultural aspects was also hampered by data collection from students only within a single university institution, the student body of which is predominantly white. I look forward to future research in this area.

sections of this dissertation in relation to the integrated socioecological framework discussed above is depicted in Figure 1, with bolded sections denoting areas of focus. Although larger sociocultural factors (e.g., cultural norms, gender stereotypes, cultural betrayal) are important to examine, such factors will not be the focus of this dissertation, as it first aims to clarify the role of relational and institutional factors.

Figure 1

A depiction of individual and contextual factors influencing campus sexual assault outcomes, with bolded terms emphasizing focus of remaining dissertation sections.



Note: This was modeled after Gomez's illustration of cultural betrayal trauma theory (Gomez, Johnson-Freyd, & Gobin, 2018), which was modeled on Bronfenbrenner's ecological systems model (1979). *Demographic and identity characteristics are intricately linked with sociocultural factors.

CHAPTER II

CROSS-SECTIONAL ANALYSIS

This chapter describes a cross-sectional analysis of intrapersonal factors (e.g., coping behaviors, self-blame cognitions), relational factors (e.g., relationship to perpetrator, general social support, negative reactions to disclosures), and institutional factors (e.g., institutional betrayal) related to posttraumatic stress among campus sexual assault survivors. Data used in this analysis were collected through an initial survey of a large sample of undergraduate students at the University of Oregon, a public university in the Pacific Northwest. Posttraumatic stress was selected as the primary outcome of interest in this study because of its frequent link to the trauma outcome literature. The specific factors examined were selected for study based on their robust support in prior research, their representation of multiple layers of the social ecology, and their relevance to college students' experiences of sexual assault. The primary factors of interest (i.e., avoidance, self-blame, victim-perpetrator relationship, social support, negative reactions to disclosure, and institutional betrayal) examined in this chapter have been linked to sexual assault outcomes (see Chapter I for a review), but these variables have typically been studied in isolation of one another. These factors likely influence one another (e.g., negative reactions to disclosure may lead to more self-blame, which leads to higher posttraumatic stress), yet it remains unclear if each of these variables explains unique variance in posttraumatic stress on their own, after accounting for their covariance with one another.⁸ Although a handful of studies have examined coping, self-blame, social support, and disclosure reactions together (see Ullman et al., 2007b for an example), I am not aware of any prior study that has examined these factors together in the

⁸ Mediation hypotheses, such as the one just discussed, were inappropriate for the current cross-sectional study design.

context of the victim-perpetrator relationship and institutional betrayal, or using a betrayal trauma lens. The following analysis had two aims, with two specific hypotheses.

Aim 1

The first aim of this study is to replicate bivariate relationships found in prior literature between intrapersonal, relational, and institutional factors and posttraumatic stress among campus sexual assault survivors.

Hypothesis 1. I hypothesized that self-blame cognitions, avoidance coping, negative reactions to disclosure, and institutional betrayal will be positively correlated with posttraumatic stress. I hypothesized that social support will be negatively related to posttraumatic stress. I hypothesized that victims with a close relationship to their perpetrator will report higher levels of posttraumatic stress than those without a close relationship to their perpetrator.

Aim 2

The second aim of this study is to examine the unique contributions of intrapersonal, relational, and institutional factors to posttraumatic stress.

Hypothesis 2. I hypothesized that avoidance coping, self-blame cognitions, victim-perpetrator relationship, social support, negative reactions to disclosure, and institutional betrayal will predict⁹ unique variance in posttraumatic stress, while controlling for potential confounding variables, including trauma history, assault-related characteristics, and demographic characteristics.

Method

Participants

⁹ I use the word “predict” as it is colloquially used in reference to the results of regression analyses. It is important to note that this does not connote any causal interpretations, as the data used in for analysis in this chapter is cross-sectional.

Students enrolled in the Psychology/Linguistics Human Subjects Pool at the University of Oregon were eligible to participate in the initial survey study. There were no exclusion criteria. Participants received course credit (one credit) for completion of the one-hour survey. The Human Subjects Pool at the University of Oregon is designed in such a way that minimizes self-selection bias. In this pool, students sign up for research studies without knowing the topic or study name beforehand, and all studies are labeled using the name of famous composers (e.g., “Auenbrugger”). Students have the option to discontinue the study, however, during the informed consent process. Students who discontinue the survey at any time after the consent process receive .25 credit for each 15 minutes they participated. Courses requiring research credit also offer alternative assignments for students who do not wish to participate in research.

In the initial survey, 1465 students read and completed the informed consent form on the first page of the survey across three academic terms (Winter 2022, Spring 2022, Fall 2022). During this period, introductory classes were required by university policy to be held in-person on the university campus in Eugene, Oregon. At the informed consent stage, four (0.3%) individuals refused to consent. Of those who consented ($N = 1461$), 1427 (97.7%) completed the survey. A visual inspection of completion data indicated a roughly uniform distribution of dropout rate across the survey (i.e., participants were not more likely to drop out at specific points during the survey). The most common drop-out point was immediately after participants provided consent to participate. At this time, they were presented with the first questionnaire, which asked for demographic information ($n = 8$; 23.5% of consented participants who dropped out).

Among survey completers ($N = 1427$), 54 (3.8%) individuals incorrectly answered more than one of six attention check questions and were excluded from data analysis. These questions

(e.g., “Please choose strongly agree if you are paying attention”) were placed randomly throughout the survey to serve as basic validity checks and protect against haphazard or “straight-lined” responses. Of participants included in data analysis ($N = 1373$), 89.3% ($n = 1226$) answered all six questions correctly.

After excluding participants who did not meet the attention check threshold, the overall sample consisted of 1373 individuals. There were no additional data exclusion criteria. Full demographic characteristics of the sample are listed in Table 1. Demographics of the sample were consistent with the University of Oregon Human Subjects Pool as a whole, which is over-represented by young adult women and first- and second-year students. Participants ranged in age from 18 to 42 years old ($M = 19.44$, $SD = 1.88$). A majority of individuals reported an age of 18 (31.1%; $n = 427$) or 19 (33.1%; $n = 455$) years, as well as a first-year (50.2%; $n = 689$) or second-year (25.3%; $n = 348$) student status. Among the sample, 67.4% ($n = 925$) identified as woman, 27.2% ($n = 374$) identified as man, 3.1% ($n = 43$) identified as non-binary, 1.2% ($n = 17$) opted to self-describe their gender(s) using an open-text response box (common responses included gender expansive, genderqueer, genderfluid, agender, and questioning), and 1.0% ($n = 14$) did not report gender. Most participants reported their gender as consistent with their sex formally assigned at birth (95.6%; $n = 1313$), identified as heterosexual (68.5%; $n = 941$), identified their race/ethnicity as including white/European American (75.7%; $n = 1040$) or as exclusively white/European (62.0%; $n = 851$), and were single (65.9%; $n = 905$). Participants predominantly lived in a university residence hall/dormitory (50.4%; $n = 692$) or an off-campus house or apartment (38.5%; $n = 528$), were full-time students enrolled in at least 12 academic credits (92.7%; $n = 1273$), and were involved in at least one university extracurricular activity (63.9%; $n = 878$). The sample contained a minority of international students (2.1%; $n = 29$) and a

Table 1*Sample Demographics for Full Sample (N = 1373)*

Age	n(%)	Race/Ethnicity[^]	n(%)
18	427(31.1)	Alaskan Native/Native American	24(1.7)
19	455(33.1)	Asian/Asian American	181(13.2)
20	242(17.6)	Black/African American	58(4.2)
21	149(10.9)	Hispanic/Latino	223(16.2)
22	50(3.6)	Middle Eastern/North African	25(1.8)
23	16(1.2)	Native Hawaiian/Pacific Islander	27(2.0)
24	6(0.4)	White/European American	1040(75.7)
25+	24(1.7)	Not Listed/Self-Describe	21(1.5)
No Answer	4(0.3)	No Answer	1(0.1)
Student Year		Relationship Status	
First-year	689(50.2)	Single	905(65.9)
Second-year	348(25.3)	In a relationship	455(33.1)
Third-year	201(14.6)	Married	9(0.7)
Fourth-year	108(7.9)	Domestic Partnership	3(0.2)
Other/ Self-Describe	27(2.0)	Divorced/Separated	1(0.1)
Gender		Widowed	0(0.0)
Woman	925(67.4)	Housing	
Man	374(27.2)	Dormitory/On-Campus	692(50.4)
Non-Binary	43(3.1)	Off-Campus House/Apartment	528(38.5)
Not Listed/Describe	17(1.2)	Home with Parents/Guardians	76(5.5)
No Answer	14(1.0)	Fraternity/Sorority House	67(4.9)
Gender/Sex		Not Listed/Other	8(0.6)
Matches Birth	1313(95.6)	No Answer	2(0.1)
Does Not Match	57(4.2)	Enrolled Credits	
No Answer	3(0.2)	Below 12	100(7.3)
Sexual Orientation		12-16	1061(77.3)
Asexual	21(1.5)	17+	212(15.4)
Bisexual	250(18.2)	Extracurricular Involvement	
Gay	17 (1.2)	0	493(35.9)
Heterosexual	941(68.5)	1	446(32.5)
Lesbian	28(2.0)	2	293(21.3)
Queer	48(3.5)	3	104(7.6)
Pansexual	51(3.7)	4	23(1.7)
Not listed/Describe	15(1.1)	5+	12(0.9)
No Answer	2(0.1)	No Answer	2(0.1)

Table 1 (continued)*Sample Demographics for Full Sample (N = 1373)*

International Student	<i>n</i>(%)	Disability Status	<i>n</i>(%)
Yes	29(2.1)	Yes	177(12.9)
No	1340(97.6)	No	1195(87.0)
No Answer	4(0.3)	No Answer	1(0.1)

Note. Percentages may not add up to 100 due to rounding. ^Frequencies will not add up to 1373 and percentages will not add up to 100 because participants were able to select all identities that applied to them.

minority of students self-reported a mental, physical, or emotional condition or disability that limits their activities (12.9%; $n = 177$).

A subsample ($n = 295$; 21.5%) of these 1373 individuals with a campus sexual assault history was used for the majority of analyses presented in this chapter. This subsample consisted of individuals who indicated experiences with attempted or completed nonconsensual sexual contact, sexual assault, and/or rape while enrolled at the University of Oregon (see Measures section for definition via the Sexual Experiences Questionnaire). Participants in this subsample ranged in age from 18 to 26 years old ($M = 19.53$, $SD = 1.31$). A majority of individuals reported an age of 18 (23.7%; $n = 70$) or 19 (31.2%; $n = 92$) years, as well as a first-year (38.3%; $n = 113$) or second-year (29.5%; $n = 87$) student status. Among the sample, 78.0% ($n = 230$) identified as woman, 15.6% ($n = 46$) identified as man, 3.1% ($n = 9$) identified as non-binary, 1.7% ($n = 5$) opted to self-describe their gender(s) using an open-text response box, and 1.7% ($n = 5$) did not report gender. Most participants reported their gender as consistent with their sex formally assigned at birth (94.6%; $n = 279$), identified as heterosexual (65.8%; $n = 194$), identified their race/ethnicity as including white/European American (76.3%; $n = 225$) or as exclusively white/European (61.4%; $n = 181$), and were single (68.5%; $n = 202$). Similar to the general sample, participants predominantly lived in a university residence hall/dormitory (41.4%; $n =$

122) or an off-campus house or apartment (48.1%; $n = 142$), were full-time students enrolled in at least 12 academic credits (76.9%; $n = 227$), and were involved in at least one university extracurricular activity (71.2%; $n = 210$). The sample contained a minority of international students (1.7%; $n = 5$), and a minority of students reporting a mental, physical, or emotional condition or disability that limits their activities (16.6%; $n = 49$). Full demographic information for this subsample is included in Table 2.

Participants in this subsample endorsed an average of 3.12 instances of sexual assault ($SD = 3.11$) while enrolled at the University of Oregon. Just under half of participants indicated experiencing attempted or completed rape during college (47.1%; $n = 139$), and one-third indicated experiencing completed rape during college (35.9%; $n = 106$). The majority of the sample reported experiencing attempted or completed sexual assault prior to college (69.8%; $n = 206$), and half of participants reported experiencing attempted or completed rape prior to college (50.2%; $n = 148$). Each participant in the subsample ($n = 295$) was asked to report on the characteristics of the most distressing or disturbing sexual assault incident they experienced while enrolled at the University of Oregon. Five participants (1.7%) did not report any assault-related information and left this section blank. Approximately half of the participants reported on an event that occurred within the past six months (50.8%; $n = 150$) and involved a perpetrator who was a student (50.8%; $n = 150$). The majority of the perpetrators were men (85.8%; $n = 253$) and known by the victim to some extent (70.8%; $n = 209$). A plurality of assaults occurred within university-affiliated locations (37.5%; $n = 110$) or within the immediate local community (38.3%; $n = 113$; for a visualization of where on-campus assaults occurred, see Figure 2). Although a majority of students indicated that they discussed the incident with someone else

Table 2*Sample Demographics for Sexual Assault Subsample (N = 295)*

Age	n(%)	Race/Ethnicity^	n(%)
18	70(23.7)	Alaskan Native/Native American	3(1.0)
19	92(31.2)	Asian/Asian American	38(12.9)
20	67(22.7)	Black/African American	16(5.4)
21	44(14.9)	Hispanic/Latino	47(15.9)
22	11(3.7)	Middle Eastern/North African	3(1.0)
23	6(2.0)	Native Hawaiian/Pacific Islander	10(3.4)
24	1(0.3)	White/European American	225(76.3)
25+	1(0.3)	Not Listed/Self-Describe	5(1.7)
No Answer	3(1.0)	No Answer	0(0.0)
Student Year		Relationship Status	
First-year	113(38.3)	Single	202(68.5)
Second-year	87(29.5)	In a relationship	93(31.5)
Third-year	56(19.0)	Married	0(0.0)
Fourth-year	34(11.5)	Domestic Partnership	0(0.0)
Other/Describe	5(1.7)	Divorced/Separated	0(0.0)
Gender		Widowed	0(0.0)
Woman	230(78.0)	Housing	
Man	46(15.6)	Dormitory/On-Campus Housing	122(41.4)
Non-Binary	9(3.1)	Off-Campus House/Apartment	142(48.1)
Not Listed/Describe	5(1.7)	Home with Parents/Guardians	10(3.4)
No Answer	5(1.7)	Fraternity/Sorority House	19(6.4)
Gender/Sex		Not Listed/Other	1(0.3)
Matches Birth	279(94.6)	No Answer	1(0.3)
Does Not Match	16(5.4)	Enrolled Credits	
No Answer	0(0.0)	Below 12	16(5.4)
Sexual Orientation		12-16	227(76.9)
Asexual	1(0.3)	17+	52(17.6)
Bisexual	70(23.7)	Extracurricular Involvement	
Gay	3(1.0)	0	84(28.5)
Heterosexual	194(65.8)	1	98(33.2)
Lesbian	3(1.0)	2	72(24.4)
Queer	8(2.7)	3	29(9.8)
Pansexual	11(3.7)	4	7(2.4)
Not listed/Describe	5(1.7)	5+	4(1.4)
No Answer	0(0.0)	No Answer	1(0.3)

Table 2 (Continued)

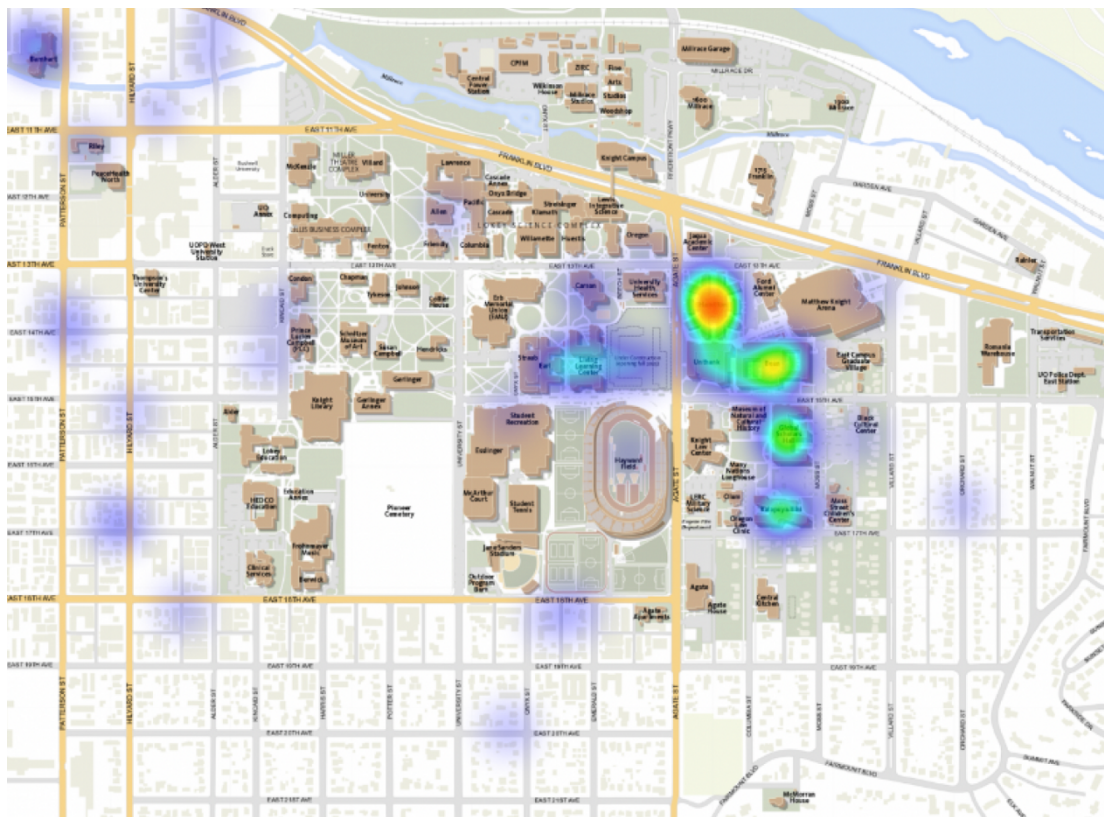
Sample Demographics for Sexual Assault Subsample (N = 295)

International Student Status	n(%)	Disability Status	n(%)
No	288(97.6)	No	246(83.4)
Yes	5(1.7)	Yes	49(16.6)
No Answer	2(0.7)	No Answer	0(0.0)

Note. Percentages may not add up to 100 due to rounding. ^Frequencies will not add up to 295 and percentages will not add up to 100 because participants were able to select all identities that applied to them.

Figure 2

Heat Map of On-Campus Sexual Assault Locations



Note: Heatmap concentrations reflect raw frequencies and do not take into account the relative number of individuals who may live in specific places (i.e., many individuals live in a dormitory, whereas fewer individuals live in off-campus apartments).

(64.1%; $n = 189$), only a minority of students spoke to Title IX (3.1%; $n = 9$), spoke to law enforcement (1.7%; $n = 5$), sought medical services (6.4%; $n = 19$), sought psychological services (17.3%; $n = 51$), or sought any other type of formal resource (e.g., university women's center; 1.7%; $n = 5$). Assault-related information for this subsample is included in Table 3.

Procedure

All survey procedures were approved by the University of Oregon Office of Research Compliance (Institutional Review Board). Approval was granted in January 2022. Data collection began in February 2022 and continued until December 2022. In the initial survey, participants first reviewed an informed consent form (see Appendix A), and they indicated their consent to participate in the study by clicking an “Agree” button included in the online survey before any other survey material was provided to them. The informed consent form indicated that after completing this survey, they may be eligible for additional follow-up surveys and will be notified at the end of the survey if they are eligible (see Chapter III for additional description). In this survey, participants completed a series of questionnaires via Qualtrics survey software on a personal electronic device, and these procedures lasted approximately one hour. After they completed the survey, they were provided with a debriefing form (see Appendix B), which contained resources to local sexual violence community agencies and the university counseling center. Participants who were eligible for the follow-up survey were informed of their eligibility and provided a brief description of study procedures, including an offer of monetary compensation for participation. If they indicated their interest and provided consent for future contact, they were directed to a separate survey that was not linked to their initial survey responses (see Chapter III for additional description).

Table 3*Assault Characteristics for Participants with Campus Sexual Violence History (N = 295).*

Event Time	<i>n</i>(%)	Alcohol Consumption	<i>n</i>(%)
< 1 month ago	43(14.6)	No	132(44.7)
1-3 months ago	62(21.0)	Yes	142(48.1)
4-6 months ago	45(15.3)	Unsure	16(5.4)
6-9 months ago	29(9.8)	No Answer	5(1.7)
9-12 months ago	34(11.5)	Title IX Report/Consult	
1-2 years ago	56(19.0)	No	281(95.3)
3-4+ years ago	21(7.1)	Yes	9(3.0)
No Answer	5(1.7)	No Answer	5(1.7)
Perpetrator Relationship		Police Report/Consult	
Stranger	81(27.5)	No	285(96.6)
Acquaintance	69(23.4)	Yes	5(1.7)
Friend/Partner/Close Other	140(47.5)	No Answer	5(1.7)
No Answer	5(1.7)	Medical Services	
Perpetrator Student Status		No	271(91.9)
Student	150(50.8)	Yes	19(6.4)
Non-student	101(34.2)	No Answer	5(1.7)
Unsure	39(13.2)	Psychological Services	
No Answer	5(1.7)	No	239(81.0)
Perpetrator Gender		Yes	51(17.3)
Man	253(85.8)	No Answer	5(1.7)
Woman	34(11.5)	Other University Resources	
Non-Binary/Not Listed	2(0.7)	No	285(96.6)
No Answer	6(2.0)	Yes	5(1.7)
Event Location		No Answer	5(1.7)
On campus	65(22.0)	Disclosed to someone	
Off campus UO-affiliated	45(15.3)	No	101(34.2)
Eugene/Springfield	113(38.3)	Yes	189(64.1)
Outside Eugene/Springfield	61(20.7)	No Answer	5(1.7)
Unsure	6(2.0)		
No Answer	5(1.7)		

Note. Percentages may not add up to 100 due to rounding.

Measures

Sexual Violence History

Participants' sexual violence victimization history was measured using the 17-item Sexual Experiences Questionnaire – Long Form Version (SES-LFV; Koss, 2006; see Appendix C). On the SES, all participants ($N = 1373$) reported the frequency with which they have been exposed to 17 types of events that constitute sexual harassment, sexual assault, and/or rape. Response options ranged from 0 (“Never”) to 3 (“3 or more times”). Importantly, items on the SES use behaviorally specific language, instead of the labels “sexual assault” or “rape.” The SES is one of the most widely used questionnaires to assess sexual violence history, and it has demonstrated excellent reliability and validity in multiple prior research samples (Cecil & Matson, 2006; Johnson et al., 2017; Koss et al., 2007). Because this scale involves retrospective reporting on past life events that may or may not co-occur, an index of internal consistency (e.g., Cronbach's alpha) is inappropriate.

In the current study, participants rated these items based on their experience both prior to and since their attendance at the University of Oregon. Ratings of items corresponding to attempted/completed sexual assault and attempted/completed rape while enrolled at the University of Oregon (seven items in total) were summed to create an index of college sexual assault (Davis et al., 2014). Ratings on items corresponding to attempted/completed sexual assault and attempted/completed rape endorsed prior to enrollment at the University of Oregon were summed to create an index of pre-college sexual assault.

Assault-Related Characteristics

If participants endorsed at least one SES item corresponding to attempted/completed sexual assault (three items) or attempted/completed rape (four items) since they began attending

the University of Oregon, they were coded as “campus sexual assault group” in Qualtrics ($n = 295$). Then, they were asked additional follow-up questions about the most distressing or disturbing instance of sexual assault that they experienced while enrolled at the University of Oregon (see Appendix D). These questions included the event’s location, how long ago the event occurred, student status of perpetrator, and their relationship to the perpetrator. Participants were also asked about disclosure history (“Have you talked with anyone [e.g., friends, family, staff/faculty] about this unwanted or distressing experience that you had while at the University of Oregon?”) and formal help-seeking behavior (e.g., “Did you officially notify the university [e.g., talk with the Title IX coordinator] about this unwanted experience?”; “Did you officially notify law enforcement [e.g., file a police report] of this unwanted experience?”).

Coping Behaviors – Avoidance

Participants’ use of avoidance coping strategies was measured using the Avoidance subscale of the 28-item Coping Orientation to Problems Experienced Inventory (Brief-COPE; Carver, 1997; see Appendix E). This version is previously adapted from a longer, 60-item version of the COPE (Carver et al., 1989). On the Brief-COPE, participants rate the frequency with which they use specific coping strategies (e.g., “I use alcohol or other drugs to make myself feel better”) on a scale of 1 (“I haven’t been doing this at all”) to 4 (“I’ve been doing this a lot”). The Avoidance subscale measures participants’ use of distraction, denial, substance use, and behavioral disengagement to cope with emotional distress. Item ratings for the Avoidance subscale were averaged to create a score for each participant. The Brief-COPE has demonstrated satisfactory reliability and validity in prior research (Carver, 1997; Dias et al., 2012; Poulus et

al., 2020). In the present study, the Avoidance subscale demonstrated satisfactory reliability ($\alpha = .75$).¹⁰ All participants, regardless of campus sexual assault history, completed this survey.

Post-Traumatic Cognitions – Self-Blame

Participants' appraisals of self-blame were measured using the three-item Self-Blame subscale of the Posttraumatic Cognitions Inventory – Brief (PTCI-B; Wells et al., 2019; see Appendix F). This version is adapted from the original PTCI consisting of 33 items (Foa et al., 1999). On the PTCI-B, participants rate their agreement with statements about a traumatic event from 1 (“Totally disagree”) to 7 (“Totally agree”). An example item includes “The event happened because of the way I acted.” Ratings on each item were averaged to create a Self-Blame PTCI subscale score for each participant. All participants completed a version of this questionnaire. However, participants who endorsed an instance of campus sexual assault completed the questionnaire in relation to this experience specifically. Although the data is not being examined for the purposes of this dissertation, the remaining participants completed the questionnaire in relation to their most disturbing or distressing experience in general while enrolled at the University of Oregon. In prior studies, the PTCI-B and PTCI have demonstrated satisfactory reliability and validity (Beck et al., 2004; Foa et al., 1999; Wells et al., 2019). In this study, the subscale demonstrated satisfactory reliability ($\alpha = .77$).

Social Support

Participants' social support was measured using the 12-item Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988; see Appendix G). On the MSPSS, participants rate their general agreement with 12 statements (e.g., “I get the emotional help and

¹⁰ Unless otherwise noted, alpha values reflect the reliability of items within the campus sexual assault group ($n = 295$), as this group was the primary target of cross-sectional analyses presented in the Results section. No meaningful differences in reliability were observed between the overall sample and the campus sexual assault subsample.

support I need from my family”) on a scale of 1 (“Very strongly disagree”) to 7 (“Very strongly agree”). Participants’ ratings were summed to create a total score, although subscale scores can be derived corresponding to support levels from Family, Friends, and Significant Others. In prior research, the MSPSS has demonstrated satisfactory construct validity, test-retest reliability, and internal consistency (Clara et al., 2003; Zimet et al., 1988; Zimet et al., 1990). In the present study, this scale demonstrated satisfactory reliability ($\alpha = .88$). All participants, regardless of campus sexual assault history, completed this survey.

Reactions to Disclosures

Reactions to disclosure of sexual assault were measured using the 16-item version of the Social Reactions Questionnaire – Short (SRS-S; Ullman et al., 2017; see Appendix H), which is adapted from the original 48-item version (Ullman, 2000). On the SRQ-S, participants rate the degree to which they have received specific responses from others when they disclosed an unwanted or nonconsensual sexual experience. Response options range from 0 (“Never”) to 4 (“Always”). Only participants who endorsed an instance of campus sexual assault *and* endorsed talking about this experience to a friend or family member were presented with this questionnaire ($n = 184$). Participants who did not report any campus sexual assault victimization completed an analogous task that was not used in the present dissertation analyses. The SRQ-S contains three overall scales, which include Turning Against (six items; e.g., “Told you that you were irresponsible or not cautious enough”; includes responses that are stigmatizing, infantilizing, or blaming), Unsupportive Acknowledgment (six items; e.g., “Became so upset that they needed reassurance from you”; includes responses that are distracting, controlling, or egocentric), and Positive Reactions (four items; e.g., “Provided information and discussed options”; includes responses that offer emotional support or tangible aid). Only the Turning Against and

Unsupportive Acknowledgment subscales were used for analysis, given prior research linking negative responses to psychological distress. In prior research, the SRQ and SRQ-S have demonstrated satisfactory reliability and validity (Ullman, 2000; Ullman et al., 2017). In the present study, the Turning Against subscale ($\alpha = .85$) and the Unsupportive Acknowledgment subscale ($\alpha = .74$) demonstrated satisfactory reliability.

Institutional Betrayal

Participants' experiences of institutional betrayal were measured using the Institutional Betrayal Questionnaire (IBQ; Smith & Freyd, 2013; Smith & Freyd, 2017; see Appendix I). The IBQ is a 12-item measure that is answered in relation to a traumatic or stressful event that occurs within an institutional context. In this study, the IBQ measured the degree to which the university either 1) failed to prevent the sexual assault event(s) from occurring (e.g., "Did the university play a role by creating an environment in which this type of experience seemed more likely to occur?"), or 2) did not adequately address the sexual assault event(s) after it occurred (e.g., "Did the university play a role by making it difficult to report the experience?"). All participants completed a version of this questionnaire. However, participants who endorsed an instance of campus sexual assault completed the IBQ in relation to this experience specifically. Although the data is not being examined for the purposes of this dissertation, the remaining participants completed the IBQ in relation to their most disturbing or distressing experience in general while enrolled at the University of Oregon. While completing the IBQ, participants select from three response options: "Yes," "No," and "Not Applicable." Items endorsed as "Yes" by each participant were summed to create a total index of institutional betrayal, where higher scores represent higher levels of institutional betrayal. Because this scale involves retrospective

reporting on life events that may or may not co-occur, an index of internal consistency (e.g., Cronbach's alpha) is inappropriate.

Post-Traumatic Stress

Posttraumatic stress was measured using the 20-item Post-Traumatic Stress Disorder Checklist for DSM-5 (PCL-5; Weathers et al., 2013; see Appendix J). On the PCL-5, participants self-report the frequency with which they have experienced symptoms of posttraumatic stress (e.g., "Repeated, disturbing, and unwanted memories of the stressful experience?") in the past month. Response options range from 0 ("Never") to 4 ("Extremely"). All participants were presented with this questionnaire. However, participants with a campus sexual assault history completed this survey in relation to their most disturbing or distressing sexual assault experience while enrolled at the University of Oregon. The remainder of the sample completed this survey in relation to their most disturbing or disturbing experience in general while enrolled at the University of Oregon. Participants' ratings on each item were summed to create a score representing total symptom severity. Multiple subscale scores that correspond to the DSM-5 PTSD symptom clusters (e.g., Cluster B – intrusion symptoms) can also be generated. Total symptom scores theoretically range from 0 to 80, and a total score of 31-33 represents clinically significant PTSD symptoms. In this study, scores ranged from 0 to 80 among participants with and without campus sexual violence history. The PCL-5 is a widely used measure of posttraumatic stress that has demonstrated satisfactory convergent validity, discriminant validity, test-retest reliability, and internal consistency in prior studies on trauma-exposed college students (Blevins et al., 2015). In this study, the measure demonstrated satisfactory reliability ($\alpha = .96$).

Demographic Characteristics

Participants also answered several questions regarding their demographic characteristics, including their gender, age, sexual orientation/identity, race/ethnicity, relationship status, academic/student statuses, living arrangement, and disability status (see Appendix K). For use in statistical analyses, three variables were derived from the demographic questionnaire: gender, non-white racial/ethnic identity, and non-heterosexual sexual identity.¹¹

Other Survey Measures

The following measures were also administered to participants in the same survey (but were not examined for the purposes of this dissertation): Brief Betrayal Trauma Survey (Goldberg & Freyd, 2006); School Climate and School Identification Measure–Student (SCSIM; identification subscale only; Lee et al., 2017); Gender Experiences Questionnaire (GEQ; Leskinen et al., 2014); Non-Consensual Condom Removal Experiences (NCCR; Czechowski et al., 2019); Difficulties in Emotion Regulation Scale – Short Form (DERS-SF; Kaufman et al., 2016); Institutional Courage Questionnaire (ICQ; Smidt et al., 2023); Psychological Services Barriers Measure (PBSM; Holland et al., 2021); Illinois Rape Myth Acceptance Scale – Subtle Version (IRMA-S; Thelan & Meadows, 2021); Trauma Symptoms Checklist (TSC-40; Elliot & Briere, 1992); Patient Health Questionnaire (PHQ-2; Kroenke et al., 2003); General Anxiety Disorder questionnaire (GAD-2; Kroenke et al., 2007); and Alcohol Use Disorders Identification Test (AUDIT-C; Bush et al., 1998).

Data Analysis Plan

¹¹ I want to recognize that a single variable representing race/ethnicity and sexual orientation (with the majority group as a reference group) is an over-simplified and outdated practice, at best, and has the potential to cause harm by reifying existing systems of white supremacy and heterosexism. By grouping experiences of all marginalized groups together, this type of variable creation reduces the diversity of experiences within marginalized groups. Because of the source of this sample, which is from a predominantly white-serving institution, and low cell sizes for each racial or ethnic identity group, I have reluctantly resorted to a rudimentary method for estimating a relationship between participants' marginalized racial or sexual identity and their mental health. I was not able to adequately construct these variables while maintaining enough statistical power to detect important effects of marginalization.

Preliminary Analyses

Initial preliminary descriptive and inferential statistics were used to establish associations between campus sexual assault and posttraumatic stress within the whole sample ($N = 1373$). Then, given the mixed findings in prior research, additional preliminary analyses were conducted on only those individuals who indicated experiencing campus sexual assault ($n = 295$) to assess for differences in study variables related to demographic and assault-related characteristics. These analyses were conducted to determine if these variables should be included as covariates in regression models. These differences were evaluated using two-sample t-tests.

Hypothesis 1

To evaluate my first hypothesis regarding bivariate correlations between posttraumatic stress and intrapersonal, relational, and institutional factors, descriptive statistics and Pearson's r correlation coefficients were calculated for continuous variables of interest. T-tests were used to examine differences in posttraumatic stress based on victim-perpetrator relationship.¹²

Hypothesis 2

To evaluate my second hypothesis, two regression models predicting posttraumatic stress were estimated in multiple steps – the first among all students who experienced campus sexual assault ($n = 295$) and the second among only those students who disclosed the assault to a family member or friend (62.4% of sexual assault sample; $n = 184$). The first step of each model contained trauma history variables (pre-college sexual assault history, college sexual assault history), demographic characteristics,¹³ and intrapersonal factors (i.e., avoidance coping, self-blame cognitions). In the second step, relational factors (i.e., relationship with perpetrator, social

¹² This variable was coded as 0 = stranger, 1 = acquaintance, 2 = close other/friend/family member/partner.

¹³ These consisted of gender (coded as 0 = woman, 1 = man, 2 = nonbinary/nonconforming/expansive) race/ethnicity (coded as 0 = white/European, 1 = non-white/minority identity), and sexual identity (coded as 0 = heterosexual, 1 = non-heterosexual)

support, negative reactions to disclosure in second model only) were added. In the third step, institutional betrayal was added.

Model assumptions were evaluated for each regression model using the *performance* (Version 0.7.3; Lüdtke et al., 2021) package. The models were found to be consistent with standard assumptions of collinearity, normality of residuals, and homogeneity of variance. The models indicated mild problems with heteroskedasticity. Robust standard errors were applied to each model using the *sandwich* package (Version 3.0.1; Zeileis et al., 2020) to account for this potential assumption violation.

Statistical Software

For analyses, I used *R* (Version 4.3.0; R Core Team, 2018) and *R* packages *psych* (Version 2.3.3; Revelle, 2023), *tidyverse* (Version 2.0.0; Wickham et al., 2019), and *lmttest* (Version 0.9.40; Zeileis & Hothorn, 2002). A significance threshold of .05 was used for analyses.

Missing Data

Rates of missing data on the item-level were low (<5%), so data was not imputed on the item level. For participants who completed >80% of the items on each appropriate measure (i.e., no sum score involved), average scores were calculated across completed items (also referred to as available item analysis; Parent, 2013). Participants who did not complete >80% of items were excluded listwise from analyses involving the respective measure. This resulted in the following rates of missing data at the scale level: pre-college SES (1.7%¹⁴; $n = 5$); college SES (1.4%; $n = 4$); Brief-COPE Avoidance subscale (0.3%; $n = 1$); PTCI Self-Blame subscale (0.7%; $n = 2$);

¹⁴ Percent is based on the 295 individuals with campus sexual assault history, unless otherwise noted.

MSPSS (0.0%; $n = 0$); SRQ-S Turning Against subscale (3.8%¹⁵; $n = 7$); SRQ-S Unsupportive Acknowledgment subscale (3.3%¹⁶; $n = 6$); IBQ (0.7%; $n = 2$); and PCL (0.7%; $n = 2$).¹⁷

Outlier Analysis

I assessed continuous scores for univariate outliers (defined as 1.5 x the interquartile range of the respective distribution). I ran analyses without removing outliers in service of retaining raw participant data. Although not reported in detail in this manuscript, regression analyses were re-conducted after applying outlier procedures (winsorized at the value corresponding to the 95th percentile of the respective distribution). Outlier influence was also assessed in our regression models using the Cook's d statistic. Regression models were examined without the influence of outliers, with no significant differences in overall statistical conclusions.

Results

Preliminary Analyses

Preliminary analyses using the whole sample ($N = 1373$) indicated that participants who endorsed an instance of campus sexual assault on the SES reported significantly higher posttraumatic stress ($M = 20.5$; $SD = 18.8$) than participants who did not ($M = 14.3$; $SD = 15.6$), $t(1309) = 5.66$, $p < .001$ (see Figure 3). This association persisted when controlling for severity of pre-college sexual assault history, $t(1294) = 2.64$, $p = .008$. Participants who experienced campus sexual assault were also more likely to have a posttraumatic stress score above the clinically significant PCL cutoff of 32 than those who denied campus sexual assault, $\chi^2(1, 1309) = 14.15$, $p < .001$ (23.4% vs. 13.8%).

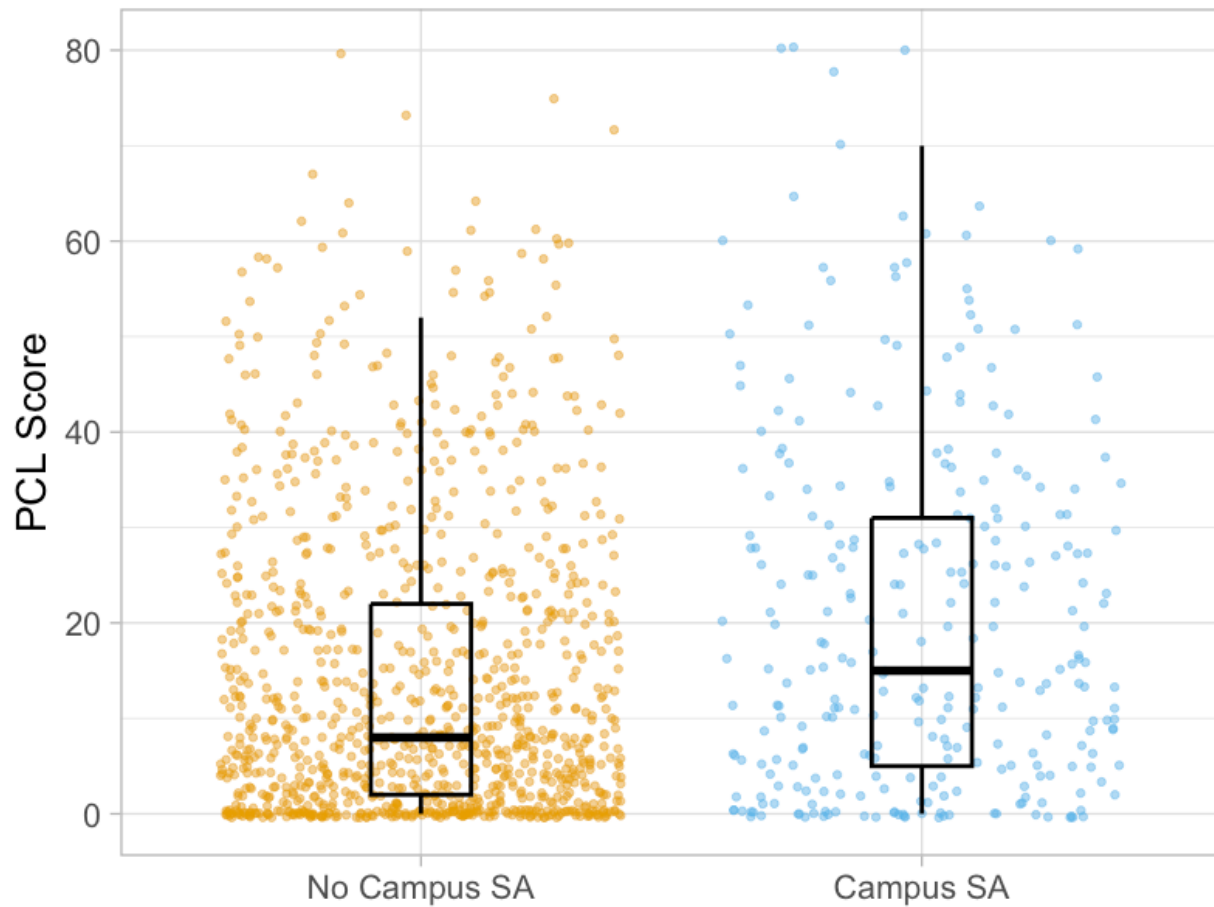
¹⁵ Percent is based on the 184 individuals who disclosed campus sexual assault to family member or friend.

¹⁶ Percent is based on the 184 individuals who disclosed campus sexual assault to family member or friend.

¹⁷ The final models were re-run using multiple imputation for missing data using the *mice* package (Version 3.14.0; Van Buuren & Groothuis-Oudshoorn, 2011) and traditional standard error estimates, with similar results. These results are not presented because the *mice* package currently does not support robust standard errors, which I wanted to incorporate because of the assumption violation.

Figure 3

Posttraumatic Stress Scores by Campus Sexual Assault Group (N = 1373; All Participants)



There were several demographic differences in posttraumatic stress, sexual violence history variables, and predictors of interest among the campus sexual assault group. In gender analyses using women as the reference group, men had significantly lower levels of posttraumatic stress ($t[285] = -2.25, p = .03$) and social support ($t[287] = -2.24, p = .03$) than women, but there were no differences in self-blame or avoidance coping. Men also reported less frequent pre-college sexual assault ($t[282] = -2.50, p = .01$) and college sexual assault ($t[283] = -$

2.74, $p = .006$) than women, but there was no difference in institutional betrayal or social reactions to disclosure. Non-binary and gender nonconforming individuals reported higher levels of posttraumatic stress ($t[285] = 2.49, p = .01$) and lower levels of social support ($t[285] = -2.81, p = .005$) than women, but there were no significant differences in avoidance coping or self-blame. Non-binary and gender nonconforming individuals reported higher rates of institutional betrayal than women ($t[286] = 2.90, p = .004$), but there were no significant differences in pre-college sexual assault, college sexual assault, or social reactions to disclosure.

Participants with a non-white/European racial or ethnic identity ($n = 114^{18}$) reported higher posttraumatic stress ($t[291] = 4.61, p < .001$), lower social support ($t[291] = -2.30, p = .02$), lower self-blame ($t[291] = -3.76, p < .001$), and higher institutional betrayal ($t[285] = 2.40, p = .02$), than participants who identified exclusively as white ($n = 181$). There were no significant differences in pre-college sexual assault, college sexual assault, or avoidance coping between these two groups. Among those who disclosed the assault to a family member or friend ($n = 184$), participants with a non-white/European racial or ethnic identity ($n = 114^{19}$) reported higher instances of Turning Against responses ($t[175] = 2.83, p = .005$) and Unsupportive Acknowledgment responses ($t[176] = 3.46, p < .001$) than white participants.

Participants with a non-heterosexual identity ($n = 101$) reported higher posttraumatic stress ($t[291] = 3.01, p = .003$), self-blame ($t[291] = 2.45, p = .01$), and avoidance coping ($t[292] = 2.07, p = .04$) than participants who identified exclusively as heterosexual ($n = 194$). There were no significant differences in pre-college sexual assault, college sexual assault, institutional betrayal, or social support between these two groups. Among those who disclosed the assault to a

¹⁸ This includes participants who may identify as biracial (i.e., they may identify as both white and another racial/ethnic identity).

¹⁹ This includes participants who may identify as biracial (i.e., they may identify as both white and another racial/ethnic identity).

family member or friend ($n = 184$), there were no significant differences in disclosure responses based on sexual identity.

There were no significant differences in any variables based on age, student year, or relationship status. Given the significant differences in gender, race/ethnicity, and sexual identity, these variables were included as covariates in regression models below. Differences were then evaluated for assault-specific characteristics. Time since assault, location of assault, alcohol use during assault, student status of perpetrator, and disclosure status (i.e., “did you talk about this experience with anyone?”) were not significantly related to posttraumatic stress, and thus were not included as covariates in regression analyses described below.

Hypothesis 1

Analyses indicated significant correlations between multiple variables of interest (see Table 4 for correlation coefficients and descriptive statistics of continuous variables). The only exceptions were: the relationships between pre-college sexual assault and self-blame cognitions, social support, and institutional betrayal; the relationship between institutional betrayal and self-blame cognitions; and the relationships between Unsupportive Acknowledgment and self-blame cognitions and institutional betrayal. There were small to moderate correlations between posttraumatic stress and all predictors of interest, including college sexual assault history, pre-college sexual assault history, avoidance coping, self-blame cognitions, social support, Turning Against responses, Unsupportive Acknowledgment responses, and institutional betrayal, r 's = -.27-.51, p 's < .001. Relationship to perpetrator was significantly related to posttraumatic stress. Those who were perpetrated against by a stranger reported less posttraumatic stress than those who were perpetrated against by an acquaintance ($t[286] = 2.34, p = .02$), and those who were perpetrated against by a close other ($t[286] = 3.22, p = .001$; see Figure 4). Thirty-five percent of

Table 4

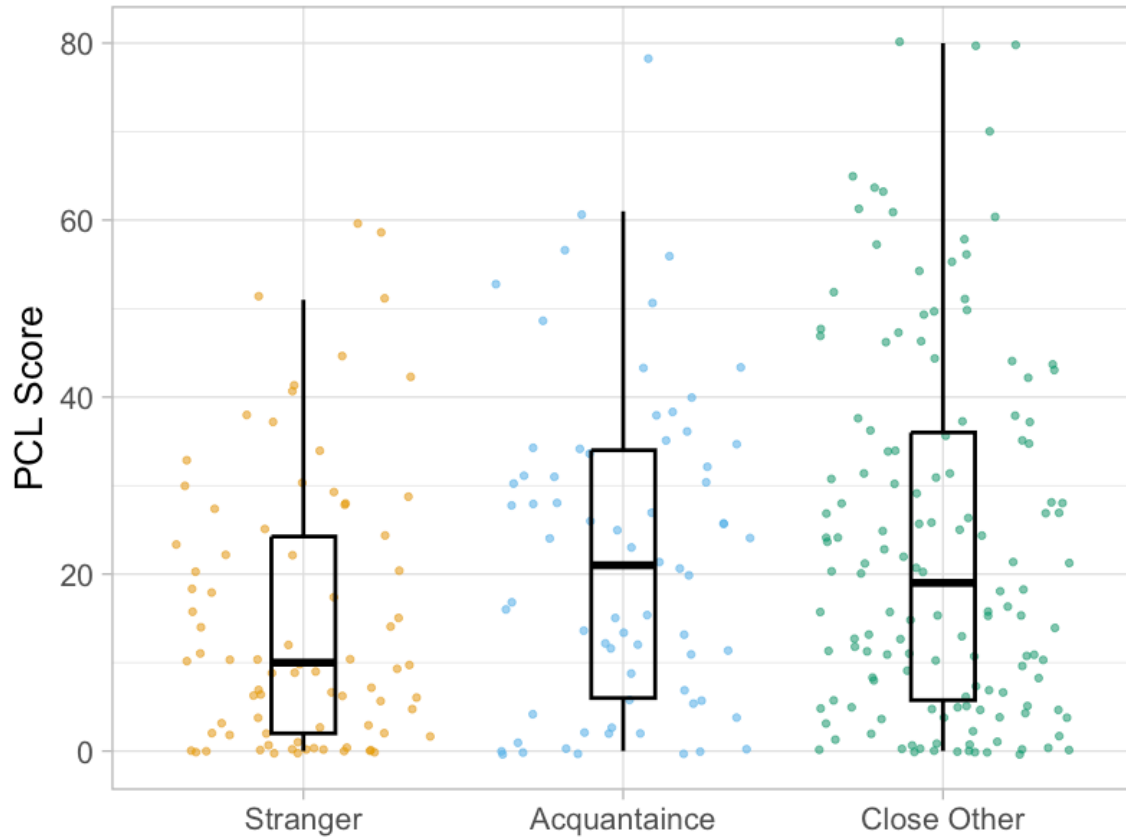
Means, Standard Deviations, and Correlations of Continuous Variables among Participants with Campus Sexual Assault (n = 295)

	<i>M</i>	<i>SD</i>	1.	2.	3.	4.	5.	6.	7.	8.
1.	3.1	3.1								
2.	4.0	4.9	.39*** [.29, .48]							
3.	1.5	0.7	.26*** [.15, .36]	.22*** [.11, .33]						
4.	3.1	1.5	.25*** [.14, .36]	.11 [-.00, .22]	.23*** [.11, .33]					
5.	5.6	1.0	-.25*** [-.35, -.13]	-.11 [-.22, .00]	-.24** [-.35, -.13]	-.22*** [-.32, -.10]				
6.	1.1	2.0	.21*** [.10, .32]	.07 [-.04, .19]	.19** [.08, .30]	.08 [-.03, .19]	-.15** [-.26, -.04]			
7.	20.5	18.8	.44*** [.34, .53]	.31*** [.20, .41]	.46*** [.37, .55]	.31*** [.20, .41]	-.27*** [-.37, -.16]	.34*** [.24, .44]		
8.	0.7	0.8	.34** [.20, .46]	.32** [.18, .44]	.33** [.19, .45]	.24** [.09, .37]	-.31** [-.44, -.17]	.36** [.23, .48]	.48** [.36, .59]	
9.	0.9	0.7	.29** [.15, .42]	.23** [.09, .37]	.32** [.18, .44]	.07 [-.08, .21]	-.14 [-.28, .01]	.33** [.20, .46]	.51** [.39, .61]	.67** [.58, .74]

Note. *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. * $p < .05$, ** $p < .01$, *** $p < .01$, ^these correlations were based only upon the subsample who disclosed to friends and family ($n = 184$). 1 = college sexual assault history, as calculated by the SES; 2 = pre-college sexual assault history, as calculated by the SES; 3 = avoidance coping behaviors, as assessed by the Brief-COPE; 4 = self-blame cognitions, as assessed by PTCI-B; 5 = social support, as assessed by the MSPSS; 6 = institutional betrayal, as assessed by the IBQ; 7 = posttraumatic stress, as assessed by the PCL-5; 8 = Turning Against social reaction, as assessed by the SRQ-S; 9 = Unsupportive Acknowledgment social reaction, as assessed by the SRQ-S.

Figure 4.

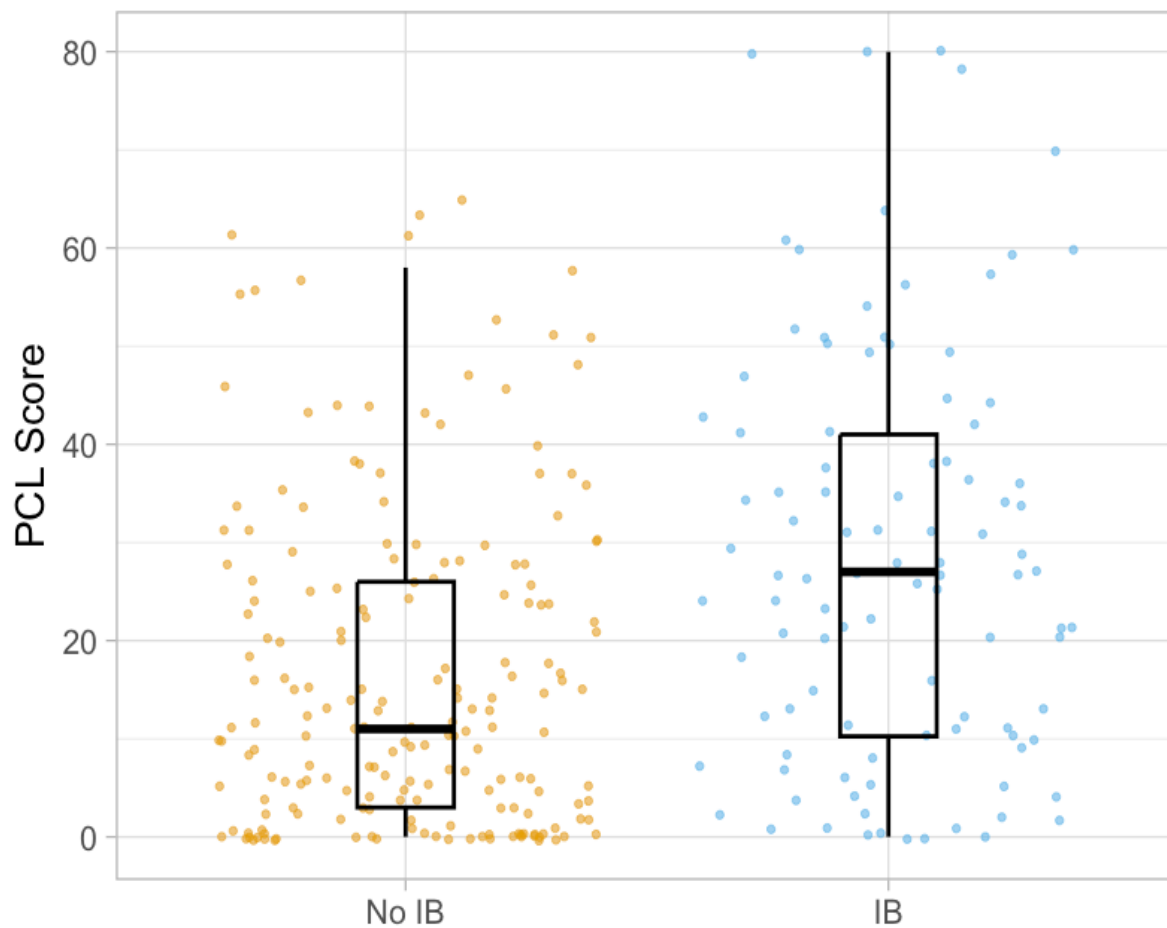
Posttraumatic Stress by Perpetrator Closeness (n= 295; Campus Sexual Assault Participants Only)



participants ($n = 103$) indicated experiencing at least one instance of institutional betrayal related to the sexual assault they reported on. Those who reported at least one instance of institutional betrayal had higher posttraumatic stress ($M = 28.1$, $SD = 20.8$) than those who reported no institutional betrayal ($M = 16.5$, $SD = 16.4$; $t[291] = 5.26$, $p < .001$; see Figure 5).

Figure 5

Posttraumatic Stress Scores by Institutional Betrayal Group (n = 295; Campus Sexual Assault Participants Only)



Hypothesis 2

Regression Model 1

In the first regression model used to test Hypothesis 2, trauma history variables (college and pre-college sexual assault history), demographic characteristics (gender, racial/ethnic identity, sexual identity), and intrapersonal factors (avoidance coping, self-blame cognitions) together explained 39.9% of the variance in posttraumatic stress in the first step of the model,

$F(8, 271) = 22.54, p < .001$ (see Table 5). College sexual assault history, pre-college sexual assault history, racial/ethnic identity, avoidance coping, and self-blame cognitions were all significant unique predictors of posttraumatic stress in the expected direction. In the second step of the model, relational factors (relationship with perpetrator, social support) were added. The overall model explained 41.1% of the variance in posttraumatic stress, $F(11, 264) = 16.73, p < .001$. Although a close relationship with the perpetrator was significantly related to higher levels of posttraumatic stress (compared to a stranger perpetrator), the change in variance explained by the second block as a whole was not statistically significant $\Delta R^2 = 0.01, p = .07$. In the third step of the model, institutional betrayal was added. The overall model explained 44.3% of the variance in posttraumatic stress, $F(12, 263) = 17.46, p < .001$. Institutional betrayal was a significant predictor and explained an additional 3.2% of variance in posttraumatic stress, $p < .001$. A visual depiction of model parameter estimates is displayed in Figure 6.

Regression Model 2 - Addition of Disclosure Reactions

In the second regression model used to test Hypothesis 2, trauma history variables (college and pre-college sexual assault history), demographic characteristics (gender, racial/ethnic identity, sexual identity), and intrapersonal factors (avoidance coping, self-blame cognitions) together explained 40.7% of the variance in posttraumatic stress in the first step of the model, $F(8, 171) = 14.61, p < .001$ (see Table 6). College sexual assault history, racial/ethnic identity, and avoidance coping were the only variables that explained unique variance in posttraumatic stress. In the second step of the model, relational factors (relationship with perpetrator, social support, and reactions to disclosure) were added. The overall model explained 50.7% of the variance in posttraumatic stress, $F(13, 160) = 12.65, p < .001$. Perpetration by either an acquaintance or a close other was significantly related to higher levels

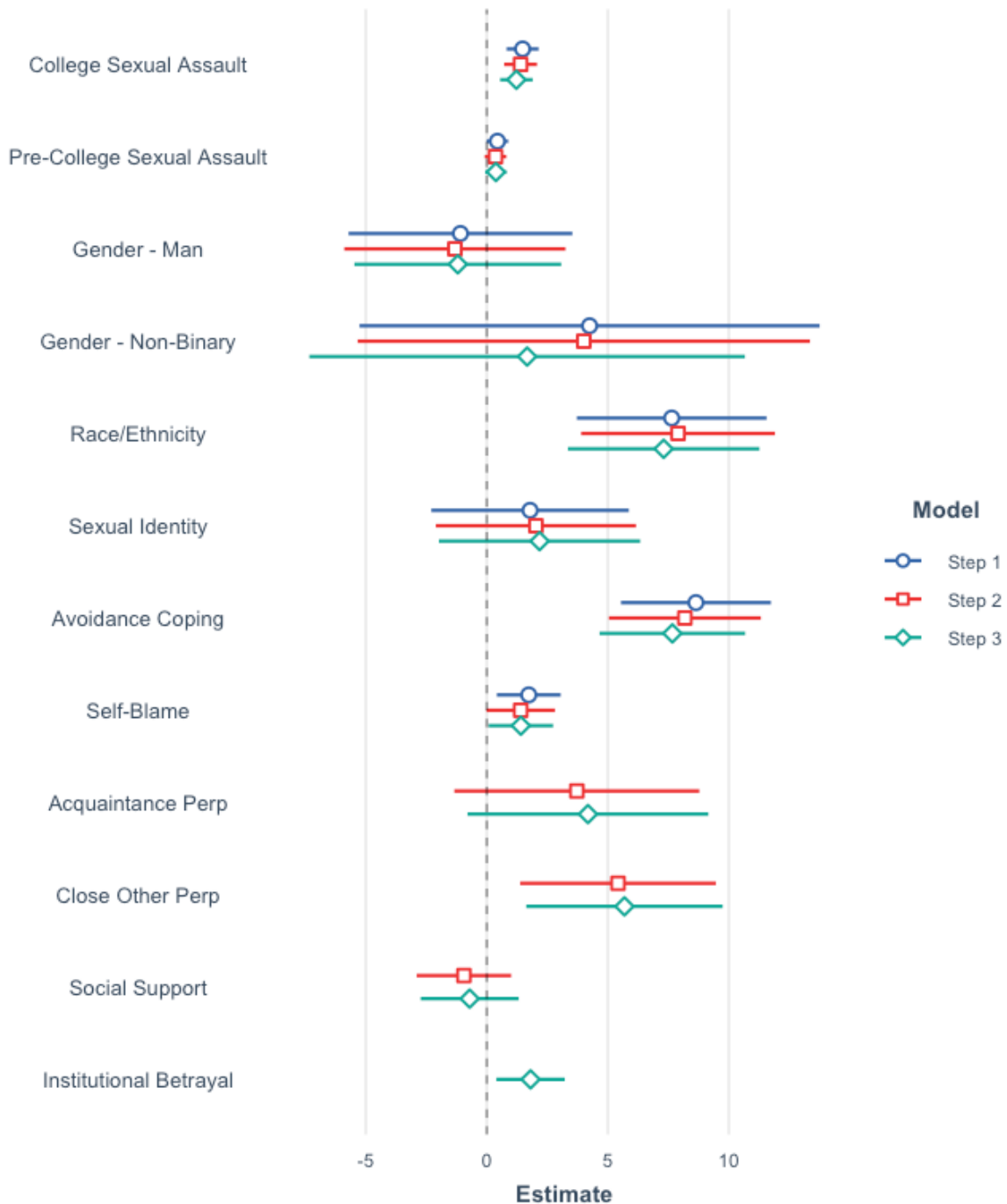
Table 5

Parameter Estimates for Regression Model Predicting Posttraumatic Stress among Students who Experienced Campus Sexual Assault (n = 295)

	Predictor	<i>b</i>	<i>SE</i>	β	<i>t</i>	Fit
Step 1						
	Intercept	-7.37	--	--	--	
	College SA	1.48	0.33	0.24	4.53***	
	Pre-College SA	0.44	0.22	0.11	2.00*	
	Man	-1.09	2.29	-0.02	-0.47	
	Non-Binary/Non-Conforming	4.25	4.49	0.05	0.95	
	Racial/Ethnic Identity	7.64	1.96	0.20	3.91***	
	Sexual Identity	1.79	2.04	0.05	0.88	
	Avoidance Coping	8.64	1.52	0.31	5.69***	
	Self-Blame Cognitions	1.73	0.65	0.14	2.67**	$R^2 = .399***$
Step 2						
	Intercept	-3.37	--	--	--	
	College SA	1.40	0.33	0.23	4.20***	
	Pre-College SA	0.36	0.22	0.09	1.64	
	Man	-1.32	2.25	-0.02	-0.59	
	Non-Binary/Non-Conforming	4.01	4.40	0.05	0.91	
	Racial/Ethnic Identity	7.90	1.99	0.20	3.98***	
	Sexual Identity	2.03	2.05	0.05	0.99	
	Avoidance Coping	8.18	1.54	0.29	5.32***	
	Self-Blame Cognitions	1.40	0.70	0.11	2.01*	
	Relationship - Acquaintance	3.72	2.50	0.08	1.49	
	Relationship - Close Other	5.42	2.00	0.14	2.71**	
	Social Support	-0.94	0.96	-0.05	-0.99	$R^2 = .411***$
Step 3						
	Intercept	-5.33	--	--	--	
	College SA	1.22	0.33	0.20	3.72***	
	Pre-College SA	0.38	0.22	0.10	1.73	
	Man	-1.20	2.09	-0.02	-0.57	
	Non-Binary/Non-Conforming	1.67	4.25	0.02	0.39	
	Racial/Ethnic Identity	7.31	1.95	0.19	3.75***	
	Sexual Identity	2.18	2.04	0.06	1.07	
	Avoidance Coping	7.67	1.47	0.27	5.20***	
	Self-Blame Cognitions	1.40	0.65	0.11	2.15*	
	Relationship - Acquaintance	4.18	2.45	0.09	1.71	
	Relationship - Close Other	5.68	1.99	0.15	2.85**	
	Social Support	-0.71	0.98	-0.04	-0.72	
	Institutional Betrayal	1.81	0.66	0.19	2.73**	$R^2 = .443***$

Figure 6

Parameter Estimates of Regression Model Predicting Posttraumatic Stress among Students who Experienced Campus Sexual Assault (n = 295)



Note. A coefficient estimate that does not cross 0 indicates statistical significance.

of posttraumatic stress (compared to a stranger perpetrator). Receiving responses to a disclosure that involved unsupportive acknowledgment was also uniquely related to posttraumatic stress. The change in variance explained by the second block as a whole was statistically significant, $\Delta R^2 = 0.10, p < .001$. In the third step of the model, institutional betrayal was added. The overall model explained 52.4% of the variance in posttraumatic stress, $F(14, 159) = 12.51, p < .001$. Institutional betrayal was a significant predictor and explained an additional 1.7% of variance in posttraumatic stress, $p = .009$. A visual depiction of the model parameter estimates is displayed in Figure 7.

Summary of Cross-Sectional Results & Brief Discussion

Integrating socioecological and betrayal trauma approaches to sexual violence, this analysis clarified how factors at multiple levels of the relational and institutional environment predict posttraumatic stress among a sample of students who experienced campus sexual assault. Results suggest that multiple factors at various levels of the social ecology were related to, and explained unique variance in, posttraumatic stress. Specifically, posttraumatic stress was correlated with all hypothesized variables of interest, including self-blame, avoidance coping, victim-perpetrator relationship, social support, negative reactions to disclosure, and institutional betrayal. These associations were consistent with prior literature in these respective domains (e.g., Dworkin et al., 2019; Frazier 2003; Frazier et al., 2005; Goldsmith et al., 2013; Gutner et al., 2006; Littleton & Ullman, 2013; Najdowski & Ullman, 2007; Sigurvinsdottir & Ullman, 2015a; Ullman 1999; Ullman, 2010; Smith & Freyd, 2013; Smith & Freyd, 2017).

The regression models, which included multiple factors simultaneously as predictors, accounted for 44.3% of the variance in posttraumatic stress among all campus sexual survivors, and 52.4% of the variance in posttraumatic stress among survivors who disclosed their assault to

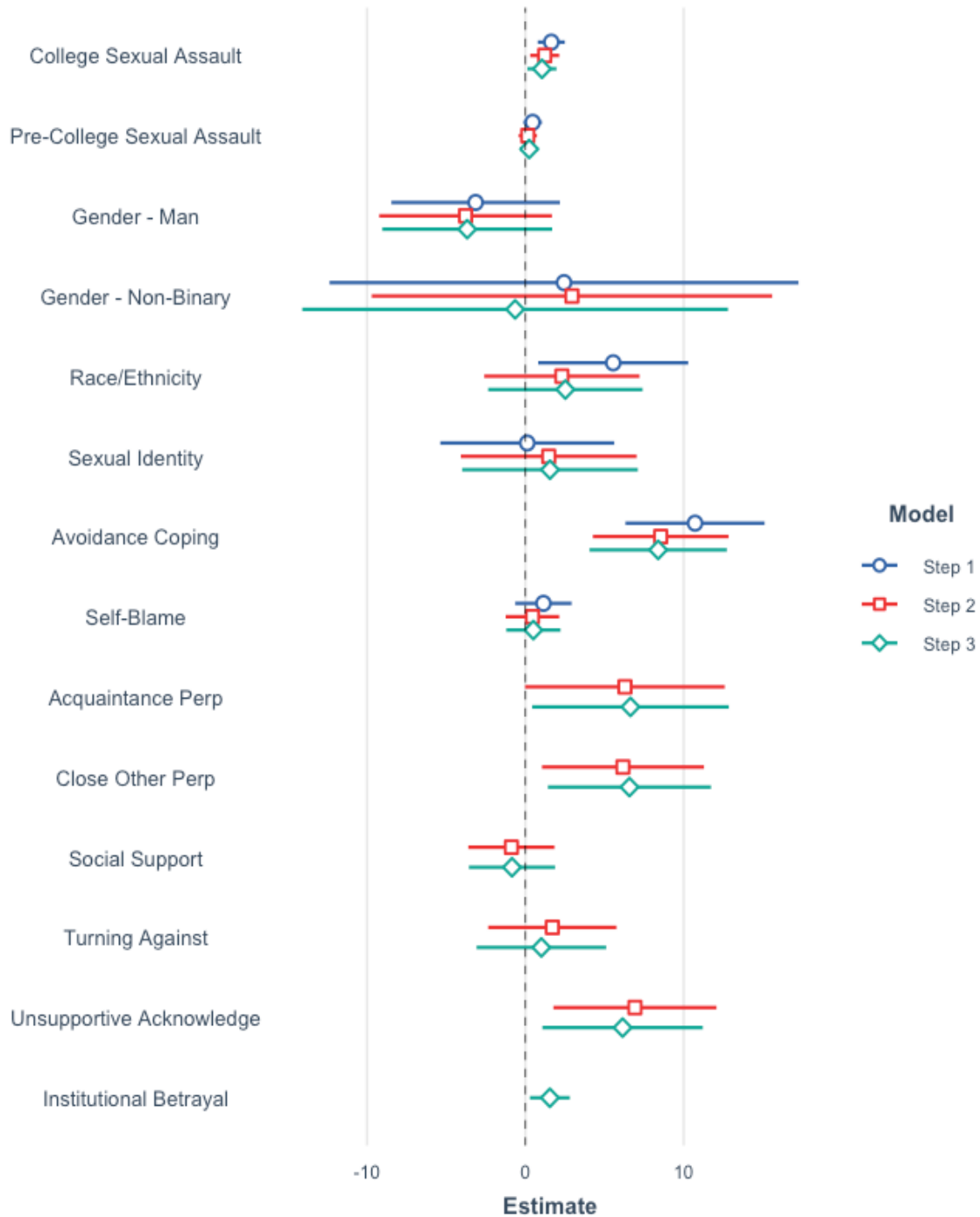
Table 6

Parameter Estimates for Regression Model Predicting Posttraumatic Stress among Campus Sexual Assault Survivors who Disclosed to Friends/Family (n = 184)

	Predictor	<i>b</i>	<i>SE</i>	β	<i>t</i>	Fit
Step 1						
	Intercept	-6.55	--	--	--	
	College SA	1.64	0.42	0.26	3.94***	
	Pre-College SA	0.46	0.28	0.12	1.65	
	Man	-3.14	2.59	-0.06	-1.21	
	Non-Binary/Non-Conforming	2.44	6.55	0.03	0.37	
	Racial/Ethnic Identity	5.55	2.34	0.14	2.37*	
	Sexual Identity	0.12	2.69	0.003	0.04	
	Avoidance Coping	10.72	2.10	0.36	5.11***	
	Self-Blame Cognitions	1.14	0.85	0.09	1.34	$R^2 = .407***$
Step 2						
	Intercept	-4.77	--	--	--	
	College SA	1.22	0.42	0.20	2.91***	
	Pre-College SA	0.15	0.27	0.04	0.57	
	Man	-3.78	2.61	-0.07	-1.45	
	Non-Binary/Non-Conforming	2.94	5.66	0.03	0.52	
	Racial/Ethnic Identity	2.31	2.33	0.06	0.99	
	Sexual Identity	1.48	2.66	0.04	0.56	
	Avoidance Coping	8.55	2.01	0.29	4.25***	
	Self-Blame Cognitions	0.45	0.81	0.03	0.56	
	Relationship - Acquaintance	6.29	3.03	0.15	2.08*	
	Relationship - Close Other	6.17	2.47	0.16	2.49*	
	Social Support	-0.88	1.29	-0.04	-0.68	
	Turning Against	1.70	1.95	0.07	0.88	
	Unsupportive Acknowledgment	6.92	2.41	0.26	2.88**	$R^2 = .507***$
Step 3						
	Intercept	-5.54	--	--	--	
	College SA	1.05	0.42	0.17	2.50*	
	Pre-College SA	0.24	0.27	0.06	0.88	
	Man	-3.67	2.56	-0.07	-1.43	
	Non-Binary/Non-Conforming	-0.65	6.02	-0.01	-0.11	
	Racial/Ethnic Identity	2.53	2.31	0.07	1.09	
	Sexual Identity	1.56	2.64	0.04	0.59	
	Avoidance Coping	8.39	2.03	0.28	4.12***	
	Self-Blame Cognitions	0.51	0.81	0.04	0.62	
	Relationship - Acquaintance	6.64	2.97	0.16	2.24*	
	Relationship - Close Other	6.58	2.48	0.17	2.65**	
	Social Support	-0.84	1.29	-0.04	-0.66	
	Turning Against	1.01	1.95	0.04	0.52	
	Unsupportive Acknowledgment	6.14	2.35	0.23	2.61**	
	Institutional Betrayal	1.55	0.59	0.15	2.63**	$R^2 = .524***$

Figure 7

Parameter Estimates of Regression Model Predicting Posttraumatic Stress among Students who Experienced Campus Sexual Assault and Disclosed to a Friend or Family Member (n = 184)



Note. A coefficient estimate that does not cross 0 indicates statistical significance.

a friend or family member. This proportion of variance explained is compelling, and it suggests that a socioecological approach to understanding variance in mental health outcomes among campus sexual assault survivors is appropriate, effective, and useful. When examining the contributions of each predictor, study hypotheses were largely supported. In the first model, posttraumatic stress was uniquely predicted by avoidance coping, self-blame, close relationship with perpetrator, and institutional betrayal; only general social support was not a significant predictor. This result may suggest that general or non-assault-focused social support on its own does not adequately influence posttraumatic stress in the context of harmful intrapersonal or institutional factors. The second regression model (among individuals who disclosed their assault) demonstrated similar patterns for these same variables, with the only exception being the non-significant relationship between self-blame and posttraumatic stress. Unsupportive Acknowledgment responses, but not Turning Against responses, were uniquely associated with posttraumatic stress. This is somewhat inconsistent with prior literature suggesting that Turning Against responses may be the most harmful (Dworkin et al., 2019). It is possible that unsupportive acknowledgment, which can involve both positive and negative elements simultaneously (e.g., the assault is discussed and acknowledged as a problem, but the survivor does not receive the support they desire, or that their control over their decision making is taken away; Relyea & Ullman, 2015), may be particularly confusing or disruptive, and thus, specifically contributes to worse outcomes.

Taken as a whole, these results provide evidence that intrapersonal and contextual factors are both important to consider when explaining variability in posttraumatic stress after campus sexual assault. The magnitude of the effect of avoidance coping is consistent with both behavioral and cognitive theories of posttraumatic stress. When evaluating standardized

estimates of each variable's contribution, avoidance coping emerged as the strongest predictor in each model (standardized β 's in the final step of each model .27-.28). This buttresses the potential of therapies such as Prolonged Exposure Therapy (Foa & Rothbaum, 1998) or Cognitive Processing Therapy (Resick & Schnicke, 1993), which can disrupt patterns of avoidance on an individual level. However, this research suggests that it would be a mistake to only consider or intervene upon intrapersonal processes such as cognition or behavior. Instead, these results provide preliminary support for the role of relationships and institutions in perpetuating harm. Even as levels of self-blame and avoidance are held constant, negative reactions to disclosure and institutional betrayal were associated with increased levels of distress. Such a result highlights a need for interventions other than individual psychotherapy that may intervene at higher levels, such as relational interventions (e.g., Dworkin et al., 2022) or institutional courage (Freyd, 2014; Smidt et al., 2023; for a more comprehensive discussion of clinical and societal implications, see Chapter IV).

These results should be interpreted, however, in light of crucial limitations. Although a comprehensive discussion of broad limitations is discussed in Chapter IV, which include the sample's limited representation of diversity, I want to emphasize that the cross-sectional nature of the analyses presented in this chapter restricts our conclusions. Although I am ultimately interested in identifying causal links between posttraumatic stress and specific predictors in order to guide intervention development, I cannot infer causality from this data. I have theoretical reasons to believe that sexual assault victimization, close victim-perpetrator relationship, negative social reactions, or institutional betrayal causes or precedes posttraumatic stress, but it is also possible that greater levels of posttraumatic stress may predispose someone to be more

likely to be sexually assaulted, to receive more negative social reactions, or to experience institutional betrayal if they are assaulted.

In addition, the cross-sectional regression analyses presented in this Chapter rely on simplistic assumptions regarding the relationships of each predictor to one another and to posttraumatic stress. Although regression modeling is useful for estimating unique variance for each predictor at each theorized level of the social ecology, in reality these variables are likely linked in complex, cyclical, and reciprocal ways. For instance, the relationship between the victim-perpetrator likely influences disclosure reactions, which are influenced by sociocultural norms and further reified by institutional policies and procedures. These policies and procedures further reinforce norms that shape how individuals react to disclosures of specific types of violence. Unfortunately, not even the most advanced statistical models can likely capture the nuances of these relationships as they may occur in day-to-day life. Although the longitudinal analysis in the following Chapter III aims to describe and predict posttraumatic stress among college students across time while focusing on the specific contextual factor of institutional betrayal, questions of causality, temporal precedence, and interaction remain.

CHAPTER III

LONGITUDINAL ANALYSIS

While Chapter II examines a range of individual and contextual factors that are broadly associated with posttraumatic stress cross-sectionally among victims of campus sexual assault, Chapter III examines how campus sexual assault and a specific contextual factor – institutional betrayal – are related to posttraumatic stress longitudinally over a period of six months. Data examined in this analysis includes a second follow-up survey component, in addition to the initial survey component discussed in Chapter II.

An in-depth longitudinal analysis of institutional betrayal was warranted for several reasons. First, longitudinal research in both the general sexual violence and campus sexual assault literature is rare or limited (e.g., Campbell et al., 2011). Some research suggests that posttraumatic stress declines over time among victims of sexual assault in general (e.g., Peter-Hagene & Ullman, 2018; Ullman & Peter-Hagene, 2016; Ullman & Relyea, 2016), reflecting a normative process of recovery. However, it remains unclear if this pattern generalizes to victims of campus sexual assault, how changes in symptoms differ from college students without a campus sexual assault history, or how rates of change are influenced by various contextual factors. Second, the few longitudinal studies that have examined factors affecting posttraumatic stress among sexual assault survivors across time have targeted intrapersonal factors (e.g., coping behaviors, cognition; Frazier, 2003; Kirkner & Ullman, 2020; Ullman & Relyea, 2016) and relational factors (e.g., social support, reactions to disclosure; Dworkin et al., 2018b; Dworkin et al., 2018c; Ullman & Peter-Hagene, 2016; Ullman & Relyea, 2016). I am not aware of any prior research that has examined how experiences of institutional betrayal influence posttraumatic stress across time. This is despite existing theory suggesting that institutional

betrayal may exacerbate symptoms of posttraumatic stress and thus interfere with normative trajectories of recovery. To map changes in posttraumatic stress across time, I used sexual violence and posttraumatic stress data described in Chapter II as baseline data (Timepoint 1). Additional data was then collected from a subsample through two follow up surveys, one at three months after baseline completion (Timepoint 2) and one at six months after baseline completion (Timepoint 3). This study had two primary aims (Aims 3 and 4 of the dissertation), with two specific hypotheses (Hypotheses 3 and 4 of the dissertation).

Aim 3

The third aim of this dissertation is to describe changes in posttraumatic stress across a period of six months among women and gender minority students and to examine differences in these changes by campus sexual assault history at Timepoint 1.

Hypothesis 3. Consistent with prior literature regarding sexual assault recovery over time (e.g., Peter-Hagene & Ullman, 2018; Ullman & Peter-Hagene, 2016; Ullman & Relyea, 2016), I hypothesized that the relationship between campus sexual assault and posttraumatic stress will diminish across time, such that students with a campus sexual assault history at Timepoint 1 will have high baseline levels of posttraumatic stress, but exhibit a decline in posttraumatic stress across time. In comparison, students without a campus sexual assault history at Timepoint 1 will have consistently low levels of posttraumatic stress across time.

Aim 4

The fourth aim of this dissertation is to examine how changes in posttraumatic stress among victims of campus sexual assault vary by institutional betrayal across a period of six months.

Hypothesis 4. I hypothesized that victims who experience institutional betrayal (in addition to campus sexual assault) will exhibit higher levels of posttraumatic stress at Timepoint 1 and will have slower declines in posttraumatic stress across time, compared with victims who do not experience institutional betrayal.

Method

Participants

A subset of participants who completed the initial survey (described in Chapter II) were recruited for participation in a follow-up component, which serves as the focus of Chapter III. To be eligible for participation in the follow-up component, participants must have consented to and completed the initial survey, as an invitation for follow-up participation could only be generated upon survey completion. Participants were also required to correctly answer at least five out of the six attention check questions randomly presented throughout the initial survey (e.g., “I will indicate ‘Strongly Agree’ if I’m paying attention”) and identify as women or gender minority individuals (i.e., not cisgender men). The latter eligibility criterion was included because sexual assault disproportionately affects these groups and would maximize recruitment of college students with a history of campus sexual assault.²⁰ All women and gender minority individuals who endorsed at least one instance of nonconsensual sexual contact (as operationalized by the SES; see Measures section in Chapter II) while enrolled at the University of Oregon were eligible for follow-up participation. To recruit a roughly equivalent comparison group without a campus sexual assault history, 25% of women and gender minority students who did *not* report an instance of nonconsensual sexual contact while enrolled at the University of

²⁰ This recruitment decision was important, given both funding constraints and the ceiling on the number of undergraduates who could be recruited via introductory psychology and linguistics courses each academic term.

Oregon were also presented with an invitation to participate in the follow-up surveys. This group was randomly selected within Qualtrics survey software.

As previously described in Chapter II, 1461 students consented to participate in the initial survey, and 1373 participants completed the initial survey and passed the required number of attention check questions. Participants who did not identify as woman, non-binary, or gender nonconforming ($n = 388$; 374 cisgender men; 14 who did not provide an answer for gender) were excluded from possible follow-up participation. Participants who indicated that they would not be enrolled at the University of Oregon during the next academic term were also excluded ($n = 22$), as this may impede follow-up communication. Of the 963 participants who met the eligibility criteria, 24.5% ($n = 236$) reported at least one instance of nonconsensual sexual contact while enrolled the University of Oregon and were all offered an opportunity to participate in the follow-up component. Of these 236 individuals, 64.8% ($n = 153$) provided consent for future contact regarding follow-up research participation, and 35.2% ($n = 83$) denied consent for future contact. Sexual assault scores on the initial survey SES did not significantly differ between participants who consented ($M = 2.61$, $SD = 1.84$) and participants who denied consent ($M = 2.65$, $SD = 1.95$), $t(234) = 0.14$, $p = .89$. Of the 727 potentially eligible individuals who did *not* report a campus sexual assault experience, approximately 25% ($n = 182$)²¹ were randomly offered an opportunity to participate in the follow-up component. Of these 182 individuals, 69.8% ($n = 127$) provided consent for future contact for the follow-up component, and 30.2% ($n = 55$) denied consent. Consent rate by campus sexual assault status at Timepoint 1 did not significantly differ, $\chi^2(1, N = 418) = 1.14$, $p = .29$. Across the whole sample, consent

²¹ This group is slightly smaller than the sexual assault group because it was originally estimated during study planning that 20% of participants would endorse campus sexual assault. However, the rate was higher than expected (24.5%).

rate did significantly differ based on posttraumatic stress at Timepoint 1, $t(403) = 2.52, p = .01$. Individuals who consented to participate in the follow-up study had significantly higher posttraumatic stress symptoms overall ($M = 20.7, SD = 18.5$) than those who did not ($M = 16.0, SD = 16.8$).

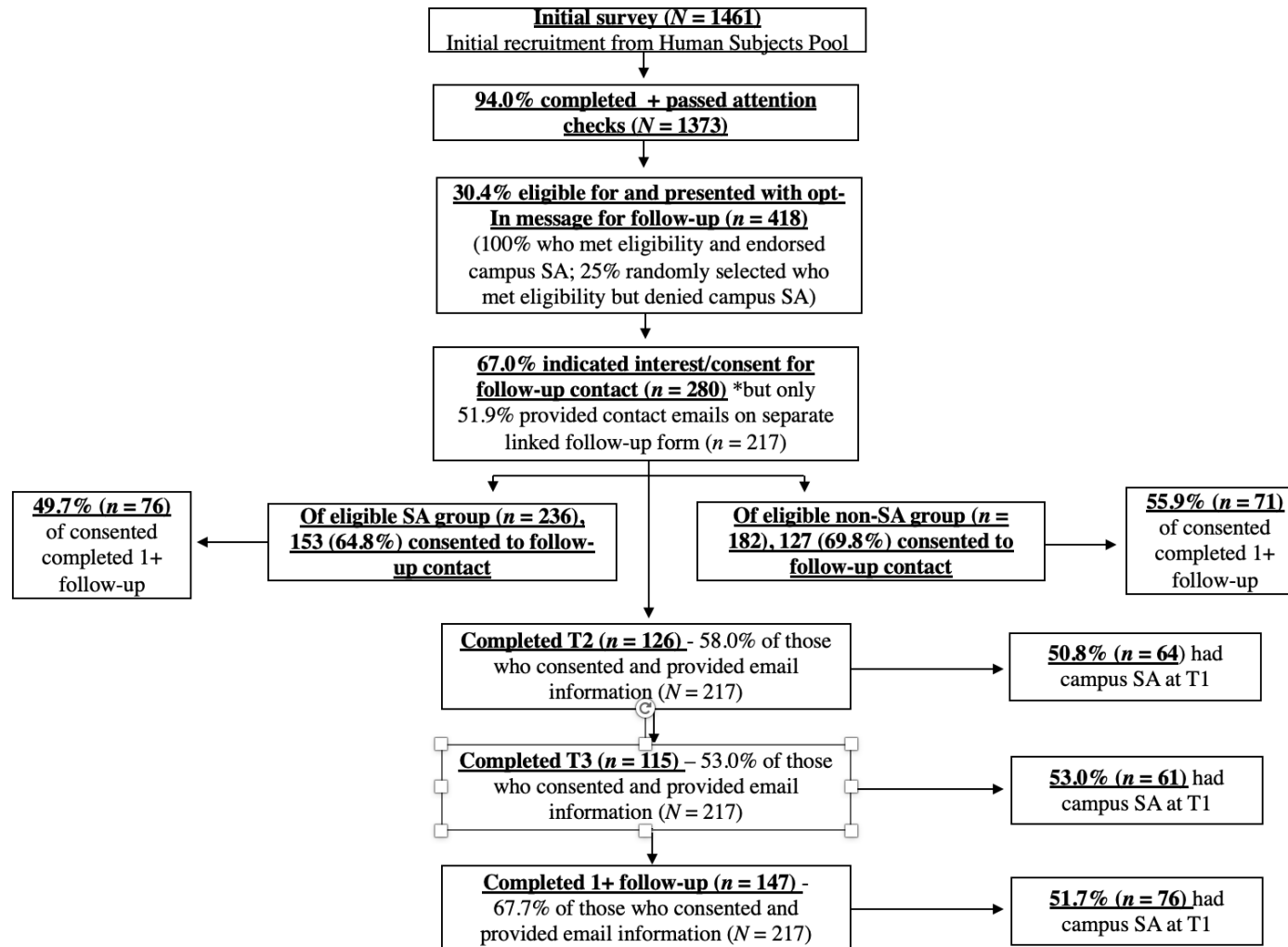
In total, 418 individuals were presented with the option to participate in the follow-up component, and 280 (67.0%) provided consent for future contact from the research team. However, only 217 (51.9%) provided their email address information on a separate linked survey that was presented after the consent form. Because of the anonymous nature of data collection, I am unable to compare differences between individuals who provided their email address at this stage and individuals who did not, as these two surveys are not linked in order to protect participant anonymity. Of 217 individuals contacted, 58.1% ($n = 126$) completed the Time 2 follow-up survey, 49.2% ($n = 62$) of whom did not have a campus sexual assault history at Timepoint 1 and 50.8% ($n = 64$) of whom had a campus sexual assault history at Timepoint 1. Of the 217 contacted, 53.0% ($n = 115$) completed the Time 3 follow-up survey, 47.0% ($n = 54$) of whom did not have a campus sexual assault history at Timepoint 1 and 53.0% ($n = 61$) of whom had a campus sexual assault history at Timepoint 1. A breakdown of participant follow-up data is depicted in Figure 8.

The final sample consisted of the 147 participants²² who completed at least one follow-up, 48.3% ($n = 71$) of whom did not have a campus sexual assault history at Timepoint 1, and 51.7% ($n = 76$) of whom had a campus sexual assault history at Timepoint 1. Of these participants, 94 (63.9%) completed both follow-up surveys. Participants without a campus sexual assault history had a slightly higher follow-up rate (55.9% of consented participants) than

²² The final N was limited by both financial (i.e., funding for follow-up survey completion) and pragmatic (i.e., follow-up data collection completed within timeline of dissertation completion) constraints.

Figure 8

Diagram of Participant Completion Rate at each Stage of Longitudinal Data Collection



participants with a campus sexual assault history (49.7% of consented participants). However, this difference was not statistically significant $\chi^2(1, N = 280) = 1.08, p = .30$. Sexual assault scores did not significantly differ between consented participants with a sexual assault history who did not complete at least one follow up ($n = 77; M = 2.52, SD = 1.80$) and consented participants with a sexual assault history who did complete at least one follow up ($n = 76; M = 2.71, SD = 1.88; t[151] = 0.64, p = .52$). Across the whole sample, there was no significant difference in Timepoint 1 posttraumatic stress scores between consented participants who completed at least one follow-up ($M = 21.0; SD = 18.9$) and consented participants who did not complete any follow-ups ($M = 20.3, SD = 18.5; t[274] = 0.29, p = .78$).

Participants who completed at least one follow-up survey ranged in age from 18-33 years old ($M = 19.44, SD = 1.85$). A majority of individuals reported an age of 18 (32.0%; $n = 47$) or 19 (34.7%; $n = 51$) years, as well as a first-year (51.7%; $n = 76$) or second-year (23.1%; $n = 34$) student status. Among the sample, 91.8% ($n = 135$) identified as woman, 6.1% ($n = 9$) identified as non-binary, and 2.0% ($n = 3$) opted to self-describe their gender(s) using an open-text response box. Most participants reported their gender as consistent with their sex formally assigned at birth (93.2%; $n = 137$), identified as heterosexual (57.1%; $n = 84$), identified their race/ethnicity as including white/European American (76.2%; $n = 112$) or as exclusively white/European (61.2%; $n = 90$), and were single (68.7%; $n = 101$). Participants predominantly lived in a university residence hall/dormitory (51.7%; $n = 76$) or an off-campus house or apartment (34.7%; $n = 51$), were full-time students enrolled in at least 12 academic credits (93.2%; $n = 137$), and were involved in at least one university extracurricular activity (66.7%; $n = 98$). The sample contained a minority of students reporting a mental, physical, or emotional condition or disability that limits their activities (21.1%; $n = 31$). Full demographic

characteristics of the sample are listed in Table 7.

Procedure

All survey procedures were approved by the University of Oregon Office of Research Compliance (Institutional Review Board). Approval was granted in January 2022. Timepoint 1 data collection began in February 2022 and continued until December 2022. Timepoint 2 data collection began in May 2022 and continued until February 2023. Timepoint 3 data collection began in August 2022 and continued until May 2023. In the initial survey at Timepoint 1, participants indicated their consent to participate, and were notified that they might be eligible to participate in a follow-up study (for more information on Timepoint 1 survey procedures, see Chapter II). At the end of the initial survey, eligible individuals were notified that they could opt-in to a follow-up component that would involve additional surveys at Timepoint 2 (three months from initial study completion) and Timepoint 3 (six months from initial study completion). At that point, participants were required to provide explicit consent to be contacted with these follow-up surveys via email. They were notified that providing consent to be contacted does not require them to participate in additional data collection. If they opted into the follow-up study, they were asked to create a unique subject-generated ID code that allows for the linkage of anonymous data across timepoints (see Appendix L).²³ A subject-generated ID code was created as each participant answered a series of questions that were based on suggested practices of prior research using a similar anonymous longitudinal study designs (Audette et al., 2020; Lippe et al.,

²³ The decision to collect data anonymously was intentional. Although the use of subject-generated ID codes for longitudinal data can lead to data matching issues that may cause some data to be excluded, I determined that the benefits of this approach outweighed the potential costs. Although collecting identifying information and multiple contact methods from each participant may have allowed for higher follow-up survey completion rates (e.g., I would be able to examine if a specific participant did not complete the follow-up and then directly call or email them to remind them), this method may have also biased self-report information or dissuaded specific individuals from participating in the follow-up study. Because I was asking about sensitive information regarding experiences at a university institution, while simultaneously being a representative of that institution, I decided it was the most appropriate choice to prioritize participants' anonymity.

Table 7*Sample Demographics for Follow-Up Survey (N = 147).*

Age	n(%)	Race/Ethnicity^	n(%)
18	47(32.0)	Alaskan Native/Native American	3(2.0)
19	51(34.7)	Asian/Asian American	18(12.2)
20	25(17.0)	Black/African American	8(5.4)
21	11(7.5)	Hispanic/Latino	27(18.4)
22	5(3.4)	Middle Eastern/North African	2(1.4)
23	3(2.0)	Native Hawaiian/Pacific Islander	3(2.0)
24	2(1.4)	White/European American	112(76.2)
25	3(2.0)	Not Listed/Self-Describe	1(0.7)
No Answer	0(0.0)	No Answer	0(0.0)
Student Year		Relationship Status	
First-year	76(51.7)	Single	101(68.7)
Second-year	34(23.1)	In a relationship	44(29.9)
Third-year	24(16.3)	Married	2(1.4)
Fourth-year	11(7.5)	Domestic Partnership	0(0.0)
Other/Describe	2(1.4)	Divorced/Separated	0(0.0)
Gender		Widowed	0(0.0)
Woman	135(91.8)	Housing	
Man	0(0.0)	Dormitory/On-Campus Housing	76(51.7)
Non-Binary	9(6.2)	Off-Campus House/Apartment	51(34.7)
Not Listed/Describe	3(2.0)	Home with Parents/Guardians	12(8.2)
No Answer	0(0.0)	Fraternity/Sorority House	7(4.8)
Gender/Sex		Not Listed/Other	1(0.7)
Matches Birth	137(93.2)	No Answer	0(0.0)
Does Not Match	10(6.8)	Enrolled Credits	
No Answer	0(0.0)	Below 12	10(6.8)
Sexual Orientation		12-16	108(73.5)
Asexual	1(0.7)	17+	29(19.7)
Bisexual	39(26.5)	Extracurricular Involvement	
Gay	0 (0.0)	0	49(33.3)
Heterosexual	84(57.1)	1	49(33.3)
Lesbian	4(2.7)	2	32(22.8)
Queer	6(4.1)	3	9(6.1)
Pansexual	10(6.8)	4	7(4.8)
Not listed/Describe	3(2.0)	5+	1(0.7)
No Answer	0(0.0)	No Answer	0(0.0)

Table 7 (Continued)

Sample Demographics for Follow-Up Survey (N = 147)

International Student Status	<i>n</i>(%)	Disability Status	<i>n</i>(%)
Yes	0(0.0)	Yes	31(21.1)
No	147(100.0)	No	116(78.9)
No Answer	0(0.0)		

Note. Percentages may not add up to 100 due to rounding. ^Frequencies will not add up to 147 and percentages will not add up to 100 because participants were able to select all identities that applied to them.

2019; Yurek et al., 2008). Such literature recommends questions that are specific and stable enough to link responses across time, but that are general enough as to not uniquely identify an individual. In this study, participants were asked about the first initial of their middle name, birth month, number of older siblings, state of birth, last digit of phone number, and last digit of Student ID number (Audette et al., 2020; Lippe et al., 2019; Yurek et al., 2008). When conducting analyses, participant responses were matched based on responses to these questions. The majority of participant responses were matched on all six questions. Ten (7.6%) responses from Timepoint 2 were matched on five out of six responses, and 14 (12.2%) responses from Timepoint 3 were matched based on five out of six responses.²⁴

Three months after their completion of the initial survey at Timepoint 1 ($\pm$ one week), participants received an email from a UO-affiliated study email address (uostresseventstudy@uoregon.edu) to remind them about their prior research participation in a Psychology or Linguistics course and to invite them to complete a follow-up survey for a study entitled “Stressful Events and Mental Health among College Students.” They were invited to

²⁴ Additional information was used to increase confidence in participant matching in these cases. This information included demographic information provided at each timepoint, as well as consistency between the Qualtrics survey completion timestamp and the plausible timeline of survey completion.

complete this survey, even if they had not experienced any stressful events during college. If they did not complete the survey, they received two email reminders, each spaced one week apart (see Appendix M for recruitment email). Six months after the completion of the initial survey at Timepoint 1 ($\pm$ one week), participants received a similar email inviting them to participate in a second follow-up survey. They were invited to complete this survey, even if they had not complete the first follow-up survey three months prior. A procedure identical to Timepoint 2 was followed.

In each follow-up survey, participants consented to participate in each additional survey at its initiation (see Appendix N). They completed a series of questionnaires via Qualtrics survey software on a personal electronic device, and these procedures lasted approximately 30 minutes. After they completed the survey, they were provided with a debriefing form, which contained resources to local sexual violence community agencies and the university counseling center (see Appendix O). They were also directed to a separate link, on which they provided their email information to receive compensation. This separate survey was not connected to their follow-up responses. Upon each follow-up survey completion, participants received a \$20 Amazon.com gift card.

Measures

Timepoint 1 Measures

For use as time-invariant predictors in multilevel models (see Data Analysis Plan), the composite score of institutional betrayal collected at Timepoint 1 was retained (see Chapter II for in-depth description of this measure). Individuals were coded as 0 (no institutional betrayal) or 1 (institutional betrayal) based on this score. Demographic predictors (race/ethnicity and sexual

identity) from Timepoint 1 were also retained. Measures collected during Timepoints 2 and 3 are described below.

Sexual Violence History

Participants' sexual violence victimization history was measured using the 17-item Sexual Experiences Questionnaire – Long Form Version (SES-LFV; Koss, 2006; see Appendix P) at each follow-up timepoint (see Chapter II for a detailed description of this measure). Indices of pre-college and college sexual assault history were retained from Timepoint 1. At Timepoint 2 and Timepoint 3, participants reported on any new sexual assault experience that occurred in the prior three months. Ratings of items corresponding to attempted/completed sexual assault and attempted/completed rape at Timepoint 2 and 3 were summed to create an index of sexual assault revictimization for use as a covariate. If participants indicated an additional experience of attempted or completed sexual assault or rape in the past three months, they were asked additional follow-up questions about the most distressing instance in the past three months, including the event's location, how long ago the event occurred, student status of perpetrator, and their relationship to the perpetrator. Because this scale involves retrospective reporting on past life events that may or may not co-occur, an index of internal consistency (e.g., Cronbach's alpha) is inappropriate.

Post-Traumatic Stress

Posttraumatic stress was measured using the 20-item Post-Traumatic Stress Disorder Checklist for DSM-5 (PCL-5; Weathers et al., 2013) at each timepoint (see Chapter II for a detailed description of this measure). This measure was the same as the measure presented in Timepoint 1. In this study, the measure demonstrated satisfactory reliability among all participants at Timepoint 1 ($\alpha = .96$), Timepoint 2 ($\alpha = .96$), and Timepoint 3 ($\alpha = .95$).

Other Survey Measures

The following measures were also administered to participants in the Timepoint 2 and Timepoint 3 surveys (but were not examined for the purposes of this dissertation): School Climate and School Identification Measure–Student (SCSIM; identification subscale only; Lee et al., 2017); Gender Experiences Questionnaire (GEQ; Leskinen et al., 2014); Difficulties in Emotion Regulation Scale – Short Form (DERS-SF; Kaufman et al., 2016); Trauma Symptoms Checklist (TSC-40; Elliot & Briere, 1992); Patient Health Questionnaire (PHQ-2; Kroenke et al., 2003); General Anxiety Disorder questionnaire (GAD-2; Kroenke et al., 2007); and Alcohol Use Disorders Identification Test (AUDIT-C; Bush et al., 1998).

Data Analysis Plan

Preliminary Analyses

Initial preliminary descriptive and inferential statistics were used to examine change in posttraumatic stress across time, and Pearson's r correlation coefficients were calculated between posttraumatic stress at each timepoint to examine stability across time. As a preliminary method of examining change across time, average change scores were calculated for each participant across timepoints. Using standard t-tests, these change scores were then tested for group differences according to campus sexual assault at Timepoint 1 and institutional betrayal at Timepoint 1. Descriptive statistics were calculated to characterize rates of (re)victimization among the sample during the six months after Timepoint 1. Group differences in revictimization were examined using standard t-tests, and associations between revictimization and posttraumatic stress during follow-up timepoints were examined using multiple regression analyses.

Hypothesis 3

To characterize changes in posttraumatic stress across a period of six months among study participants, multilevel modeling with restricted maximum likelihood estimation was used (Cernat, 2023; Long, 2011). This type of model has an advantage over more traditional types of longitudinal data analysis (e.g., change scores, repeated-measures ANOVA) by accounting for nonindependence of observations (i.e., timepoints nested within individuals) and distinguishing between variance that occurs between individuals on average and variance that occurs as an individual deviates from their average score across time (Cernat, 2023; Long, 2011). Using a multilevel modeling approach, an unconditional means model ($Y_{ij} = \gamma_{00} + \xi_{0i} + \epsilon_{ij}$) was initially estimated, in which posttraumatic stress varies by individual (i) and time (j).²⁵ An interclass correlation coefficient was then calculated from this model to determine the proportion of variance in posttraumatic stress that was due to differences between people versus within person fluctuations. Then, an unconditional change model was fit, where intercepts and slopes were allowed to vary ($Y_{ij} = \gamma_{00} + \gamma_{10}TIME_{ij} + \xi_{0i} + \xi_{1i}TIME_{ij} + \epsilon_{ij}$).²⁶ To test how baseline campus sexual assault influenced trends in posttraumatic stress across time among all participants ($n = 147$), the model was expanded by including baseline sexual assault group as a time-constant predictor, with time centered at Timepoint 1 ($Y_{ij} = \gamma_{00} + \gamma_{01}SA_GROUP_i + \gamma_{10}TIME_{ij} + \gamma_{11}SA_GROUP_i * TIME_{ij} + \xi_{0i} + \xi_{1i}TIME_{ij} + \epsilon_{ij}$).²⁷

²⁵ Y_{ij} indicates posttraumatic stress as it varies across time and individual. γ_{00} is the grand mean of posttraumatic stress across all individuals and timepoints. ξ_{0i} is an indicator of how posttraumatic stress varies between individuals. ϵ_{ij} (epsilon) is an indicator of how posttraumatic stress fluctuates within individuals (i.e., how individuals vary around their average; Cernat, 2023; Long, 2011).

²⁶ γ_{00} indicates mean posttraumatic stress for all participants at Timepoint 1 (coded as 0), γ_{10} indicates the average change in posttraumatic stress at each successive timepoint for all participants, ξ_{0i} indicates variation in posttraumatic stress between individuals at Timepoint 1, and ξ_{1i} represents variation in rates of change across time (Cernat, 2023; Long, 2011).

²⁷ γ_{00} indicates mean posttraumatic stress at Timepoint 1 (coded as 0) among individuals without a campus sexual assault history (and 0 on all covariates), γ_{01} indicates the difference in posttraumatic stress at Timepoint 1 between individuals with and without a campus sexual assault history, γ_{10} indicates the average change in posttraumatic stress at each successive timepoint among individuals without a campus sexual assault history (and 0 on all

Hypothesis 4

To examine changes in posttraumatic stress across a period of six months among participants with campus sexual assault victimization at Timepoint 1 ($n = 76$), a similar approach to Hypothesis 3 was used. First, an unconditional means model ($Y_{ij} = \gamma_{00} + \xi_{0i} + \epsilon_{ij}$) was initially estimated, in which posttraumatic stress varies by individual (i) and time (j). Then, an unconditional change model was fit, where intercepts and slopes were allowed to vary ($Y_{ij} = \gamma_{00} + \gamma_{10}TIME_{ij} + \xi_{0i} + \xi_{1i}TIME_{ij} + \epsilon_{ij}$). To test how institutional betrayal influences changes in posttraumatic stress across time, the model was expanded by including baseline institutional betrayal as a time-constant predictor, with time centered at Timepoint 1 ($Y_{ij} = \gamma_{00} + \gamma_{01}IB_i + \gamma_{10}TIME_{ij} + \gamma_{11}IB_i * TIME_{ij} + \xi_{0i} + \xi_{1i}TIME_{ij} + \epsilon_{ij}$).²⁸

Statistical Software

For analyses, I used *R* (Version 4.3.0; R Core Team, 2018) and *R* packages *psych* (Version 2.3.3; Revelle, 2021), *tidyverse* (Version 2.0.0; Wickham et al., 2019), *lme4* (Version 1.1.32; Bates et al., 2015), and *lmerTest* (Version 0.9.40; Zeileis & Hothorn, 2002). A significance threshold of .05 was used for analyses.

Missing Data

covariates), γ_{11} indicates the difference in the average rate of change between individuals with and without a campus sexual assault history, ξ_{0i} indicates variation in posttraumatic stress between individuals at Timepoint 1, and ξ_{1i} represents variation in rates of change across time (Cernat, 2023; Long, 2011). In this model, covariates also included (re)victimization throughout the study, minority racial/ethnic identity and sexual identity.

²⁸ γ_{00} indicates mean posttraumatic stress at Timepoint 1 (coded as 0) among individuals with a campus sexual assault history without institutional betrayal history (and 0 on all covariates), γ_{01} indicates the difference in posttraumatic stress at Timepoint 1 between individuals with and without institutional betrayal, γ_{10} indicates the average change in posttraumatic stress at each successive timepoint among individuals without institutional betrayal history (and 0 on all covariates), γ_{11} indicates the difference in the average rate of change between individuals with and without institutional betrayal, ξ_{0i} indicates variation in posttraumatic stress between individuals at Timepoint 1, and ξ_{1i} represents variation in rates of change across time (Cernat, 2023; Long, 2011). In this model, covariates also included (re)victimization throughout the study, minority racial/ethnic identity and sexual identity.

Rates of missing data on the item-level were low (<5%) among individuals who completed follow-up surveys, so data was not imputed on the item level, and missing data was eliminated listwise for preliminary analyses. The multilevel modeling package *lme4* (Version 1.1.32; Bates et al., 2015) estimates coefficients while accounting for missing participant data at each timepoint.²⁹

Outlier Analysis

I assessed continuous scores for univariate outliers (defined as 1.5 x the interquartile range of the respective distribution). I ran analyses without removing outliers in service of retaining raw participant data. Although not reported in detail in this manuscript, regression analyses were re-conducted after applying outlier procedures (winsorized at the value corresponding to the 95th percentile of the respective distribution). Outlier influence was also assessed in our regression models using the Cook's *d* statistic. Models were examined without the influence of outliers, with no significant differences in statistical conclusions.

Results

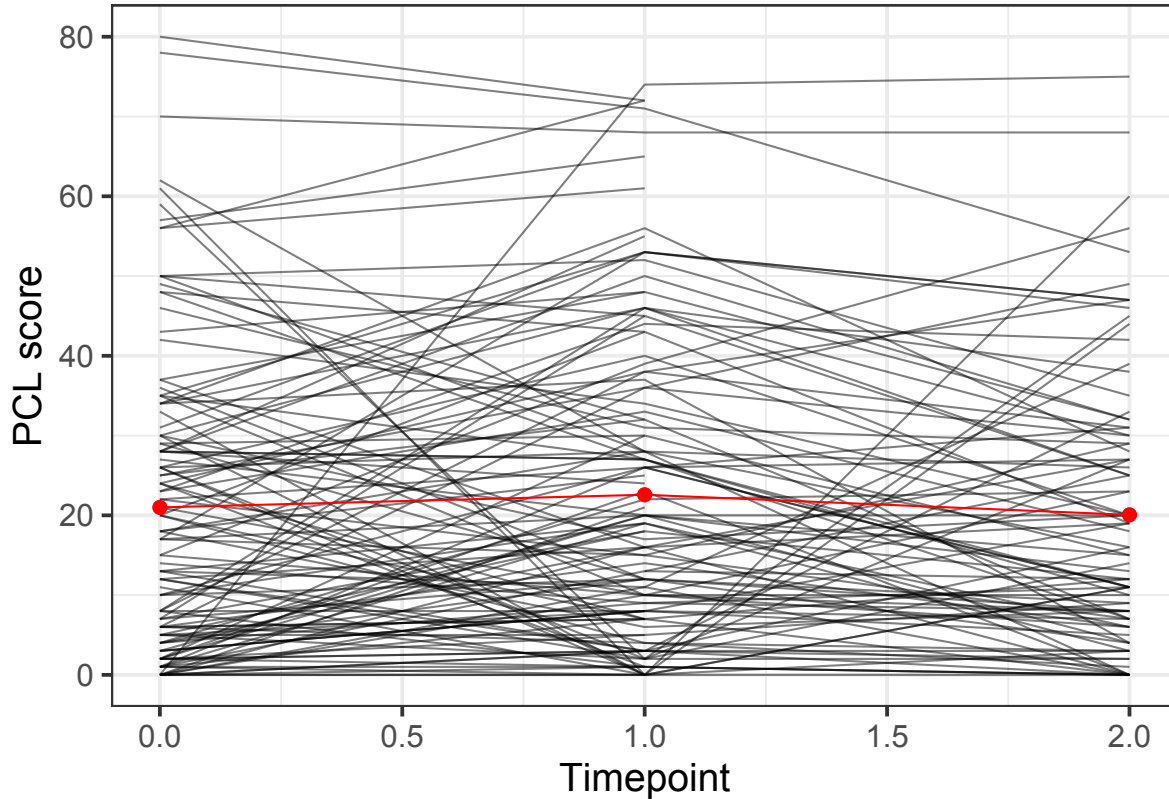
Preliminary Analyses

Descriptive statistics indicated that, on average, there was little change in posttraumatic stress among participants from Timepoint 1 to Timepoint 2 ($M_{change} = 2.24$; $SD_{change} = 17.95$), from Timepoint 2 to Timepoint 3 ($M_{change} = -1.51$; $SD_{change} = 15.41$), and from Timepoint 1 to Timepoint 3 ($M_{change} = -1.54$; $SD_{change} = 20.06$; see Figure 9 for depiction of average change rate among all participants; see Figure 10 for individual change rates). Average change differed across participants who indicated baseline campus sexual assault victimization and those who

²⁹ Multilevel models were also re-run using multiple imputation using the *mice* package (Version 3.15.0; Van Buuren & Groothuis-Oudshoorn, 2011) to test to robustness of the coefficient estimates, with no difference in statistical conclusions. These parameter estimates are not presented in the main text, as the *mice* package has difficulty pooling estimates of random effects across multiple imputed datasets.

Figure 9

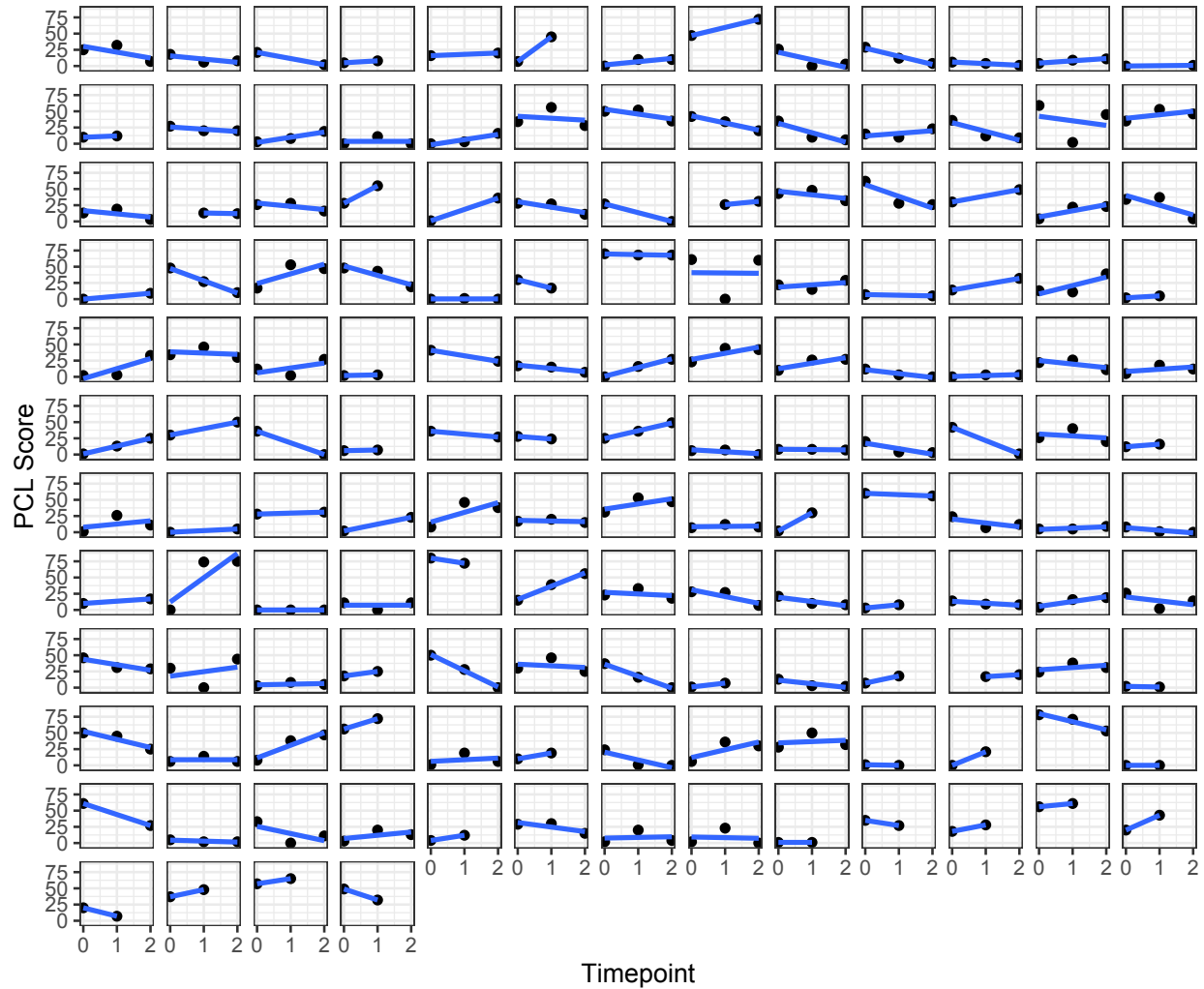
Posttraumatic Stress Scores Across Time for all Participants (Aggregated; $N = 147$)



denied baseline campus sexual assault ($M_{change} = 4.03$ versus $M_{change} = 0.35$, respectively, from Timepoint 1 to Timepoint 2; $M_{change} = -5.02$ versus $M_{change} = 0.22$, respectively, from Timepoint 2 to Timepoint 3; $M_{change} = -2.58$ versus $M_{change} = -0.33$, respectively, from Timepoint 1 to Timepoint 3; see Figure 10). However, these differences in change between groups were not statistically significant. Across all participants, posttraumatic stress at Timepoint 1 was significantly related to posttraumatic stress at Timepoint 2 ($r = .56, p < .001$) and Timepoint 3 ($r = .39, p < .001$). Posttraumatic stress at Timepoint 2 was significantly related to posttraumatic stress at Timepoint 3 ($r = .62, p = .001$).

Figure 10

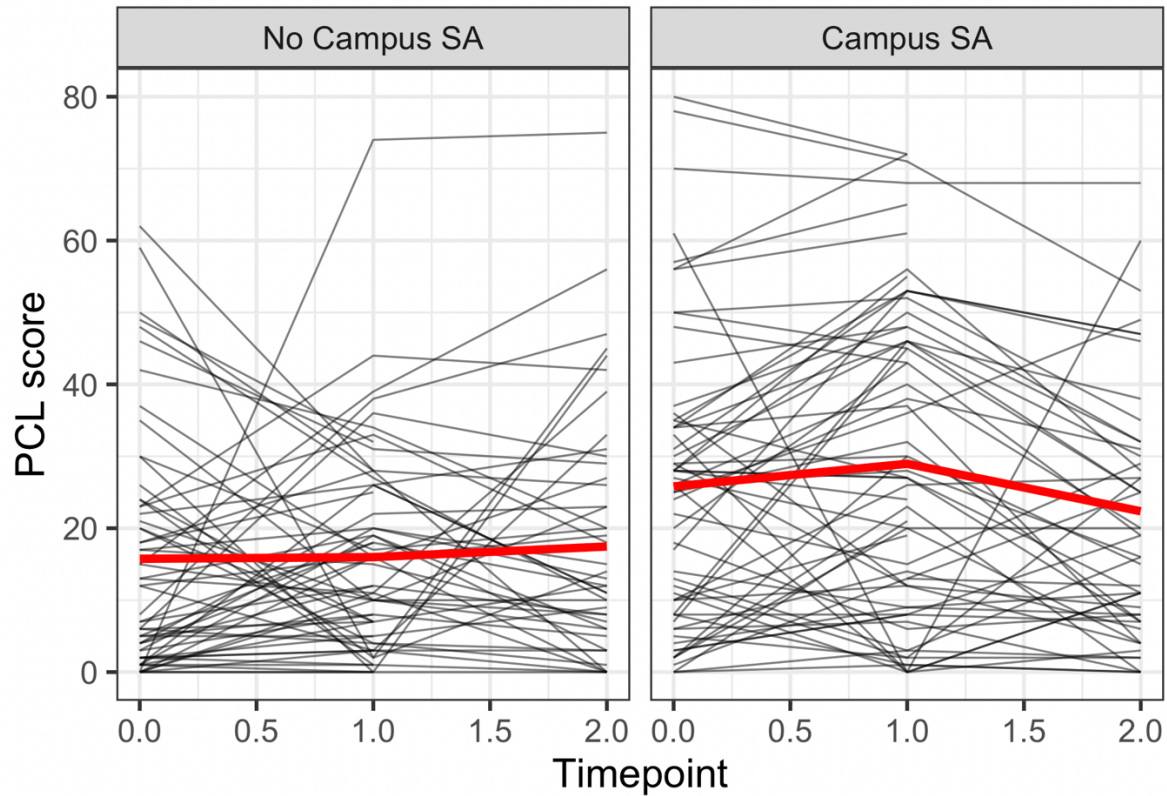
Posttraumatic Stress Scores Across Time for all Participants (Non-Aggregated; $N = 147$)



Compared to participants who denied campus sexual assault victimization at Timepoint 1, participants with baseline campus sexual assault victimization had significantly higher posttraumatic stress at Timepoint 1 (PCL mean score 25.8 versus 15.8; $t[142] = 3.31, p = .001$) and Timepoint 2 (PCL mean score 29.0 versus 16.0; $t[124] = 4.01, p < .001$), but not Timepoint 3 (PCL mean score 22.4 versus 17.5; $t[113] = 1.48, p = .14$; see Figure 11).

Figure 11

Posttraumatic Stress Scores across Time for all Participants Separated by Campus Sexual Assault Victimization at Timepoint 1 (N = 147)

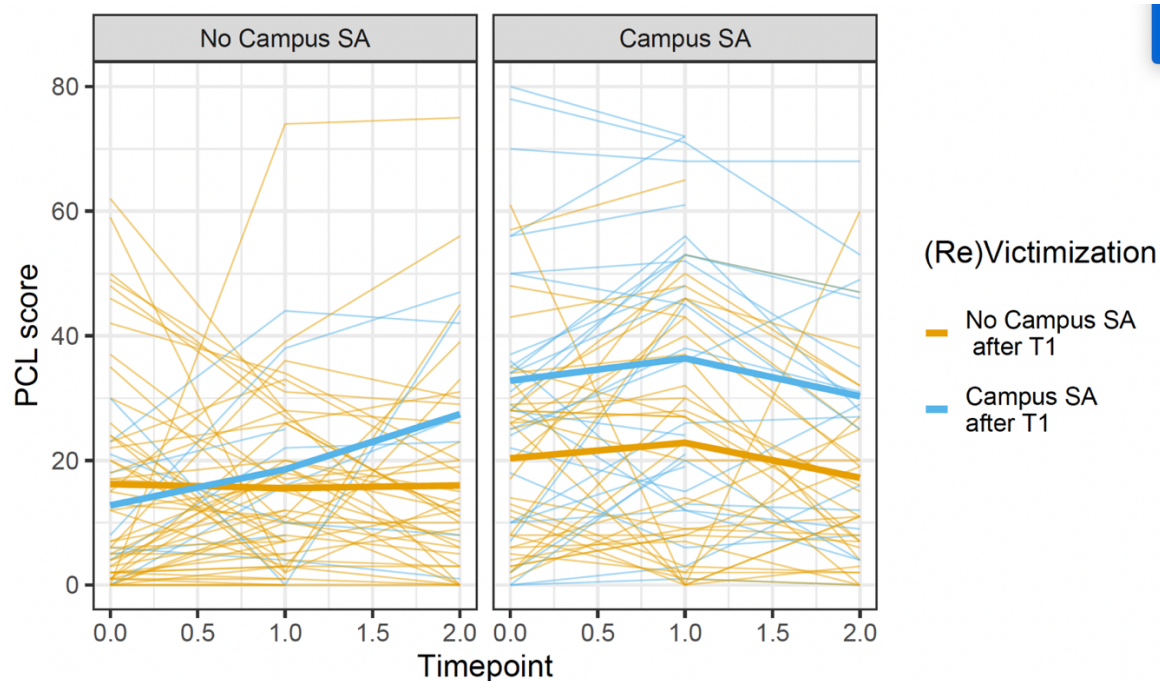


Campus sexual assault at Timepoint 1 was a significant predictor of revictimization at Timepoint 2 ($t[124] = 2.58, p = .01$) and Timepoint 3 ($t[113] = 2.69, p = .008$). Three months after baseline, 31 participants (24.6% of respondents) reported experiencing attempted or completed sexual assault in the prior three months. Seven of these individuals denied campus sexual assault at Timepoint 1, and 24 endorsed campus sexual assault at Timepoint 1. Six months after baseline, 21 (18.3% of respondents) participants reported experiencing attempted or completed sexual assault in the prior three months. Three of these individuals had denied campus

sexual assault at Time 1, and 18 endorsed campus sexual assault at Time 1. In total, 28% of the sample ($n = 43$) reported additional victimization during the six-month period. Additional victimization during the study was associated with posttraumatic stress symptoms at Timepoint 2 and Timepoint 3 (see Figure 12 for posttraumatic stress across time across baseline sexual assault group and (re)victimization status). After controlling for Timepoint 1 victimization and Timepoint 1 posttraumatic stress scores, additional victimization was associated with posttraumatic stress symptoms at Timepoint 2 ($t[119] = 2.93, p = .004$) and at Timepoint 3 ($t[108] = 2.58, p = .01$).

Figure 12

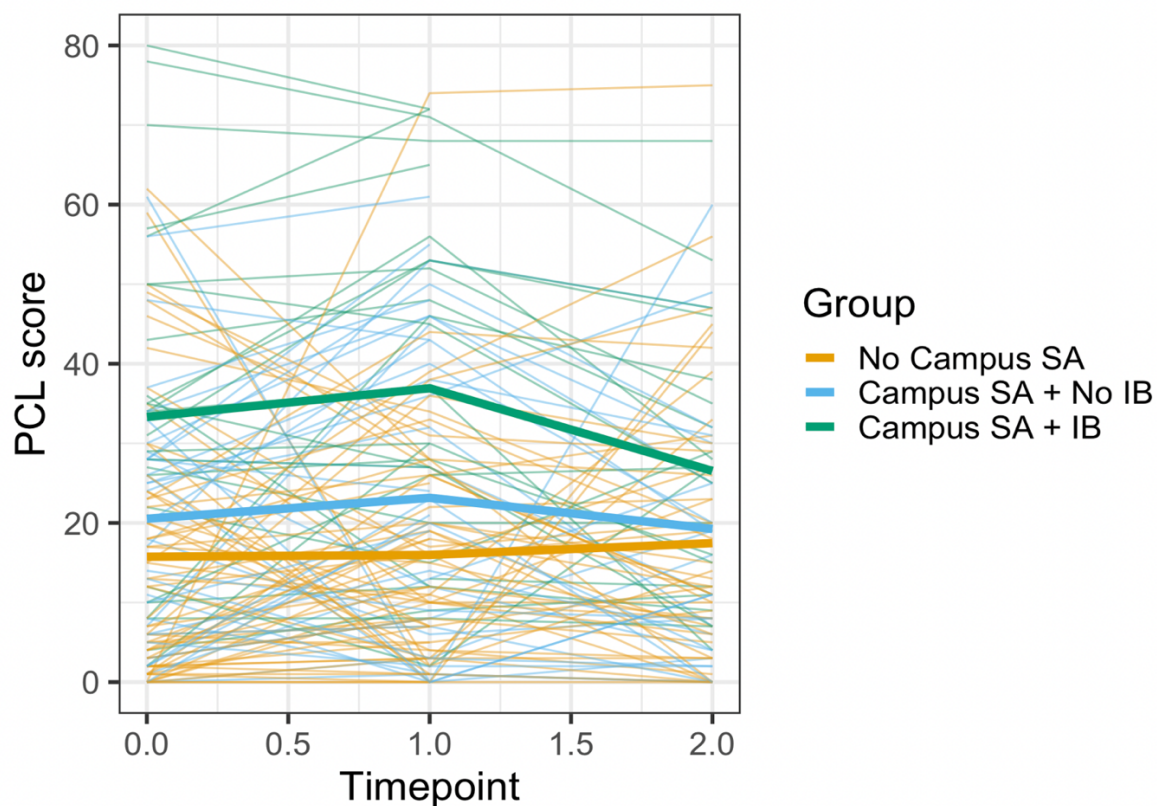
Posttraumatic Stress Scores Across Time for all Participants Separated by Campus Sexual Assault Victimization at Timepoint 1 and (Re)victimization ($N = 147$)



Among those who endorsed campus sexual assault at Timepoint 1 ($n = 76$), 42.1% ($n = 32$) also reported experiencing institutional betrayal (see Figure 13). Compared to participants without institutional betrayal at Timepoint 1, participants with institutional betrayal had significantly higher posttraumatic stress at Timepoint 1 (PCL mean score 33.3 versus 20.5; $t[73] = 2.88, p = .005$) and Timepoint 2 (PCL mean score 36.9 versus 23.2; $t[62] = 2.64, p = .01$), but not Timepoint 3 (PCL mean score 26.5 versus 19.3; $t[59] = 1.53, p = .13$).

Figure 13

Posttraumatic Stress Scores Across Time for All Participants Separated by Campus sexual Assault Victimization at Timepoint 1 and Institutional Betrayal



Hypothesis 3

The interclass correlation derived from the unconditional means model was .543, indicating that 54.3% of the variance in posttraumatic stress was between individuals. Results from the unconditional change model indicated no significant change over time in posttraumatic stress among all participants (see Table 8). Although there was random variation in intercepts, there was little random variation in rates of change.

Table 8

Parameter Estimates for Multilevel Model Predicting Posttraumatic Stress Across Time by Campus Sexual Assault Victimization (N = 147).

Parameter	<u>Unconditional Means</u>		<u>Unconditional Change</u>		<u>Full model[^]</u>	
	Coef	SE	Coef	SE	Coef	SE
Fixed						
Intercept (γ_{00})	21.3	1.3	21.6	1.5	11.8	2.4
Time (γ_{10})	-	-	-0.2	0.9	0.3	1.3
SA Group (γ_{01})	-	-	-	-	6.9*	3.0
Time * SA Group (γ_{11})	-	-	-	-	-0.9	1.8
Random	Variance	SD	Variance	SD	Variance	SD
Intercept (ξ_{0i})	192.3	13.9	230.1	15.2	182.5	13.5
Time (ξ_{1i})	-	-	31.3	6.6	34.0	5.8
Residual (ϵ_{ij})	162.0	12.8	130.5	11.4	128.5	11.3

Note. * $p < .05$. [^]This model also covaried for race/ethnicity, sexual identity, and (re)victimization during study. Statistical conclusions for the effects of SA Group or Time did not differ with the inclusion or exclusion of covariates. The correlation between random effects was -.34 in unconditional change model and -.38 in full model.

Results of the full model containing the sexual assault group predictor indicated that participants who endorsed campus sexual assault at Timepoint 1 had significantly higher posttraumatic stress than those who denied campus sexual assault; however, there was no significant difference in rates of change in posttraumatic stress across these two groups. This indicates that the difference in posttraumatic stress between participants with a campus sexual history at Timepoint 1 and those without a campus sexual history at Timepoint 1 did not diminish over time.

Hypothesis 4

The interclass correlation derived from the unconditional means model was .661, indicating that 66.1% of the variance in posttraumatic stress was between individuals. Results from the unconditional change model indicated no significant change over time in posttraumatic stress among all participants (see Table 9). Although there was random variation in intercepts, there was little random variation in rates of change.³⁰ Results of the model containing the institutional betrayal predictor indicated that participants who endorsed institutional betrayal at Timepoint 1 (along with campus sexual assault) had significantly higher posttraumatic stress than those who did not endorse institutional betrayal; however, there was no significant difference in rates of change in posttraumatic stress across these two groups. This indicates that the difference in posttraumatic stress between participants with institutional betrayal at Timepoint 1 and those without institutional betrayal at Timepoint 1 did not significantly diminish over time.

³⁰ The random effect for time even produced a singularity error in the *lme4* output, suggesting that the random variance in the slope was very close to zero (i.e., there was little randomness in the effect of time and their correlation was very close to 1.00), and this random effect could likely be removed from the model.

Table 9

Parameter Estimates for Multilevel Model Predicting Posttraumatic Stress Across Time by Institutional Betrayal (n = 76).

Parameter	<u>Unconditional Means</u>		<u>Unconditional Change</u>		<u>Full model[^]</u>	
	Coef	SE	Coef	SE	Coef	SE
Fixed						
Intercept (γ_{00})	26.3	2.1	27.0	2.3	14.7	3.7
Time (γ_{10})	-	-	-0.7	1.0	0.5	1.2
IB Group (γ_{01})	-	-	-	-	3.9***	0.9
Time * IB Group (γ_{11})	-	-	-	-	-0.8	0.5
Random	Variance	SD	Variance	SD	Variance	SD
Intercept (ξ_{0i})	275.3	16.7	272.9	16.5	166.7	12.9
Time (ξ_{1i})	-	-	0.01	0.03	1.4	1.2
Residual (ϵ_{ij})	141.4	12.0	142.2	11.9	138.8	11.8

Note. *** $p < .001$. [^]This model also covaried for race/ethnicity, sexual identity, time since sexual assault, and (re)victimization during study. Statistical conclusions for the effects of IB Group or Time did not differ with the inclusion or exclusion of covariates.

Summary of Longitudinal Results & Brief Discussion

Overall, the results from this longitudinal study suggest that hypothesized baseline group differences in posttraumatic stress did not diminish across six months. Contrary to Hypothesis 3, no significant decline in posttraumatic stress was observed among students with campus sexual assault histories or students without campus sexual assault histories. Instead, results of both change score analyses and multilevel modeling analyses indicated that campus sexual assault survivors reported consistently high and relatively stable rates of posttraumatic stress across time. These group differences in PCL scores ranged from 5-13 points throughout the six months. This result contrasts with other longitudinal research conducted in community settings with

sexual assault survivors, which generally indicates a gradual decline in symptoms across time (e.g., Peter-Hagene & Ullman, 2018; Ullman & Peter-Hagene, 2016; Ullman & Relyea, 2016). Such results may be due to the short time period assessed. For instance, in Koss and colleagues' (2004) study, they examined change in posttraumatic stress across a period of two years.

Similarly, Hypothesis 4 was not fully supported. Although I hypothesized that survivors with institutional betrayal would report slower declines in posttraumatic stress than survivors without institutional betrayal, neither group demonstrated a significant decline in symptoms over time. Instead, results of both preliminary change score analyses and multilevel modeling analyses indicated that survivors with institutional betrayal reported consistently higher rates of posttraumatic stress across time than survivors without institutional betrayal. These group differences in PCL scores ranged from 4-12 points throughout the study. Although inconsistent with hypotheses, these results indicate that experiences of sexual assault and institutional betrayal among college students may have long-lasting influences on mental health. Thus, institutional betrayal may be a particularly potent area for university-wide sexual assault prevention efforts, as well as a potential factor to acknowledge and address in individual interventions for campus sexual assault survivors (e.g., psychotherapy).

Although not specifically related to hypotheses, this study also suggests that collecting de-identified longitudinal data related to campus sexual assault and institutional betrayal among college students is feasible. The response rate was approximately 50% to each follow-up survey (~65% for any follow-up), which is above the standard rate of 20-30% typically found in email or online survey studies (Menon & Muraleedharan, 2020). There was also no clear indication of self-selection bias. The design of the current study was unique in that I recruited participants from a larger study of undergraduate students, from whom I had collected initial data regarding

sexual violence history, posttraumatic stress, and demographic information. This recruitment strategy allowed me to examine differences between individuals who both consented to and completed the follow-up survey and individuals who denied consent or did not follow up. Although there was a small indication that participants with higher posttraumatic stress were more likely to provide consent for future contact regarding research participation, differences according to posttraumatic stress or sexual violence history were not observed between individuals who completed a follow-up survey and those who did not complete a follow-up survey. This pattern is in line with prior research suggesting that there is little evidence of bias due to self-selection in campus sexual assault research (e.g., Rosenthal & Freyd, 2018).

There are several limitations to both the study design and statistical approach that may have influenced conclusions. First, results regarding change in posttraumatic stress should be interpreted within the context of the COVID-19 pandemic. This data was collected in 2022-2023, during which the COVID-19 pandemic continued, despite required in-person university attendance policies. The presence of a global pandemic may have exacerbated stress levels generally, which may have contributed to the lack of change over time. We also did not account for other stressful or traumatic events that students may have experienced during this time beyond sexual assault, or any additional factors that may have affected their levels of posttraumatic stress, such as engagement in psychotherapy. These could be important oversights that may have played a crucial role in students' change (or lack of change) in posttraumatic stress.

In addition, the multilevel model specifications used in this study were quite simple; posttraumatic stress was predicted by only a few time-invariant predictors and covariates among a relatively small sample. Although this was appropriate for a preliminary examination of initial

change over time, future research should use larger, more diverse samples and examine additional time-variant and time-invariant predictors. For instance, institutional betrayal was fixed at the Timepoint 1 value in the current analysis, yet, like posttraumatic stress symptoms, experiences of institutional betrayal likely change across time with additional institutional interactions.³¹ Future research could examine relationships between time-variant predictors, as well as complex webs of causality among variables across time, using more advanced longitudinal methods, such as cross-lagged structural equation models. Because variability in individual change was present (see Figures 11-13 in this chapter), future research may also want to use latent class analysis or latent growth curve models to examine different groups or trajectories among sexual assault survivors (e.g., normative recovery, resilience, or relapse trajectories (e.g., Théorêt et al., 2022).

³¹ Several limitations in the study design prevented repeated measurement of institutional betrayal (and other similar variables) related to a specific sexual assault experience at Timepoint 1. Because data was collected anonymously and only linked together at the end of data collection by a subject-generated ID code, I was unable to identify which participants had experienced campus sexual assault victimization at Timepoint 1 during follow-up data collection, and thus could not ask them specific questions about additional institutional betrayal related to that experience.

CHAPTER IV

GENERAL DISCUSSION

Based on a review of prior research (Chapter I) and the results of two study components of an empirical project (Chapter II and Chapter III), there is converging evidence for the usefulness and appropriateness of a socioecological model of posttraumatic stress among campus sexual assault survivors. Results of the cross-sectional analysis described in Chapter II suggest that a wide range of factors at multiple levels of the social ecology (e.g., avoidance coping, self-blame, identity characteristics, reactions to disclosure) that incorporate varying levels of betrayal (e.g., victim-perpetrator relationship, institutional betrayal) explain unique variance in posttraumatic stress as reported by a sample of campus sexual assault survivors. Results of the longitudinal analysis described in Chapter III indicate that campus sexual assault is associated with elevated levels of posttraumatic stress that persist across a period of six months, with the highest levels of posttraumatic stress experienced by survivors in a context of institutional betrayal. This chapter discusses implications and future directions of this work within its broader conceptual and analytical limitations.

Implications

The results described have several implications for clinical work, community prevention/intervention efforts, and broader society. Importantly, these results validate what many survivors and theorists have been voicing for years – namely, that posttraumatic reactions are not the result of individual deficits, but are intertwined with aspects of the surrounding environment and broader society (e.g., Freyd & Birrell, 2013; Herman, 1997). This work also suggests that sexual assault survivors may benefit from acknowledgment and appreciation of multiple contextual factors that influence their mental health. The use of socioecological or

betrayal-related frameworks do not neglect the role that individual factors, such as thoughts, behaviors, or emotions, play a role in survivors' experiences. Rather, they appropriately situate these intrapersonal factors within their concurrent and transactional relationships with interpersonal relationships, institutions, cultures, and systems of oppression. By doing so, they may avoid many of the limitations of traditional individualized and medicalized approaches present in the field of psychology, including over-pathologization or deterministic messages (e.g., Berg, 2002; Burstow, 2005; Gilfus, 1999). An individual victim's shame, anxiety, and dissociation after an assault may not be the *sole* result of isolated thought patterns, avoidant coping strategies, or an over-active stress response system. Instead, these symptoms may exist because: 1) perpetration of violence threatens important interpersonal, institutional, and cultural relationships necessary for well-being and 2) rape myths and cultural norms discounting their experience circulate widely throughout society and manifest in both institutional practices and in their reactions to disclosures to others. Such an approach is consistent with feminist conceptualizations of sexual violence as linked to gender hierarchy (Armstrong, 2018; Brownmiller, 1975; Holland & Cortina, 2016; MacKinnon, 1979), white male dominance (McLaughlin et al., 2012), and boarder systems of power and oppression (Baron & Strauss, 1989; Sanday, 2003). At the same time, it does not close the door on individual-level psychological interventions that may be helpful to survivors. Socioecological models allow space for individual survivors to develop a sense of empowerment through evidence-based psychotherapy or intervention techniques, such as Prolonged Exposure Therapy (Foa & Rothbaum, 1998), Cognitive Processing Therapy (Resick & Schnicke, 1993), or Dialectical Behavior Therapy (Linehan, 1993). These programs may help survivors develop balanced relationships with thoughts, practice adaptive coping strategies, or learn skills to down-regulate

overactive stress response systems within the context of stressful environmental, contextual, and structural factors.

Results also point to several ways to modify current university initiatives and practices to be more validating and inclusive for campus sexual assault survivors, specifically. A socioecological conceptualization opens new avenues for thinking about prevention and intervention on institutional and sociocultural levels. Currently, most universities have campus sexual assault programming in some form. However, they typically rely on public awareness campaigns (e.g., Take Back the Night) or individual-level prevention trainings (bystander intervention, self-defense) that have mixed evidence regarding effectiveness (Katz & Moore, 2013; Orchowski et al., 2020; Vladutiu et al., 2011). Few strategies exist to intervene on larger sociocultural levels or to buffer against the impact of campus sexual violence once it has already occurred, beyond individual counseling or aid through the Title IX office (which research suggests can often be harmful and cause institutional betrayal; Smith & Freyd, 2014).

Several promising interventions for sexual violence survivors have recently been proposed that intervene at relational and institutional levels. These could be incorporated onto college campuses as part of a socioecological prevention strategy. One intervention that is currently in development focuses on improving reactions to disclosure among the informal social support networks of sexual assault survivors as a means to promote recovery and buffer against negative mental health outcomes (Edwards et al., 2022). In other words, this intervention identifies a person *outside* of the survivor as being the primary target and problematic reactions to disclosure as the area for intervention (i.e., it is not solely on the victim to change the way they respond to harmful disclosure reactions). This intervention, called *Supporting Survivors and Self: An Intervention for Social Supports of Survivors of Partner Abuse and Sexual Aggression*, has

demonstrated promising results in initial pilot studies (Edwards & Ullman, 2018; Edwards et al., 2022). One study has found that the intervention was associated with decreased levels of posttraumatic stress among sexual assault survivors (Edwards et al., 2021).

Other notable work includes theory and research on *institutional courage* (Freyd, 2014), which has been referred to as the “antidote” to institutional betrayal (Smidt et al., 2023). Institutional courage has been conceptualized as courageous moral actions that prioritize the safety and needs of institutional members, despite possible short-term (e.g., negative press coverage, financial burden) or long-term costs (e.g., lawsuits by perpetrators; Freyd, 2014, 2018). Such actions signal that the individual is a valued and important member of the institution and can include: apologizing for past wrongdoing, developing transparent reporting policies, or institutional representative expressing belief in a victim’s account of violence. Early research suggests that institutional courage could buffer against harm in the face of sexual violence and institutional betrayal (Smidt et al., 2023; Adams-Clark et al., under review). In one study, institutional courage has been found to attenuate the relationship between institutional betrayal and workplace outcomes among a sample of employees who have experienced workplace sexual harassment (Smidt et al., 2023). Similarly, high levels of institutional courage attenuated the relationship between institutional betrayal and trauma symptoms among a sample of undergraduate students experiencing campus sexual violence (Adams-Clark et al., under review). Universities could adopt several of the steps laid out by Freyd (2018) to promote institutional courage, including cherishing the whistleblower and engaging in self-study (Freyd, 2014, 2018; Freyd & Birrell, 2013) to develop their own institution-specific interventions that locate the problem *within* the institution, rather than the individual.

This research also suggests that current evidence-based therapies may be adapted to incorporate additional elements that validate survivors' experiences in the context of invalidating and harmful relationships and institutional contexts. Traditional cognitive or behavioral therapies may benefit from adopting concepts from feminist trauma therapy (Brown, 2004; Herman, 1997) and Relational Cultural Theory (Miller & Stiver, 1997), which emphasize safety and social connection, particularly related to how power, identity, and dominance manifest both inside and outside of the therapy relationship (Comstock et al., 2008). They may also adopt aspects of community-based therapy models that emphasize acknowledgment of harmful systems/structures and engagement in activism or community involvement to promote well-being (e.g., Bryant-Davis et al., 2010; Pearlman, 2013). Such approaches may be particularly useful to sexual assault survivors who have experienced significant interpersonal or institutional betrayal (Freyd & Birrell, 2013).

Limitations

Although several specific limitations of each analysis are discussed in Chapter II and Chapter III, there are a few overarching limitations that I would like to highlight that apply to this dissertation as a whole. Major limitations of both the cross-sectional and longitudinal investigations include their conceptual oversight of sociocultural/structural influences and their lack of sample representativeness and diversity. The current study collected data from a sample of undergraduate students enrolled in a Psychology/Linguistics Human Subjects Pool located at one specific university institution (the University of Oregon) in the Pacific Northwest of the United States. Although college students were my population of interest and were specifically targeted (unlike other psychology research that seeks to generalize from college students to humanity as a whole), there are several reasons why the results of this study may not generalize

to college students who experience sexual assault at different universities. First, the student body of the University of Oregon is quite homogenous and overwhelmingly white, which is consistent with the demographics of the surrounding region. Because of this, the analyses presented fail to reckon with the role of racism, discrimination, and cultural betrayal in experiences of sexual violence. Given prior research and theory suggesting that race/ethnicity and sociocultural norms interact with sexual violence and posttraumatic stress in vital ways (e.g., Dworkin & Weaver, 2021), this is a crucial limitation that should be addressed in future research. Intentional oversampling of individuals with marginalized identities may be a useful next step for this research in predominantly white contexts.

Second, specific aspects of the University of Oregon history, policy, and culture may impact generalizability. The University of Oregon is a large, public institution that has a significant Greek life presence and competes in Division I of the National Collegiate Athletic Association. This is important, given that prior research suggests that athletic participation and Greek life culture can influence rates and outcomes of campus sexual violence victimization (Barnes et al., 2021; Milner & Baker, 2017; McMahon, 2010; Murnen & Kohlman, 2007). As part of its involvement in high-profile college athletics, the University of Oregon has also been at the center of several controversies regarding sexual violence that may impact how students experience sexual violence on campus or respond to surveys about campus sexual violence and institutional betrayal. The most prominent example of this includes a highly publicized incident during an investigation of NCAA basketball players for rape in 2014 (Jacoby, 2017). Thus, the results of these studies should be further replicated in a variety of different institutions, including community colleges, regional universities, and liberal arts colleges (e.g., Herres et al., 2021).

In addition to campus norms that may exacerbate sexual assault rates or harmful outcomes, the University of Oregon also has a unique student-directed sexual violence reporting policy that might impact students' disclosure of sexual assault and their experiences of institutional betrayal (also referred to as "mandatory supporting" policy; Freyd, 2016). This policy was instituted 2017 and provides students with the agency to decide what happens to a report of sexual violence made to a student leader, staff member, or faculty member. This is in contrast to typical mandatory reporting policies, which are currently the norm at universities and require a report to be filed with the Title IX office even if it is against a survivor's wishes (Freyd, 2016; Holland et al., 2018). The hope is that a student-directed policy disrupts the harm of compelled disclosure that can result in institutional betrayal (Holland et al., 2018). Therefore, it is unknown how the current results regarding institutional betrayal may generalize to students at universities with mandated reporting policies. I may expect higher levels of institutional betrayal at institutions with mandatory reporting.

Future Directions

Future research should continue adopting contextualized understandings to sexual violence outcomes. As previously discussed, the sexual violence literature (in psychology) has not adequately framed sexual violence as a multi-level phenomenon (notable exceptions include theories discussed throughout this dissertation). This has, unfortunately, limited the research questions that researchers can address (Gill, 2018). Although this trend appears to be shifting within sexual violence and intimate partner violence prevention research (Banyard, 2011; Casey et al., 2009; Du Mont et al., 2020; Kenny & Wurtele, 2012; Moylan & Javorka, 2018; Prego-Meleiro et al., 2020; Tarzia, 2021), I hope that additional research on mental health outcomes follows suit. I look forward to seeing if and how the relationships found in this dissertation

replicate to a wide variety of mental health outcomes, including depression, anxiety, dissociation and substance use. Additional research elucidating aspects of the sociocultural context on sexual violence is also greatly needed. The study of the direct relationship between survivors' mental health, their engagement with structures (e.g., the media), and their interactions with laws and policies, provides ample opportunity for research in this domain.

Sexual violence research should also continue to take advantage of the advanced quantitative tools that the field of psychology already uses. A useful approach would be to adopt and expand upon a multi-level modeling analytic approach (e.g., Peugh, 2010), such as the one used in Chapter III. A particularly exciting application of this approach could nest individual participants within both relational groups (with varying reactions to disclosure) and institutions (with various policies and prevention/intervention efforts) and test how each cluster influences mental health over time within a wide range of institutions and contexts. A future multi-level model of campus sexual violence outcomes could nest individual students within student groups and university systems with varying campus climates and sexual violence reporting policies, while still accounting for individual and interpersonal support factors. Although this would require substantial funding, this type of design could begin to directly examine the research questions proposed in this dissertation.

Other sexual violence outcome research may incorporate mixed methods and principles of community-engaged research within multiple other institutions and contexts (McCauley et al., 2019). Compared with standard empirical research, community-engaged research prioritizes partnerships with individuals within the community being studied during each step of the research process, from research question formulation to publication dissemination (McCauley et al., 2019; Wallerstein & Duran, 2006). Such an approach breaches standard power dynamics

inherent in the research process, in which the researcher is the “expert,” and the participant is the “subject” of study (McCauley et al., 2019; Wallerstein & Duran, 2006). Community-engaged sexual violence outcomes research would allow survivors of violence with lived experience to shape research on contextual factors influencing distress. With the community, researchers could develop strategies to apply principles of institutional courage to their specific institutions and track the effect of these changes across time.

In tandem with community-based approaches, qualitative approaches, such as reflexive thematic analysis (Braun & Clarke, 2006, 2021), may be a particularly helpful next step to examine survivors’ descriptions of the nuanced interactions between intrapersonal, relational, institutional, sociocultural factors, and mental health/recovery. Qualitative research approaches draw from postpositivist or constructivist epistemologies to center survivors’ narratives and interpretations of their experiences *in their own words* (Braun & Clarke, 2006, 2021). Often, these approaches are able to wrestle with nuanced relationships and contradictions in a way that positivist approaches cannot. Because qualitative approaches are such a promising next step for research in this regard, I have already initiated a qualitative study using a subsample (anticipated $n = 10-15$) of the participants who participated in the longitudinal study described in Chapter III. In this study, I will ask participants about their relational and institutional interactions after campus sexual assault victimization.

Finally, future research will also benefit from taking an intentional intersectional perspective to understanding factors that influence the psychological effects of sexual violence. The theory of intersectionality (Crenshaw, 1989; Crenshaw, 1991) is increasingly being recognized as a vital conceptual framework for psychology research (Cole, 2009; Rosenthal, 2016). Intersectionality centralizes structural power relations that may manifest in multiple ways

as individuals' identities intersect, based on race, class, gender, ability, socioeconomic status, and sexuality. In other words, a Black queer transgender women may not have the same experience of sexual violence that a Black heterosexual cisgender man will have. Greater engagement with intersectionality will allow researchers to see how experiences of sexual violence may vary with contextual power dynamics. Although there have been calls for greater incorporation of intersectionality into studies of sexual and interpersonal violence (e.g., Brassel et al., 2020; McCauley et al., 2019), sexual violence research, even those exemplifying the most contextual approaches, tend to use a single axis framework (notable exceptions do exist, including Buchanan et al., 2018 and McGuffey, 2021).

Conclusion

Overall, this dissertation supports the value of taking a socioecological and betrayal-informed approach to understanding and researching campus sexual assault. The analyses presented in this dissertation provide initial support for the feasibility of researching campus sexual violence both cross-sectionally and longitudinally from a contextual perspective. Results of these studies indicate that a range of factors, including intrapersonal (e.g., coping behaviors, cognitions), relational (e.g., reactions to disclosure, victim-perpetrator relationship), and institutional (e.g., institutional betrayal) play important roles in campus sexual assault survivors' mental health. In addition, campus sexual violence victimization and institutional betrayal were consistently associated with posttraumatic stress across time. Although this research provides a foundation for future investigations of sexual violence in a variety of contexts, more research certainly is warranted, particularly regarding sociocultural factors. Ultimately, I hope that additional research using a socioecological lens will lead to a greater number and range of

resources to both prevent and alleviate the effects of sexual violence for a diverse range of survivors.

APPENDIX A

INFORMED CONSENT FORM (TIME 1)

Consent for Research Participation

Title: Stressful Events, Sexual Violence, and Mental Health Among College Students

Researcher(s): Alexis Adams-Clark, M.S., Jennifer Freyd Ph.D.

Researcher Contact Info: aadamscl@uoregon.edu

You are being asked to participate in a research study. The section below highlights key information about this research for you to consider when making a decision whether or not to participate. Carefully consider this information and the more detailed information provided below. Please ask questions about any of the information you do not understand before you decide whether to participate.

Key Information for You to Consider

- **Voluntary Consent.** You are being asked to volunteer for a research study. It is up to you whether you choose to participate or not. There will be no penalty or loss of benefits to which you are otherwise entitled if you choose not to participate or discontinue participation.
- **Purpose.** The purpose of this research is to collect information about college students' mental health and experiences of stressful events at the University of Oregon. We plan to collect information about participants' exposure to various stressful life events (including sexual violence), interactions with and attitudes about university resources, and physical and mental health symptoms.
- **Duration.** It is expected that your participation will last approximately 1 hour. You should complete the study on a personal electronic device in one sitting.
- **Procedures and Activities.** You will be asked to complete a series of surveys on a variety of topics. You will be asked questions about your past experiences, including some potentially difficult, stressful, or disturbing experiences (e.g., experiences of trauma, harassment). At the end of the survey, you may be randomly selected to participate in two follow-up surveys in the future and/or receive information about an optional paid interview study. You may provide or deny permission for us to contact you regarding these additional, separate follow-up studies with no penalty to you.
- **Risks.** The primary foreseeable risks or discomforts of your participation include boredom or discomfort and distress from answering sensitive questions about difficult and stressful past experiences.
- **Benefits.** There are no known direct benefits to participating in this study, but your participation may help inform our greater understanding of college students' experiences with and reactions to stressful events.
- **Alternatives.** Participation is voluntary, and the only alternative is not to participate. As an alternative to receiving course credit, you can complete an alternative assignment as offered by your course.

Who is conducting this research?

Alexis Adams-Clark, M.S., and Jennifer Freyd, Ph.D. from the University of Oregon are asking for your consent for research.

Why is this research being done?

The purpose of this research is to collect information about college students' mental health and experiences of stressful events at the University of Oregon, including experiences with unwanted sex and harassment. We plan to collect information about participants' exposure to various stressful life events (including sexual violence), interactions with and attitudes about university resources, and physical and mental health symptoms. You will be asked questions about past experiences, including some potentially difficult experiences about sexual history and trauma. You should take this survey in a quiet and private place in order to concentrate. To help ensure your responses are kept confidential, be sure to use a secure network and close the browser when finished. You are being asked to participate because you are a student in the Psychology and Linguistics Human Subject Pool. Up to 2000 people (18 years old or above) will take part in this research.

How long will I be in this research?

This research survey will take approximately 1 hour to complete.

What happens if I agree to participate in this research?

If you agree to be in this research, your participation will include a series of surveys related to a variety of topics, including attitudes, experiences with stressful life events, and measures of physical and mental health symptoms. You will also be asked about some potentially difficult, stressful, or disturbing experiences, such as trauma exposure and sexual violence. You can skip any question that makes you uncomfortable, and you can exit the survey at any time. Throughout the survey, there will be several items that you will be asked to complete to demonstrate that you are paying attention to the survey (e.g., a survey question might read "Please click 'yes' to indicate that you are paying attention"). At the end of the survey, you may be selected to participate in two 30-minute follow-up surveys 3 months from now and 6 months from now or be provided with information about an optional paid interview study. If you are eligible, you will be provided with additional information regarding these follow-ups. At that point, you may provide or deny permission for us to contact you regarding these additional, separate follow-up studies with no penalty to you.

What happens to the information collected for this research?

The researchers will not collect or have access to any identifying information and will not be able to link your responses to your person. Information collected for this research will be used in academic publications and presentations. Your name or any identifying information will not be used in any published reports or conference presentations based on this study. We may publish/present the results of this research. However, we will keep your name and other identifying information confidential. Although the SONA System will have a record of who participated in this study, neither the administrator nor the Human Subjects Coordinator will have access to your responses. An aggregated, de-identified dataset may be made available to the public in an online data repository.

How will my privacy and data confidentiality be protected?

We will take measures to protect your privacy, including asking that you not include any identifiable information in your survey responses. We also recommend that you complete this survey in a quiet and private place (with no one else around), use a secure network, and close the browser when finished. Despite taking steps to protect your privacy, we can never fully guarantee your privacy will be protected. We will take measures to protect the security of all your personal information, including storing de-identified data on a secure server, and only allowing key study personnel to have access to your data. Despite these precautions to protect the confidentiality of your information, we can never fully guarantee confidentiality of all study information. Individuals and organization that conduct or monitor this research may be permitted access to and inspect the research records. This may include access to your de-identified data. These individuals and organizations include the Institutional Review Board (IRB) that reviewed this research.

What are the risks if I participate in this research?

The primary foreseeable risks or discomforts of your participation include boredom or discomfort and distress from answering sensitive questions about difficult and stressful past experiences. There may be risks of stress, emotional distress, inconvenience and possible loss of privacy and confidentiality associated with participating in a research study. If you would like to discuss any of the feelings or thoughts that may have arisen during your participation in this study, please utilize the following free resources available to you. Please note we cannot ensure the quality of these services.

1. University of Oregon Counseling Center (541) 346-3227 (541) 346-4488 (Crisis Line)
2. Sexual Assault Support Services (541) 484-9791 (541) 343-7277 (Crisis/Support Line)
3. White Bird (541) 342-8255 (Counseling Program) (541) 687-4000 (Crisis Line)
4. Center for Community Counseling (541) 344-0620

What are the costs of participating in this research?

There are no costs associated with participation in this research study.

What are the benefits of participating in this research?

There are no known direct benefits to you from participating in this study. However, it is hoped that information gained from this study will contribute to generalizable knowledge about stress and mental health.

What if I want to stop participating in this research?

Taking part in this research study is your decision. Your participation in this study is voluntary. You do not have to take part in this study, but if you do, you can stop at any time. You have the right to choose not to participate in any study activity or completely withdraw from continued participation at any point in this study without penalty or loss of benefits to which you are otherwise entitled. Your decision whether or not to participate will not affect your relationship with the researchers, the University of Oregon, or the UO Psychology or Linguistics Departments. The Psychology and Linguistics Departments have established alternative assignments for students who do not wish to participate as research subjects. Please see your instructor if you would rather complete an alternative assignment

Will I be paid for participating in this research?

You will not be paid for taking part in this 1-hour research survey. You will be awarded 1 credit for your participation. You will be awarded .25 credits for every 1-15 minutes of participation. For example, if you complete 1-15 minutes you will receive .25 credit, and if you complete 16-30 minutes you will receive .50 credits, if you complete 30-45 minutes you will receive .75 credits. Thus, you should expect to receive 1 credit for the 1 hour that it takes to complete this survey. If you choose to discontinue participation in this study at any point after clicking through the consent page, you will receive credit for the amount of time you participated. Please contact the listed researcher to receive partial credit. When responding to items in this survey, you may leave any individual items blank that you do not wish to answer. This will not affect your credit. If you keep your scheduled study appointment but choose not to participate in the study at all, you will still receive ¼ credit.

Who can answer my questions about this research?

If you have questions, concerns, or have experienced a research related injury, contact the research team at:

Alexis Adams-Clark, M.S.

Phone #: 541-346-4950

Email: aadamsc@uoregon.edu

An Institutional Review Board (“IRB”) is overseeing this research. An IRB is a group of people who perform independent review of research studies to ensure the rights and welfare of participants are protected. UO Research Compliance Services is the office that supports the IRB. If you have questions about your rights or wish to speak with someone other than the research team, you may contact:

Research Compliance Services

ResearchCompliance@uoregon.edu

5237 University of Oregon Eugene, OR 97403-5237

(541) 346-2510

To receive a copy of this consent form, you can print a copy using the browser’s print function, or you can email the principal investigator Alexis Adams-Clark at aadamsc@uoregon.edu, who will then provide you with a copy of this consent form.

STATEMENT OF CONSENT

I have had the opportunity to read and consider the information in this form. I understand that by agreeing below, I volunteer to participate in this research. I understand that I am not waiving any legal rights. I understand my involvement in the study, and I give my consent to participate in this study. Please choose ‘Agree’ if you wish to participate.

- ☐ I agree to participate in this study and that I am at least 18 years old
- ☐ I do NOT agree to participate in this study or am younger than 18 years old

APPENDIX B

DEBRIEFING FORM (TIME 1)

Thank you for your participation in this study! Your participation is complete.

What is the background of this study?

This study examined student experiences of sexual violence and other stressful campus events. While a lot of research has been done regarding sexual violence and trauma, research on the role of interpersonal (e.g., social support) and institutional (e.g., reporting policies) factors is relatively new.

What was the purpose of this study?

This study examines students' experiences with sexual violence and other stressful campus events, as well as experiences disclosing unwanted sexual experiences while enrolled at the University of Oregon. Through this research, we hope to gain insight into how sexual violence affects students on campus. To help us understand this topic, you were given several questionnaires asking about trauma history, experiences of talking with others about past experiences, and the involvement of institutions that might have had a role in a trauma experience. Your participation is valuable because it will provide insight into an area of research that has been understudied and may impact future understandings of how university institutions respond to sexual violence and other stressful events that students may experience. The specific information you provided will give us important information. Your personal responses will remain confidential.

Who do I contact if I have questions, comments, or concerns about this study?

If you have feedback about this study or are interested in the results of this study, feel free to contact Alexis Adams-Clark, M.S., at aadamsc1@uoregon.edu or Dr. Jennifer Freyd at jjf@uoregon.edu. You may also call our lab at 541-346-4950.

If you have any questions concerning your rights as a research participant, please contact Research Compliance Services. You can also email the Human Subjects Coordinator for psychology and linguistics research.

Office of Research Compliance

677 E. 12th Ave, Suite 500,
Eugene, OR 97401
541-346-2510
researchcompliance@uoregon.edu

Human Subjects Coordinator

hscoord@uoregon.edu

Who do I contact if I am upset by this study?

There are no known costs associated with the study you just participated in. Participation in this study involves thinking about situations that might be sensitive or even upsetting for some

participants. There is a low risk of loss of privacy or breach of confidentiality. All data is confidential and de-identified, and we requested that you not provide your name or other people's names at any point in this survey. All data will be stored on a password protected computer, and no one other than the research team will have access to your questionnaire responses. The principal investigator and faculty advisor will have no way of linking your questionnaire answers to your identity.

If you would like to discuss any of the feelings or thoughts that may have arisen during your participation in this study, please utilize the following free resources available to you. Please note we cannot ensure the quality of these services.

1. University of Oregon Counseling Center

(541) 346-3227

(541) 346-4488 (Crisis Line)

2. Sexual Assault Support Services

(541) 484-9791

(541) 343-7277 (Crisis/Support Line)

3. White Bird

(541) 342-8255 (Counseling Program)

(541) 687-4000 (Crisis Line)

4. Center for Community Counseling

(541) 344-0620

Thank you!

APPENDIX C

SEXUAL EXPERIENCES SURVEY (SES; TIME 1; SEXUAL ASSAULT AND RAPE ITEMS ONLY)

Instructions: The following questions concern sexual experiences that you may have had that were unwanted. We know that these are personal questions, so we do not ask your name or other identifying information. Your information is confidential, and you may leave questions blank if you would not like to answer. We hope that this helps you to feel comfortable answering each question honestly.

Please mark the choice indicating the number of times each experience has happened to you both prior to and while enrolled as a student at the University of Oregon.

Someone fondled, kissed, or rubbed up against the private areas of my body (breast/chest, crotch or butt) or removed some of my clothes without my consent (but did not attempt sexual penetration).

	0 times	1 time	2 times	3+ times
Before attending the University of Oregon	☐	☐	☐	☐
While attending the University of Oregon	☐	☐	☐	☐

Someone had oral sex with me or made me have oral sex with them without my consent.

	0 times	1 time	2 times	3+ times
Before attending the University of Oregon	☐	☐	☐	☐
While attending the University of Oregon	☐	☐	☐	☐

Someone put their penis into my vagina, or someone inserted fingers or objects into my vagina without my consent.

	0 times	1 time	2 times	3+ times	I do not have a vagina
Before attending the University of Oregon	☐	☐	☐	☐	☐
While attending the University of Oregon	☐	☐	☐	☐	☐

Someone put their penis into my butt, or someone inserted fingers or objects into my butt without my consent.

	0 times	1 time	2 times	3+ times
Before attending the University of Oregon	☐	☐	☐	☐
While attending the University of Oregon	☐	☐	☐	☐

Even though it didn't happen, someone TRIED to have oral sex with me, or make me have oral sex with them without my consent.

	0 times	1 time	2 times	3+ times
Before attending the University of Oregon	☐	☐	☐	☐
While attending the University of Oregon	☐	☐	☐	☐

Even though it didn't happen, someone TRIED to put their penis into my vagina, or someone tried to stick in fingers or objects into my vagina without my consent.

	0 times	1 time	2 times	3+ times	I do not have a vagina
Before attending the University of Oregon	☐	☐	☐	☐	☐
While attending the University of Oregon	☐	☐	☐	☐	☐

Even though it didn't happen, someone TRIED to put their penis into my butt, or someone tried to stick in objects or fingers without my consent.

	0 times	1 time	2 times	3+ times
Before attending the University of Oregon	☐	☐	☐	☐
While attending the University of Oregon	☐	☐	☐	☐

I have been sexually assaulted.

	0 times	1 time	2 times	3+ times
Before attending the University of Oregon	☐	☐	☐	☐
While attending the University of Oregon	☐	☐	☐	☐

I have been raped.

	0 times	1 time	2 times	3+ times
Before attending the University of Oregon	☐	☐	☐	☐
While attending the University of Oregon	☐	☐	☐	☐

APPENDIX D

CAMPUS SEXUAL ASSAULT FOLLOW-UP QUESTIONNAIRE

Instructions: In the last section, you indicated having at least one unwanted sexual experience while attending the University of Oregon. This experience may have included unwanted or nonconsensual touching or penetration by another person.

If you have experienced multiple events while enrolled at University of Oregon, please report on the sexual experience that was the most severe or distressing for you, or that had the most impact on your life. Please only report on an experience that occurred while you were enrolled as a student the University of Oregon. This may or may not have occurred on campus. Please answer the following questions. Again, your information is confidential.

How long ago did this event occur?

- ☐ Less than 1 month ago
- ☐ 1-3 months ago
- ☐ 4-6 months ago
- ☐ 6-9 months ago
- ☐ 9-12 months ago
- ☐ 1-2 years ago
- ☐ 3-4+ years ago

What best characterizes your relationship with the person who did this?

- ☐ Stranger
- ☐ Acquaintance
- ☐ Friend
- ☐ Current Romantic Partner
- ☐ Ex-Romantic partner
- ☐ Other _____

Was the person who did this another student at the University of Oregon?

- ☐ No
- ☐ Yes
- ☐ Unsure

What was the gender of the person who did this?

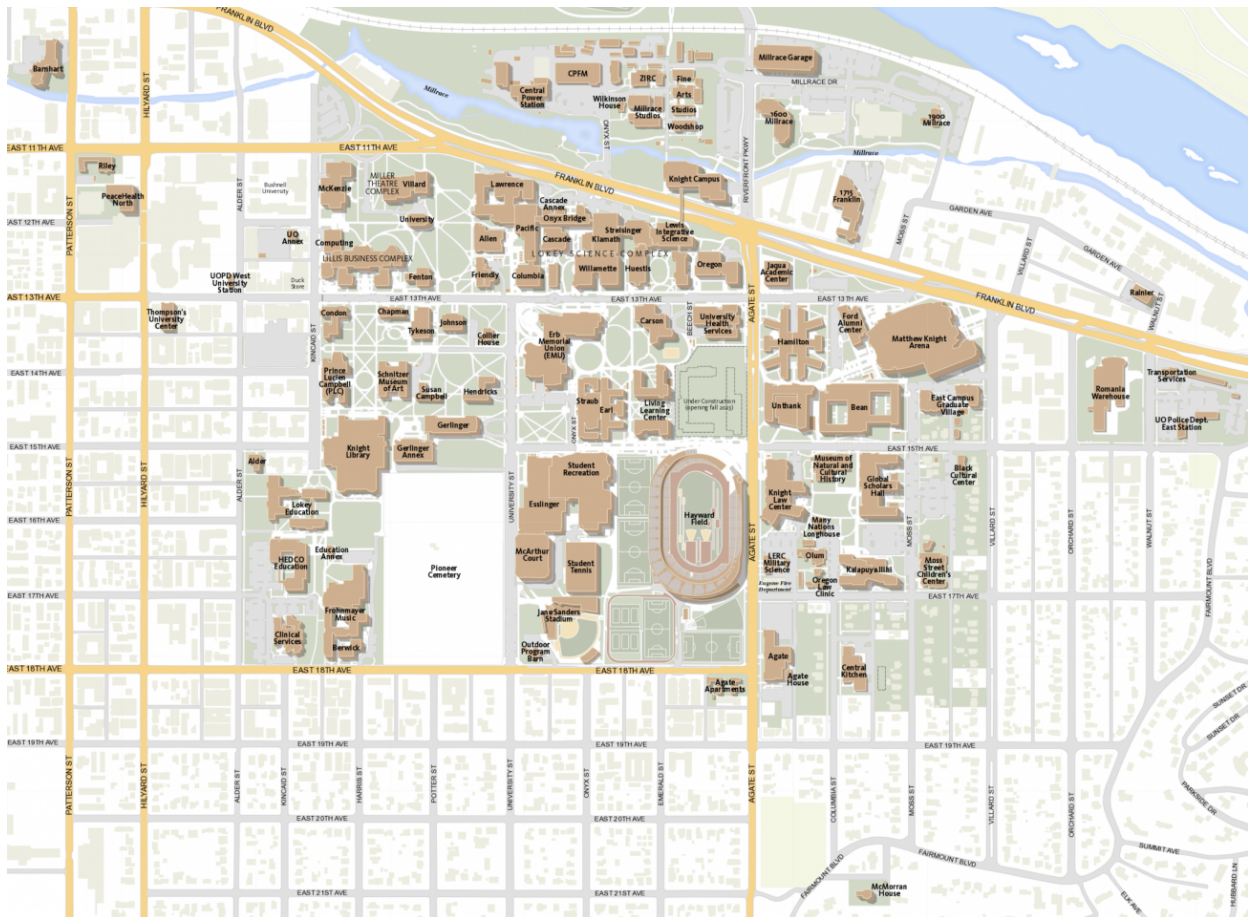
- ☐ Man

- Woman
- Non-Binary / Gender Not Listed

Where did this event occur?

- On campus
- Off campus, but in nearby university-affiliated housing (fraternities, sororities, etc.)
- Off campus, not in university-affiliated housing, but in Eugene/Springfield
- Outside of Eugene/Springfield
- Unsure

If applicable, please click the location on this map. If the location is not on this map, feel free to skip this question.



Was alcohol consumed prior to this unwanted experience?

- No
- Yes
- Unsure

Have you talked with anyone (e.g., friends, family, staff/faculty) about this unwanted or distressing experience that you had while at the University of Oregon?

- ☐ No
- ☐ Yes

**Who have you talked to about your unwanted experience at the University of Oregon?
Please check all that apply.**

- ☐ Friend/roommate/other student
- ☐ Family members not at the university
- ☐ Family members who are employees of the university
- ☐ University staff (e.g., program assistants, RA)
- ☐ University professors or instructors
- ☐ Graduate teaching assistants (also called graduate employees)
- ☐ University administration (e.g., Deans, Provosts)
- ☐ Other university employees (e.g., maintenance)
- ☐ University-affiliated doctor/therapist/counselor
- ☐ Non-university affiliated doctor/therapist/counselor
- ☐ Religious leader
- ☐ Someone not listed. Please write in professional titles, rather than names or identifying information (e.g., faculty) _____

Did you officially notify the university (e.g., talk with the Title IX coordinator) about this unwanted experience?

- ☐ No
- ☐ Yes

How helpful was this resource?

- ☐ Made things worse
- ☐ No effect
- ☐ Made things better

Did you officially notify law enforcement (e.g., file a police report) of this unwanted experience?

- ☐ No
- ☐ Yes

How helpful was this resource?

- ☐ Made things worse
- ☐ No effect
- ☐ Made things better

Did you seek medical attention (from a doctor, hospital) after this experience?

- ☐ No
- ☐ Yes

How helpful was this resource?

- ☐ Made things worse
- ☐ No effect
- ☐ Made things better

Did you seek counseling or psychotherapy as a result of this experience?

- ☐ No
- ☐ Yes

How helpful was this resource?

- ☐ Made things worse
- ☐ No effect
- ☐ Made things better

Did you seek out any other university-affiliated resources (e.g., UO women's center, confidential advocate, Callisto?)

- ☐ No
- ☐ Yes

How helpful was this resource?

- ☐ Made things worse
- ☐ No effect
- ☐ Made things better

APPENDIX E

COPING ORIENTATION TO PROBLEMS INVENTORY - BRIEF (BRIEF-COPE; AVOIDANCE ITEMS ONLY)

Instructions: The following questions ask about how you typically cope with hardships in your life. Read the statements and indicate how much you generally use each coping style when you encounter a hardship in your life.

I turn to work or other activities to take my mind off things.

- ☐ None at all
- ☐ A little
- ☐ A moderate amount
- ☐ A lot
- ☐ A great deal

I say to myself "this isn't real."

- ☐ None at all
- ☐ A little
- ☐ A moderate amount
- ☐ A lot
- ☐ A great deal

I use alcohol or other drugs to make myself feel better.

- ☐ None at all
- ☐ A little
- ☐ A moderate amount
- ☐ A lot
- ☐ A great deal

I give up trying to deal with it.

- ☐ None at all
- ☐ A little
- ☐ A moderate amount
- ☐ A lot
- ☐ A great deal

I refuse to believe that it happened/is happening.

- ☐ None at all
- ☐ A little
- ☐ A moderate amount
- ☐ A lot
- ☐ A great deal

I use alcohol or other drugs to help me get through it.

- ☐ None at all
- ☐ A little
- ☐ A moderate amount
- ☐ A lot
- ☐ A great deal

I give up the attempt to cope.

- ☐ None at all
- ☐ A little
- ☐ A moderate amount
- ☐ A lot
- ☐ A great deal

I do something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.

- ☐ None at all
- ☐ A little
- ☐ A moderate amount
- ☐ A lot
- ☐ A great deal

APPENDIX F

POSTTRAUMATIC COGNITIONS INVENTORY (PTCI; SELF-BLAME ONLY)

Instructions: We are interested in the kind of thoughts which you may have had after a stressful experience. Below are a number of statements that may or may not be representative of your thinking. Please read each statement carefully and tell us how much you AGREE or DISAGREE with each statement. Choose the number that best corresponds to you answer. Please answer this question in relation to the most distressing sexual experience that you have had WHILE enrolled at the University of Oregon that you reported on throughout the previous sections of the survey.

The event happened because of the way I acted.

- ☐ Totally Disagree
- ☐ Disagree Very Much
- ☐ Disagree Slightly
- ☐ Neutral
- ☐ Agree Slightly
- ☐ Agree Very Much
- ☐ Totally Agree

Somebody else would not have gotten into this situation.

- ☐ Totally Disagree
- ☐ Disagree Very Much
- ☐ Disagree Slightly
- ☐ Neutral
- ☐ Agree Slightly
- ☐ Agree Very Much
- ☐ Totally Agree

There is something about me that made the event happen.

- ☐ Totally Disagree
- ☐ Disagree Very Much
- ☐ Disagree Slightly
- ☐ Neutral
- ☐ Agree Slightly
- ☐ Agree Very Much
- ☐ Totally Agree

APPENDIX G

MULTIDIMENSIONAL SCALE OF PERCEIVED SOCIAL SUPPORT (MSPSS)

Instructions: We are interested in how you feel about the following statements generally. Read each statement carefully. Indicate how you feel about each statement.

There is a special person in my life who is around when I am in need.

- ☐ Very Strongly Disagree
- ☐ Strongly Disagree
- ☐ Mildly Disagree
- ☐ Neutral
- ☐ Mildly Agree
- ☐ Strongly Agree
- ☐ Very Strongly Agree

There is a special person in my life with whom I can share joys and sorrows.

- ☐ Very Strongly Disagree
- ☐ Strongly Disagree
- ☐ Mildly Disagree
- ☐ Neutral
- ☐ Mildly Agree
- ☐ Strongly Agree
- ☐ Very Strongly Agree

My family really tries to help me.

- ☐ Very Strongly Disagree
- ☐ Strongly Disagree
- ☐ Mildly Disagree
- ☐ Neutral
- ☐ Mildly Agree
- ☐ Strongly Agree
- ☐ Very Strongly Agree

I get the emotional help and support I need from my family.

- ☐ Very Strongly Disagree

- ☐ Strongly Disagree
- ☐ Mildly Disagree
- ☐ Neutral
- ☐ Mildly Agree
- ☐ Strongly Agree
- ☐ Very Strongly Agree

I have a special person in my life who is a real source of comfort to me.

- ☐ Very Strongly Disagree
- ☐ Strongly Disagree
- ☐ Mildly Disagree
- ☐ Neutral
- ☐ Mildly Agree
- ☐ Strongly Agree
- ☐ Very Strongly Agree

My friends really try to help me.

- ☐ Very Strongly Disagree
- ☐ Strongly Disagree
- ☐ Mildly Disagree
- ☐ Neutral
- ☐ Mildly Agree
- ☐ Strongly Agree
- ☐ Very Strongly Agree

I can count on my friends when things go wrong.

- ☐ Very Strongly Disagree
- ☐ Strongly Disagree
- ☐ Mildly Disagree
- ☐ Neutral
- ☐ Mildly Agree
- ☐ Strongly Agree
- ☐ Very Strongly Agree

I can talk about my problems with my family.

- ☐ Very Strongly Disagree
- ☐ Strongly Disagree
- ☐ Mildly Disagree
- ☐ Neutral
- ☐ Mildly Agree
- ☐ Strongly Agree
- ☐ Very Strongly Agree

I have friends with whom I can share my joys and sorrows.

- ☐ Very Strongly Disagree
- ☐ Strongly Disagree
- ☐ Mildly Disagree
- ☐ Neutral
- ☐ Mildly Agree
- ☐ Strongly Agree
- ☐ Very Strongly Agree

There is a special person in my life who cares about my feelings.

- ☐ Very Strongly Disagree
- ☐ Strongly Disagree
- ☐ Mildly Disagree
- ☐ Neutral
- ☐ Mildly Agree
- ☐ Strongly Agree
- ☐ Very Strongly Agree

My family is willing to help me make decisions.

- ☐ Very Strongly Disagree
- ☐ Strongly Disagree
- ☐ Mildly Disagree
- ☐ Neutral
- ☐ Mildly Agree
- ☐ Strongly Agree

- Very Strongly Agree

I can talk about my problems with my friends.

- Very Strongly Disagree
- Strongly Disagree
- Mildly Disagree
- Neutral
- Mildly Agree
- Strongly Agree
- Very Strongly Agree

APPENDIX H

SOCIAL REACTIONS QUESTIONNAIRE – SHORT (SRQ-S)

Instructions: You indicated that you shared the sexual experience that you previously reported on with someone in your direct social circle, including friends or family members.

The following is a list of reactions that other people sometimes have when responding to a person with this experience. Please indicate how often you experienced each of the listed responses, specifically from your friends, family members, or members of your close social circle.

Your friend(s) or family member(s) told you that you were irresponsible or not cautious enough.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently
- ☐ Always

Your friend(s) or family member(s) reassured you that you are a good person.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently
- ☐ Always

Your friend(s) or family member(s) treated you differently in some way than before you told them that made you uncomfortable.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently
- ☐ Always

Your friend(s) or family member(s) told you to go on with your life.

- ☐ Never
- ☐ Rarely

- ☐ Sometimes
- ☐ Frequently
- ☐ Always

Your friend(s) or family member(s) comforted you by telling you it would be all right or by holding you.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently
- ☐ Always

Your friend(s) or family member(s) tried to take control of what you did or the decisions you made.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently
- ☐ Always

Your friend(s) or family member(s) became so upset that they needed reassurance from you.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently
- ☐ Always

Your friend(s) or family member(s) made decisions or did things for you.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently
- ☐ Always

Your friend(s) or family member(s) told you that you could have done more to prevent this experience from occurring.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently
- ☐ Always

Your friend(s) or family member(s) provided information and discussed options.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently
- ☐ Always

Your friend(s) or family member(s) told you to stop thinking about it.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently
- ☐ Always

Your friend(s) or family member(s) expressed so much anger at the perpetrator that you had to calm them down.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently
- ☐ Always

Your friend(s) or family member(s) avoided talking to you or spending time with you.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently
- ☐ Always
- ☐

Your friend(s) or family member(s) treated you as if you were a child or somehow incompetent.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently
- ☐ Always

Your friend(s) or family member(s) helped you get information of any kind about coping with the experience.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently
- ☐ Always

Your friend(s) or family member(s) made you feel like you didn't know how to take care of yourself.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently
- ☐ Always

APPENDIX I

INSTITUTIONAL BETRAYAL QUESTIONNAIRE (IBQ)

Instructions: This section will ask you to think about the larger University of Oregon institution, which may or may not call to mind specific individuals. This may include parts of the institution, such as a campus dormitory or a specific fraternity or sorority. Some items may or may not be applicable to your experience. Please answer each item in relation to the sexual experience at the University of Oregon that you previously reported on.

Did the University of Oregon play a role in your experience by:

	Yes	No	Not Applicable
1. Not taking proactive steps to prevent this type of experience?	☐	☐	☐
2. Creating an environment in which this type of experience seemed common or normal?	☐	☐	☐
3. Creating an environment in which this type of experience seemed more likely to occur?	☐	☐	☐
4. Making it difficult to report the experience?	☐	☐	☐
5. Responding inadequately to the experience, if reported?	☐	☐	☐
6. Mishandling your case, if disciplinary action was requested?	☐	☐	☐
7. Covering up the experience?	☐	☐	☐
8. Denying your experience in some way?	☐	☐	☐
9. Punishing you in some way for reporting the experience (e.g., loss of privileges or status), if applicable?	☐	☐	☐
10. Suggesting your experience might affect the reputation of the institution?	☐	☐	☐
11. Creating an environment where you no longer felt like a valued member of the institution?	☐	☐	☐
12. Creating an environment where continued membership was difficult for you?	☐	☐	☐

APPENDIX J

POSTTRAUMATIC STRESS CHECKLIST FOR DSM-5 (PCL-5)

Instructions: Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each item carefully and then select the answer that indicates how much you have been bothered by that problem in the past month.

INSTRUCTIONS FOR CAMPUS SEXUAL ASSAULT GROUP (TIME 1): *When applicable, please answer the item in relation to the distressing sexual experience at the University of Oregon that you previously reported on.*

INSTRUCTIONS FOR NON-CAMPUS SEXUAL ASSAULT GROUP (TIME 1): *When applicable, please answer this question in relation to the most distressing experience that you have had WHILE enrolled at the University of Oregon. This should be the same experience that you have reported on in the prior section of the survey.*

In the past month, how much were you bothered by repeated, disturbing, and unwanted memories of the stressful experience?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by repeated, disturbing dreams of the stressful experience?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by feeling very upset when something reminded you of the stressful experience?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by avoiding memories, thoughts, or feelings related to the stressful experience?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by trouble remembering important parts of the stressful experience?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by 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)?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by blaming yourself or someone else for the stressful experience or what happened after it?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by having strong negative feelings such as fear, horror, anger, guilt, or shame?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by loss of interest in activities that you used to enjoy?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately

- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by feeling distant or cut off from other people?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by irritable behavior, angry outbursts, or acting aggressively?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by taking too many risks or doing things that could cause you harm?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by being “superalert” or watchful or on guard?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by feeling jumpy or easily startled?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by having difficulty concentrating?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

In the past month, how much were you bothered by trouble falling or staying asleep?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

APPENDIX K

DEMOGRAPHICS QUESTIONNAIRE

What is your age? (in years; e.g., 18)

- ☐ 18
- ☐ 19
- ☐ 20
- ☐ 21
- ☐ 22
- ☐ 23
- ☐ 24
- ☐ 25
- ☐ 26+ (please write age in years) _____

What is your gender?

- ☐ Woman
- ☐ Man
- ☐ Non-Binary
- ☐ A gender not listed here/Prefer to self-describe _____

Does your gender identity match the sex that you were assigned at birth? (People who answer no to this question may identify as *transgender*. People who say yes to this question are referred to as *cisgender*)

- ☐ Yes
- ☐ No

What is your Race/Ethnicity? (Check all that apply):

- ☐ Native American/Alaskan Native
- ☐ Asian/Asian American
- ☐ Black/African American
- ☐ Hispanic/Latino American
- ☐ Middle Eastern
- ☐ Native Hawaiian/Pacific Islander
- ☐ White/European
- ☐ A race/ethnicity not listed here/Prefer to self-describe _____

What term best describes your sexual orientation?

- ☐ Asexual
- ☐ Bisexual
- ☐ Gay
- ☐ Heterosexual ("straight")
- ☐ Lesbian
- ☐ Queer
- ☐ Pansexual
- ☐ A sexual orientation not listed here: _____

Are you an international student?

- ☐ Yes
- ☐ No

Are you limited in any way in any activities because of physical, mental, or emotional conditions?

- ☐ Yes
- ☐ No

What best describes your current relationship status?

- ☐ Single
- ☐ In a relationship
- ☐ Married
- ☐ Domestic partnership
- ☐ Divorced/Separated
- ☐ Widowed

I am a varsity athlete at the University of Oregon.

- ☐ Yes
- ☐ No

I participate in non-varsity athletics at the University of Oregon.

- ☐ Yes
- ☐ No

I am a member of a fraternity/sorority.

- ☐ Yes
- ☐ No

How many extracurricular activities are you involved in at the University of Oregon? (these can include clubs/organizations, Greek life, volunteering, sports teams, work study)

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7+

What best describes your living situation for the majority of the past academic year?

- ☐ UO residence hall/dormitory
- ☐ Off-campus apartment/house
- ☐ At home with parents/guardians
- ☐ Fraternity/sorority house
- ☐ Other/Not listed _____

What is your student status?

- ☐ I am a first-year student
- ☐ I am a second-year student (sophomore)
- ☐ I am a third-year student (junior)
- ☐ I am a fourth year student (senior)
- ☐ Other/Prefer to self-describe _____

How many course credits are you taking this academic term? (e.g., 16)

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5

- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17
- ☐ 18
- ☐ 19
- ☐ 20+

Have you ever been homeless or houseless?

- ☐ No, I have never been homeless or houseless
- ☐ Yes, in childhood
- ☐ Yes, in adulthood
- ☐ Yes, in childhood and adulthood

Have you ever experienced unreliable access to a sufficient quantity of affordable, nutritious food?

- ☐ No, I have never experienced food insecurity
- ☐ Yes, in childhood
- ☐ Yes, in adulthood
- ☐ Yes, in childhood and adulthood

Do you plan to be enrolled at UO during the next academic term (e.g., winter 2023)?

- ☐ No
- ☐ Maybe
- ☐ Yes

APPENDIX L

FOLLOW-UP ELIGIBILITY NOTICE

FOR INELIGIBLE PARTICIPANTS: Thank you for your participation in this study! Your participation is complete. Based on your responses, you were not selected to participate in our follow up study.

FOR ELIGIBLE PARTICIPANTS: Based on the responses that you have provided, you are eligible to participate in a follow-up study that investigates students' experiences of stressful events during college. This follow-up study involves two additional surveys that will be sent to you via email in 3 months and 6 months. Instead of receiving course credit for these two follow-up surveys, you would receive an electronic Amazon \$20 gift card for completing each follow-up survey (\$40 total). You will still receive course credit for the survey you just completed. These follow-up surveys are shorter than this one and take approximately 30 minutes each. Approximately 300 students will participate in these follow-up surveys, including both students who have experienced campus sexual violence and those who have not. In addition to the survey study, you may also be provided with additional information about an optional paid interview study.

Like this survey, the two additional follow-up surveys are anonymous. Your survey responses will not be linked to your personal identity and will not be shared with the university.

If you agree to be contacted by the research team regarding these follow-up surveys and/or interview study, you will be asked on the next page to create a unique ID code that will allow us to link survey responses across time. In order to send you the follow-up surveys and electronic gift card, you will also be asked to input your email address in a completely separate survey that is NOT linked to your individual survey responses. This email address will be stored separately from survey responses, used ONLY to send you the surveys and compensation after survey completion, and will be deleted after data collection is complete.

If you are interested in and willing to be contacted by the research study team in three months and in six months with a link to the follow-up survey and/or additional information about an interview study, please indicate your consent below, please indicate your consent below. By giving your consent to be contacted, this does NOT obligate you to complete the survey once you are sent it.

- ☐ **I provide my consent to be contacted via email regarding follow-up surveys and/or information about an interview study**
- ☐ **I do NOT provide my consent to be contacted regarding follow-up surveys and/or information about an interview study**

FOR ELIGIBLE PARTICIPANTS WHO CONSENT TO FUTURE CONTACT: Thank you for agreeing to be contacted by the study team in three months and in six months. Your potential participation is extremely valuable to us. We will send you an additional consent form and survey at this time. Although we would appreciate your participation at that time, agreeing to be contacted does **NOT** obligate you to complete the additional surveys.

We ask you to answer the following questions, so that we can create a unique ID code for you. Your responses to these specific questions will help to protect your anonymity, while also allowing the study team to link your survey responses across time. You will be asked the same questions during each follow-up survey. Although there is always a small risk that you could be identified based on these responses, these questions were specifically selected to be as least identifying as possible. The responses to these questions will be deleted as soon as data collection is complete.

What is the ***first letter*** of your ***middle name***? If you do not have a middle name, please select, "I don't have a middle name." If you have more than 1 middle name, please select your first middle name.

- ☐ A
- ☐ B
- ☐ C
- ☐ D
- ☐ E
- ☐ F
- ☐ G
- ☐ H
- ☐ I
- ☐ J
- ☐ K
- ☐ L
- ☐ M
- ☐ N
- ☐ O
- ☐ P
- ☐ Q
- ☐ R
- ☐ S
- ☐ T

- ☐ U
- ☐ V
- ☐ W
- ☐ X
- ☐ Y
- ☐ I don't have a middle name

What **month** were you born in?

- ☐ January
- ☐ February
- ☐ March
- ☐ April
- ☐ May
- ☐ June
- ☐ July
- ☐ August
- ☐ September
- ☐ October
- ☐ November
- ☐ December

How many **older** siblings do you have? (do not include step-siblings)

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8+

What is the **LAST** digit of your personal phone number?

- ☐ 0

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9

What is the **LAST** digit of your UO ID number (the one that starts with 951)?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9

Where were you born? (only the fifty states are listed; if you were born outside of the U.S., please select "born outside of the U.S." at the bottom).

- ☐ Alabama
- ☐ Alaska
- ☐ Arizona
- ☐ Arkansas
- ☐ California
- ☐ Colorado
- ☐ Connecticut
- ☐ Delaware
- ☐ Florida
- ☐ Georgia

- Hawaii
- Idaho
- Illinois
- Indiana
- Iowa
- Kansas
- Kentucky
- Louisiana
- Maine
- Maryland
- Massachusetts
- Michigan
- Minnesota
- Mississippi
- Missouri
- Montana
- Nebraska
- Nevada
- New Hampshire
- New Jersey
- New Mexico
- New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Rhode Island
- South Carolina
- South Dakota
- Tennessee

- Texas
- Utah
- Vermont
- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming
- I was born outside of the United States

Finally, please click on the link below to input your email address in a separate form. This can be either your personal email address or your uoregon email address- whichever you prefer. This will allow us to send you an additional survey three months from now and six months from now. At each time, you will be sent the survey and two reminders. These emails will come from the email account uostresseventstudy@uoregon.edu. Again, the email address that you enter in this separate form is **NOT** linked to your individual survey responses, and entering your email address does **NOT** obligate you to participate in the follow-up surveys. **Please return to this original survey page after you input this email address and click the "next" button. This will ensure you receive course credit for your participation in this survey.**

https://oregon.qualtrics.com/jfe/form/SV_3eMcDLuBBHw6pDg

APPENDIX M

FOLLOW-UP EMAIL NOTIFICATION (TIME 2/TIME 2)

Subject: UO Follow-Up Research Participation: Stressful Events and Mental Health among College Students

Hello,

My name is Alexis Adams-Clark, and I am a graduate student in the Psychology Department at the University of Oregon. You are being contacted because you completed a survey [THREE/SIX months ago during an introductory Psychology or Linguistic course. This survey included measures of trauma history and mental/physical health.

When you participated in the study [THREE/SIX] months ago, you provided us with permission to contact you with a link to a follow-up survey. Your participation in this follow-up survey is extremely valuable to us. Your participation will help us investigate how trauma and stressful experiences impact college students across time, even if you have not experienced any stressful events yourself. The information you provide will help us develop interventions and amend policies to better help students experiencing stressful events during college.

Participation in this survey is estimated to take approximately 30 minutes and can be completed from home on a personal electronic device. **After completing the survey, you will receive a redeemable link to a \$20 Amazon gift card via email. Your responses are anonymous and are NOT linked to this email address.**

If you are interested in and willing to participate in this study, please click the following link (or paste into your browser): https://oregon.qualtrics.com/jfe/form/SV_8B6pKGGlw7ItrSu

If you have any questions or concerns about the study, please contact me at aadamscl@uoregon.edu. Thank you!

Sincerely,
Alexis Adams-Clark, M.S.
University of Oregon
Dynamics Lab

APPENDIX N

INFORMED CONSENT FORM (TIME 2/TIME 3)

Consent for Research Participation

Title: Stressful Events, Sexual Violence, and Mental Health Among College Students

Researcher(s): Alexis Adams-Clark, M.S., Jennifer Freyd Ph.D.

Researcher Contact Info: aadamscl@uoregon.edu

You are being asked to participate in a research study. This is a follow-up survey from a prior research study you participated in [THREE/SIX] months ago. At that time, you provided consent for the research team to contact you via email regarding this follow-up survey. The section below highlights key information about this research for you to consider when making a decision whether or not to participate. Carefully consider this information and the more detailed information provided below. Please ask questions about any of the information you do not understand before you decide whether to participate.

Key Information for You to Consider

- **Voluntary Consent.** You are being asked to volunteer for a research study. It is up to you whether you choose to participate or not. There will be no penalty or loss of benefits to which you are otherwise entitled if you choose not to participate or discontinue participation.
- **Purpose.** The purpose of this research is to collect information about college students' mental health and experiences of stressful events at the University of Oregon. You previously completed the first portion of the study approximately [THREE/SIX] months ago through an introductory psychology or linguistics course. In this survey, we plan to collect follow-up information about participants' exposure to various stressful life events (including sexual violence), interactions with and attitudes about university resources, and physical and mental health symptoms.
- **Duration.** It is expected that your participation will last approximately **30 minutes**. You should complete the study on a personal electronic device in one sitting.
- **Procedures and Activities.** You will be asked to complete a series of surveys on a variety of topics. You will be asked questions about your past experiences, including some potentially difficult, stressful, or disturbing experiences (e.g., experiences of trauma, harassment). At the end of the survey, you will be asked to provide your email address to provide you with a **\$20 electronic Amazon gift card as compensation**.
- **Risks.** The primary foreseeable risks or discomforts of your participation include boredom or discomfort and distress from answering sensitive questions about difficult and stressful past experiences.
- **Benefits.** There are no known direct benefits to participating in this study, but your participation may help inform our greater understanding of college students' experiences with and reactions to stressful events.
- **Alternatives.** Participation is voluntary, and the only alternative is not to participate.

Who is conducting this research?

The researchers Alexis Adams-Clark, M.S., and Jennifer Freyd, Ph.D., from the University of Oregon are asking for your consent to for research. The researchers do not have any significant financial or conflicts of interest.

Why is this research being done?

The purpose of this research is to collect information about college students' mental health and experiences of stressful events at the University of Oregon, including experiences with unwanted sex and harassment, and how these experiences affect student well-being over time. You previously completed a similar survey [THREE/SIX] months ago as part of an introductory psychology or linguistics course. In this follow-up survey, we plan to collect additional information about participants' exposure to various stressful life events (including sexual violence), interactions with and attitudes about university resources, and physical and mental health symptoms. You will be asked questions about past experiences, including some potentially difficult experiences about sexual history and trauma. You should take this survey in a quiet and private place in order to concentrate. To help ensure your responses are kept confidential, be sure to use a secure network and close the browser when finished. You are being asked to participate because you provided us with permission [THREE/SIX] months ago to be contacted via email. Up to 300 people will take part in this research, including both students who have and have not experienced campus sexual violence first-hand.

How long will I be in this research?

This research survey will take approximately 30 minutes to complete. *You may receive another 30-minute follow-up survey in 3 months.*

What happens if I agree to participate in this research?

If you agree to be in this research, your participation will include a series of surveys related to a variety of topics, including attitudes, experiences with stressful life events, and measures of physical and mental health symptoms. You will also be asked about some potentially difficult, stressful, or disturbing experiences, such as trauma exposure and sexual violence. You can skip any question that makes you uncomfortable, and you can exit the survey at any time. Throughout the survey, there will be several items that you will be asked to complete to demonstrate that you are paying attention to the survey (e.g., a survey question might read "Please click 'yes' to indicate that you are paying attention").

What happens to the information collected for this research?

The researchers will not collect information that will reveal your identity and will not be able to link your responses to your person. Information collected for this research will be used in academic publications and presentations. Your name or any identifying information will not be used in any published reports or conference presentations based on this study. We may publish/present the results of this research. However, we will keep your name and other identifying information confidential. An aggregated, de-identified dataset may be made available to the public in an online data repository. Although we ask you to provide your email address upon completion of the survey in order to send you compensation, this email address information will **NOT** be linked to your individual survey responses and will be deleted as soon as data collection is completed.

How will my privacy and data confidentiality be protected?

We will take measures to protect your privacy, including asking that you not include any identifiable information in your survey responses. We also recommend that you complete this survey in a quiet and private place (with no one else around), use a secure network, and close the browser when finished. Despite taking steps to protect your privacy, we can never fully guarantee your privacy will be protected.

We will take measures to protect the security of all your personal information, including storing de-identified data on a secure server, and only allowing key study personnel to have access to your data. Despite these precautions to protect the confidentiality of your information, we can never fully guarantee confidentiality of all study information. Individuals and organization that conduct or monitor this research may be permitted access to and inspect the research records. This may include access to your de-identified data. These individuals and organizations include the Institutional Review Board (IRB) that reviewed this research.

What are the risks if I participate in this research?

The primary foreseeable risks or discomforts of your participation include boredom or discomfort and distress from answering sensitive questions about difficult and stressful past experiences. There may be risks of stress, emotional distress, inconvenience and possible loss of privacy and confidentiality associated with participating in a research study.

What are the costs if I participate in this research?

There are no costs associated with participation in this research study.

What are the benefits of participating in this research?

There are no known direct benefits to you from participating in this study. However, it is hoped that information gained from this study will contribute to generalizable knowledge about stress, sexual violence, and mental health.

What if I want to stop participating in this research?

Taking part in this research study is your decision. Your participation in this study is voluntary. You do not have to take part in this study, but if you do, you can stop at any time. You have the right to choose not to participate in any study activity or completely withdraw from continued participation at any point in this study without penalty or loss of benefits to which you are otherwise entitled. Your decision whether or not to participate will not affect your relationship with the researchers, the University of Oregon, or the UO Psychology or Linguistics Departments.

Will I be paid for participating in this research?

You will be paid with an electronic \$20 Amazon gift card that will be sent via email. After you complete the survey, you will be directed to input the email address that you'd like your gift card to be sent. Please input the same email address that you received the survey invitation on. If you do not input this email address in the *separate* survey, you will not be sent the gift card. This separate survey will **NOT** be linked to your individual responses, and we will **NOT** be able to link your email address to your individual responses. Please allow 5 business days for your gift

card to be sent. If you choose to discontinue participation in this study before inputting your email address, you will not receive compensation. However, when responding to items in this survey, you may leave any individual items blank that you do not wish to answer. This will not affect your compensation.

Who can answer my questions about this research?

If you have questions, concerns, or have experienced a research related injury, contact the research team at:

Alexis Adams-Clark, M.S.

Phone #: 541-346-4950

Email: aadamscl@uoregon.edu.

An Institutional Review Board (“IRB”) is overseeing this research. An IRB is a group of people who perform independent review of research studies to ensure the rights and welfare of participants are protected. UO Research Compliance Services is the office that supports the IRB. If you have questions about your rights or wish to speak with someone other than the research team, you may contact:

Research Compliance Services

ResearchCompliance@uoregon.edu

5237 University of Oregon Eugene, OR 97403-5237

(541) 346-2510

To receive a copy of this consent form, you can print a copy using the browser’s print function, or you can email the principal investigator Alexis Adams-Clark at aadamscl@uoregon.edu, who will then provide you with a copy of this consent form.

STATEMENT OF CONSENT

I have had the opportunity to read and consider the information in this form. I understand that by agreeing below, I volunteer to participate in this research. I understand that I am not waiving any legal rights. I understand my involvement in the study, and I give my consent to participate in this study. Please choose ‘Agree’ if you wish to participate.

- ☐ I agree to participate in this study
- ☐ I do NOT agree to participate in this study

APPENDIX O

PAYMENT & DEBRIEFING FORM (TIME 2/TIME 3)

Thank you for your participation in this study! Your participation is complete. [*You may be sent another follow-up survey in three months*] (for which you will also be offered a \$20 Amazon gift card for completion).

Please click on the link below to input your email address in a separate form. Please input the same email address that you received the survey invitation on. This will allow us to send you your electronic \$20 Amazon gift card through Amazon.com [*and an additional follow-up survey three months from now*]. Again, the email address that you enter in this separate form is **NOT** linked to your individual survey responses and will **NOT** be shared with anyone. If you do not enter an email address in this separate link, you will not receive a gift card. Please input the same email address that you received the survey invitation on. Please allow 5 business days for your gift card to be sent. Your gift card will be sent from the email uostresseventstudy@uoregon.edu. ***Please return to this survey page after you input your email address and click the "next" button.***

https://oregon.qualtrics.com/jfe/form/SV_3eLZPCurKqiVHIY

What is the background of this study?

This study examined student experiences of sexual violence and other stressful campus events. While a lot of research has been done regarding sexual violence, trauma, and stress, research on that tracks these relationships across time is relatively new.

What was the purpose of this study?

This study examines students' experiences with sexual violence and other stressful campus events, as well as mental health symptoms. Through this research, we hope to gain insight into how sexual violence and other stressful events affect students on campus. Your participation is valuable because it will provide insight into an area of research that has been understudied and may impact future understandings of how university institutions respond to sexual violence and other stressful events that students may experience. The specific information you provided will give us important information. Your personal responses will remain confidential.

Who do I contact if I have questions, comments, or concerns about this study?

If you have feedback about this study or are interested in the results of this study, feel free to contact Alexis Adams-Clark at aadamscl@uoregon.edu or Dr. Jennifer Freyd at jjf@uoregon.edu. You may also call our lab at 541-346-4950. If you have any questions concerning your rights as a research participant, please contact Research Compliance Services.

Office of Research Compliance

677 E. 12th Ave, Suite 500,
Eugene, OR 97401 541-346-2510
researchcompliance@uoregon.edu

Who do I contact if I am upset by this study?

There are no known costs associated with the study you just participated in. Participation in this study involves thinking about situations that might be sensitive or even upsetting for some participants. There is a low risk of loss of privacy or breach of confidentiality. All data is confidential and de-identified, and we requested that you not provide your name or other people's names at any point in this survey. All data will be stored on a password protected computer, and no one other than the research team will have access to your questionnaire responses. The principal investigator and faculty advisor will have no way of linking your questionnaire answers to your identity.

If you would like to discuss any of the feelings or thoughts that may have arisen during your participation in this study, please utilize the following free resources available to you. Please note we cannot ensure the quality of these services.

1. University of Oregon Counseling Center

(541) 346-3227

(541) 346-4488 (Crisis Line)

2. Sexual Assault Support Services

(541) 484-9791

(541) 343-7277 (Crisis/Support Line)

3. White Bird

(541) 342-8255 (Counseling Program)

(541) 687-4000 (Crisis Line)

4. Center for Community Counseling

(541) 344-0620 Thank you!

APPENDIX P

SEXUAL EXPERIENCES SURVEY (SES; TIME 2/TIME 3; RAPE AND SEXUAL ASSAULT ITEMS ONLY)

Instructions: The following questions concern sexual experiences that you may have had that were unwanted. We know that these are personal questions, so we do not ask your name or other identifying information. Your information is confidential, and you may leave questions blank if you would not like to answer. We hope that this helps you to feel comfortable answering each question honestly. Please mark the choice indicating the number of times each experience has happened to you IN THE PAST THREE MONTHS (since you last completed this survey).

In the past three months, someone fondled, kissed, or rubbed up against the private areas of my body (breast/chest, crotch or butt) or removed some of my clothes without my consent (but did not attempt sexual penetration).

- ☐ 0 times
- ☐ 1 time
- ☐ 2 times
- ☐ 3+ times

In the past three months, someone had oral sex with me or made me have oral sex with them without my consent.

- ☐ 0 times
- ☐ 1 time
- ☐ 2 times
- ☐ 3+ times

In the past three months, someone put their penis into my vagina, or someone inserted fingers or objects into my vagina without my consent.

- ☐ 0 times
- ☐ 1 time
- ☐ 2 times
- ☐ 3+ times
- ☐ I don't have a vagina

In the past three months, someone put their penis into my butt, or someone inserted fingers or objects into my butt without my consent.

- ☐ 0 times
- ☐ 1 time

- ☐ 2 times
- ☐ 3+ times

In the past three months, even though it didn't happen, someone TRIED to have oral sex with me, or make me have oral sex with them without my consent.

- ☐ 0 times
- ☐ 1 time
- ☐ 2 times
- ☐ 3+ times

In the past three months, even though it didn't happen, someone TRIED to put their penis into my vagina, or someone tried to stick in fingers or objects into my vagina.

- ☐ 0 times
- ☐ 1 time
- ☐ 2 times
- ☐ 3+ times
- ☐ I don't have a vagina

In the past three months, even though it didn't happen, someone TRIED to put their penis into my butt, or someone tried to stick in objects or fingers without my consent.

- ☐ 0 times
- ☐ 1 time
- ☐ 2 times
- ☐ 3+ times

In the past three months, I have been sexually assaulted.

- ☐ 0 times
- ☐ 1 time
- ☐ 2 times
- ☐ 3+ times

In the past three months, I have been I have been raped.

- ☐ 0 times
- ☐ 1 time
- ☐ 2 times
- ☐ 3+ times

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