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RELATIONSHIPS AMONG SEXUAL ASSAULT, PTSD SUBCLUSTERS AND  
THE SEXUAL ASSAULT REPORTING PROCESS, AND THEIR IMPACT ON  
NEGATIVE MENTAL HEALTH OUTCOMES

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NEGATIVE MENTAL HEALTH OUTCOMES

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I would like to dedicate this dissertation to my wife, Brooke, and my daughter, Rylee for their steadfast support and belief in me throughout this process. You are as much a part of this success as I am. I would also like to thank Dr. Lisa Frey for her consistent support of this research project, and me, throughout this journey.

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## Abstract

Sexual assault is prevalent on college campuses and often impacts victims in profound ways (e.g., posttraumatic stress disorder; PTSD). Research has begun to focus on the Subclusters of PTSD—as defined by the *DSM-5*—in order to understand their unique contribution in sexual assault victims to either characterological self-blame or behavioral activation. Research on social cognition highlights that characterological self-blame is predictive of increased severity of PTSD symptomology due to the victim’s fear of disconnection from relationships. Due to the connection between sexual assault and social identity, reporting of sexual assault may be an integral factor in either the promotion of this characterological self-blame or a healthier behavioral activation response, particularly for college-aged victims who are transitioning into emerging adulthood. This study found that PTSD Subcluster symptom distress, specifically Subcluster B (Re-Experiencing), predicted greater negative mental health outcomes for previous sexual assault victims who experienced an assault either before attending OU, or while attending OU, when controlling for demographic variables and the other Subclusters of avoidance (Subcluster C), negativity (Subcluster D), and arousal and reactivity (Subcluster E). Further, the combined Subclusters of B and D were significant predictors of greater negative mental health outcomes for previous assault victims as compared to Subclusters C and E. For individuals having experienced an assault both before attending OU, and while attending OU, Subcluster D (Negativity) was the only significant predictor of negative mental health outcomes. The results suggest that for individuals having been previously assaulted, re-experiencing of the trauma may be the most beneficial focus of intervention regarding the promotion of

positive mental health outcomes due to the lack of behavioral activation often linked with the intrusive thoughts and emotional distress associated with traumatic memories unique to this Subcluster. However, when intervening with individuals who endured multiple assaults over the early developmental lifespan, interventions geared toward shame and characterological self-blame appear crucial due to the potential for disconnection from relationships caused by increased negative affect and isolation during a developmental period in which social connection and relational experimentation is a defining feature.

*Keywords: sexual assault, PTSD, reporting, PTSD Subclusters, shame*

## Introduction

Sexual assault is prevalent on college campuses (Black et al., 2011; Krebs, Lindquist, Warner, Fisher & Martin, 2007; Paul, Walsh, McCauley, Ruggiero & Resnick, 2013; Sinozich & Langton, 2014; Young, Grey, & Boyd, 2009), although sexual assault definitions vary related to consent and incapacity (i.e., inability to give consent due to drugs, alcohol, disability) from one campus to the next (Abbey & McAuslan, 2004; Acierno et al., 2001; DeMatteo, Galloway, Arnold & Patel, 2015; DOJ, 2017; Greenfield, 1997; Kahn, Mathie & Torgler, 1994; Koss, Gidycz, & Wisniewski, 1987; Koss, Heise, & Russo, 1994; Rose & Frieze, 1993; Turchik, Probst, Irvin, Chau & Gidycz, 2009; Wolitzky-Taylor, Resnick, Amstadter, McCauley & Ruggiero, 2011). This is problematic because sexual assault often affects first year, female college students (Krebs et al., 2007; Paul et al., 2013; Frey et al., 2016) transitioning through emerging adulthood (Arnett, 2000; Rindfuss, 1991) who have low sociocultural and organizational power (Harned, Ormerod, Palmieri, Collinsworth, & Reed, 2002) and has profound impacts on mental and physical well-being (Black et al., 2011; Blayney, Read, & Colder, 2016; Golding et al., 1997; Hetzel-Riggin, 2010; Root, 1991). In addition, the combination of low power for victims and campus cultures that are often highly sexualized and hierarchical in nature makes prevention of sexual assault, and justice seeking for sexual assault victims, difficult (Harway & Steel, 2015; Yung, 2015).

Posttraumatic Stress Disorder (PTSD) is a particular problem for sexual assault victims (DeCou, Cole, Lynch, Wong, & Matthews, 2016) in large part due to the role that distorted cognitions (i.e., thought patterns that convince us of something that is not

true) play in the exacerbation, and maintenance, of PTSD symptomology and negative mental health outcomes (Carper et al., 2015; Dunmore, Clark & Ehlers, 2001; Ehlers & Clark, 2000; Foa & Kozak, 1986; La Bash & Papa, 2014; Stone, 1992). Research on social cognition proposes that distorted cognitions become problematic because of their potential to become pervasive and inflexible thought patterns (i.e., characterological attributions) rather than behavioral attributions made by the individual, thus impacting an individual's sense of belonging in relationships through the promotion of a negative self-evaluation, loss of self-concept, and fear that they are corrupted and contaminated (Budden, 2009; DeCou et al., 2016; Ehlers & Clark, 2000; Gilbert, 2003; Keshet & Gilboa-Schechtman, 2016; Leith & Baumeister, 1998; Resick & Schnicke, 1992; Tangney & Dearing, 2002; Tangney, Mashek & Stuewig, 2007).

Due to the connection with characterological attributions made by victims of sexual assault in their efforts to understand and cognitively process sexual assault (Carper et al., 2015; La Bash & Papa, 2014), it is important to understand the unique contributions that Subclusters of PTSD symptoms, as defined by the *Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> Edition (DSM-5)* (American Psychiatric Association, 2013), have on the development of negative mental health outcomes. Results from previous studies on the PTSD Subclusters have varied related to which symptom clusters are most problematic (Carper et al., 2015; Pietrzak, Goldstein, Malley, Rivers & Southwick, 2010; TeBockhorst, O'Halloran & Nyline, 2015; Zoellner, Goodwin, & Foa, 2000), particularly for campus populations beyond just female psychology undergraduate students. Therefore, a better understanding of the

connection between the Subclusters and negative mental health outcomes is important for treatment and recovery (La Bash & Papa, 2014).

In addition, reporting sexual assault has been found to be an important element in recovery from sexual assault due to the reporting process potentially giving the victim control over their recovery (Ullman & Peter-Hagene, 2014). However, reporting rates remain low, particularly on college campuses, due to a variety of factors (e.g., demographics, previous exposures to assault, sexual scripts, rape myth acceptance, PTSD symptomology, institutional betrayal; AAU, 2015; Black et al., 2011; DeCou et al., 2014; Razzano, Cook, Hamilton, Hughes & Matthews, 2006; Smith & Freyd, 2013; Starzynski, Ullman, Townsend, Long & Long, 2007; Thompson, Sitterle, Clay & Kingree, 2007; Walsh & Bruce, 2014; Ullman & Brecklin, 2002). Previous research on reporting behaviors of sexual assault victims has indicated that avoidance of aspects related to the assault (e.g., memories, places that serve as reminders of the assault) was predictive of greater PTSD severity and a resulting decrease in reporting behaviors (TeBockhorst et al., 2015). However, research on the connection between the range of symptom Subclusters of PTSD and reporting behavior is lacking.

Utilizing previous research on the impact of social cognitions as a lens (Baumeister & Leary, 1995), this study will investigate whether the PTSD Subclusters predict increased negative mental health outcomes for college-aged victims of sexual assault. In addition, this study will investigate how the Subclusters of PTSD predict reporting behavior for sexual assault victims.

## **Background**

### **Sexual Assault on College Campuses**

Sexual assault rates continue to be high in the United States, particularly among victims who identify as female and reside in on-campus academic settings (Black et al., 2011; Krebs et al., 2007; Paul et al., 2013; Sinozich & Langton, 2014; Young et al., 2009). One in five women report having been raped at some time in their lives (Black et al., 2011), with 51% of females in one study indicating having been sexually assaulted between the grades of 7 through 12 by a peer (Young et al., 2009). On college campuses, sexual assault is particularly prevalent with rates of assault ranging anywhere from 20 to 40% for female undergraduates (Krebs et al., 2007; Paul et al., 2013; Frey et al., 2016). Female first-year college students appear to be at greater risk for victimization (Kimble, Neacsiu, Flack, & Horner, 2008), with 43% of individuals in a climate survey on sexual assault reporting experiencing sexual assault during their first year on campus (Frey et al., 2016).

While the majority of victims of sexual assault are female, males also experience high rates of sexual assault (Black et al., 2011), particularly in academic settings such as high school and college. Young et al. (2009) found that 26% of boys from grades 7 through 12 reported being sexually assaulted by a peer. Research on individuals identifying as nonbinary gender is sparse and based on small samples, but one study conducted on the University of Oklahoma-Norman campus found that 27% ( $n = 3$ ) of individuals identifying as nonbinary gender reported having been sexually assaulted while on campus (Frey et al., 2016).

### **Defining sexual assault**

Adding to the problem of sexual assault on college campuses is the variation in what constitutes sexual assault and/or rape in the United States. Relevant to campus sexual assault specifically, all 50 states have at least one criminal statute addressing sexual assault, but key concepts around consent and incapacity are often ill defined (DeMatteo et al., 2015).

The United States Department of Justice (DOJ; 2012) recently redefined rape to be “the penetration, no matter how slight, of the vagina or anus with any body part or object, or oral penetration by a sex organ of another person, without the consent of the victim” (“An Updated Definition of Rape,” 2012, para. 2). This updated definition, as compared to the earlier one, was important for several reasons: (a) it made space for any gender of victim or perpetrator; (b) it noted that penetration can be with an object, not just in the form of penile/vaginal rape; and (c) it acknowledged consent, making room for the victim to be unable to consent due to a variety of variables (e.g., intoxication, not being of age, not having to show physical resistance). However, the definition remains problematic in that it allows individual states the right to define consent, and because the DOJ made it clear that the updated definition was only meant as a means to allow for more accurate reporting of rape nationwide and was not intended to impact charging or prosecution on federal, state or local levels. In the research literature, rape is commonly defined as *attempted* or *completed* vaginal, anal, or oral sexual intercourse obtained through force, through the threat of force, or when the victim is incapacitated and unable to give consent (Abbey & McAuslan, 2004).

Sexual assault also varies in definition. The legal definition of sexual assault, as defined by the DOJ (2017), states that sexual assault is “any type of sexual contact or



behavior that occurs without the explicit consent of the recipient” (“What is Sexual Assault,” n.d., para. 1). The DOJ website adds examples that fall under the umbrella of sexual assault: forced sexual intercourse, forcible sodomy, child molestation, incest, fondling, and attempted rape. In the research literature, sexual assault is a more inclusive term than rape and covers a variety of sexual acts, such as physically forced sexual contact (e.g., kissing or touching) and verbally coerced intercourse (Abbey & McAuslan, 2004; Koss et al., 1987; Koss et al., 1994).

While these legal and research based definitions begin to give a clearer demarcation between rape and sexual assault, it is important to note that socially constructed sexual scripts complicate what victims deem as rape and sexual assault. A script is defined as “a coherent sequence of events expected by the individual, involving him [her, they] as either a participant or an observer” (Abelson, 1976, p. 33). Rose and Frieze (1993) stated that these scripts are often deeply entrenched and involve social responses by the individual meant to increase their control over a particular situation. Regarding sexual scripts specifically, Rose and Frieze defined these as “cognitive models that people use to guide and evaluate social and sexual intercourse” (p. 499). Sexual scripts are often connected to traditional gender roles that assume men *initiate* sex while women *refuse or react* to sexual advances (Rose & Frieze, 1993). These gender roles inherently place females in a defensive posture, leaving them in the position of being expected to control the outcome of a sexual advance. This forced decision becomes highly problematic when taking into account socially constructed scripts around rape that often insinuate that a rape constitutes being physically attacked outdoors by a stranger who threatens physical violence (Kahn et al., 1994) when in

actuality, sexual assaults often occur inside, with a known perpetrator, without weapons, with low levels of physical force and injury, and often involving the use of substances (Acierno et al., 2001; Greenfield, 1997; Turchik et al., 2009).

In line with sexual scripts, rape myth acceptance has been a long researched variable in understanding sexual scripts. Rape myths view sexual aggression as a normal and accepted male behavior that women often encourage due to the combination of women's provocative behavior and male's natural sexual drive (Burt, 1980; Payne, Lonsway, & Fitzgerald, 1999). Individuals who accept this rape myth are often more likely to blame victims for sexual assaults (Chapleau & Oswald, 2013). However, rape myth research has been conflictual as some findings suggest that part of rape myth acceptance, particularly for males, is due to males often not being in the role of victim as often as females and thus possessing less of an "understanding" of what it means to be a victim of rape (Struckman-Johnson & Struckman-Johnson, 1992).

The complexity and resulting inconsistencies between these socially constructed sexual scripts and the actual definitions of an assault can be problematic. Victims may be at a higher risk to experience sexual assault because their cognitive scripts or rape myths do not make room for acquaintance rape (i.e., rape by a person known to the victim) and the use of nonforceful physical tactics (e.g., crying, negotiating with the attacker, and making excuses; Turchik et al., 2009). The sexual assault literature has noted that it is not unusual for an individual to experience abusive behaviors yet not self-label the experience as sexual assault or abuse (Wolitzky-Taylor et al., 2011).

### **Emerging Adulthood and Sexual Assault**

Emerging adulthood—generally referencing a life stage between ages 18 through 29—has been described as a period of substantial transition and change (Arnett, 2000; Rindfuss, 1991). This change often takes the form of significant demographic changes along with exposure to more diversity due to transitions in location, education, and status (Arnett, 2000; Rindfuss, 1991). When asked about future happiness, emerging adults often cite personal relationships, particularly romantic relationships, as important factors for future happiness (Arnett, 2000; Norona, Roberson, & Welsh, 2017; Shulman, Davila, & Schachar-Shapira, 2011). Shulman et al. (2011) described four main abilities related to healthy development of relationships that center on a social cognitive model that incorporates problem solving, attachment theory, and emotion regulation (Davila et al., 2009). These four abilities focus on the maintenance of relationships, social cognitive maturity aimed at balancing the needs of others with one's own needs, romantic agency centered on coping and acting on negative emotions, and coherence that focuses on the integration of positive and negative perspectives. In addition, individuals in the emerging adulthood stage often begin searching for relationships that provide emotional support rather than companionship and begin the process of evaluating relationships with a critical eye to consider whether relationships meet their needs for intimacy and commitment (Clark & Beck, 2010; Shulman & Kipnis, 2001). In fact, Shulman et al (2011) argued that emerging adults might alter their behavior in order to pursue the relationships that fit these developing needs. This is an important distinction when considering the impact of social and romantic relationships on emerging adults, particularly those transitioning into college. What becomes clear from the previous research on emerging adulthood is that this stage of

life involves a great deal of change, both demographically and related to status, and is highly centered on relationship building. This developmental understanding makes this stage of life particularly salient when factoring in sexual assault. That is, the factors associated with emerging adulthood development and the interpersonal nature of sexual assault can result in a dangerous mix for emerging adults, particularly when considering that these individuals are transitioning to a new set of broader social norms while also navigating through a new developmental stage in life.

### **Posttraumatic Stress Disorder**

**Posttraumatic stress disorder defined.** One of the most significant risk factors for sexual assault victims is the development of Posttraumatic Stress Disorder (PTSD; DeCou et al., 2016). PTSD has been described in research as a disturbance of the affective system (Stone, 1992) resulting from a poorly modulated fear response in reaction to either a potentially traumatic event (La Bash & Papa, 2014) or the memory of a threat (Ehlers & Clark, 2000). PTSD as defined by the *DSM-5* (American Psychiatric Association, 2013) requires “exposure to actual or threatened death, serious injury, or sexual violence through either direct experience, witnessing the event, learning that the event occurred to a close family member or friend, or experiencing repeated or extreme exposure to aversive details of the traumatic event” (p. 271). Further, the *DSM-5* indicates that individuals must have the presence of symptoms in specific Subclusters following the traumatic event, beginning after the traumatic event occurred. These four Subclusters, which will be discussed in more detail later, are: Criterion B (Re-experiencing), Criterion C (Avoidance), Criterion D (Negativity), and Criterion E (Arousal and Reactivity).

**Sexual assault, PTSD, and cognitive processing.** Sexual assault appears to influence PTSD symptomology in numerous ways, with the role of cognitions playing a central role (Carper et al., 2015; Dunmore et al., 2001). In research on the connection between cognitions and PTSD severity, Dunmore et al. (2001) noted that cognitive processing during the trauma that (a) took the form of mental defeat, mental confusion, or detachment; (b) involved appraisal of the consequences of trauma that took the form of negative perceptions of other's responses and perceived permanent change to the victim; and (c) included maladaptive coping strategies (i.e., avoidance and safety seeking) were distorted cognitive processes that exacerbated PTSD severity. Ehlers and Clark (2000) proposed that these distorted cognitions, and the resulting behaviors, develop as a way to survive the experienced threat but ultimately keep the person in a cognitive state where they are unable to change, thus maintaining problematic posttraumatic responses. This cognitive state continues to communicate to the individual that they are "weak" or "worthless," resulting in a negative view of the self, which in turn results in the persistence of PTSD symptomology and exacerbation of PTSD severity due to the victim's difficulty imagining life outside of these fear based cognitions (Dunmore et al., 2001).

**Impact of distorted cognitions on emotional processing in PTSD.** Research on emotional processing contends that emotions are represented by information structures in the memory, thus placing the etiology of emotional dysregulation in cognition (Foa & Kozak, 1986). Foa and Kozak (1986) explained that anxiety, such as that seen in PTSD, occurs as a result of an information structure designed to escape or avoid danger becoming activated. Research on complex trauma confirms this

hypothesis, stating that when psychological trauma interferes with, or disrupts, normal development, there is an automatic shift in the brain from learning (i.e., collecting new knowledge) to survival (i.e., anticipating, preventing, and protecting against the damage caused by potential or actual dangers; Courtois and Ford, 2009). The word *automatic* is key to understanding how quickly these distorted cognitions develop. These automatic protective responses rely on more primitive areas of the brain (e.g., brainstem, midbrain, and the amygdala) and bypass more complex areas of the brain (e.g., the prefrontal cortex; Courtois & Ford, 2009) due to the threat involving a risk for the survival of the victim of sexual assault. Neuroscientists such as Banks (2015) and Cozolino (2014) contend that if survival becomes the dominant process due to the persistence of ongoing threats, or fears of threats, the neural networks that operate these survival mechanisms become stronger, and thus impact the brain's ability to maintain neural integration and emotional regulation. The resulting lack of integration makes new learning more difficult and leads to intrusions of past traumatic experiences that are triggered by environmental or internal cues, which in turn have an impact on language production, encoding of conscious memories for traumatic events, and ultimately the potential for chronic mental illness (Banks, 2015; Cozolino, 2014).

For victims of sexual assault, the cognitive distortions and resulting emotional dysregulation take on many forms. These distortions include tonic immobility, fear, mental pollution, and shame.

***Tonic immobility.*** Sexual assault has also been found to induce *tonic immobility* (TI). TI is a phenomenon often seen in animals and is defined as the sense of a diminished, or complete lack of, choice in response to a traumatic event (TeBockhorst

et al., 2015). In victims of sexual assault, TI often results in reduced vocal capacity and takes the form of “confusion, terror, checking out, paralysis, diminished vocalizations, and eye closing to avoid contact with perpetrators” (TeBockhorst et al., 2015, p. 177), and the responses continue long after the actual assault. TI, PTSD, and peritraumatic dissociation (i.e., a type of dissociation that occurs at the time of the trauma) have been positively correlated in previous research (Heidt, Marx, & Forsyth, 2005; TeBockhorst et al., 2015). Dissociation, as defined by the *DSM-5* (American Psychiatric Association, 2013), is “a disruption of and/or discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control, and behavior” (p. 291). The dissociation specifier of PTSD requires that “the individual, in response to the stressor, experiences persistent or recurrent symptoms of either of the following: (a) persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one’s mental processes or body; or (b) persistent or recurrent experiences of unreality of surroundings” (American Psychiatric Association, 2013, p. 272). TeBockhorst et al. (2015) found that dissociation often took the form of emotional numbing that was a “voluntary, self-protective measure” (p. 173) for sexual assault victims, enacted in order to distance from the events of sexual assault. This emotional numbing, a form of TI, occurred during the assault (i.e., peritraumatic).

***Fear.*** Trauma is hypothesized to result in a hypersensitivity to fear cues and thus a resulting hyperactivation of fear-related memories (Foa & Kozak, 1986; La Bash & Papa, 2014). The reaction to fear cues becomes problematic due to the tendency to generalize to stimuli outside of the trauma, resulting in an increase in physiological hyperarousal and avoidance of stimuli that the victim unconsciously associates with the

trauma (Foa & Kozak, 1986; Foa & Riggs, 1993; La Bash & Papa, 2014). The impact of this physiological hyperarousal and avoidance of stimuli is to foster the brain's continual reliance on survival, which ultimately diminishes the possibilities of learning and growth and serves to maintain, and at times increase, PTSD symptomology (Courtois & Ford, 2009; Foa & Rothbaum, 1998).

***Mental pollution.*** *Mental pollution* has been a particular focus of past research on sexual assault related to distorted cognitions (Fairbrother, Newth, & Rachman, 2005; Olatunji, Elwood, Williams, & Lohr, 2008) and is defined as “a sense of internal uncleanness which can and usually does arise and persist regardless of the presence or absence of external, observable dirt” (Rachman, 1994, p. 311). Olatunji et al. (2008) hypothesized that mental pollution, particularly for sexual assault victims, occurs due to the interaction between the assault and the victim's moral code, resulting in a distorted and internalized sense of “immorality” (p. 44). This feeling of sexual immorality thus cyclically increases the victim's negative cognitions and impacts their sense of self (Olatunji et al., 2008).

***Shame.*** While TI, fear, and mental pollution contribute greatly to the maintenance of PTSD symptomology, shame has increasingly become a focus of PTSD research (Budden, 2009; DeCou et al., 2016; Gilbert, 2003; La Bash & Papa, 2014) and is considered to be the primary emotion for survivors of interpersonal trauma (La Bash & Papa, 2014). Mental pollution and shame share similarities, however shame has been defined as a multi-layered phenomenon consisting of negative self-evaluation occurring at the same time as a perceived social threat (Budden, 2009; DeCou et al., 2016; Gilbert, 2003). Research has pointed to shame being primarily a *social* phenomenon in



that shame is ultimately a fear of judgment from others and consists of feelings of inferiority and embarrassment (Budden, 2009; DeCou et al., 2016; Gilbert, 2003). Due to its connection with social threat, shame is best understood through the lens of social cognitions (Budden, 2009; DeCou et al., 2016; Gilbert, 2003; Leigh & Baumeister, 1998; Resick & Schnicke, 1992; Ehlers & Clark, 2000; Tangney & Dearing, 2002; Tangney et al., 2007).

Research on social cognitions argues that shame can be understood as an *automatic* response that protects the individual from social threats (Budden, 2009; DeCou et al., 2016; Gilbert, 2003; Leigh & Baumeister, 1998; Tangney & Dearing, 2002). Shame is considered protective due to its defensive nature; that is, shame protects an individual by immobilizing the individual through a simultaneous process of external submissiveness or defeat and internal withdrawal from social interactions (Budden, 2009). Social threats vary by individual, but are often described as feelings that are comprised of, or the result of, potential negative evaluations and/or the perception that one is defective (Budden, 2009; DeCou et al., 2016; Gilbert, 2003; Leigh & Baumeister, 1998; Tangney & Dearing, 2002). Research on social cognitions also contends that shame, particularly related to PTSD, must be understood apart from being a poorly controlled fear response due to its connection with social standing and integration, which is just as important to a person's adjustment as physical integrity (DeCou et al., 2016; La Bash & Papa, 2014). Through this lens, sexual assault and shame become closely connected due to the potential for sexual assault to result in the distorted cognition that the self is corrupted and contaminated, that is, polluted (Tangney & Dearing, 2002). These feelings of corruption and contamination result in a

cyclical process, producing distorted cognitions that revolve around the fear of potential negative evaluations from others. This process results in further feelings of shame and a perceived threat to the social self, and thus a shutting down by the victim to protect from further social harm (Budden, 2009; Tangney & Dearing, 2002).

Threats to self are often not just a product of the external world, but are a result of an internally focused perception of being characterologically flawed, or socially undesirable. Thus, threats to the social self result in persistent PTSD symptomology for victims of sexual assault due to the distorted and shaming belief that the commission of a perceived socially unacceptable behavior is a characterological flaw (i.e., a stable personality or mental trait that is flawed; Gilbert, 2003; Lewis, 1971; Tangney & Dearing, 2002). In turn this leads to feelings of inadequacy, inferiority, powerlessness, self-blame, and weakness (Ehlers & Clark, 2000; Gilbert, 2003; Lewis, 1971; Resick & Schnicke, 1992; Tangney & Dearing, 2002). Understanding sexual assault's impact on PTSD from a characterological (i.e., trait-based) perspective is important for clinicians and researchers because these characterological, shame-based interpretations have been found to be a vital conduit to the development and maintenance of PTSD symptomology and severity (Beck et al., 2011; Ehlers & Clark, 2000; La Bash & Papa, 2014).

It is important to distinguish between guilt and shame. Guilt has often been linked with shame; however, the two processes vary greatly. Guilt and shame differ in that the former entails a recognition that the transgression committed is not a product of a characterological flaw, but rather a behavioral misstep; on the contrary, shame entails a belief that the transgression committed is a product of one's flawed self (Gilbert,

2003; Tangney & Dearing, 2002). This differentiation between guilt and shame is important as it relates to victims of sexual assault because guilt has been found to be a positive motivating factor (e.g., it can lead the individual to make amends for the problematic behavior) and does not result in a feeling of inferiority to others (Gilbert, 2003). Tangney, Wagner, Fletcher and Gramzow (1992) stated, “Whereas guilt motivates a desire to repair, to confess, apologize, or make amends, shame motivates a desire to hide—to sink into the floor and disappear” (pp. 669-670).

### **PTSD Subclusters and Distorted Cognitions**

As noted previously, the Subclusters of PTSD are: Criterion B (Re-Experiencing), Criterion C (Avoidance), Criterion D (Negativity), and Criterion E (Arousal and Reactivity). In the ongoing study of PTSD, researchers have begun to investigate the Subclusters and their unique contributions to the development and exacerbation of PTSD severity and negative mental health outcomes. This connection in sexual assault victims is due to the Subclusters’ potential association with distorted cognitions (e.g., shame; Carper et al., 2015).

**Subcluster B (re-experiencing).** The re-experiencing Subcluster of PTSD involves the presence of intrusive thoughts (i.e., distressing memories), nightmares, flashbacks, emotional distress after exposure to traumatic reminders, and physical reactivity after exposure to traumatic reminders (5<sup>th</sup> ed.; *DSM-5*; American Psychiatric Association, 2013). Victims of sexual assault who report re-experiencing symptomology were found to have more pervasive PTSD struggles and higher self-reported physiological symptoms due to the theory that this Subcluster relies on internal coping processes (Carper et al., 2015; Zoellner et al., 2000). Researchers have noted

that these internal coping processes share commonality with the emotional process of shame and are thought to be etiological factors in the development of characterological self-blame and negative beliefs about the self (Carper et al., 2015; Gilbert, 2003; Lewis, 1971; Resick & Schnicke, 1992; Tangney & Dearing, 2002; TeBockhorst et al., 2015).

**Subcluster C (avoidance).** The avoidance Subcluster involves the avoidance of trauma-related stimuli after the trauma, including trauma-related thoughts or feelings or trauma related reminders (5<sup>th</sup> ed.; *DSM-5*; American Psychiatric Association, 2013). This Subcluster is particularly salient for victims of sexual assault who experience penile-vaginal penetration and is similar to the checking out or paralysis often seen in tonic immobility (TeBockhorst et al., 2015). Results have been conflictual on the relationship of avoidant Subclusters with PTSD severity and negative mental health outcomes. Some research has found that the process of tonic immobility that occurs in avoidant coping promotes a continuation of fear and helplessness in victims of sexual assault (TeBockhorst et al., 2015) and shares commonality with the process of shame (e.g., withdrawal from others; Lewis, 1971; Tangney et al., 2007). However, Carper et al., (2015) found discrepant results that indicated this Subcluster was associated with fewer pervasive struggles with PTSD, lower PTSD severity, and fewer negative cognitions. Carper et al. (2015) hypothesized that avoidance is an external coping process because victims are able to project (i.e., defend themselves) externally by avoiding external reminders of trauma.

**Subcluster D (negativity).** The negativity Subcluster involves the presence of negative thoughts or feelings that began or worsened after the trauma in the following ways: (a) inability to recall key features of the trauma, (b) overly negative thoughts and

assumptions about oneself or the world, (c) exaggerated blame of self or others for causing the trauma, (d) negative affect, (e) decreased interest in activities, (f) feeling isolated, and/or (g) difficulty experiencing positive affect (5<sup>th</sup> ed.; *DSM-5*; American Psychiatric Association, 2013). The Subcluster of negativity, which is often linked with emotional numbing, has been associated with more pervasive PTSD struggles for victims of sexual assault due to emotional numbing being considered an internal coping process (Carper et al., 2015). A research study of Veterans of Operations Enduring Freedom and Iraqi Freedom (OEF-OIF) found that dysphoria symptoms, such as the ones found in this Subcluster, were associated with greater levels of psychopathology (Pietrzak et al., 2010). Research findings have also shown that this Subcluster shares commonality with the process of shame (e.g., overly negative thoughts and assumptions about oneself; an exaggerated blame of self; Gilbert, 2003; Lewis, 1971; Resick & Schnicke, 1992; Tangney & Dearing, 2002).

**Subcluster E (arousal and reactivity).** The arousal and reactivity Subcluster involves the presence of trauma-related arousal and reactivity that began or worsened after the trauma, specifically: (a) irritability or aggression, (b) risky or destructive behavior, (c) hypervigilance, (d) heightened startle reaction, (e) difficulty concentrating, and/or (f) difficulty sleeping (5<sup>th</sup> ed.; *DSM-5*; American Psychiatric Association, 2013). Carper et al. (2015) found this Subcluster to be associated with less pervasive struggles with PTSD for sexual assault victims due to the Subcluster connection with external coping processes. Again however, results are conflictual depending on the type of trauma experienced. In a study of posttraumatic reactions of Norwegian survivors of the 2004 Southeast Asia tsunami, hyperarousal symptoms were a stronger predictor of

overall psychopathology and functional impairment than the Subclusters of re-experiencing and avoidance (Heir, Piatigorsky, & Weisaeth, 2010). Schell, Marshall and Jaycox (2004) reported similar results in a sample of survivors of community violence. Individuals for whom hyperarousal symptoms were the most salient reported lower overall symptom improvement as compared to those for whom hyperarousal was a less prominent symptom (Schell et al., 2004).

Taken together, research on the contribution of the Subclusters of PTSD to overall symptom severity and negative mental health outcomes is somewhat discrepant. For sexual assault victims, Carper et al.'s (2015) study on the impact of early symptom cluster elevations on the subsequent development of PTSD was an important step in understanding how the Subclusters promote characterological self-blame and a resulting increase in negative mental health outcomes. However, more research is needed to confirm and expand on these findings, particularly related to a broad campus-wide college population.

### **The Reporting Process**

**Benefits of reporting.** Baumeister and Leary (1995) argued that human thought is shaped by the need for belongingness and relationship, contending that individuals interpret situations and events through the lens of the impact on, and implications for, their relationships. Considering the shame and fear experienced by victims, this relational perspective is important to consider when understanding the reporting process and its impact on belongingness and relationships. This impact is transmitted through the promotion of fear of disconnection and a resulting shame that the assault has permanently damaged the victim and their social standing.

As previously mentioned, research findings have been inconsistent regarding the connection between trauma-related avoidance and recovery from sexual assault. However, there are several studies indicating that recovery from sexual assault is associated with a decrease in trauma-related avoidance (Leiner, Kearns, Jackson, Astin, & Rothbaum, 2012), thus making reporting of the sexual assault (i.e., formal reporting to authorities) a potentially important process elemental to the recovery process. The process of reporting has been found to be beneficial for sexual assault victims due to the potential to aid in the restructuring of cognitive capacities (i.e., actively engaging cognitive processing of the assault and its meaning; developing adaptive coping mechanisms) and the allowance for emotional expression (Frazier, 2000; Frazier, Tashiro, Berman, Steger, & Long, 2004; Ullman, 2014). This emotional and cognitive expression is thought to give the victim control over their recovery process and has been found to result in less severe PTSD symptomology (Ullman & Peter-Hagene, 2014).

**Reporting rates.** While approaching the assault through reporting has been found to aid recovery, reporting rates for sexual assault (i.e., formal reporting to authorities), particularly on college campuses, are significantly lower than the rates of occurrence. The Association of American Universities (AAU; 2015) indicated that reporting rates to campus officials regarding sexual assault ranged from 5 to 28% of total assaults. Fisher, Cullen and Turner (2000) found that 90% of sexual assault victims on college campuses did not report their assault. The Department of Justice (DOJ; 2014) found that 20% of rapes and sexual assaults experienced by college students were reported to police, as compared to 32% among nonstudents aged 18 to 24 (Sinozich & Langton, 2014). Outside of the college campus setting, rape has been found to be one

of the most under-reported crimes, with 63% of sexual assaults not being reported to police and only 12% of child sexual abuses being reported to the authorities (Hanson, Resnick, Saunders, Kilpatrick, & Best, 1999; Rennison, 2002).

***Demographic factors in non-reporting.*** A variety of explanations exist for the lack of sexual assault reporting. While not specific to sexual assault, demographic factors have been found to play a significant role in seeking out mental health services, with individuals with more education, identifying as Caucasian, of older age, possessing greater social support, and having medical insurance more likely to seek out services (Starzynski et al., 2007; Ullman & Brecklin, 2002). Regarding sexual assault, James and Lee (2015) found that women, as compared to other genders, indicated they would be more likely to report a sexual assault to the police if one occurred in the future, but noted that people of color indicated being less likely to report a sexual assault if one occurred in the future due to higher negative views of, and less confidence in, the police. James and Lee's findings did not account for current experiences with sexual assault related to demographic factors, instead focusing on reporting potential future sexual assaults.

While perhaps more a clinical than a demographic factor, previous trauma has also been found to be relevant to assault disclosure. Ullman and Brecklin (2002) found cumulative sexual assault predicted greater mental health service seeking for individuals who experienced both child and adult sexual assault as compared to those that experienced either child or adult sexual assault. Ullman and Brecklin argued that the increase in symptom severity for victims of sexual assault made the likelihood of seeking mental health services stronger.



Taken together, further research is needed to understand the connection between demographic factors and sexual assault reporting, particularly for victims on college campuses. Likewise, further research is needed to examine the relationship between reporting on symptom severity in campus victims.

***PTSD symptomology's impact on non-reporting.*** The cognitive distortions found in PTSD, particularly related to fear, have been found to have a significant impact on reporting behavior. Due to these cognitive distortions, victims fear many negative outcomes related to reporting sexual assault (i.e., fears of retribution, a lack of support from law enforcement officers, that the assault will not be taken seriously, that nothing will be done with the report, and/or that the assault will become public knowledge; AAU, 2015; Black et al., 2011; Murphy, Banyard, & Fennessey, 2013; Paul, Gray, Elhai, & Davis, 2009; Walsh & Bruce, 2014).

In recent years the experience of victim shame has begun to be a prominent factor in not only understanding PTSD severity and negative mental health outcomes, but also in understanding non-disclosure of sexual assault (AAU, 2014; Black et al., 2011; DeCou et al., 2016; Thompson et al., 2007; Walsh & Bruce, 2014). In a study of college victims of sexual assault, non-reporting was most often linked to feelings of shame, specifically due to fear that the assault would be viewed as their fault and a desire for no one to know about the incident (Thompson et al., 2007). Similarly, in a study of 404 female undergraduate psychology students, shame was found to be a mediator between negative social reactions to disclosure and symptoms of PTSD, depression, and global distress (DeCou et al., 2016). When combined with fear, shame often leads to an unconscious, survival-based diminishing of importance that the assault

takes in the life of the victim, resulting in the distorted cognition that the assault is trivial (AAU, 2014; Black et al., 2011; Walsh & Bruce, 2014).

***Subclusters of PTSD and non-reporting.*** Research on the Subclusters of PTSD and reporting behavior is limited. TeBockhorst et al. (2015) found the process of avoidance, which fits with Subcluster C (Avoidance), was predictive of greater PTSD severity and a resulting decrease in reporting for sexual assault victims. In contrast, Walsh and Bruce (2014) found that Subcluster E (Arousal and Reactivity) predicted an increase in the probability of reporting (Walsh & Bruce, 2014). However, much more research is needed in order to understand the unique contributions of the PTSD Subclusters to the reporting process. This study will contribute to that literature.

### **Rationale and Purpose of the Study**

The purpose of this study is two-fold: (a) to examine the relationship between PTSD Subcluster symptom distress and negative mental health outcomes for participants indicating a previous sexual assault (i.e., Group 1 - assault occurring before attending OU; Group 2 - assault occurring while attending OU but not before attending OU; Group 3 - assault occurring both before attending, and while attending, OU; Group 4 – groups 2 and 3 combined to encompass total assaults occurring while attending OU) and qualifying for a diagnosis of PTSD while accounting for deeply entrenched sexual scripts as measured by rape myth acceptance, and (b) to examine the relationship between reporting behavior and PTSD Subcluster symptom distress. Previous studies have focused largely on undergraduate psychology majors; however, this study will expand to a broader campus community via a campus climate survey.

The hypotheses include:

(1) As a total model, rape myth acceptance and previous exposure to sexual assault (e.g., Group 1 - assault occurring before attending OU; Group 2 - assault occurring while attending OU but not before attending OU; Group 3 - assault occurring both before attending, and while attending, OU; Group 4 - total assaults occurring while attending OU); and higher PTSD Subcluster symptom distress will predict increased negative mental health outcomes.

(1a) Participants in Group 3 that indicated the sexual assault occurred both before attending, and while attending, OU will report significantly higher negative mental health outcomes than the other three groups.

(1b) Subclusters B (re-experiencing) and D (negativity), jointly and individually, will significantly predict increased negative mental health outcomes.

(1c) Subclusters B (re-experiencing) and D (negativity) will account for increased variance in predicting negative mental health outcomes as compared to Subclusters C (avoidance) and E (arousal and reactivity).

(2) There will be significant between-group differences on PTSD Subcluster symptom distress for those who reported versus did not report sexual assault if the *n* is sufficient for reporters within in each trauma group (i.e., Group 1 - assault occurring before attending OU; Group 2 - assault occurring while attending OU but not before attending OU; Group 3 - assault occurring both before attending, and while attending, OU; Group 4 - total assaults occurring while attending OU).

(2a) For those who reported versus did not report, distress will be higher on the PTSD Subclusters of avoidance (Subcluster C) and arousal and reactivity (Subcluster E).

(2b) For those who did not report versus reported, distress will be higher on PTSD Subclusters of re-experiencing (Subcluster B) and negativity (Subcluster D).

## **Method**

### **Participants**

This data set was procured as a part of a prior research project (refer to Procedures for details). The project was conducted in an effort to understand the prevalence of and responses to sexual assault at the University of Oklahoma-Norman campus. In addition, the project investigated student perceptions of the reporting process and available campus services.

The full data set consisted of 823 completed surveys and was representative in terms of the racial and ethnic composition of the students at the University of Oklahoma (OU).

In order to address some of the discrepancies regarding sexual assault definitions, be congruent with the research definition of sexual assault, and obtain an overarching, more inclusive picture of the prevalence of sexual assault, participants who indicated experiencing any of the following nonconsensual behaviors were considered to have been sexually assaulted: (a) having genitals fondled, kissed, or rubbed up against; (b) having genitals groped or grabbed; (c) having someone try to penetrate, or succeed in penetrating, genitals; and/or (d) having someone try to, or succeed in,

performing oral sex even though the person did not want them to perform these behaviors. Using these criteria, 316 participants reported experience(s) of sexual assault.

## **Measures**

**Demographics.** In order to investigate possible demographic factors related to reporting behavior, the climate survey asked respondents to indicate their gender, race/ethnicity, and previous experiences of sexual assault. Of those participants who reported gender, 59% of participants self-identified as female ( $n = 482$ ), 35% as male ( $n = 286$ ), and 2% as nonbinary individuals ( $n = 14$ ). The majority of participants identified as White (69%). The remainder identified as American Indian or Alaska Native (9%), Hispanic or Latino (7%), Asian (5%), Black or African American (4%) and Biracial (3%); around 2% of respondents identified as individuals of other ethnic backgrounds and around 1% identified as Native Hawaiian or Other Pacific Islander. The participants ranged in age from 17 to 66 years old (undergraduate  $M = 21$ ; graduate  $M = 29$ ). The majority of participants self-identified as undergraduate students (75%;  $n = 616$ ), 24% as graduate students ( $n = 200$ ), and 1% as recent graduates ( $n = 7$ ). Nine percent of respondents indicated that they have a disability. The University of Oklahoma-Norman Campus Enrollment Analysis Report (2015) indicates campus demographic figures as follows: Caucasian (59%), American Indian or Alaska Native (4%), Hispanic (8%), Asian (5%), Black/African American (5%), Biracial (7%), and Native Hawaiian or Other Pacific Islander (0.2%). Thus, the sample was relatively similar to the campus race/ethnicity demographics.

**Posttraumatic stress disorder.** As a part of the climate survey, respondents who indicated previous sexual assault were asked to endorse the presence of PTSD symptomology since the assault. The 12 items (i.e., 3 items per subcluster) regarding PTSD symptom distress were based on the *DSM-5* (American Psychiatric Association, 2013) diagnostic language for PTSD (i.e., felt less happy or pleased about things that once caused you to be happy or pleased; had feelings of reliving something very unpleasant and traumatic; felt easily tired; felt detached or estranged from others; tried to avoid certain thoughts and feelings because they remind you of something unpleasant or traumatic; felt easily startled; had repeated, unpleasant dreams or nightmares; been less interested in activities that were once important to you; avoided certain things, places, or activities because they reminded you of something unpleasant or traumatic; felt less upset or angry about things which once caused you to be upset or angry; felt distressed because something reminded you of an unpleasant or traumatic event; felt hyper-alert or on guard). These items were sorted and grouped into the PTSD Subclusters of Criterion B (Re-Experiencing); Criterion C (Avoidance); Criterion D (Negativity); and Criterion E (Arousal and Reactivity). Respondents were asked to endorse the frequency they experienced these PTSD symptom distress items on a 6-point Likert scale with 1 = *Never* to 6 = *All the time*. These Likert-scale responses were summed in order to determine the intensity or frequency with which a particular Subcluster was experienced by a sexual assault victim.

For Group 1 (i.e., assaulted before attending OU), the PTSD Subclusters B, C, D, and E Cronbach's alpha coefficients were .64, .58, .74, and .51, respectively (see Table 1). Due to the low number of items on this scale and low obtained alphas, inter-

item correlation means were examined, with means equaling .38, .30, .49, and .46, respectively. As suggested by Briggs and Creek (1986), inter-item correlation means from .2 to .4 are considered optimal. For Group 2 (i.e., assaulted while attending OU, but not before attending OU), the PTSD Subclusters B, C, D, and E Cronbach's alpha coefficients were .76, .80, .85, and .65, respectively (see Table 2). For Group 3 (i.e., assaulted both before attending OU and while attending OU), the PTSD Subclusters B, C, D, and E Cronbach's alpha coefficients were .83, .71, .83, and .72, respectively (see Table 3). For Group 4 (i.e., groups 2 and 3 combined), the PTSD Subclusters B, C, D, and E Cronbach's alpha coefficients were .81, .74, .83, and .71, respectively (see Table 4).

**Negative mental health outcomes.** Respondents were given 9 items that asked how frequently specific negative mental health outcomes (i.e., being unable to eat, eating much less than usual, eating much more than normal, bingeing and purging, or other substantive change in eating habits or appetite; started to or increased smoking, drinking alcohol, using illegal drugs and/or misusing prescription drugs; thought seriously about killing yourself, made a plan, and/or attempted to kill yourself; harmed yourself without the intention of committing suicide such as cutting; engaged in more or higher risk sexual activities than previously; lost interest in intimacy or sex; had to drop or take a grade of incomplete for a class; was unable to do work or complete assignments; grades dropped) occurred on a 5-point Likert scale with 0 = *Not at all* and 6 = *Extremely*. These outcome items have been previously used by the Massachusetts Institute of Technology (MIT; 2014) in a climate study of sexual assault prevalence on the MIT campus. These responses were summed to create a score regarding severity of

the negative mental health outcomes experienced by sexual assault victims. For Group 1 (i.e., assaulted before attending OU), negative mental health outcomes Cronbach's alpha coefficient was .88. For Group 2 (i.e., assaulted while attending OU, but not before attending OU), negative mental health outcomes Cronbach's alpha coefficient was .92. For Group 3 (i.e., assaulted both before attending OU and while attending OU), negative mental health outcomes Cronbach's alpha coefficient was .86. For Group 4 (i.e., groups 2 and 3 combined), negative mental health outcomes Cronbach's alpha coefficient was .88.

**Rape Myth Acceptance.** In order to obtain a measure of socially constructed sexual scripts, the Male Rape Myth Scale (MRMS; Struckman-Johnson & Struckman-Johnson, 1992) was combined with newly constructed questions that referred to female and same sex perpetrators. For Group 1 (i.e., assaulted before attending OU), the original Male Rape Myth Scale had a Cronbach's alpha coefficient of .44, but when adding our items the Cronbach's alpha coefficient increased to .66. For Group 2 (i.e., assaulted while attending OU, but not before attending OU), the original Male Rape Myth Scale had a Cronbach's alpha coefficient of .65, but when adding our items the Cronbach's alpha coefficient increased to .79. For Group 3 (i.e., assaulted both before attending OU and while attending OU), the original Male Rape Myth Scale had a Cronbach's alpha coefficient of .57, but when adding our items the Cronbach's alpha coefficient increased to .73. For Group 4 (i.e., groups 2 and 3 combined), the original Male Rape Myth Scale had a Cronbach's alpha coefficient of .59, but when adding our items the Cronbach's alpha coefficient increased to .75.



Furthermore, the relationship between the original Male Rape Myth Scale and the added number of items was investigated using Pearson product-moment correlation coefficient. There was a significant, positive correlation between the two variables for all groups: Group 1 (i.e., assaulted before attending OU),  $r = .79, p < .001$ ; Group 2 (i.e., assaulted while attending OU, but not before attending OU),  $r = .78, p = .006$ ; Group 3 (i.e., assaulted both before attending OU and while attending OU),  $r = .81, p < .001$ ; and Group 4 (i.e., groups 2 and 3 combined),  $r = .80, p < .001$ . These results were expected and provided evidence for reliability. The combined items were used in this study and the instrument is referred to as the Rape Myth Acceptance Scale.

**Reporting behavior.** Respondents who indicated previous exposure to sexual assault on the OU-Norman campus were asked if they had ever told anyone about the incident of unwanted sexual activity, both informally (i.e., to a family member) and formally (i.e., to the police). Respondents who indicated *yes* to either of these 2 items were classified as having told someone about the assault (i.e., informally or formally).

### **Procedures**

In an effort to understand the prevalence of sexual assault at the University of Oklahoma-Norman Campus, and in order to understand student perceptions of the reporting process and available campus services, the Counseling Psychology program undertook a campus climate survey in the spring of 2015. Campus climate surveys from several universities (e.g., MIT, Yale, University of Oregon) were reviewed and used as guides in constructing the OU-Norman Campus survey. Additionally, items were created to measure specific OU policies and procedures. Definitions were provided for the terms used regarding harassment and assault. The on-line study was

administered using Qualtrics software and was housed on a secure server in the Center for Educational Development and Research (CEDaR) on the OU-Norman Campus. In order to make participants' survey experience time-effective, Qualtrics "Display Logic" was used such that questions presented to participants depended upon their answers to prior questions. Survey completion time was estimated to take about 30 minutes per participant.

The survey was approved by the office of IRB at the University of Oklahoma (IRB # 5273) and distributed to OU-Norman Campus students via mass email. In an effort to obtain a representative sample of racial and ethnic minority students, who are often underrepresented in these surveys, researchers contacted leaders of relevant student organizations and chairs or directors of relevant programs to ask them to support the survey and distribute the link. Data collection occurred from March 24th to August 25th, 2015, with 823 surveys completed. This database was used for this study.

### **Results**

Individuals who indicated *yes, once* or *yes, or more than once* on questions asking about previous exposure to nonconsensual behaviors (i.e., having genitals fondled, kissed or rubbed up against; having genitals groped or grabbed; having someone try to penetrate, or succeed in penetrating, genitals; and/or having someone try to, or succeed in, performing oral sex even though the person did not want them to perform these behaviors) were collapsed into one variable indicating previous exposure to sexual assault ( $n = 316$ ). In an earlier part of the survey, participants were asked if they had been sexually assaulted either before, or while, attending OU. Of the 316

participants meeting criteria for having been sexually assaulted, only 133 (42%) answered yes.

Of the 316 participants reporting a history of sexual assault, 170 (54%) reported symptoms that met criteria for a diagnosis of PTSD. Of the 170 participants reporting a history of sexual assault and meeting criteria for a diagnosis of PTSD, 87 (51%) reported the assault occurred before attending OU, but indicated that they had not been assaulted while at OU. This group was clustered together to form Group 1 in the study. In addition, of the 170 participants reporting a history of sexual assault and meeting criteria for a diagnosis of PTSD, 22 (13%) reported the assault occurred while attending OU, but indicated that they had not been assaulted prior to attending OU. This group was clustered together to form Group 2 in the study. Further, of the 170 participants reporting a history of sexual assault and meeting criteria for a diagnosis of PTSD, 61 (36%) reported they had been assaulted both before attending OU, and while attending OU. This group was clustered together to form Group 3 in the study. There is no overlap in groups A, B, and C as each person was sorted into only one group. Finally, to gain a broader view of the symptomology for individuals having been assaulted at OU, Groups B and C were combined to form Group 4 ( $n = 83$ ; 55%), which encompassed all those reporting having been assaulted both previously to and while attending OU, and meeting criteria for a diagnosis of PTSD.

In analyses exploring gender and race/ethnicity, gender was collapsed into two categories (e.g., male or female) and race/ethnicity was collapsed into two categories (e.g., white individuals and people of color) due to small group numbers amongst the nonbinary gender category and amongst the differing races and ethnicities.

## PTSD Subclusters and Negative Mental Health Outcomes

**Preliminary analyses.** Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. Independent samples t-tests were conducted to compare the negative mental health outcomes scores for demographic variables (e.g., gender and race/ethnicity) with no significant results.

The relationship between the Rape Myth Acceptance Scale and negative mental health outcomes was investigated using Pearson product-moment correlation coefficient with no significant results.

There were no violations of the assumption of multicollinearity among the predictor variables, with the following exceptions: Subclusters B (Re-Experiencing) and C (Avoidance) were relatively highly correlated for participant Group 2,  $r = .76, p < .001$ ; Group 3,  $r = .80, p < .001$ ; and Group 4,  $r = .78, p < .001$ ; Subclusters D (Negativity) and E (Arousal and Reactivity) were relatively highly correlated for Group 2,  $r = .70, p < .001$  (see Tables 5-8).

The relationships between Subcluster intensity and negative mental health outcomes also were investigated (see Tables 5-8). For Subcluster B (Re-Experiencing), there were significant, positive bivariate correlations between intensity and negative mental health outcomes for all participant groups: Group 1 (i.e., assaulted before attending OU),  $r = .54, p < .001$ ; Group 2 (i.e., assaulted while attending OU, but not before attending OU),  $r = .68, p = .001$ ; Group 3 (i.e., assaulted both before attending OU and while attending OU),  $r = .46, p < .001$ ; and Group 4 (i.e., groups 2 and 3 combined),  $r = .51, p < .001$ .

For Subcluster C (Avoidance), there were significant, positive correlations between the two variables for all groups: Group 1 (i.e., assaulted before attending OU),  $r = .40, p < .001$ ; Group 2 (i.e., assaulted while attending OU, but not before attending OU),  $r = .59, p = .004$ ; Group 3 (i.e., assaulted both before attending OU and while attending OU),  $r = .41, p = .001$ ; and Group 4 (i.e., groups 2 and 3 combined),  $r = .47, p < .001$ .

The relationship between Subcluster D (Negativity) intensity and negative mental health outcomes indicated a significant, positive correlation between the two variables for all groups: Group 1 (i.e., assaulted before attending OU),  $r = .28, p = .009$ ; Group 2 (i.e., assaulted while attending OU, but not before attending OU),  $r = .63, p = .002$ ; Group 3 (i.e., assaulted both before attending OU and while attending OU),  $r = .57, p < .001$ ; and Group 4 (i.e., groups 2 and 3 combined),  $r = .59, p < .001$ .

For Subcluster E (Arousal/Reactivity), there were significant, positive correlations between the two variables for all groups: Group 1 (i.e., assaulted before attending OU),  $r = .40, p < .001$ ; Group 2 (i.e., assaulted while attending OU, but not before attending OU),  $r = .56, p = .007$ ; Group 3 (i.e., assaulted both before attending OU and while attending OU),  $r = .45, p < .001$ ; and Group 4 (i.e., groups 2 and 3 combined),  $r = .47, p < .001$ .

A one-way between groups analysis of variance was conducted to explore how participant groups A, B, and C differed in negative mental health outcomes. There was a statistically significant difference in negative mental health outcomes for the three groups:  $F(2, 167) = 4.62, p = .01$ . The effect size, calculated using eta squared, was .05. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for

Group 3 ( $M = 12.21$ ,  $SD = 8.59$ ) was significantly different from Group 1 ( $M = 7.97$ ,  $SD = 8.22$ ).

In addition, a one-way between groups analysis of variance was conducted to explore how participant groups A, B, and C differed in symptom intensity for each Subcluster of PTSD. There was a statistically significant difference for intensity of Subcluster B (Re-Experiencing) for the three groups:  $F(2, 167) = 4.42$ ,  $p = .01$ . The effect size, calculated using eta squared, was .05. There was also a statistically significant difference for intensity of Subcluster C (Avoidance) for the three groups:  $F(2, 167) = 6.32$ ,  $p < .01$ , with an eta-squared of .08. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Group 2 ( $M = 7.41$ ,  $SD = 3.26$ ) was significantly different from Group 1 ( $M = 5.46$ ,  $SD = 2.96$ ) for Subcluster B (Re-Experiencing) intensity. Also, for Subcluster C (Avoidance) intensity, (a) the mean score for Group 2 ( $M = 7.23$ ,  $SD = 3.84$ ) was significantly different from Group 1 ( $M = 5.17$ ,  $SD = 2.94$ ) and (b) the mean score for Group 3 ( $M = 6.75$ ,  $SD = 3.24$ ) was significantly different from Group 1 ( $M = 5.17$ ,  $SD = 2.94$ ). There were no significant differences between the three groups on either Subcluster D (Negativity) or Subcluster E (Arousal/Reactivity).

**Hierarchical multiple regression models predicting negative mental health outcomes.** Hierarchical multiple regression models were used to assess the ability of Subclusters B, C, D, and E symptom intensity to predict negative mental health outcomes, after controlling for the influence of rape myth acceptance (see Table 13).

***Group 1 - assaulted before attending OU.*** Rape myth acceptance was entered at Step 1, explaining 4% of the variance in negative mental health outcomes. After entry

of Subclusters B, C, D, and E at Step 2 the variance explained by the model as a whole was 31% (adjusted  $R^2 = .27$ ),  $F(5,72) = 6.58$ ,  $p < .001$ . The four Subcluster measures explained an additional 28% of the variance in negative mental health outcomes, after controlling for rape myth acceptance,  $F$  change  $(4,72) = 7.26$ ,  $p < .001$ . In the final model, Subcluster B (Re-experiencing) intensity was the only statistically significant predictor ( $beta = .41$ ,  $p = .006$ ) of negative mental health outcomes.

**Group 2 - assaulted while attending OU, but not before attending OU.** Rape myth acceptance was entered at Step 1, explaining 3% of the variance in negative mental health outcomes. After entry of Subclusters B, C, D, and E at Step 2 the total variance explained by the model as a whole was 73% (adjusted  $R^2 = .63$ ),  $F(5,13) = 7.00$ ,  $p = .002$ . The four Subcluster measures explained an additional 70% of the variance in negative mental health outcomes, after controlling for rape myth acceptance,  $F$  change  $(4,13) = 8.35$ ,  $p = .001$ . In the final model, Subcluster B (Re-experiencing) intensity ( $beta = .60$ ,  $p = .03$ ) and rape myth acceptance ( $beta = .47$ ,  $p = .01$ ) were the only significant predictors of negative mental health outcomes.

**Group 3 - assaulted both before attending OU and while attending OU.** Rape myth acceptance was entered at Step 1, explaining 3% of the variance in negative mental health outcomes. After entry of Subclusters B, C, D, and E at Step 2 the variance explained by the model as a whole was 36% (adjusted  $R^2 = .29$ ),  $F(5,46) = 5.14$ ,  $p = .001$ . The four Subcluster measures explained an additional 33% of the variance in negative mental health outcomes, after controlling for rape myth acceptance,  $F$  change  $(4,46) = 5.93$ ,  $p = .001$ . In the final model, Subcluster D (Negativity) intensity

( $\beta = .48, p = .01$ ) was the only significant predictor of negative mental health outcomes.

**Group 4 - groups 2 and 3 combined.** Rape myth acceptance was entered at Step 1, explaining 1% of the variance in negative mental health outcomes. After entry of Subclusters B, C, D, and E at Step 2 the variance explained by the model as a whole was 37% (adjusted  $R^2 = .32$ ),  $F(5,69) = 8.56, p < .001$ . The four Subcluster measures explained an additional 37% of the variance in negative mental health outcomes, after controlling for rape myth acceptance,  $F$  change  $(4,65) = 9.50, p < .001$ . In the final model, Subcluster D (Negativity) intensity ( $\beta = .42, p = .008$ ) was the only significant predictor of negative mental health outcomes.

**Ancillary analyses.** As noted in the literature review, Subclusters B and D have been hypothesized as being internal coping processes as opposed to Subcluster C and E, which are thought of as being external coping processes (Carper et al., 2015; Gilbert, 2003; Lewis, 1971; Resick & Schnicke, 1992; Tangney & Dearing, 2002; Zoellner et al., 2000); thus, Subclusters B (Re-Experiencing) and D (Negativity) were combined and Subclusters C (Avoidance) and E (Arousal/Reactivity) were combined in order to investigate differences between the combined Subclusters and negative mental health outcomes.

The relationships among Subcluster intensity and all other variables were investigated using Pearson product-moment correlation coefficients. There was a significant, positive correlation between negative mental health outcomes and combined Subclusters B (Re-Experiencing) and D (Negativity) for all groups: Group 1 (i.e., assaulted before attending OU),  $r = .47, p < .001$ ; Group 2 (i.e., assaulted while



attending OU, but not before attending OU),  $r = .74, p = .001$ ; Group 3 (i.e., assaulted both before attending OU and while attending OU),  $r = .56, p < .001$ ; and Group 4 (i.e., groups 2 and 3 combined),  $r = .60, p < .001$ . Also, there was a significant, positive correlation between negative mental health outcomes and the combined C (Avoidance) and E (Arousal/Reactivity) Subclusters for all groups: Group 1 (i.e., assaulted before attending OU),  $r = .46, p < .001$ ; Group 2 (i.e., assaulted while attending OU, but not before attending OU),  $r = .63, p = .001$ ; Group 3 (i.e., assaulted both before attending OU and while attending OU),  $r = .48, p < .001$ ; and Group 4 (i.e., groups 2 and 3 combined),  $r = .53, p < .001$ .

Regarding multicollinearity, the Subcluster B (Re-Experiencing) and D (Negativity) combination and the Subcluster C (Avoidance) and E (Arousal/Reactivity) combination were highly correlated for Group 1,  $r = .82, p < .001$ ; Group 2,  $r = .88, p < .001$ ; Group 3,  $r = .85, p < .001$ ; and Group 4,  $r = .86, p < .001$ . Rape Myth Acceptance was not significantly correlated with any of the other variables (see Tables 9-12).

**Group 1 - assaulted before attending OU.** Rape myth acceptance was entered at Step 1, explaining 4% of the variance in negative mental health outcomes. After entry of the combined Subclusters of B/D and C/E at Step 2 the variance explained by the model as a whole was 26% (adjusted  $R^2 = .23$ ),  $F(3,74) = 8.62, p < .001$ . The two combined Subclusters explained an additional 22% of the variance in negative mental health outcomes, after controlling for rape myth acceptance,  $F \text{ change}(2,74) = 11.10, p < .001$ . In the final model, there were no statistically significant predictors (see Table 14).

**Group 2 - assaulted while attending OU, but not before attending OU.** Rape myth acceptance was entered at Step 1, explaining 3% of the variance in negative mental health outcomes. After entry of the combined Subclusters of B/D and C/E at Step 2 the variance explained by the model as a whole was 71% (adjusted  $R^2 = .65$ ),  $F(3,15) = 12.24, p < .001$ . The two combined Subclusters explained an additional 68% of the variance in negative mental health outcomes, after controlling for rape myth acceptance,  $F$  change  $(2,15) = 17.49, p < .001$ . In the final model, the combination of Subclusters B (Re-Experiencing) intensity and D (Negativity) intensity ( $beta = .86, p = .01$ ) and Rape Myth Acceptance ( $beta = .42, p = .01$ ) were the only significant predictors of negative mental health outcomes (see Table 14).

**Group 3 - assaulted both before attending OU and while attending OU.** Rape myth acceptance was entered at Step 1, explaining 3% of the variance in negative mental health outcomes. After entry of the combined Subclusters of B/D and C/E at Step 2 the variance explained by the model as a whole was 33% (adjusted  $R^2 = .29$ ),  $F(3,48) = 7.80, p < .001$ . The two combined Subclusters explained an additional 30% of the variance in negative mental health outcomes, after controlling for rape myth acceptance,  $F$  change  $(2,48) = 10.72, p < .001$ . In the final model, the combination of Subclusters B (Re-Experiencing) intensity and D (Negativity) intensity ( $beta = .54, p = .02$ ) was the only significant predictor of negative mental health outcomes (see Table 14).

**Group 4 - groups 2 and 3 combined.** Rape myth acceptance was entered at Step 1, explaining 1% of the variance in negative mental health outcomes. After entry of the combined Subclusters of B/D and C/E at Step 2 the variance explained by the model as

a whole was 36% (adjusted  $R^2 = .33$ ),  $F(3,67) = 12.55$ ,  $p < .001$ . The two combined Subclusters explained an additional 36% of the variance in negative mental health outcomes, after controlling for rape myth acceptance,  $F$  change (2,67) = 18.59,  $p < .001$ . In the final model, the combination of Subclusters B (Re-Experiencing) intensity and D (Negativity) intensity ( $beta = .57$ ,  $p = .004$ ) was the only significant predictor of negative mental health outcomes (see Table 14).

### **Reporting and Symptom Intensity Analyses**

**Preliminary analyses.** Because individuals indicating having been assaulted before attending OU were not asked about reporting behaviors for those assaults, analyses could not be run for Groups A and C. Therefore, analyses were only run for Group 4 to account for all individuals indicating an assault at OU. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no serious violations noted.

An independent samples t-test was conducted to compare the PTSD Subcluster intensity scores for those that formally reported their assault as opposed to those that did not report their assault. There were significant differences in scores for those that formally reported ( $M = 8.93$ ,  $SD = 3.15$ ) and those that did not report their assault ( $M = 6.48$ ,  $SD = 3.54$ ;  $t(81) = -2.40$ ,  $p = .02$ , two-tailed) for only PTSD Subcluster B (Re-Experiencing). The difference in the means (mean difference = -2.45, 95% *CI*: -4.48 to -.42) was small to medium (eta squared = .06).

**Multivariate analysis of variance.** A one-way between groups multivariate analysis of variance was performed to investigate differences in those that formally

reported their assault regarding PTSD symptom intensity. Four dependent variables were used: Subcluster B (Re-Experiencing) intensity, Subcluster C (Avoidance) intensity, Subcluster D (Negativity) intensity, and Subcluster E (Arousal/Reactivity) intensity. The independent variable was having formally reported the assault. There was a statistically significant difference between those that formally reported the assault versus those that did not report the assault on the combined dependent variables,  $F(4, 78) = 2.59, p = .04$ ; Wilks' Lambda = .88, partial eta squared = .12. When the results for the dependent variables were considered separately, there were no variables to reach statistical significance, using a Bonferroni adjusted alpha level of .013 (see Table 15).

**Ancillary Analyses.** An independent samples t-test was conducted to compare the negative mental health outcome scores for those that formally reported their assault as opposed to those that did not report their assault. There were significant differences in scores for those that formally reported ( $M = 16.57, SD = 11.11$ ) and those that did not report their assault ( $M = 11.01, SD = 8.35; t(81) = -2.14, p = .04$ , two-tailed). The difference in the means (mean difference = -5.56, 95% CI: -10.72 to -.40) was small to moderate (eta squared = .05).

## Discussion

This study focused on understanding the impact sexual assault has on emerging adults related to PTSD symptom intensity, particularly due to the unique vulnerabilities inherent in this developmental stage (Arnett, 2000; Norona et al., 2017; Rindfuss, 1991; Shulman et al., 2011). As hypothesized, PTSD Subcluster intensity predicted greater negative mental health outcomes for individuals indicating a previous sexual assault and meeting criteria for a diagnosis of PTSD in all four groups analyzed (i.e., Group 1 -

assault occurring before attending OU; Group 2 - assault occurring while attending OU but not before attending OU; Group 3 - assault occurring both before attending, and while attending, OU; Group 4 – groups 2 and 3 combined to encompass total assaults occurring while attending OU). In line with previous research regarding the relationship between multiple assaults and greater negative mental health outcomes (Ullman & Brecklin, 2002), and as hypothesized in this study, individuals with multiple previous assaults reported greater negative mental health outcomes than individuals experiencing only one previous assault.

In addition, this study examined the unique contributions each PTSD Subcluster had on negative mental health outcomes. As predicted, Subcluster B (Re-experiencing) was a significant predictor of greater negative mental health outcomes for individuals indicating a previous, one-time sexual assault and meeting criteria for a diagnosis of PTSD when controlling for Rape Myth Acceptance and Subclusters C (Avoidance), D (Negativity), and E (Arousal and Reactivity). In addition, for individuals indicating multiple previous sexual assaults and meeting criteria for a diagnosis of PTSD, Subcluster D (Negativity) was a significant predictor of greater negative mental health outcomes when controlling for Rape Myth Acceptance and Subclusters B (Re-Experiencing), C (Avoidance), and E (Arousal/Reactivity). This is consistent with previous research that suggests that victims of sexual assault who report higher levels of re-experiencing symptomology and negativity were found to have greater negative mental health outcomes due to more pronounced physiological reactivity and emotional numbing (Carper et al., 2015; Zoellner, et al., 2000). Thus, the results suggest that these Subclusters often lead to a “freeze” response in victims of sexual assault, such as the

response seen in tonic immobility (TeBockhorst et al., 2015). This immobility does not allow for behavioral activation (e.g., reporting) and instead promotes self-blame and isolation.

Rape Myth Acceptance was added as a predictor variable to account for socially constructed sexual scripts. Interestingly, Rape Myth Acceptance was only significant relative to negative mental health outcomes for the participants in Group 2 who reported being assaulted while attending OU, but not before attending OU. This result must be viewed as tentative, however, due to the small sample size ( $n = 22$ ). In addition to this explanation, when a student is sexually assaulted on campus, especially when trying to make sense of the assault (which for this group likely would have occurred relatively recently), rape myths become more salient.

While significant results were found relative to Subclusters B (Re-Experiencing) and D (Negativity) predicting negative mental health outcomes, results varied depending on the Group Analyzed. For individuals indicating a previous assault prior to attending OU (Group 1) and those assaulted only at OU (Group 2), Subcluster B (Re-Experiencing) was the only significant predictor of increased negative mental health outcomes. These findings continue to point to the Re-experiencing Subcluster as particularly problematic for long-term positive outcomes for trauma victims. That is, previous research has shown that the intrusive memories associated with the Re-experiencing Subcluster are correlated with more frequent mental health visits and psychiatric medication use in veteran populations (Kaier, Possemato, Lantinga, Maisto, & Ouimette, 2014). Regarding interpersonal experiences of trauma, previous research has found a connection between the Re-Experiencing Subcluster and a history of

victimization by multiple perpetrators for victims of intimate partner violence (Matlow & DePrince, 2013). Matlow and DePrince's (2013) study suggested that this Subcluster may be associated with information processing difficulties that result in individuals being at risk for repeat victimization by different perpetrators.

Interestingly, for individuals indicating a previous assault both before attending, and while attending OU (Group 3), Subcluster D (Negativity) was the only significant predictor of negative mental health outcomes. That is, for individuals indicating multiple previous sexual assaults across the lifespan (pre-college and during college), Subcluster D (Negativity) is the most salient predictor of negative mental health outcomes. This finding is consistent with previous research that suggests that multiple exposures to trauma is a significant predictor of PTSD-related negative mental health outcomes (Frans, Rimmö, Åberg, & Fredrikson, 2005). However, it also strengthens the argument that characterological self-blame, similar to the symptoms found in the negativity Subcluster, is problematic for individuals who have experienced multiple traumas. This could be particularly true for individuals who have been assaulted multiple times during critical developmental stages, such as those seen in childhood, adolescence, and emerging adulthood. Childhood sexual assault victims, in particular, have been found to be at increased risk for the development of PTSD when compared to adolescent and early adulthood victims of sexual assault (McCutcheon et al., 2010).

Finally, the results suggest that there were no significant differences in PTSD Subcluster intensity for individuals who talked about their assault either formally (i.e., reported the assault) or informally (e.g., told others about the assault) for the combined group (Group 4). Although results were significant at the .05 level for Subclusters B

(Re-Experiencing) and D (Negativity), they were not significant when using a Bonferroni adjusted alpha level. The lack of significant results may be related to power; that is, the small number of individuals indicating having made a formal report ( $n = 14$ ) likely impacted results. This small number of reporters is not surprising given that research consistently indicates that the reporting of sexual assault on college campuses is low (AAU, 2015; Black et al., 2011; DeCou et al., 2014; Razzano, Cook, Hamilton, Hughes & Matthews, 2006; Smith & Freyd, 2013; Starzynski, Ullman, Townsend, Long & Long, 2007; Thompson, Sitterle, Clay & Kingree, 2007; Walsh & Bruce, 2014; Ullman & Brecklin, 2002).

As an ancillary analysis, the differences in negative mental health outcomes for individuals who reported their assault formally versus those that did not was explored. While the  $n$  was low for individuals who made formal reports ( $n = 14$ ), the results were significant, tentatively suggesting that formally reporting the assault resulted in greater negative mental health outcomes. If supported by future studies, this finding is congruent with previous research on the sexual assault reporting process that suggests that victims of sexual assault often report negative feelings about the judicial system in general (Frazier & Haney, 1996) and are particularly leery of the reporting process on college campuses due to the tendency for university administrators to discourage reporting both directly and indirectly (Yung, 2015).

### **Implications**

The results from this study suggest that for individuals having been previously assaulted, re-experiencing of the trauma, such as seen in intrusive thoughts, nightmares, flashbacks, and emotional distress, may be the first intervention focus for the promotion



of positive mental health outcomes. However, when intervening with individuals who have endured multiple sexual assaults across the lifespan, interventions geared toward shame and characterological self-blame are vital. Distorted cognitions are already a primary feature for sexual assault victims (Carper et al., 2015; Dunmore, Clark, & Ehlers, 2001; Ehlers & Clark, 2000; Foa & Kozak, 1986; La Bash & Papa, 2014; Stone, 1992). In addition, when factoring in the neurology of trauma and the brain's shift from a normal, learning-based approach to a fear-based survival response in reaction to trauma such as sexual assault (Banks, 2015; Courtois & Ford, 2009; Cozolino, 2014), it is clear to see the emergence of unique problems associated with sexual assault and emerging adulthood.

This is important information for mental health clinicians as these results suggest that practitioners should continue to deliver evidence-based practices when treating sexual assault victims in order to decrease re-experiencing. It is possible that the re-experiencing subcluster interferes with the assault victim's ability to "imagine" their life outside of the newly created fear-based responses provoked by the assault (Dunmore et al., 2001). Imagery Rehearsal Therapy (IRT) has become a common treatment for the re-experiencing subcluster of PTSD for children and veterans (Lu, Wagner, Van Male, Whitehead, & Boehnlein, 2009; St-Onge, Mercier, & De Koninck, 2009) struggling with intrusive thoughts. IRT has been utilized particularly for intrusive thoughts that take the form of nightmares and has been noted to decrease the impact of nightmares by helping victims modify traumatic content by visualizing and rehearsing a new imagined version of the scenario while in a state of relaxation (St-Onge et al., 2009). While generally focused on nightmares, it is possible that IRT can be expanded

to sexual assault victims struggling with re-experiencing symptomology to aid in the re-activation of “frozen” imagery processes. In addition, the re-experiencing subcluster may promote a lack of mental integration due to intrusive thoughts making learning more difficult (Banks, 2015; Cozolino, 2014). As mentioned previously, re-experiencing symptomology has also been found to be an etiological factor in the development of shame in previous research (Carper et al., 2015; Gilbert, 2003; Lewis, 1971; Resick & Schicke, 1992; Tangney & Dearing, 2002; TeBockhorst et al., 2015). Therefore, it is important for mental health clinicians and front line responders to assess the intensity of Subcluster B (Re-Experiencing) symptomology in order to re-engage the learning part of the brain and prevent the development of characterological self-blame and shame. In addition to IRT, many well-established therapies currently exist for decreasing the intrusive thoughts found in the re-experiencing subcluster, such as Cognitive Processing Therapy (CPT; Resick & Schnicke, 1992) and Prolonged Exposure (PE; Foa, Hembree, & Rothbaum, 2007).

However, mental health clinicians should also gear therapeutic interventions to the prevention of rigid and inflexible thought patterns in victims of sexual assault. In line with previously cited research related to social cognition, if shame is best understood as a social phenomenon and automatic response to social threats (Budden, 2009), multiple assaults appear to impact the victim through the internal suggestion that the assaults continue to happen because something is fundamentally flawed in the victim (La Bash & Papa, 2014). This distorted cognition, or mental pollution, in turn may lead victims to become disconnected from others due to increased negative thoughts about the self and broader world (Fairbrother et al., 2005; Olatunji et al.,

2008). This finding provides crucial information for clinicians and campus officials who intervene with college aged sexual assault victims. That is, it becomes critical for those intervening with sexual assault victims to understand the victim's sexual assault history, while analyzing the specific elevations on the subclusters of PTSD, in order to appropriately design interventions that will decrease negative mental health outcomes.

While the results are helpful for mental health clinicians, the results are also a call-to-action for universities. That is, because of the unique combination of emerging adulthood (i.e., relational exploration) and college status (i.e., broader social norms and changing demographics and status), it is imperative that the process of reporting sexual assault be refined in order to promote self-efficacy, safety, and limit victim blaming (Black et al., 2011; Frazier, 2000; Frazier et al., 2004; Sigurvinsdottir & Ullman, 2015; Ullman, 2014; Ullman and Filipas, 2001) due to the potential for sexual assault to set in motion a long-term process of negative mental health outcomes for emerging adults.

### **Strengths, Limitations, and Future Directions**

The utilization of a campus wide climate survey resulted in a large number of participants ( $n = 823$ ), thus making the results generalizable to other state college campuses with similar student demographics. Although there was limited institutional backing and no participation incentive was given, individuals participated voluntarily in order to lend their voice to understanding sexual assault on college campuses. As previously mentioned, because sexual assault definitions vary from state-to-state and university-to-university, and because individuals themselves often carry socially constructed sexual scripts, victims may not always know if they had been assaulted (Abelson, 1976; Acierno et al., 2001; DeMatteo et al., 2015; Greenfield, 1997; Kahn et

al., 1994; Rose & Frieze, 1993; Turchik et al., 2009). Thus, this study asked multiple questions related to the individual's experience of the sexual assault in order to more accurately, and inclusively, account for the numbers of assaults occurring (Abbey & McAuslan, 2004).

While there are many strengths of the study, the author acknowledges the limitations of using a post-hoc correlational study, and one that uses an existing database. Thus, there were not opportunities to control for variables that may have impacted experiences of sexual assault and the resulting posttraumatic symptomology. There were also problems with multicollinearity, primarily related to Subcluster B (Re-Experiencing); however, this is not entirely surprising given that the questions asked regarding these Subclusters all fall under one specific *DSM-V* diagnosis of PTSD, thus share a great deal of commonality. In addition, age at which the assault occurred, and time between the assault and taking the survey, were not questions asked of participants. This reduced the ability to control for these factors. The low Cronbach's alpha's for Group 1 was perhaps due to the low number of items utilized to form the Subclusters. Further, the reporting behaviors section was particularly problematic due to low numbers of individuals having reported ( $n = 14$ ). While this is consistent with previous research on low reporting rates amongst college victims of sexual assault (AAU, 2015; Black et al., 2011; DeCou et al., 2014; Razzano, Cook, Hamilton, Hughes & Matthews, 2006; Starzynski, Ullman, Townsend, Long & Long, 2007; Thompson, Sitterle, Clay & Kingree, 2007; Walsh & Bruce, 2014; Ullman & Brecklin, 2002), the low numbers of individuals having made a formal report of sexual assault made understanding the impact of reporting on negative mental health outcomes problematic.

Future studies would benefit from institutional backing in order to promote greater participation for individuals who may have experienced sexual assault. Because of the high rates of sexual assault on college campuses, the White House, under the leadership of President Barack Obama, created the White House Task Force to Protect Students from Sexual Assault on January 22<sup>nd</sup>, 2014. As an initial step to address the increased problem of sexual assault on college campuses, the Task Force encouraged universities to undertake climate surveys in order to understand the extent of the problem. It would be beneficial for institutions to continue this charge regardless of changes in the political climate and legal mandates in order to promote further understanding of sexual assault on college campuses and begin to address the problematic reporting processes that often discourage victims from reporting.

Table 1

*Group 1 – Intensity of Symptoms for Individuals Assaulted Before Attending OU, but Never Assaulted at OU*

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	$\alpha$	Range
Subcluster B (Re-Experiencing) Intensity	87	5.46	2.96	.64	1-13
Subcluster C (Avoidance) Intensity	87	5.17	2.94	.58	1-15
Subcluster D (Negativity) Intensity	87	7.25	3.07	.74	2-15
Subcluster E (Arousal/Reactivity) Intensity	87	7.32	3.03	.51	2-14
Negative Mental Health Outcomes	87	7.97	8.22	.88	0-32
Rape Myth Acceptance	78	60.13	8.96	.66	33-82

*Note.* *n* lower for Rape Myth Acceptance Scale due to missing data.

Table 2

*Group 2 – Intensity of Symptoms for Individuals Assaulted While Attending OU, but Not Before Attending OU*

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	$\alpha$	Range
Subcluster B (Re-Experiencing) Intensity	22	7.40	3.26	.76	3-15
Subcluster C (Avoidance) Intensity	22	7.23	3.84	.80	1-15
Subcluster D (Negativity) Intensity	22	8.23	3.56	.85	2-15
Subcluster E (Arousal/Reactivity) Intensity	22	8.45	3.26	.65	3-15
Negative Mental Health Outcomes	22	11.23	10.38	.92	0-33
Rape Myth Acceptance	19	59.47	11.56	.79	46-99

*Note.* *n* lower for Rape Myth Acceptance Scale due to missing data.

Table 3

*Group 3 – Intensity of Symptoms for Individuals Assaulted Both Before Attending OU and While Attending OU*

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	<i>α</i>	Range
Subcluster B (Re-Experiencing) Intensity	61	6.70	3.70	.83	1-15
Subcluster C (Avoidance) Intensity	61	6.75	3.24	.71	1-15
Subcluster D (Negativity) Intensity	61	8.00	3.40	.83	2-15
Subcluster E (Arousal/Reactivity) Intensity	61	8.10	3.50	.72	2-15
Negative Mental Health Outcomes	61	12.21	8.59	.86	0-32
Rape Myth Acceptance	52	58.69	10.32	.73	28-88

*Note.* *n* lower for Rape Myth Acceptance Scale due to missing data.



Table 4

*Group 4 – Intensity of Symptoms for Groups 2 and 3 Combined  
(Individuals Assaulted at OU Only)*

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	<i>α</i>	Range
Subcluster B (Re-Experiencing) Intensity	83	6.89	3.58	.81	1-15
Subcluster C (Avoidance) Intensity	83	6.88	3.39	.74	1-15
Subcluster D (Negativity) Intensity	83	8.06	3.42	.83	2-15
Subcluster E (Arousal/Reactivity) Intensity	83	8.19	3.42	.71	2-15
Negative Mental Health Outcomes	83	11.95	9.04	.88	0-33
Rape Myth Acceptance	71	58.90	10.59	.75	28-99

*Note.* *n* lower for Rape Myth Acceptance Scale due to missing data.

Table 5

*Summary of Intercorrelations for Group 1 – Individuals Assaulted Before Attending OU, but Never Assaulted at OU (n = 87)*

Measure	1	2	3	4	5	6
1. Subcluster B (Re-Experiencing) Intensity	--	.69**	.52**	.59**	.54**	-.16
2. Subcluster C (Avoidance) Intensity	.69**	--	.60**	.55**	.40**	.02
3. Subcluster D (Negativity) Intensity	.52**	.60**	--	.62**	.28**	.03
4. Subcluster E (Arousal/Reactivity) Intensity	.59**	.55**	.62**	--	.40**	-.09
5. Negative Mental Health Outcomes	.54**	.40**	.28**	.40**	--	-.19
6. Rape Myth Acceptance	-.16	.90	.78	.42	.09	--

*Note.* \* $p < .05$ .; \*\* $p < .01$ .

Table 6

*Summary of Intercorrelations for Group 2 – Intensity of Symptoms for Individuals Assaulted While Attending OU, but Not Before Attending OU (n = 22)*

Measure	1	2	3	4	5	6
1. Subcluster B (Re-Experiencing) Intensity	--	.76**	.56**	.67**	.68**	-.25
2. Subcluster C (Avoidance) Intensity	.76**	--	.69**	.65**	.59**	-.13
3. Subcluster D (Negativity) Intensity	.56**	.69**	--	.70**	.63**	-.21
4. Subcluster E (Arousal/Reactivity) Intensity	.67**	.65**	.70**	--	.56**	-.40
5. Negative Mental Health Outcomes	.68**	.59**	.63**	.56**	--	.18
6. Rape Myth Acceptance	-.25	-.13	-.21	-.40	.18	--

*Note.* \* $p < .05$ .; \*\* $p < .01$ .

Table 7

*Summary of Intercorrelations for Group 3 – Intensity of Symptoms for Individuals Assaulted Both Before Attending OU and While Attending OU (n = 61)*

Measure	1	2	3	4	5	6
1. Subcluster B (Re-Experiencing) Intensity	--	.80**	.69**	.66**	.46**	-.11
2. Subcluster C (Avoidance) Intensity	.80**	--	.69**	.60**	.41**	-.03
3. Subcluster D (Negativity) Intensity	.69**	.69**	--	.66**	.57**	-.03
4. Subcluster E (Arousal/Reactivity) Intensity	.66**	.60**	.66**	--	.45**	-.13
5. Negative Mental Health Outcomes	.46**	.41**	.57**	.45**	--	-.17
6. Rape Myth Acceptance	-.11	-.03	-.03	-.13	-.17	--

*Note.* \* $p < .05$ .; \*\* $p < .01$ .

Table 8

*Summary of Intercorrelations for Group 4 – Intensity of Symptoms for Groups 2 and 3 Combined - Individuals Assaulted at OU Only – (n = 83)*

Measure	1	2	3	4	5	6
1. Subcluster B (Re-Experiencing) Intensity	--	.78**	.66**	.66**	.51**	-.14
2. Subcluster C (Avoidance) Intensity	.78**	--	.69**	.61**	.47**	-.06
3. Subcluster D (Negativity) Intensity	.66**	.69**	--	.67**	.59**	-.08
4. Subcluster E (Arousal/Reactivity) Intensity	.66**	.61**	.67**	--	.47**	-.20
5. Negative Mental Health Outcomes	.51**	.47**	.59**	.47**	--	-.07
6. Rape Myth Acceptance	-.14	-.06	-.08	-.20	-.07	--

*Note.* \* $p < .05$ .; \*\* $p < .01$ .

Table 9

*Summary of Intercorrelations for Group 1 – Intensity of Symptoms for Subclusters B and D and C and E Combined for Individuals Assaulted Prior to Attending OU, but Never Assaulted at OU (n = 87)*

Measure	1	2	3	4
1. Subcluster B (Re-Experiencing) and D (Negativity) Intensity	--	.82**	.47**	-.07
2. Subcluster C (Avoidance) and E (Arousal/Reactivity) Intensity	.82**	--	.46**	-.05
3. Negative Mental Health Outcomes	.47**	.46**	--	-.19
4. Rape Myth Acceptance	-.07	-.05	-.19	--

*Note.* \* $p < .05$ .; \*\* $p < .01$ .

Table 10

*Summary of Intercorrelations for Group 2 – Intensity of Symptoms for Subclusters B and D and C and E Combined for Individuals Assaulted While Attending OU, but Not Before Attending OU (n = 22)*

Measure	1	2	3	4
1. Subcluster B (Re-Experiencing) and D (Negativity) Intensity	--	.88**	.74**	-.28
2. Subcluster C (Avoidance) and E (Arousal/Reactivity) Intensity	.88**	--	.63**	-.29
3. Negative Mental Health Outcomes	.74**	.63**	--	.18
4. Rape Myth Acceptance	-.28	-.29	.18	--

*Note.* \* $p < .05$ .; \*\* $p < .01$ .

Table 11

*Summary of Intercorrelations for Group 3 – Intensity of Symptoms for Subclusters B and D and C and E Combined for Individuals Assaulted Both While Attending OU and Before Attending OU (n = 61)*

Measure	1	2	3	4
1. Subcluster B (Re-Experiencing) and D (Negativity) Intensity	--	.85**	.56**	-.08
2. Subcluster C (Avoidance) and E (Arousal/Reactivity) Intensity	.85**	--	.48**	-.09
3. Negative Mental Health Outcomes	.56**	.48**	--	-.17
4. Rape Myth Acceptance	-.08	-.09	-.17	--

*Note.* \* $p < .05$ .; \*\* $p < .01$ .



Table 12

*Summary of Intercorrelations for Group 4 – Intensity of Symptoms for Subclusters B and D and C and E Combined for Groups 2 and 3 Combined - Individuals Assaulted at OU Only – (n = 83)*

Measure	1	2	3	4
1. Subcluster B (Re-Experiencing) and D (Negativity) Intensity	--	.86**	.60**	-.12
2. Subcluster C (Avoidance) and E (Arousal/Reactivity) Intensity	.86**	--	.53**	-.15
3. Negative Mental Health Outcomes	.60**	.53**	--	-.07
4. Rape Myth Acceptance	-.12	-.15	-.07	--

*Note.* \* $p < .05$ .; \*\* $p < .01$ .

Table 13

*Summary of Hierarchical Regression Models for Rape Myth Acceptance and Subclusters Predicting Negative Mental Health Outcomes*

Negative Mental Health Outcomes								
	Group 1		Group 2		Group 3		Group 4	
Predictor	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1	.04		.03		.03		.01	
Rape Myth Acceptance		-.11		.47*		-.13		.01
Step 2	.28**		.70**		.33**		.37**	
Subcluster B (Re-Experiencing) Intensity		.41**		.60*		.11		.21
Subcluster C (Avoidance) Intensity		.08		-.21		-.05		-.03
Subcluster D (Negativity) Intensity		-.07		.41		.48*		.42**
Subcluster E (Arousal/Reactivity) Intensity		.14		.19		.08		.08
Adjusted $R^2$	.27**		.63**		.29**		.32**	
$n$	87		22		61		83	

Note. \* $p < .05$ .; \*\* $p < .01$ .

Group 1 - Individuals Assaulted Prior to Attending OU, but Never Assaulted at OU ( $n = 87$ ); Group 2 - Individuals Assaulted While Attending OU, but Not Before Attending OU ( $n = 22$ ); Group 3 - Individuals Assaulted Both While Attending OU and Before Attending OU ( $n = 61$ ); Group 4 - All Individuals Assaulted at OU (i.e., combination of Group 2 + C;  $n = 83$ ).

Table 14

*Summary of Hierarchical Regression Models for Subclusters B/D and C/E Combined and Predicting Negative Mental Health Outcomes*

Negative Mental Health Outcomes								
	Group 1		Group 2		Group 3		Group 4	
Predictor	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1	.04		.03		.03		.01	
Rape Myth Acceptance		-.16		.42*		-.12		.01
Step 2	.22**		.68**		.30**		.36**	
Subcluster B (Re-Experiencing) and D (Negativity) Intensity		.26		.86*		.54*		.57**
Subcluster C (Avoidance) and E (Arousal/Reactivity) Intensity		.23		.00		.02		.04
Adjusted $R^2$	.23**		.65**		.29**		.33**	
$n$	87		22		61		83	

Note. \* $p < .05$ .; \*\* $p < .01$ .

Group 1 - Individuals Assaulted Prior to Attending OU, but Never Assaulted at OU ( $n = 87$ ); Group 2 - Individuals Assaulted While Attending OU, but Not Before Attending OU ( $n = 22$ ); Group 3 - Individuals Assaulted Both While Attending OU and Before Attending OU ( $n = 61$ ); Group 4 - All Individuals Assaulted at OU (i.e., combination of Group 2 + C; ( $n = 83$ )).

Table 15

*Summary of Multiple Analysis of Variance for Group 4 – Individuals Assaulted at OU Only who Formally Reported the Assault versus Those Who Did Not Report (n = 14)*

Variable	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	p	Partial Eta Squared
Subcluster B (Re-Experiencing) Intensity	1	69.88	69.88	5.76	.02	.07
Subcluster C (Avoidance) Intensity	1	30.00	30.00	2.66	.11	.03
Subcluster D (Negativity) Intensity	1	42.18	42.18	3.72	.06	.04
Subcluster E (Arousal & Reactivity) Intensity	1	1.59	1.59	.13	.72	.00

*Note.* Wilks' Lamda = .88, *p* = .04. Bonferroni adjusted alpha level of .013.

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