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Intimate partner psychological abuse and posttraumatic stress symptoms : the role of shame during recall of psychological abuse memories.

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INTIMATE PARTNER PSYCHOLOGICAL ABUSE AND POSTTRAUMATIC
STRESS SYMPTOMS: THE ROLE OF SHAME DURING RECALL OF
PSYCHOLOGICAL ABUSE MEMORIES

By

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B.A., University of the South: Sewanee, 2008
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in Clinical Psychology

Department of Psychological and Brain Sciences
University of Louisville
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DEDICATION

This dissertation is dedicated to my husband

Mr. Samuel Dale Stamper

to my parents

Mr. and Mrs. Kermin and Debra Fleming

and to

Mr. and Mrs. Jeff and Karen Stamper

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I would like to sincerely thank my dissertation chair and mentor, Dr. Tamara Newton, for her guidance, support, and patience. I would also like to thank my dissertation committee for their feedback and guidance related to this research. I would also like to acknowledge Dr. Elizabeth Yeater, who provided generous support and resources which allowed me to complete this dissertation. I would also like to thank the supervisors and teachers I've had throughout my training, each of whom has contributed to my growth and development.

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Finally, I would like to acknowledge, and to sincerely thank, the men and women who participated in this study.

ABSTRACT
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Kimberly N. Fleming

March 30, 2015

To help understand why intimate partner psychological abuse has been associated with posttraumatic stress (PTS) symptoms in past studies, two studies of college-aged individuals tested a mediational model in which shame during recall was hypothesized to mediate associations between psychological abuse memory recall and PTS symptom severity. The model was partially supported.

Experiment 1 established the first piece of the model by linking recall of a psychological abuse memory to increases in state shame from pre- to post-recall. Consistent with the hypothesis, there was a statistically significant interaction between memory condition (psychological abuse memory, non-abuse relationship memory) and time of assessment (pre-recall, post recall) for state shame. Increases in state shame from pre- to post-recall were observed for psychological abuse memories, but not for non-abuse relationship memories.

To establish the second piece of the model, Experiment 2 tested the hypothesis that increases in past-day PTS symptom severity would be observed from pre-recall to 24 hours post-recall of a shameful psychological abuse memory. Contrary to the hypothesis, there was not a statistically significant interaction between memory group (shameful

psychological abuse memory, emotionally-neutral relationship memory) and time of assessment (pre-recall, post-recall) for past-day PTS symptom severity. Instead, for women overall, there was a statistically significant decrease in past-day PTS symptom severity from pre- to post-recall. Ancillary hypotheses regarding specific PTS symptom clusters were also unsupported. Thus, the results did not provide support for the second piece of the mediational model.

When both experiments were considered, a causal pathway from recall of a psychological abuse memory to increased post-recall PTS symptom severity via shame during recall was not established. Several factors (e.g., instrumentation problems related to the measure of past-day PTS symptom severity and unmeasured memory properties) may partially explain why shameful psychological abuse memory recall and PTS symptoms were not linked and, therefore, further consideration of the mediational model is warranted. This study revealed that psychological abuse memory recall is a potent precipitator of shame. Thus, the role of shame in post-abuse mental health among individuals with histories of psychological abuse may be particularly important for both researchers and clinicians to consider.

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INTRODUCTION

Overview

Psychological abuse, a distinct type of intimate partner abuse that involves acts and/or threats of acts intended to humiliate, embarrass, isolate, or otherwise emotionally harm a person (Saltzman, McMahon, Fanslow, & Shelley, 1999), has been positively associated with posttraumatic stress (PTS) symptom severity in adults in numerous cross-sectional studies (e.g., Arias & Pape, 1999; Basile, Arias, Desai, & Thompson, 2004; Cascardi, O'Leary, Lawrence, & Schlee, 1995; DeMaris & Kaukinen, 2008; Mechanic, Weaver, & Resick, 2008; Pico-Alfonso et al., 2006; Sabina & Straus, 2008; Sullivan, Cavanaugh, Buckner, & Edmondson, 2009). This is intriguing because psychological abuse involves acts that are not consistent with traditional definitions of traumatic stressors (i.e., events involving actual or threatened harm; *DSM-IV-TR*, American Psychiatric Association [APA], 2000; *DSM-5*, APA, 2013). Psychological abuse does not involve actual bodily harm, and it may not involve threats of harm.

To help understand why psychological abuse may contribute to PTS symptoms, the present study evaluated potential associations between psychological abuse memory recall, shame during recall, and PTS symptoms using the mnemonic model of posttraumatic stress disorder (PTSD; Rubin, Berntsen, & Bohni, 2008). The mnemonic model posits that PTS symptoms are maintained, in part, by a wide range of negative

emotions that are experienced during the recall of traumatic event memories (Rubin et al., 2008). Shame, a negative emotion involving global negative appraisals of the self as worthless, inferior, and powerless, may be particularly relevant for the development of PTS symptoms in individuals with psychological abuse histories (Street & Arias, 2001; Tangney & Dearing, 2002).

An experimental-causal-chain study design tested the hypothesis that shame during recall mediates the relationship between psychological abuse memory recall and PTS symptoms in college-aged individuals with psychological abuse histories (Spencer, Zanna, & Fong, 2005). In order to support the hypothesized mediational model, two experiments were conducted. Experiment 1 evaluated relationships between recall of a psychological abuse memory and increased post-recall shame. Experiment 2 evaluated relationships between recall of a shameful psychological abuse memory and increased PTS symptoms during the 24 hours following recall.

Psychological Abuse

Intimate partner abuse is a commonly experienced form of interpersonal violence that involves a number of different victimization experiences including physical, sexual, and psychological abuse and stalking (Saltzman et al., 1999; Tjaden & Thoennes, 2000). Lifetime prevalence rates of any type of intimate partner abuse were estimated to be 29.66% in women and 23.25% in men in one nationally-representative sample (Coker et al., 2002). While the early intimate partner abuse research focused on physical and sexual abuse, psychological abuse has gained increasing attention.

Psychological abuse commonly involves verbal attacks, efforts to control what a person can or cannot do, denial of access to money or other resources, isolation from

friends or family, and withholding of information, although it may incorporate a number of other behaviors (e.g., destroying a person's property; Saltzman et al., 1999). Although much of the intimate partner abuse literature has focused on cohabiting or marital relationships, psychological abuse is also commonly experienced by college-aged people, for whom the majority of intimate relationships are characterized as dating relationships (Sabina & Straus, 2008). In a sample of college undergraduates, approximately 75% of students experienced at least one act of psychological abuse in the past year (Sabina & Straus, 2008). Not only is psychological abuse the most common partner abuse type reported in this population, many college-aged individuals experience frequent acts of psychological abuse. For example, in one sample of undergraduates, women endorsed experiencing an average of 17 acts of psychological abuse in the past year (Straus, Hamby, Boney-McCoy, & Sugarman, 1996). Men endorsed experiencing an average of 15 acts in the past year.

Psychological abuse was initially thought to have fewer, milder, and briefer mental health consequences compared to other types of intimate partner abuse (Arias & Pape, 1999). However, an emerging body of literature has linked psychological abuse with a number of mental health sequelae, including the development of PTSD symptoms.

Psychological Abuse and Posttraumatic Stress Symptoms

Although different theoretical models of PTSD vary to some extent as to the specific symptoms that are involved in the disorder, symptoms are generally thought to include intrusive reexperiencing (e.g., unwanted memories of an event, nightmares), avoidance (e.g., avoiding reminders of a traumatic event), hyperarousal (e.g., exaggerated startle response), and general distress or dysphoria (e.g., difficulty enjoying activities;

APA, 2013). Statistically significant, positive correlations between psychological abuse severity and PTS symptom severity have been observed in samples of adults (e.g., Coker, Weston, Creson, Justice, & Blakeney, 2005; Houry, Kemball, Rhodes, & Kaslow, 2006). However, because many of these early studies considered participants with histories of multiple types of abuse, but did not account for other abuse types, it is difficult to draw conclusions about the relationship between psychological abuse and PTS symptoms *per se*. In order to understand this relationship, it is necessary to examine these associations when controlling for other abuse types (Basile et al., 2004).

In cross-sectional studies that employed such controls, psychological abuse maintained positive correlations with predicted PTS symptoms (e.g., Basile et al., 2004; Cascardi et al., 1995; Mechanic et al., 2008; Sabina & Straus, 2008; Sullivan et al., 2009). For example, in undergraduates, psychological abuse was a statistically significant predictor of PTS symptom severity for women and for men, after controlling for physical and sexual abuse (Sabina & Straus, 2008). Notably, for women, psychological abuse was only a predictor when severe psychological abuse was considered (e.g., “My partner destroyed something that belonged to me.”; Straus et al., 2003). Additionally, in a longitudinal study of women with histories of physical abuse, psychological abuse was a statistically significant predictor of PTS symptom frequency at baseline and at a six-month follow-up, after controlling for physical abuse (Taft, Murphy, King, Dedeyn, & Musser, 2005). Together with cross-sectional study findings, Taft et al.’s (2005) results support the idea that psychological abuse should be considered when examining PTS symptoms in abused individuals, even after the relationship has ended.

In a number of studies, psychological abuse was the only abuse type to individually predict PTS symptoms when statistically controlling for multiple abuse types, providing key support for a psychological abuse-PTS symptom link. In shelter-dwelling women, psychological abuse was a statistically significant predictor of past-year PTS symptom severity, after controlling for physical abuse (Arias & Pape, 1999). Physical abuse was not a statistically significant predictor. Additionally, in community-dwelling women with current physical abuse in a cohabiting or dating relationship, psychological abuse was a statistically significant individual predictor of past-week PTS symptom severity, after controlling for physical and sexual abuse (DeMaris & Kaukinen, 2008). Physical and sexual abuse were not statistically significant individual predictors. Commensurate findings were observed in a sample of shelter-dwelling women with histories of intimate partner abuse in a cohabiting relationship (Pico-Alfonso et al., 2006).

In contrast, some studies reported that psychological abuse was not a statistically significant predictor of PTS symptoms. In one sample of undergraduates with histories of low levels of psychological abuse relative to other samples of college-aged individuals, psychological abuse did not predict past two-week PTS symptom frequency for women or for men, after controlling for physical abuse, sexual abuse, and history of other traumatic events (Avant, Swopes, Davis, & Elhai, 2011). This may suggest that only high levels of psychological abuse are related to PTS symptoms in college-aged individuals. In women recruited from an emergency room waiting area, psychological abuse did not reliably predict the presence of moderate or severe PTS symptoms, after controlling for sexual and physical abuse (Houry et al., 2006). It is possible that women in the latter study were also experiencing high levels of acute stress which could have confounded

participants' PTS symptoms reports. In community-dwelling women with physical abuse histories, no abuse type predicted PTS symptom levels (Graham-Bermann, Sularz, & Howell, 2011). However, given that PTS symptoms were assessed with regard to the worst episode of physical and/or sexual abuse, it is not surprising that psychological abuse was not a statistically significant predictor of PTS symptoms in this study.

In sum, in a number of studies, although not in all, psychological abuse explained statistically significant variance in PTS symptoms, even after accounting for effects of other abuse types. However, because the majority of studies used cross-sectional study designs and retrospective reporting, causal statements regarding associations between psychological abuse and PTS symptoms cannot be made. Additionally, most of the studies relied on self-report measures of PTS symptoms, many of which were not anchored to relationship abuse-related symptoms. Thus, the PTS symptoms assessed in the above studies may be due to other traumatic events. Furthermore, men and college-aged individuals have been relatively understudied in this literature, with the few studies of individuals in this age group reporting inconsistent findings (Avant et al., 2011; Sabina & Straus, 2008). The need for alternative study designs, and methodologies that minimize sole reliance on retrospective reporting, is also highlighted.

Psychological Abuse: A Non-Traditional Traumatic Stressor?

Despite their limitations, the studies discussed above highlight the need for further consideration of psychological abuse-related PTS symptoms, particularly in college-aged individuals given the frequency and prevalence of this abuse type in this population. In addition, associations between psychological abuse and PTS symptoms warrant further consideration for another reason. Specifically, experiences of psychological abuse are

often not consistent with the conceptual definition of a traumatic stressor (APA, 2000; APA, 2013). In the *DSM-IV-TR*, a traumatic stressor must involve experiencing or witnessing one or more events that involve threatened or actual bodily harm, either to one's self or to others. While a component of psychological abuse may involve threats of harm (Saltzman et al., 1999), threats are not necessary for psychological abuse to occur (O'Leary, 1999). Additionally, the *DSM-IV-TR* specifies that a person must report feelings of fear, helplessness, or horror following exposure to a traumatic event. Psychological abuse, however, may not necessarily result in feelings of fear, helplessness or horror, although it may involve other distressing negative emotions (e.g., shame, anger, guilt; O'Leary, 1999).

In the *DSM-5* (APA, 2013), a major revision to the definition of a traumatic stressor involved the removal of the criterion related to emotions of fear, helplessness, and horror. Heralding a shift in the conceptualization of traumatic stressors, this change reflected the idea that a wide range of negative emotions may be involved in trauma-related responses. In the *DSM-5*, these emotional responses are addressed in the diagnostic criteria as a fourth symptom cluster: negative changes in affect and cognition. These changes in affect and cognition are thought to persist over time, reflecting a shift away from the *DSM-IV-TR*'s emphasis on peritraumatic emotion (APA, 2000). While the removal of peritraumatic fear, helplessness, and horror eliminates one of the barriers to considering psychological abuse as a traumatic stressor, the *DSM-5* definition nevertheless remains problematic. In particular, traumatic events continue to be defined as those events in which one witnesses or experiences an event(s) that involves threatened or actual harm to oneself or others. Although the *DSM-5* conceptualization of

traumatic stressors expands the definition to include events in which one repeatedly hears about a trauma in great detail, this is not applicable to psychological abuse. Therefore, psychological abuse, at least in some cases, can be conceptualized as a non-traditional traumatic stressor because it does not necessarily involve events that are consistent with the *DSM-IV-TR* or *DSM-5* definitions of traumatic stressors (APA, 2000; APA, 2013).

As a result, traditional conceptualizations of traumatic stress and PTS symptoms (i.e., those derived from the *DSM* framework) may not adequately explain why psychological abuse has been linked to increased PTS symptoms. As an alternative, the present study proposed that Rubin et al.'s (2008) mnemonic model of PTSD provides a more useful framework for conceptualizing and studying psychological abuse-related PTS symptoms.

The Mnemonic Model of Posttraumatic Stress Disorder: Understanding Associations between Psychological Abuse and Posttraumatic Stress Symptoms

The main theoretical contribution of the mnemonic model is the addition of memory to the stress-response model of PTSD (Rubin et al., 2008). Stress-response models, like the *DSM-IV-TR* model, posit that trauma-related symptoms (e.g., reexperiencing, avoidance, and hyperarousal) emerge following exposure to an external event (i.e., the traumatic stressor; APA, 2000; Rubin et al., 2008). While stress-response models focus on the direct relationship between event exposure and the subsequent development of PTS symptoms, the mnemonic model focuses on how the memory of such events contributes to the maintenance of PTS symptoms. According to the mnemonic model, PTS symptoms result from the “pathogenic memory” of an event, rather than a specific traumatic event (Rubin et al., 2008, p. 986). The term pathogenic

memory refers to the memory of an event for which PTS symptoms have developed. Pathogenic memories are processed in the same manner as non-pathogenic event memories. The only distinguishing feature of a pathogenic memory is that it is associated with the development and maintenance of PTS symptoms (Rubin et al., 2008). The mnemonic model does not assert which types of events can produce pathogenic memories. Instead, it focuses on the role of the memory in the ongoing maintenance of PTS symptoms.

The mnemonic model's focus on memory, rather than the event itself, has important implications for study of PTS symptoms. In particular, it allows for use of experimental study designs to test hypotheses (Rubin et al., 2008). Aspects of the pathogenic memory, along with changes in PTS symptoms, can be assessed as they occur, rather than retrospectively. Memory recall can be experimentally manipulated in order to further understand causal relationships between event memory and PTS symptoms. Thus, studies of PTS symptoms are not constrained by the limitations of correlational study designs and retrospective reporting. Additionally, pathogenic memories are posited to operate under the same principles, and are subject to the same processes, as other autobiographical event memories (Rubin et al., 2008). Thus, the existing body of literature that addresses autobiographical memory, emotion, and other aspects of cognition can be applied to studies of PTS symptoms, including the present study of psychological abuse (Rubin et al., 2008).

Another useful aspect of the model is that it acknowledges that memories of a broad range of events, including events that do not meet the *DSM-IV-TR* or *DSM-5* criteria, may result in PTS symptoms (Rubin et al., 2008). Thus, the model allows for

non-traditional stressors, like psychological abuse, to be considered as potentially PTS symptom-producing events. Support for this claim is provided by a number of studies. For example, college undergraduates who completed a PTS measure with regard to an event that did not involve threatened or actual bodily harm (e.g., parental divorce or separation) reported greater PTS symptom severity than participants who completed the PTS measure with regard to an event that did (e.g., rape; Gold, Marx, Soler-Baillo, & Sloan, 2005). Additional analyses suggested that neither time since trauma, nor differences in the extent of trauma history, accounted for the observed results (Gold et al., 2005). Commensurate findings were also observed in a sample of adults recruited from a family healthcare practice (Mol et al., 2005) and in another sample of undergraduates (Long et al., 2008). Importantly, the mnemonic model does not specify what types of events may be particularly likely to contribute to the development and maintenance of PTS symptoms.

Additionally, the model posits that a wide range of intense, negative, post-event emotions - including fear, helplessness, and horror, as well as other negative emotions - may contribute to the development and maintenance of PTS symptoms (Rubin et al., 2008). Supporting this claim, PTS symptoms have been observed in individuals who did not report feelings of fear, helplessness, or horror in the immediate aftermath of a traumatic event (Brewin, Andrews, & Rose, 2000). The idea that a wide range of negative emotions may contribute to the development and maintenance of PTS symptoms was integrated into the DSM-5 criteria for posttraumatic stress disorder (APA, 2013).

Another distinguishing feature of the mnemonic model is its emphasis on emotional experience during memory recall. While traditional conceptualizations of

traumatic stressors and PTS symptoms focus on the role of peritraumatic emotions, the mnemonic model postulates that negative emotions that occur during recall of the pathogenic memory contribute to the maintenance of PTS symptoms. That is, while emotions that occur during a traumatic event may contribute to the initial development of PTS symptoms, emotions that occur during recall of the event memory contribute to their maintenance.

Studies of autobiographical memory suggest that negative emotions play a role in the accessibility of memories. For example, people are more likely to generate negative emotional memories than emotionally-neutral memories in response to cue words (e.g., Kensinger & Schacter, 2008). Additionally, people are more likely to remember emotional events, particularly negative emotional events, if the events are personally significant (Moradi, Taghav, Neshat-Doost, Yule, & Dalgleish, 2000). Extrapolating from these findings, negative emotions that occur during recall of the pathogenic memory may contribute to the maintenance of PTS symptoms because they increase the accessibility of the pathogenic memory. In particular, these negative emotions may contribute to enhanced encoding and consolidation of the pathogenic memory (Berntsen, Bohini & Rubin, 2008). As a result, the pathogenic memory is easier to access through voluntary or involuntary recall (e.g., flashbacks; Berntsen et al., 2008).

The mnemonic model does not specify which negative emotions may be most likely to contribute to the maintenance of PTS symptoms. Further, Rubin et al. (2008) posited that the emotions relevant for PTS symptomatology may be differentiated by type of trauma (e.g., guilt may be particularly important for car accident victims, while shame

may be particularly important for sexual assault victims), but did not postulate which specific emotions may be relevant for which types of trauma.

Psychological Abuse in the Context of the Mnemonic Model of Posttraumatic Stress Disorder

Within the mnemonic model framework, associations between psychological abuse and PTS symptoms are hypothesized to develop in some individuals following exposure to a psychological abuse episode. Among individuals who develop PTS symptoms, these associations are hypothesized to be maintained over time by increased negative emotions that occur during recall of the psychological abuse memory (See Figure 1). It is not possible to experimentally test the former hypothesis because psychological abuse victims cannot be assessed during exposure to psychological abuse for ethical reasons. It is possible, however, to experimentally test the latter hypothesis and, thus, it is the focus of the present study. While the mnemonic model does not speak to which negative emotions contribute to the maintenance of PTS symptoms in people with histories of psychological abuse, other studies suggest that shame, in particular, may be important to consider.

Shame, Psychological Abuse, and Posttraumatic Stress Symptoms

Defining shame. Some, although not all, contemporary theories of emotion propose that shame is a distinct emotion (Tangney, 1991). Generally, shame can be thought of as a negative emotion that involves feelings of being defective, inadequate, undesirable, worthless, powerless and/ or inferior (Lewis, 1971; Tangney & Dearing, 2002; Tangney & Fischer, 1995). The phenomenological experience of shame has been described as a painful experience that involves “shrinking, feeling small, feeling

worthless, [and] powerless” (Tangney & Dearing, 2002, p. 25). High levels of shame may contribute to problems with both intrapsychic and interpersonal functioning, though moderate levels of shame may also play a role in adaptive functioning (Izard, 1979; Luyten, Fontaine, & Corveleyn, 2002)

Shame is a self-conscious emotion that primarily involves negative evaluations of the self (Tangney & Dearing, 2002). Shame, like other self-conscious emotions, frequently occurs in the context of interpersonal situations, often following failure to meet social or performance standards (Keltner & Buswell, 1996). Shame, however, involves evaluating the entire self negatively, not just specific behaviors or events (Teroni & Deonna, 2008). In sum, shame arises when an individual makes internal, stable, and global attributions about one’s self following negative events, particularly when the negative events are interpersonal in nature (Tangney & Dearing, 2002; Tracy & Robins, 2006).

Shame also has distinct behavioral and physiological correlates, further differentiating it from other self-conscious emotions (Keltner & Buswell, 1996). For example, changes in body posture (e.g., looking down, slumping shoulders) have been associated with increased shame (Gilbert, Andrews, Tangney, & Dearing, 2000). It has also been linked with avoidance behaviors, rather than the aggressive behaviors which are seen in other emotions (i.e., anger; Schmader & Lickel, 2006). Additionally, studies of stress physiology suggest that shame is associated with a set of physiological responses (e.g., increases in cortisol) that are not accounted for by other affective states (Dickerson, Gruenewald, & Kemeny, 2004).

Notably, shame is separate from, but related to, shame-proneness (i.e., one's tendency to experience shame following negative events; Tangney & Dearing 2002). Essentially, shame is an affective state; shame-proneness is a stable disposition or trait (Tangney & Dearing, 2002). The idea that these are distinct constructs is important to the present study because shame-proneness may be a risk factor for developing PTS symptoms (Leskela, Dieperink, & Thuras, 2002). Thus, studies of shame and PTS symptoms, including the present study, should statistically control for shame-proneness.

Linking shame and psychological abuse. Shame has gained attention in the literature as an important emotion that may play a role in numerous mental health problems, including PTSD (Leskela et al., 2002). Furthermore, shame has been linked to negative mental health outcomes among individuals with histories of chronic emotional abuse, with numerous studies linking chronic childhood emotional maltreatment, shame, and negative mental health outcomes (Gibb et al., 2001; Orth, Robins, & Soto, 2010; Webb, Heisler, Call, Chickering, & Colburn, 2007). Given that psychological abuse by an intimate partner can be a form of chronic emotional trauma, it follows that shame may be a particularly relevant emotion to consider when evaluating post-abuse mental health outcomes.

Converging evidence from social self-preservation theory supports the idea that shame may be particularly relevant for psychological abuse. Specifically, social self-preservation theory posits that feelings of shame, rather than fear, drive psychobiological changes following exposure to events that are threatening to the social self (Dickerson et al., 2004). Threats to the social self are defined as events that, “provide the potential for a loss of social esteem, social status, or social acceptance, and are characterized by

potential or explicit rejection” (Dickerson et al., 2004, p. 1195). For example, events where one may be judged by others, or situations where one is rejected by others, involve threats to the social self. While social self-preservation theory does not directly address PTS symptoms, it posits that shame contributes to many of the same psychobiological changes that have been associated with increased PTS symptoms (Budden, 2009). Within this framework, the degradation, putdowns, and judgments that are part of psychological abuse suggest that it can be conceptualized as an event that is threatening to the social self. Accordingly, shame, which is proposed to be the central affective response to events that are threatening to the social self, may be relevant to consider when examining potential consequences of psychological abuse.

Psychological abuse, shame, and posttraumatic stress symptoms. Shame has been preliminarily linked with increased PTS symptoms in adults with psychological abuse histories (Beck et al., 2011; Street & Arias, 2001). In one study, trait shame was examined as a mediator of the relationship between psychological abuse severity and PTS symptom severity (Street & Arias, 2001). Analyses were conducted separately for two components of psychological abuse: emotional/verbal (e.g., verbal attacks) and dominance/isolation (e.g., isolating partner from friends). Trait shame mediated the relationship between emotional/verbal abuse severity and PTS symptom severity. Dominance/isolation abuse was not a statistically significant correlate of PTS symptoms, and, thus, trait shame was not tested as a mediator.

While Street and Arias’ (2001) findings highlight the importance of considering shame as a potential mechanism of action underlying associations between psychological abuse and PTS symptoms, they are limited in a number of ways. First, shame-proneness,

rather than abuse-related feelings of shame, was measured. Thus, no direct relationships between psychological abuse and shame can be inferred. Second, fear, helplessness, and horror were not assessed. It is possible that participants with higher levels of shame also experienced higher levels of fear, helplessness, and horror, which could account for the observed results. Third, all women reported histories of physical abuse, with the vast majority reporting histories of severe physical abuse, and all were shelter-dwelling. Consequently, study findings may not generalize to women who have not experienced severe physical abuse or to community-dwelling women. Furthermore, shelter-dwelling women may experience a wide range of stressors (e.g., loss of one's home, change in family relationships, or other life stressors) that may be related to feelings of shame and to PTS symptoms. These factors were not controlled in the study.

In another sample of women with histories of psychological and physical abuse, shame was significantly and positively correlated with emotional/verbal abuse, dominance/isolation abuse, and PTS symptom severity (Beck et al., 2011). Associations between shame and PTS symptoms were only present for women who reported severe psychological abuse. An important limitation of this study is that shame was assessed as frequency of feeling inferior, inadequate, worthless, and alienated, and was not anchored to experiences of psychological abuse. Thus, it is not possible to infer that the feelings of shame reported by participants were related to these experiences. Additionally, because only women with histories of physical abuse were included in the study, results cannot be generalized to women with histories of psychological abuse alone.

Although it is difficult to draw conclusions because of the dearth of literature, these studies suggest that further consideration of associations between psychological

abuse, shame, and PTS symptoms is warranted, particularly in women who experience severe psychological abuse. These studies also draw attention to important methodological issues. First, neither study assessed feelings of shame specifically related to psychological abuse. Second, only women with physical abuse histories were included. While both studies made an effort to statistically control for effects of physical abuse, it is possible that associations between psychological abuse and PTS symptoms may only be present in individuals who experience co-occurring physical abuse. Third, because correlational study designs and retrospective reports of symptoms were used in both studies, causal inferences cannot be made. This latter point highlights the advantage of using the empirically testable mnemonic model to conceptualize these relationships. To date, no studies have considered relationships among psychological abuse memories, shame, or PTS symptoms. However, two studies that examined recall of non-abuse traumatic event memories, shame and PTS symptoms provide a basis for inference.

Recall of shameful memories and posttraumatic stress symptoms. In a sample that included undergraduates and community-dwelling adults, PTS symptoms were assessed following recall of a shameful memory from childhood or adolescence (Matos & Pinto-Gouveia, 2010). Participants were instructed “to recall a (significant) situation or experience in which you think you felt shame during your childhood and/or adolescence” (Matos & Pinto-Gouveia, 2010, p. 303). Participants then completed the Impact of Events Scale-Revised (IES-R; Weiss & Marmar, 1997) a self-report scale that assesses reexperiencing, hyperarousal, and avoidance symptoms related to a specific event, with respect to the lifetime impact of the shameful experience the participant had recalled. The mean IES-R score for symptoms related to the shameful event was 3.76 ($SD = 2.57$), with

the non-zero mean IES-R score suggesting that shameful events may indeed produce some PTS symptoms. However, the mean IES-R score reported in this study is extremely low compared to the IES-R cutoff score (33) that is proposed to be indicative of the presence of clinically significant PTS symptoms (Creamer, Bell, & Failla, 2003). Additionally, higher levels of shame during memory recall were significantly correlated with higher levels of total PTS symptom severity in positive fashion. Thus, these findings very tentatively suggest that shameful memories of early-life events are associated with some PTS symptoms over the course of a person's lifetime, but they do not indicate that these memories produce clinically significant PTS symptoms.

In a web-based survey of community-dwelling adults, shame related to a shame- or guilt-provoking event memory and PTS symptom severity were considered (Robinaugh & McNally, 2010). Participants were instructed to "recall an event in their life most strongly associated with high levels of shame or guilt" (Robinaugh & McNally, 2010, p. 647). Notably, the words shame and guilt were not defined for participants. After recalling the memory and providing a written description of it, participants provided ratings of state shame and guilt, and ratings of any PTS symptoms they had ever experienced related to the memory they recalled. Higher levels of state shame were significantly correlated with higher levels of PTS symptom severity. Additionally, in a hierarchical regression, state shame, but not state guilt, was a statistically significant predictor of PTS symptom severity. While these findings provide tentative support for the idea that shame during recall of an event memory may be associated with increased PTS symptom severity, they are cross-sectional and, thus, causal statements about relationships between memory recall and PTS symptoms cannot be made. Further,

participants rated lifetime PTS symptoms after recalling the shame- or guilt-provoking memory, rather than rating PTS symptoms pre- and post-recall. Thus, it is not possible to determine whether recalling a shameful psychological abuse memory contributed to increased PTS symptom severity. Additionally, shame-proneness was not included as a covariate and, thus, it is also possible that the observed results reflect baseline differences in shame-proneness.

Shame during Recall of Psychological Abuse Memories: A Mediator of Associations between Psychological Abuse and Posttraumatic Stress Symptoms?

The mnemonic model proposes PTS symptoms are maintained, in part, by negative emotions that are experienced during recall of a pathogenic event memory (Rubin et al., 2008). Consistent with this study's conceptualization of psychological abuse as a non-traditional traumatic stressor, it is posited that emotions like shame, guilt, and anger are experienced during recall of psychological abuse memories and contribute to the maintenance of PTS symptoms in individuals with psychological abuse histories. More specifically, preliminary evidence suggests that shame, in particular, may be relevant for understanding associations between psychological abuse and PTS symptoms.

Given that (1) some individuals have reported PTS symptoms related to shameful event memories and (2) shame following recall of these memories predicted higher levels of PTS symptoms, it is plausible that shame during recall of psychological abuse memories contributes to the maintenance of post-abuse PTS symptoms. Thus, this study proposed that shame during recall of psychological abuse memories contributes to the maintenance of post-abuse PTS symptoms.

The Present Study

The present study used an experimental-causal-chain design (Spencer et al., 2005) to test a portion of a proposed mediational model of psychological abuse and PTS symptoms (see Figure 2). Specifically, the proposed model posits that shame during recall of a psychological abuse memory mediates the relationship between psychological abuse memory recall and PTS symptom severity.

Mediation is the process in which a predictor variable (X) causes changes in an outcome variable (Y) because of a mediator variable (M; Baron & Kenny, 1986). In experimental-causal-chain designs, mediation is established when: (1) after experimentally manipulating X, X predicts M ($X \rightarrow M$) and (2) after experimentally manipulating M, M predicts Y ($M \rightarrow Y$). These relationships must be demonstrated in separate samples.

A key assumption of experimental-causal-chain designs is that the mediational process observed in both experiments is the same. Most critiques of these designs center on the idea that it is often difficult to ensure that the same mediational process is observed across two experiments (MacKinnon & Fairchild, 2009). Acknowledging this point, Spencer et al. (2005) suggested that experimental-causal-chain designs should only be used when the relevant psychological process can be “easily measured and manipulated” (p. 850). While the debate over whether or not a psychological process is easily measured and/or manipulated is somewhat subjective, the present study’s conceptualization of psychological abuse within the mnemonic model framework allowed for relatively easy manipulation of both the predictor variable (recall of a psychological abuse memory) and the mediator (shame during recall of a psychological

abuse memory). Additionally, the selected measures allowed for reasonably adequate measurement of all relevant variables. Therefore, an experiment-causal-chain study design was appropriate for testing a portion of the proposed mediational model.

In order to find support for mediation in the experimental-causal-chain study design, this study must (1) establish a relationship between recall of a psychological abuse memory (X) and increased shame during recall (M; i.e., $X \rightarrow M$) and (2) establish a relationship between recall of a shameful psychological abuse memory (M) and increased PTS symptom severity following recall (Y; i.e., $M \rightarrow Y$). To meet study design assumptions, two experiments were conducted. College-aged individuals with histories of psychological abuse were recruited for each. While women and men were recruited in accordance with ethical guidelines regarding intimate partner abuse research, women and men may have different abuse experiences and their emotional responses to abuse may differ (Follingstad, Wright, Lloyd, & Sebastian, 1991; Harned, 2002). Therefore, this study tested experimental hypotheses in women only. Analyses of data collected from men were considered exploratory.

Using a within-subjects design, Experiment 1 tested the hypothesis that recall of a psychological abuse memory would be associated with increases in state shame from pre- to post-recall. Participants recalled a psychological abuse memory and a non-abuse relationship memory. State shame was assessed immediately before (pre-recall) and immediately after (post-recall) recall of each memory. Physical and sexual abuse history and shame-proneness were included as covariates in follow-up analyses.

Hypothesis 1: There will be a statistically significant interaction between memory condition (i.e., psychological abuse memory and non-abuse relationship memory) and

time of assessment (i.e., pre- and post- recall) for state shame. A statistically significant increase in state shame from pre- to post-recall will be observed for the psychological abuse memory condition only.

Using a mixed design, Experiment 2 tested the hypothesis that recall of a shameful psychological abuse memory would lead to increases in PTS symptom severity during the 24 hours subsequent to recall, compared to the 24 hours before recall. On an alternating basis, participants were assigned to recall a shameful psychological abuse memory or an emotionally-neutral relationship memory. Past-day PTS symptom severity was assessed before memory recall (pre-recall) and 24 hours after recall (post-recall). The past day was chosen as the referent time period because it is the minimum amount of time necessary to observe changes in some PTS symptoms (e.g., sleep difficulties). Physical and sexual abuse history and shame-proneness were included as covariates in follow-up analyses.

Hypothesis 2: There will be a statistically significant interaction between memory group (i.e., shameful psychological abuse memory, or emotionally- neutral relationship memory) and time of assessment (i.e., pre-recall and post-recall) for past-day PTS symptom severity. A statistically significant increase in past-day PTS symptom severity will be observed from pre- to post-recall of a shameful psychological abuse memory only.

Additional analyses evaluated an ancillary hypothesis regarding psychological abuse memory recall and PTS symptom clusters: intrusive reexperiencing, effortful avoidance, hyperarousal, and dysphoria (Simms, Watson, & Doebbling, 2002). The rationale is based on the idea that, upon recall, shameful psychological abuse memories

will become more accessible, leading to an increase in reexperiencing symptoms (i.e., intrusive and unwanted thoughts and memories about the event). Increased accessibility of these shameful memories will also increase dysphoria symptoms which reflect underlying general emotional distress, such as experiencing intense negative emotions. When faced with an increase in intrusive reexperiencing and dysphoria symptoms, participants may respond by increasing their efforts to reduce these negative feelings through effortful avoidance (Foa et al., 1999). Hyperarousal symptoms, on the other hand, are characterized by behaviors that are related to fear (i.e., increased startle response and hypervigilance) not to shame, and are therefore not expected to increase following recall of a shameful memory.

Hypothesis 3: There will be a statistically significant interaction between memory group and time of assessment for intrusive reexperiencing, effortful avoidance, and dysphoria. Among individuals who recall a shameful psychological abuse memory, past-day symptom cluster severity will be greater post-recall compared to pre-recall.

GENERAL METHOD

Participants and Recruitment

Participants were recruited with advertisements posted through online undergraduate psychology participant pool management systems at two medium-sized, urban universities located in the Midwest and Southwest. Advertisements included inclusion and exclusion criteria and eligible participants were invited to sign-up for a research visit (See Appendix A). Additionally, community members were recruited at one university with flyers posted around campus and brief advertisements distributed in online campus news feeds. After contacting the study office, interested community members were emailed an information sheet with inclusion and exclusion criteria. If eligible, community members contacted the study office to sign-up for a research visit.

To target women and men with histories of high levels of psychological abuse, advertisements stated that the study was for participants whose former dating or cohabiting partners did one of the following things many times: verbally attacked them, controlled what they could or could not do, withheld information from them, isolated them from friends and family, or denied them access to money or other basic resources. However, participants were included in the study if they could recall a specific psychological abuse memory regardless of the severity of psychological abuse experienced in their former relationships.

Inclusion criteria. Women and men ages 19 to 30 with histories of psychological abuse in their most recent former adult dating or cohabiting intimate or romantic relationship were included in the study. To ensure that participants' experiences of psychological abuse occurred in the context of significant relationships rather than casual dating relationships, participants' most recent adult intimate relationships must have lasted at least one month (Avant et al., 2011). Additionally, because this study focused on the recall of psychological abuse memories, rather than the effects of ongoing abuse, participants' relationships must have ended at least one month prior to participation in the study. Because memories are likely to change over time, participants' relationships must have ended within a year prior to participation in the study.

Exclusion criteria. Participants were excluded if they had ever been married, or if they experienced any partner abuse in a current relationship. Recruitment materials stated that participants were not eligible if a current partner ever pushed or slapped them, threatened them with violence, or threw, broke, or punched things in their presence (Paranjape & Leibshutz, 2003). Because of mandatory reporting laws related to current partner abuse and spousal abuse in one of the states in which this study was conducted, this study did not include questions inquiring about current partner abuse, spousal abuse, or marital history.

Materials and Measures

All questionnaires were administered with a laptop using the Snap Mobile Interviewer software v. 9.2 and v. 11.0 (Snap Surveys Ltd, 2006; 2014). Paper-and-pencil methods were used to administer the affective baseline task (i.e., a word find puzzle).

Demographics and relationship characteristics. A 13-item self-report Demographics and Relationships Questionnaire was constructed by the researchers (see Appendix B). Participants reported their age, gender, ethnicity, and academic class status. Participants completed dichotomous items inquiring if they had ever participated in psychotherapy or counseling and if they were currently taking medications. Participants also completed dichotomous items inquiring if their most recent former intimate relationship lasted more than one month, ended at least one month ago, and ended less than one year ago. With regard to this relationship, participants reported the relationship length, the time since the relationship ended, the level of commitment in the relationship, and the gender of their ex-partner. Participants also reported whether they were in a current intimate relationship. Pairwise deletion was used for missing data.

Memory and emotion characteristics. Five items assessed memory and emotion characteristics for each memory (see Appendix C). Participants rated the extent to which they felt like they were reliving the memory (1 = *low*, 4 = *high*), whether they felt fearful, helpless, or horrified, and the time elapsed since the recalled event had occurred.

Psychological abuse history. The 40-item Psychological Maltreatment Inventory (PMI; Kasian & Painter, 1992) assessed history of psychological abuse in participants' most recent former intimate relationships (see Appendix D). The PMI assesses five aspects of psychological abuse: self-esteem erosion (e.g., "My partner treated me like I was stupid."), verbal abuse (e.g., "My partner yelled and screamed at me."), isolation and emotional control (e.g., "My partner tried to keep me from seeing or talking to my family."), jealousy (e.g., "My partner was jealous of other men/women."), and withdrawal (e.g., "My partner withheld affection from me."). The PMI is well-supported

as a valid assessment of psychological abuse in college-aged individuals (e.g., Aosved & Long, 2005; Simonelli & Ingram, 1998; Zayas & Shoda, 2007). In this study, all five subscales demonstrated good to excellent internal consistency (Cronbach's $\alpha = .74 - .93$, for Experiment 1; $.71 - .91$, for Experiment 2).

Participants rated the 40 PMI items to indicate how frequently each abuse experience occurred in their most recent former intimate relationships (1 = *never occurred*, 6 = *occurred more than 20 times*). Item responses were summed for a total PMI Index score, with higher scores indicating greater psychological abuse severity.

Other intimate partner abuse history. The Revised Conflict Tactics Scales (CTS2; Straus, Hamby, & Warren, 2003) assessed intimate partner physical assault (12 items) and sexual coercion (7 items) in participants' most recent former relationships (see Appendix E). The CTS2 has been well-validated as a measure of intimate partner abuse in college-aged individuals (Straus et al., 1996). In the present study, the physical assault and sexual coercion scales demonstrated good internal consistency (Cronbach's $\alpha = .92$, $.87$, respectively, for Experiment 1; $.96$, $.71$, respectively, for Experiment 2).

Participants completed the CTS2 physical assault and sexual coercion scales with regard to experiences in their most recent former intimate relationship. Participants rated the frequency of each act (0 = *never occurred*, 6 = *occurred more than 20 times*). Frequency ratings were assigned values of 0 (never occurred), 1 (occurred once), 2 (occurred twice), 4 (occurred three to five times), 8 (occurred six to ten times), 15 (occurred 11 to 20 times), and 25 (more than 25 times). Chronicity scores were calculated by summing these values for each scale.

Shame-proneness. The Test of Self-Conscious Affect-3 Short Version (TOSCA-3; Tangney, Dearing, Wagner, & Gramzow, 2000) is an 11-item scenario-based measure of shame-proneness, guilt-proneness, externalization, and detachment/unconcern (see Appendix F). Participants are presented with a series of 11 social scenarios (e.g., “While out with a group of friends, you make fun of a friend who’s not there.”). Each scenario is followed by a list of brief phenomenological descriptions of reactions characterized by shame, guilt, externalization, and detachment with respect to the specific scenario (e.g., for shame, “You would feel small... like a rat.” and for guilt, “You would apologize and talk about that person’s good points.”). For each phenomenological description, participants rated the likelihood of reacting in this way (1 = *not likely*, 5 = *very likely*).

Past research supports the validity of the TOSCA-3 as a measure of shame-proneness in college-aged individuals (Tangney & Dearing, 2002). In this study, the shame-proneness subscale demonstrated good internal consistency (Cronbach’s $\alpha = .72$, for Experiment 1; $.80$, for Experiment 2). Shame-proneness scores were calculated by summing responses to shame-related descriptions for each of the 11 items, with higher scores indicating higher levels of shame-proneness.

State shame. The State Shame and Guilt Scale (SSGS) is a 15-item measure that assesses state (i.e., in the moment) feelings of shame, guilt, and pride (Marschall, Sanftner & Tangney, 1994). The SSGS was originally developed as a manipulation check for shame-induction in college undergraduates. The 5-item state shame subscale was used in this study (see Appendix G). The shame items are derived from phenomenological descriptions of shame (e.g., “I want to sink into the floor and disappear.”). In this study,

the state shame subscale demonstrated good internal consistency (Cronbach's $\alpha = .86 - .90$, for Experiment 1; $.85 - .92$, for Experiment 2).

Participants rated each item with regard to how they were feeling in the present moment (1 = *not feeling this way at all*, 5 = *feeling this way very strongly*). Scores were summed for a total state shame score, with higher scores indicating higher state shame.

Past-day posttraumatic stress symptoms. The 17-item self-report PTSD Checklist – Civilian (PCL-C; Weathers, Litz, Herman, Huska, & Keane, 1993) assessed past-day severity of *DSM-IV-TR* PTS symptoms (APA, 2000; see Appendix H). The PCL-C has been well-validated as a measure of PTS symptoms (Ruggiero, Ben, Scotti, & Rabalais, 2003). In this study, the PCL-C demonstrated excellent internal consistency (Cronbach's $\alpha = .94$, for Experiment 1; $.92 - .93$, for Experiment 2).

Participants completed the PCL-C with regard to events that occurred in their most recent former intimate relationships. Participants rated items to indicate how much they had been bothered by each symptom in the past 24 hours (1 = *not at all*, 5 = *extremely*). A past-day PTS symptom severity score was calculated by summing ratings for all 17 items, with higher scores indicating greater severity.

In Experiment 2, past-day symptom cluster severity scores were also calculated: intrusive reexperiencing (5 items; e.g., disturbing or intrusive thoughts or memories from the past), effortful avoidance (2 items; e.g., avoiding thinking about or talking about the event or related feelings), hyperarousal (2 items; e.g., hypervigilance or exaggerated startle response), and dysphoria (8 items; e.g., loss of interest in activities that one used to enjoy; Simms, Watson, & Doebbeling, 2002). The four cluster approach has been used in previous studies of intimate partner abuse (Fleming, Newton, Fernandez-Botran, Miller,

and Burns, 2012). The PCL-C symptom cluster scores demonstrated adequate internal consistency (Cronbach's $\alpha = .67 - .87$).

Procedure

After completing the informed consent process, participants were seated in a private office. They were oriented to the self-guided, computerized survey system and given instructions about how to use the intercom system to signal the researcher with a tone. Participants were informed that the researcher would enter the office to administer puzzles at various points in the study. Participants completed an affective baseline task, recalled specific autobiographical memories, and were then debriefed and compensated.

Affective baseline task. An affective baseline task was used to reduce negative emotion before memory recall. Tasks that involve a high demand on working memory (e.g., arithmetic problems) reduce negative emotion (Van Dillen & Koole, 2007).

Because arithmetic problems may increase negative affect in some undergraduates, the baseline task in this study consisted of a four-minute, ten-item word find puzzle. Word find puzzles require the use of working memory and may appear less evaluative than other working memory tasks. For each administration of the baseline task, participants signaled the researcher with a tone when they were ready to begin. The researcher then entered the room and handed the participant the paper-and-pencil word find puzzle, which was randomly selected from a set of ten. To help ensure that participants worked on the puzzle for four minutes, participants were informed that they would not have enough time to complete the puzzle, and were told to try their best and to keep working until the researcher returned. In order to reduce any competitive or evaluative aspect of the task, participants were not given feedback on the puzzle.

Memory recall procedure. The procedure used to elicit relationship memories (hereafter referred to as the target memory) was adapted from a method designed to elicit recall of autobiographical memories in adults (Daselaar et al., 2008). First, participants were provided with a prompt to elicit the target memory for each condition. Participants were instructed to keep the recalled memory in mind until signaled to stop. To ensure that the target memory was recalled, participants completed a single, dichotomous item inquiring if they could recall a specific memory as described in the prompt. If a participant responded “no” to this item, the participant was ineligible to continue, and was debriefed and compensated.

Participants who responded “yes” were instructed to signal the researcher with a tone. After one minute, the researcher sounded a tone to indicate that the participant could move forward with the survey. After rating state shame, feelings of fear, helplessness, and horror, and reporting the number of months since the recalled event occurred, participants wrote about the recalled event for three minutes, and were then instructed to stop thinking about the memory. Typed descriptions, which included thoughts and feelings about the event, served as a manipulation check to ensure that the target memory was recalled.

Final Debriefing. The debriefing procedure followed guidelines for ethics in psychological trauma research. This body of literature suggests that, for the majority of participants, any distress experienced as part of participation in trauma research is anticipated to be minimal (Becker-Blease & Freyd 2006; Btoush & Campbell, 2009; Yeater, Miller, Rinehart, & Nason, 2012). Mild distress in participants may be managed

by, “empathy, acknowledgement and allowing participants to express themselves” (Btoush & Campbell, 2009, p. 214).

Accordingly, at the conclusion of data collection, participants were invited to discuss their thoughts and feelings about their involvement in the study. During the debriefing, participants were screened for distress. Referrals and emergency resources were available in the event that any participant reported significant distress, though no participant did. Then, participants identified at least three personal strengths that they learned about themselves following the end of their relationships, and identified ways in which their life has changed for the better since the end of their relationship. The researcher then described the study, and participants were given an opportunity to ask questions about the research. All participants were provided with a list of health resources that included telephone numbers for local and national physical and mental health resources.

Manipulation Check

Participants’ written descriptions of memories were used to determine whether the memory recall manipulation was successful. The coder was blinded to memory condition in Experiment 1 and memory group in Experiment 2. For each experiment, all descriptions were compiled in a single data file and memory condition/group information was temporarily removed. After the order of descriptions was randomized, a single rater coded all descriptions (Gwet, 2008; Morrison-Beedy & Melnyk, 2012). To evaluate stability of the coding procedure, blinded descriptions were coded a second time by the same rater approximately two months later and intra-rater reliability was calculated for each coding variable (Gwet, 2008). Kappas for all variables indicate substantial intra-

rater agreement (.81 – 1.00, for Experiment 1; .78 – 1.00, for Experiment 2; Gwet, 2008; Landis & Koch, 1977). When there were discrepancies in coding, the blinded written description was reviewed and a final coding decision was made.

All descriptions were coded using four criteria. First, it was determined if the recalled memory involved an event that occurred in participants' most recent former intimate relationships (coded as "yes") or if it did not refer to a relationship memory (coded as "no"). Second, using a procedure adapted from studies of over generality and autobiographical memory recall (Williams, 1996; Williams & Broadbent, 1986), memories were coded as either "specific" if they referred to a single event (e.g., "I remember a time when my boyfriend would not let me visit my family.") or "general" if multiple events were described (e.g., "My girlfriend used to always call me names.") or if extended events were described (e.g., "My ex-partner and I fought about holiday plans for months."). Third, a variable was created to identify descriptions that involved any type of psychological abuse. Descriptions were coded as "yes" if any of the following acts were described: (1) verbal attacks, (2) controlling what the victim could or could not do, (3) withholding of information, (4) isolation of the victim from friends or family, (5) denial of access to money or other basic resources. If participants described other acts, descriptions were coded as "yes" as long as the acts were consistent with the Center for Disease Control and Prevention's guidelines for defining psychological abuse (e.g., a time when a partner destroyed the individual's property; Saltzman et al., 1999). Descriptions were coded as "no" if a psychological abuse act was not described. Fourth, descriptions were coded as "yes" or "no" to indicate if they described an act of physical or sexual abuse, using the Center for Disease Control and Prevention's definitions of

physical and sexual abuse (Saltzman et al., 1999). The manipulation check coding procedure was used to identify memories as “target” (i.e., the description was consistent with the memory which it was intended to elicit) or as “non-target”.

Data Analytic Strategy

To inform recruitment strategies and to determine the sample size needed for testing statistical hypotheses, *a priori* power analyses was conducted using G*Power 3.1.3 (Erdfelder, Faul, & Buchner, 1996). Because experimental hypotheses were evaluated in women only, these calculations determined the number of women needed to evaluate the primary statistical hypotheses.

Prior to descriptive and statistical analyses, data were screened for outliers and missing data using procedures outlined by Tabachnik and Fidell (2001). Because data analyses were conducted separately for women and men, data were screened separately. Outliers were defined as Z-scores > 3.29 or < -3.29 (Field, 2009; Tabachnik & Fidell, 2001). Outliers were retained if they were within the scope of expected values, with the exception of outliers on the covariates in follow-up analyses. Regarding missing data, person-specific mean imputation was used for continuous measures with $< 25\%$ of data points missing, with the exception of CTS2 physical assault and sexual coercion scales per the recommended scoring procedures for this measure (Straus et al., 2003).

Prior to testing hypotheses, assumptions of the relevant statistical tests were evaluated. The following are assumptions of repeated measures analysis of variance (ANOVA): (1) independence of observations, (2) sphericity, or equality of variance for the dependent variables, and (3) normal distribution of the dependent variables (Sapp, 2006). For repeated measures analysis of covariance (ANCOVA), these same

assumptions apply, plus three additional ANCOVA-specific assumptions: (1) no outliers on any of the covariates, (2) all covariates must be linearly related to the dependent variable in each combination of factors, (3) homogeneity of regression slopes (Field, 2009).

The following are assumptions of mixed-design ANOVA: (1) independence of observations, (2) sphericity, or equality of variances, for the dependent variable at each level of the within-subjects factor, (2) homogeneity of variances for the dependent variable for each combination of the two factors, and (4) normal distribution of dependent variable (Sapp, 2006). For mixed-design ANCOVA, these same assumptions apply, along with the ANCOVA-specific assumptions outlined above (Field, 2009).

Normality of the dependent variable was evaluated in all analyses. When data were non-normal, log and square root transformations were attempted. If it was not possible to achieve normality, statistical tests were conducted with non-transformed and transformed data. If there were no differences in results, results for the non-transformed data were reported for ease of interpretation. Because ANOVA and ANCOVA are generally robust to violations of normality assumption (Field, 2009; Schmider, Ziegler, Danay, Beyer, & Bühner, 2010), the violation of the assumption of normality was not particularly problematic for analyses. All associations were evaluated at $\alpha = .05$. The following effect sizes are reported where appropriate: η_p^2 (for ANOVA; Field, 2009), r (for Wilcoxon-Mann-Whitney tests; Field, 2009), and PS_{dep} (for Wilcoxon signed-rank tests; Grissom, 1994; Grissom & Kim, 2012).

EXPERIMENT 1

Experiment 1 aimed to establish a relationship between recall of psychological abuse memories and increased post-recall state shame. Using a within-subjects design, participants recalled a psychological abuse memory and a non-abuse relationship memory. State shame was assessed before (pre-recall) and immediately after (post-recall) each memory was recalled.

Method

Participants. Women ($n = 43$) and men ($n = 17$) ages 19 to 30 participated in Experiment 1. Of the 60 participants, 34 women and 16 men met full eligibility criteria and had complete data for the primary variables. Of the nine ineligible participants, four were ineligible because they reported that their most recent former relationship ended less than one month ago ($n = 1$) or more than one year ago ($n = 3$), four were ineligible because they were unable to recall a neutral relationship ($n = 2$) or a psychological abuse memory ($n = 2$), and one was ineligible because the participant's reported age was younger than 19. One additional participant was excluded from data analysis because the participant's data from the memory-recall conditions was inadvertently deleted from the database.

Sample size and power considerations. To our knowledge, no previous study has evaluated associations between recall of psychological abuse memories and post-

recall state shame. Therefore, an effect size estimate was drawn from a previous study that evaluated changes in state shame following exposure to an acute social stressor in a sample of healthy women ages 18 to 25 (Fredericks et al., 2010). Compared with baseline state shame, women reported significantly higher levels of state shame after exposure to the stressor (i.e., the Trier Social Stress Test; Kirschbaum, Pirke, & Hellhammer, 1993), with this relationship estimated to have a large effect size. Given that the Trier Social Stress Test is a particularly “potent” social stressor (Kudielka et al., 2008, p. 1756), using a large effect size estimate in sample size calculations for the proposed study may have resulted in an under-powered study. Using a more conservative medium effect size estimate and $\alpha = .05$, an *a priori* power analysis for a 2 x 2 repeated measures ANOVA indicated a total sample size of 34 eligible women was required to achieve statistical power of at least .80.

Procedure. Figure 3 provides a schematic of the Experiment 1 procedure. After completing the informed consent and orientation process, and the Demographics and Relationship History Questionnaire, participants completed an affective baseline task. Then, participants rated their pre-recall state shame, and completed another affective baseline task to reduce any feelings of negative emotion that may have emerged during the baseline state shame assessment.

Next, participants completed the first of two memory conditions. Participants recalled either a psychological abuse memory or a non-abuse relationship memory (see below for prompts). Randomized counterbalancing was used to determine the order in which the memory conditions were administered. Participants recalled the first memory, rated their post-recall state shame, completed emotion and memory characteristic items,

and wrote about the memory. Following this, participants completed the affective baseline task and rated their pre-recall state shame prior to the second memory condition. Participants recalled the second memory, rated their post-recall state shame, completed emotion and memory characteristic items, and wrote about the memory. Then, the affective baseline task was completed a final time. Afterwards, participants completed measures of psychological abuse history and other intimate partner abuse history with regard to experiences in their most recent, former intimate relationships. Participants also completed measures of shame-proneness and past-day PTS symptoms. Finally, participants were debriefed, thanked, and compensated with their choice of either two research credits or \$16.00 cash.

Psychological abuse memory prompt. The following prompt was used to elicit psychological abuse memories: “Please think about your most recent intimate relationship that has ended. Keeping this relationship in mind, try to recall a specific time when your former partner did one of the following: verbally attacked you; controlled what you could or could not do; withheld information from you; isolated you from friends and family; denied you access to money or other basic resources. When you think of a specific memory, keep the memory in mind until you are asked to stop.” These behavioral descriptions were adapted from the Centers for Disease Control and Prevention’s definition of psychological abuse (Saltzman et al., 1999).

Non-abuse relationship memory prompt. Participants were instructed to recall a specific time when they completed an everyday task with their partner. To parallel the psychological abuse memory recall prompt, the non-abuse relationship memory recall prompt included specific behavioral examples of everyday tasks. Participants were

provided with the following prompt: “Please think about your most recent intimate relationship that has ended. Keeping this relationship in mind, try to recall a specific time when you and your former partner completed an everyday task together (e.g., running an errand, watching television). When you think of a specific memory, keep the memory in mind until you are asked to stop.”

Manipulation check. In both conditions, written descriptions must have referred to a relationship memory and a specific event to be identified as “target”. In addition, descriptions of psychological abuse memories must have referred to act(s) of psychological abuse, but not to any act(s) of physical or sexual abuse. Descriptions of non-abuse relationship memories must have referred to a non-abuse relationship event, but not any acts of psychological, physical, or sexual abuse.

Data analysis plan. A 2 x 2 (Memory Condition [psychological abuse memory, non-abuse relationship memory] x Time of Assessment [pre-recall, post-recall]) repeated measures ANOVA tested the hypothesis that recall of a psychological abuse memory would be associated with increases in state shame from pre- to post-recall. In additional analyses, other abuse history and shame-proneness were included as covariates. In exploratory analyses, an identical 2 x 2 repeated measures ANOVA tested associations between psychological abuse memory recall and state shame in men, and the three covariates were included in additional exploratory analyses.

With regard to missing data, one woman did not respond to any of the shame-proneness items and one woman responded to only one shame-proneness item. Both participants were removed from a follow-up analysis in which the shame-proneness was included as a covariate. For all other scales for both men and women, data were found to

be missing completely at random; no patterns were observed among missing data points. No measure was more likely to have missing data points than any other measure. Of all possible data points, less than 5% were missing. Overall, missing data did not appear to threaten the validity of Experiment 1 for women or for men.

For women, one outlier was identified for each of the following variables: relationship length, post-recall state shame and time since the recalled event (non-abuse relationship memory condition), time since the recalled event (psychological abuse memory condition), and physical assault chronicity. For men, an outlier was observed for the physical assault chronicity variable. These data points were not outside the scope of expected values for the respective variables and, thus, all were retained for the testing of primary hypotheses.

Results

Women.

Demographics and relationship characteristics. The mean age of the 34 eligible women was 20.81 ($SD = 2.00$) years (see Table 1). Half of the women were non-Hispanic White American, and the majority were college freshmen. About two-fifths of women reported previous participation in psychotherapy or counseling, and the majority were currently taking a prescription medication. Women reported that their most recent former relationship lasted about two and one-fourth years ($M = 2.27$, $SD = 2.56$) and ended about five months ago ($M = 4.85$, $SD = 3.37$). The majority of women reported that their previous relationship was with a heterosexual partner and characterized their relationship as dating and monogamous. About one-quarter of women were currently partnered.

Abuse history and other characteristics. With regard to abuse experiences in women's most recent former intimate relationships, psychological abuse severity was high, relative to other samples of college students (see Table 2; e.g., Kasian & Painter, 1992). Chronicity of physical assault and sexual coercion chronicity were of similar levels reported in other similarly aged women (e.g., Straus, 1996). Levels of shame-proneness were low compared to other samples of similarly aged women (Benetti-McQuoid & Bursik, 2005). With regard to events that occurred in their most recent former relationship, women reported past-day PTS symptom severity similar to the past-week severity of symptoms observed in a non-clinical sample of college-aged students with histories of trauma exposure (Adkins, Weathers, McDevitt-Murphy, & Daniels, 2008). Using a clinical cut-off score of 50 (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Weathers, Litz, Herman, Huska, & Keane, 1993), four women reported clinically significant levels of PTS symptoms.

Memory characteristics. Events recalled in the non-abuse relationship memory condition occurred an average of 9.12 ($SD = 12.37$) months ago. Events recalled in the psychological abuse memory condition occurred an average of 8.79 ($SD = 11.89$) months ago. Extent of memory reliving was rated as 2.85 ($SD = 0.74$) for the non-abuse relationship memory condition ($n = 34$). For the psychological abuse memory condition, 2 women omitted the reliving item. For the 32 women who completed the reliving item, extent of memory reliving was rated as 2.97 ($SD = 0.86$). Wilcoxon signed-rank tests revealed that there were no statistically significant differences between memory conditions for either time since the recalled event ($S = 25.50, p = .62, PS_{dep} = .50$) or reliving ($n = 32, S = -19.00, p = .53, PS_{dep} = .34$).

For the non-abuse relationship memory condition, 5.88% of women ($n = 2$) reported currently feeling fearful, 17.65% ($n = 6$) reported currently feeling helpless, and 11.76% ($n = 4$) reported currently feeling horrified. For the psychological abuse memory condition, 17.65% of women ($n = 6$) reported currently feeling fearful, 47.06% ($n = 16$) reported currently feeling helpless, and 26.47% ($n = 9$) reported currently feeling horrified. A McNemar's mid- p test revealed that women were significantly more likely to report currently feeling helpless during the psychological abuse memory recall condition ($p < .01$; Fagerland, Lydersen, & Laake, 2013). McNemar's mid- p tests for current feelings of fear ($p = .06$) and horror ($p = .07$) approached significance, with women more likely to report feeling these emotions during the psychological abuse memory recall condition.

State shame. Descriptive statistics for state shame are presented in Table 2, along with intercorrelations among the primary variables. Shapiro-Wilke tests revealed that the state shame variable was non-normally distributed at all measurement points. Log transformations improved skewness and kurtosis slightly; however, it was not possible to achieve normal distributions for this variable. Because there were no differences between analysis conducted with non-transformed versus transformed data, results for the non-transformed data are reported.

Test of hypothesis 1. Although it was not possible to normalize the distribution of state shame through transformations, all other assumptions of the 2 x 2 repeated measures ANOVA were met. For state shame, this analysis revealed statistically significant main effects of memory condition, $F(1,33) = 18.07, p < .001, \eta_p^2 = .35$, and time of assessment, $F(1,33) = 7.15, p = .01, \eta_p^2 = .18$. The main effects were qualified by a

statistically significant interaction between memory condition and time of assessment, $F(1,33) = 12.75, p < .001, \eta_p^2 = .28$. As illustrated in Figure 4, state shame increased from pre- to post-recall for both memory conditions, but the magnitude of the increase was greater for the psychological abuse memory. To further interpret the interaction, simple main effects of time of shame assessment for each level of memory condition were considered. For the psychological abuse memory condition, women reported higher post-recall state shame compared to pre-recall, $F(1,33) = 13.88, p < .001$. For the non-abuse relationship memory condition, there was no statistically significant difference between pre- and post-recall state shame, $F(1,33) = 0.46, p = .50$. A review of Cook's D and leverage values revealed that no observation had undue influence on the model.

Follow-up analyses. In a follow-up analysis of state shame, physical assault chronicity, sexual coercion chronicity, and shame-proneness were included as subject-dependent covariates in a 2 x 2 repeated measures ANCOVA for the 32 women with complete data for all predictor variables and covariates. Because ANCOVA is highly sensitive to outliers in the covariates (Field, 2009), data for this subsample were reviewed for outliers. One outlier was identified for both the physical assault chronicity and sexual coercion chronicity variables; therefore, these cases were removed, yielding a final subsample of 30 women. Assumptions of ANCOVA were evaluated in the final subsample (Field, 2009). Although the assumption of normality was violated, all other assumptions were met.

None of the covariates were statistically significant individual predictors of state shame: physical assault chronicity: $F(1, 26) = 0.03, p = .87$; sexual coercion chronicity: $F(1,26) = 0.00, p = .99$; shame-proneness: $F(1, 26) = 0.06, p = .84$. This analysis revealed

statistically significant main effects of memory condition, $F(1,26) = 16.31, p < .001$, and time of assessment, $F(1,26) = 4.78, p = .04$. Further, the interaction between memory condition and time of assessment remained statistically significant, $F(1, 26) = 12.07, p < .01$. Simple main effects analysis for time of assessment at each level of memory condition revealed the same pattern of findings as in the primary analysis of hypothesis 1. Women reported greater state shame after recalling a psychological abuse memory, compared with pre-recall, $F(1,26) = 10.40, p < .01$. There was no statistically significant difference between pre- and post-recall state shame for the non-abuse relationship memory condition, $F(1,26) = 0.05, p = .82$.

Manipulation check. For psychological abuse memories, 31 women described a target memory. Of the three women who described a non-target memory, two described non-specific memories and one woman provided an incomplete description of an event that could not be classified. For non-abuse relationship memories, 12 women described a target memory. Of the 22 women who described a non-target memory, seven described non-specific memories, nine included descriptions of psychological abuse, and six described non-specific memories which included descriptions of psychological abuse.

When both conditions were considered together, a total of 11 women recalled both target memories. Importantly, women's written descriptions may not directly correspond to the memory they recalled. For example, women who provided descriptions of general events may have elaborated on the recalled memory to fill the time period allotted for writing. Moreover, women who included psychological abuse events in their written descriptions of non-abuse events may have chosen to do so in order to provide

context for the relationship. Therefore, the manipulation check cannot be used to definitively characterize women's memories as target or non-target.

Despite the aforementioned possibilities, the fact that a majority of women ($n = 23$) in Experiment 1 recalled a non-target memory in at least one of the recall conditions could confound study results. Wilcoxon-Mann-Whitney tests compared pre- and post-recall state shame reported by women who recalled target memories versus those who recalled non-target memories. Comparisons were made separately for each memory condition. Wilcoxon-Mann-Whitney tests were used because of unequal n_s and because the distribution of state shame was non-normal.

For the psychological abuse memory, there were no statistically significant differences between recalled target ($n = 31$) and non-target ($n = 3$) memories in pre-recall ($Z = -1.62, p = .10, r = -0.28$) or post-recall ($Z = -0.86, p = .39, r = -0.15$) state shame. For the non-abuse relationship memory, there were no statistically significant differences between recalled target ($n = 12$) and non-target memories ($n = 22$) in pre-recall ($Z = 1.47, p = .14, r = 0.25$) or post-recall ($Z = 0.37, p = .71, r = -0.15$) state shame. Together, these comparisons suggest that the classification of women's written descriptions as target or non-target was not likely to confound the results of this study. Moreover, the vast majority of women who recalled a non-target memory did so in the non-abuse relationship memory condition. Given that Experiment 1 was primarily concerned with the effects of psychological abuse memory recall on state shame, the results of the manipulation check are less problematic than if women had been unable to recall a target psychological abuse memory.

To increase confidence in the findings of our main analyses, Wilcoxon signed-rank tests were used to compare pre- and post-recall state shame in both memory conditions in the subsample of 11 women who recalled both target memories. For the psychological abuse memory condition, the difference between pre-recall ($M = 8.82$, $SD = 5.72$, $Mdn = 5.00$) and post-recall ($M = 10.00$, $SD = 5.23$, $Mdn = 8.00$) state shame approached significance, $S = -15.00$, $p = .09$, $PS_{dep} = .64$. An effect size of $PS_{dep} = .64$ corresponds to a small effect size (Grissom, 1994; Grissom & Kim, 2012), and indicates that if a woman were randomly selected, the probability that the woman's post-recall state shame would be greater than pre-recall state is .64. There was no statistically significant difference in pre-recall ($M = 9.18$, $SD = 5.31$, $Mdn = 7.00$) and post-recall ($M = 8.09$, $SD = 4.37$, $Mdn = 6.00$) state shame for the non-abuse relationship memory condition, $S = 6.00$, $p = .46$, $PS_{dep} = .36$. The pattern of results is consistent with the results from the full sample. The absence of statistically significant findings in the subsample may be attributed to low power as a result of the smaller sample.

Men.

Demographics and relationship characteristics. The mean age of the 16 eligible men was 20.89 ($SD = 2.53$) years (see Table 1). The majority of men were non-Hispanic White American, and college freshmen. Two-fifths reported a history of psychological treatment, and one was currently taking a prescription medication. Men reported that their most recent former relationships lasted about one and three-fourths years ($M = 1.74$; $SD = 1.15$) and ended about six months ago ($M = 5.69$; $SD = 3.81$). All of the men reported that their most recent relationship was heterosexual and the majority characterized the level of

commitment in their relationships as dating and monogamous. Two men were currently partnered.

Abuse history and other characteristics. With regard to abuse experiences in their most recent former intimate relationship, levels of psychological abuse severity were higher than levels observed in other samples of similarly aged men (see Table 3; e.g., Kasian & Painter, 1992). Physical assault and sexual coercion chronicity were similar to levels reported in other samples of college-aged men (e.g., Straus, 1996). Levels of shame-proneness were similar to those observed in other samples of similarly-aged men (Benetti-McQuoid & Bursik, 2005). With regard to experiences in their most recent former intimate relationships, men reported past-day PTS symptom severity similar to that observed in a non-clinical sample of college-aged students with histories of trauma exposure (Adkins et al., 2008). When using a clinical cut-off score of 50 (Blanchard et al., 1996; Weathers et al., 1993), three men reported clinically significant PTS symptoms.

Memory characteristics. Events recalled in the non-abuse relationship memory condition occurred an average of 7.19 ($SD = 3.89$) months ago. Events recalled in the psychological abuse memory condition occurred an average of 6.89 ($SD = 4.05$) months ago. The extent of reliving for the non-abuse relationship memory was 2.50 ($SD = 0.73$). For the psychological abuse memory, the extent of reliving was 2.63 ($SD = 0.89$). Wilcoxon signed-rank tests revealed that there were no statistically significant differences between memory conditions for either time since the recalled event ($S = 9.00, p = .54, PS_{dep} = .31$) or reliving ($S = -5.50, p = 0.75, PS_{dep} = .38$).

For the non-abuse relationship memory, one man (6.25%) reported feeling fearful and four men reported feeling helpless (25.00%). None of the men reported feeling horrified during the non-abuse relationship memory recall. For the psychological abuse memory condition, one man (6.25%) reported feeling fearful, six men (37.50%) reported feeling helpless, and one man (6.25%) reported feeling horrified. McNemar mid- p tests revealed that men were not more likely to report feelings of fear ($p = .50$), helplessness ($p = .25$), or horror ($p = .99$) in the psychological abuse memory recall condition, compared to the non-abuse relationship memory recall condition (Fagerland, Lydersen, & Laake, 2013).

State shame. Descriptive statistics for state shame are provided in Table 3, along with intercorrelations among primary variables. Shapiro-Wilke tests revealed that state shame was non-normally distributed at both times of assessment for each memory. It was not possible to achieve normal distributions for the state shame variables through transformations. Because there were no differences between statistical analyses conducted with non-transformed versus transformed data, the results for the non-transformed data are reported.

Exploratory analyses. Given the small number of men in the sample, violations of the assumption of normality could result in increased Type I error, though ANOVA is generally robust to violations of normality (Schmider et al., 2010). Given that these analyses are exploratory, the possibility of inflated Type I error is accepted, and others are encouraged to replicate this study in larger samples of men with histories of psychological abuse. All other assumptions of repeated measures ANOVA were met.

A 2 x 2 repeated measures ANOVA revealed a statistically significant interaction between memory condition and time of assessment for state shame, $F(1,15) = 5.71, p = .03, \eta^2 = .28$. As seen in Figure 5, men reported an increase in state shame from pre- to post-recall for the psychological abuse memory condition only. Simple main effects analysis revealed that men reported significantly higher state shame after recalling a psychological abuse memory compared to before, $F(1,15) = 6.55, p = .02$. There was no statistically significant difference in pre- and post-recall state shame for the non-abuse relationship memory condition, $F(1,15) = 0.15, p = .70$.

Physical assault chronicity, sexual coercion chronicity, and shame-proneness were included as subject-dependent covariates in a 2 x 2 repeated measures ANCOVA for state shame. There were no outliers for any the covariates. Although the assumption of normality was violated, all other assumptions were met. Physical assault and sexual coercion chronicity were both statistically significant predictors of state shame, $F(1,12) = 42.93, p < .001$ and $F(1,12) = 8.06, p = .01$, respectively, whereas shame-proneness was not, $F(1,12) = 0.74, p = .41$. The interaction between memory condition and time of assessment remained statistically significant, $F(1,12) = 5.71, p = .03$. Simple main effects analysis revealed that men reported greater state shame after recalling a psychological abuse memory compared to before, $F(1,12) = 6.55, p = .03$. There was no statistically significant difference between pre- and post-recall state shame for the non-abuse relationship memory condition, $F(1,12) = 0.15, p = .70$.

Manipulation check. Of the 16 eligible men, nine men described a target psychological abuse memory. Of the seven men who described a non-target psychological abuse memory, two described non-specific memories, one described an act

of physical abuse, and four did not described an act of psychological abuse. For the non-abuse relationship memory condition, 11 men described a target memory. Of the five men who described a non-target memory, four described non-specific memories and one included an act of psychological abuse in his description. A total of six men recalled target memories in both memory conditions.

Wilcoxon-Mann-Whitney tests compared pre- and post-recall state shame reported by men who recalled target memories versus those who recalled non-target memories. Comparisons were made separately for each memory condition. For the psychological abuse memory, there were no statistically significant differences between recalled target ($n = 9$) and non-target ($n = 7$) memories in pre-recall ($Z = -0.33, p = .74, r = -0.08$) or post-recall ($Z = -0.27, p = .79, r = -0.07$) state shame. For the non-abuse relationship memory, there were no statistically significant differences between recalled target ($n = 11$) and non-target memories ($n = 5$) in pre-recall ($Z = -0.06, p = .95, r = -0.02$) or post-recall ($Z = -0.29, p = .77, r = -0.07$) state shame. Together, these comparisons suggest that the classification of men's written descriptions as target or non-target was not likely to confound the results of this study.

To increase confidence in the findings of the main analyses, Wilcoxon signed-rank tests were used to compare pre-recall and post-recall state shame in both memory conditions in the subsample of six men who recalled both target memories. For the psychological abuse memory condition, there was no statistically significant difference between pre-recall ($M = 6.33, SD = 1.97, Mdn = 5.50$) and post-recall ($M = 7.67, SD = 3.50, Mdn = 6.00$) state shame, $S = -1.50, p = .75, PS_{dep} = .33$. For the non-abuse relationship memory condition, there was no statistically significant difference in pre-

recall ($M = 7.67$, $SD = 3.08$, $Mdn = 6.50$) and post-recall ($M = 7.00$, $SD = 2.10$, $Mdn = 6.50$) state shame, $S = 3.50$, $p = .45$, $PS_{dep} = .17$. Notably, the absence of statistically significant differences in state shame for men who recalled a target psychological abuse memory likely reflects low power because of a small sample size. An examination of the means reveals a pattern of results that is consistent with the results from the full sample.

Discussion

Experiment 1 aimed to establish the first piece of the proposed mediational model of psychological abuse and PTS symptoms by demonstrating an association between psychological abuse memory recall and increased shame in women (see Figure 2). Consistent with hypothesis 1, a statistically significant increase in state shame was observed among women from pre- to post-recall when a psychological abuse memory was recalled, but not when a non-abuse relationship memory was recalled. These results provide evidence for a link between psychological abuse memory recall and increased state shame and, therefore, support the first piece of the proposed mediational model.

Given that a key assumption of experimental-causal-chain design is that the independent variable can be manipulated (Spencer et al., 2005), findings from Experiment 1 should be considered in light of the results of the manipulation check. This indicated that, for many women, memory recall was particularly problematic in the non-abuse relationship memory condition, where over half of women described a non-target memory. The most common reason non-abuse memories were identified as non-target was because the description included psychological abuse behaviors. For the psychological abuse memory condition, the results of the manipulation check were more promising. With the exception of one woman whose description was not possible to

classify and two women who described non-specific memories, all women were able to recall the target memory in this condition. Therefore, the psychological abuse memory manipulation was judged to be largely successful. Overall, the assumptions of the experimental-causal-chain study design do not appear violated to the point where the design would no longer be appropriate for considering the proposed mediational model.

Moreover, it is postulated that the contamination of the non-abuse memory condition with psychological abuse-related content would most likely dampen the effect of recall condition on state shame. Notably, the statistically significant, positive zero-order correlations observed among psychological abuse severity and post-recall state shame for both memory groups may reflect this contamination (see Table 2). On the other hand, it is also possible these correlations suggest that individuals with histories of psychological abuse, particularly severe psychological abuse, may experience shame during recall of any relationship memory. Despite these possibilities, a significant interaction between recall condition and time of assessment was observed for state shame, perhaps suggesting that intentional recall of psychological abuse memories is a particularly potent precipitator of state shame.

When physical and sexual abuse and shame-proneness were included as covariates, the statistically significant interaction between memory condition and time of assessment for state shame remained. This finding suggests that psychological abuse contributes to shame above and beyond other types of abuse experiences, including those that have been traditionally considered traumatic stressors. Likewise, shame-proneness did not account for increased post-recall state shame in the psychological abuse memory condition. This latter finding is important because shame-proneness may contribute to

increased vulnerability to feelings of shame following exposure to socially-threatening events, such as those events that occur as part of psychological abuse (Leskela et al, 2002). Overall, the results of the follow-up analysis are intriguing because they suggest that recall of psychological abuse memories may contribute to increases in state shame, even after controlling for experiences that may be independently linked to shame-based responses to trauma (e.g., other relationship abuse history) and characteristics that may contribute to vulnerability to shame-based response to trauma (e.g., shame-proneness).

Among men, exploratory analysis revealed a pattern of findings similar to those observed in women. Notably, the sample size was relatively small ($n = 16$), and the dependent variable, state shame, was non-normally distributed. Though ANOVA is robust to violations of normality in larger sample sizes, the small sample size used in exploratory analyses could contribute to inflated Type I error rate. Therefore, the results of these exploratory analyses should be interpreted with caution. Specifically, men reported increased state shame following recall of a psychological abuse memory, but not after recall of a non-abuse relationship memory. In follow-up analysis, the interaction between memory condition and time of assessment remained statistically significant after controlling for physical and sexual abuse chronicity and shame-proneness, with increases in state shame observed from pre- to post-recall of a psychological abuse memory, but not a non-abuse memory. Physical and sexual abuse chronicity were both statistically significant predictors of overall state shame. These results suggest that recall of psychological abuse memories may play an important role abuse-related feelings of shame in men, even after accounting for the effects of physical and sexual abuse experiences.

EXPERIMENT 2

Experiment 2 aimed to establish a relationship between recall of a shameful psychological abuse memory and increases in PTS symptom severity over the subsequent 24 hours. Using a mixed-design, participants were assigned to recall either a shameful psychological abuse memory, or an emotionally-neutral relationship memory. Past-day PTS symptom severity was assessed immediately before recall (pre-recall) and 24 hours after recall (post-recall).

Method

Participants. Women ($n = 40$) and men ($n = 10$) ages 19 to 30 were enrolled in Experiment 2. Of the 50 participants, 34 women and 6 men met full eligibility criteria and had complete data for the primary variables. Six participants were ineligible because they reported that their most recent former relationship ended less than one month ago ($n = 1$) or more than one year ago ($n = 5$). One participant was ineligible because the participant's reported age was younger than 19 and one was ineligible because reported age was greater than 30. Two participants attended visit 1, but did not attend visit 2; therefore, they were withdrawn from the experiment. The final sample included 34 women and 6 men.

Sample size and power considerations. Because hypothesis 3 tested ancillary hypotheses regarding specific symptom clusters, Experiment 2 was powered for the

number of women needed to test hypothesis 2 only. To our knowledge, no previous study has evaluated the relationship between recall of psychological abuse memories and post-recall PTS symptoms. Therefore, an estimated effect size was drawn from two previous studies of PTS symptom change following exposure to a trauma analogue. In a non-clinical sample of college students, statistically significant correlations were reported between self-reported proneness to intrusive cognitions and intrusions after viewing a film about a deadly fire, corresponding to a moderate effect size (Davies & Clark, 1998). When college students with histories of childhood abuse were exposed to a trauma reminder (i.e., a script describing participants' abuse experiences), statistically significant increases in PTS symptom severity were reported from pre- to post-exposure, with the difference corresponding to a large effect size (Elzinga, Schmahl, Vermetten, van Dyck, & Bremner, 2004). Using the more conservative medium effect size estimate and $\alpha = .05$, an *a priori* power analysis for mixed-design ANOVA indicated a sample size of 34 eligible women (i.e., 17 in each group) was required to achieve statistical power of at least .80.

Materials and measures. Participants completed the measures described earlier, plus a measure that assessed negative posttraumatic cognitions.

Negative posttraumatic cognitions. The 33-item Posttraumatic Cognitions Inventory (PTCI; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999) assessed participants' negative cognitive appraisals related to trauma in their prior relationship (see Appendix I). The PTCI assesses three types of negative cognitions that may contribute to trauma-related symptomatology: negative cognitions about the self (21 items; e.g., "I am a weak person."), negative cognitions about the world (7 items; e.g., "People can't be trusted."),

and self-blame (5 items; e.g., “The event happened because of the way I acted.”). These negative cognitions may contribute to intense negative emotion (e.g., shame, sadness, and guilt) in individuals exposed to trauma by maintaining the victim’s sense of ongoing threat and by triggering maladaptive behavioral and cognitive strategies for managing distress. The PTCI has been well-validated as a measure of trauma-related cognitions (Foa et al., 1999). The PTCI demonstrated excellent internal consistency for the total score (Cronbach’s $\alpha = .96$) and good to excellent internal consistency for each scaled score (Cronbach’s $\alpha = .77-.95$).

With regard to experiences in their most recent former intimate relationship collectively, participants rated how much they agreed with each item (1 = *totally disagree*, 7 = *totally agree*). To allow for comparisons among subscales with unequal numbers of items, and consistent with Foa et al.’s (1999) scoring procedure, a score was calculated by summing participants’ responses on the relevant items for each subscale, and then dividing by the total number of subscale items on the respective subscale. Per Foa et al. (1999), a total score was calculated by summing participants’ responses across all items, with higher scores indicating higher levels of negative trauma-related cognitions. Person-specific mean imputation at the subscale level was used for missing data.

Procedure. A schematic of the Experiment 2 procedure is shown in Figure 6. Experiment 2 involved two research visits. These visits were scheduled as close to 24 hours apart as permitted by the participant’s schedule. The mean number of hours between visit 1 and visit 2 was 25.37 ($SD = 7.38$) hours.

Visit 1. After completing informed consent, participants were assigned to either the shameful psychological abuse memory group or the emotionally-neutral relationship memory group on an alternating basis in order to ensure an equal number of participants were in each group. Participants were not told their group assignment.

After completing the Demographics and Relationships Questionnaire, participants reported their past-day PTS symptom severity (pre-recall assessment). The affective baseline task was then administered. After participants rated their pre-recall state shame, the affective baseline task was administered again to reduce feelings of negative emotion prior to recalling a memory. Participants then recalled either a shameful psychological abuse memory or an emotionally-neutral relationship memory (see below for prompts). Participants recalled the memory, rated their post-recall state shame, completed emotion and memory characteristic items, and wrote about the memory. At the end of the first research visit, participants completed an interim debriefing.

Shameful psychological abuse memory group prompt. Though some have suggested that participants should not be provided with a definition or description of shame (e.g., Robinaugh & McNally, 2010), participants were provided with a very general description of shame to help ensure that a shameful memory was recalled, rather than a memory associated with other negative emotions. Participants were provided with the following prompt: “Shame is negative emotion that can be quite painful to experience. The experience of shame involves thinking about your-self as being defective, inadequate, undesirable, worthless, powerless and/or inferior (Tagney & Dearing, 2002). Please think about your most recent intimate relationship that has ended. Keeping this relationship in mind, try to recall a specific time when your partner did one

of the following things that feels shameful when you think about it: verbally attacked you; controlled what you could or could not do; withheld information from you; isolated you from friends and family; denied you access to money or other basic resources. When you think of a specific memory, keep the memory in mind until you are asked to stop.”

Emotionally-neutral relationship memory group prompt. A procedure developed to elicit neutral autobiographical memories in adults was adapted to elicit emotionally-neutral relationship memories (St. Jacques & Levine, 2007). The following prompt was used: “Winning a reward or a celebration is a positive event associated with happy emotions. Negative events, such as an argument or an illness, are associated with unhappy emotions. A neutral event, such as going for a walk or making a purchase is associated with less emotion, or is not associated with any emotion at all (Saint-Jacques & Levine, 2007). Please think about your most recent intimate relationship that has ended. Keeping this relationship in mind, try to recall a specific emotionally-neutral event in which you and your partner did something together. When you think of a specific memory, keep the memory in mind until you are asked to stop.”

Interim debriefing. The purpose of the interim debriefing was to assess distress without fully repairing negative affect (as would be done in a full, and final, debriefing). While it was not anticipated that participants would experience clinically or functionally significant distress, participants were informed about what to do if they experienced distress. All participants were provided with a health resource list that included the telephone numbers for local and national physical and mental health resources. Because discussion of the recalled event could enhance accessibility of the memory which, in turn, could contribute to PTS symptoms, participants were asked not to discuss the experiment

with peers. Finally, participants were thanked for their time. During the first phase of data collection, participants were provided with \$8.00 or one research credit. During the second phase, participants were provided with \$10.00 or one research credit.

Visit 2. After participants were briefly welcomed, participants rated their past-day PTS symptom severity (post-recall assessment). Following this, participants completed the affective baseline task, rated their state shame, and completed the affective baseline task once again. Next, participants completed measures of psychological abuse and other relationship abuse with regard to experiences in the most recent former intimate relationships, along with measures of shame-proneness and posttraumatic negative cognitions. After this, participants were thanked and fully debriefed. During the first phase of data collection, participants were provide with \$8.00 or one research credit. During the second phase, participants were provided with \$15.00 cash or one and one-half research credits.

Manipulation check. In addition to the variables that were coded for all memories, descriptions were coded for two additional variables: shame-related content and negative emotion. For shame-related content, descriptions were coded as “yes” if any of the following words or phrases were used: shame, ashamed, embarrassed, small, worthless, powerless, defective, inadequate, undesirable, feeling small (Lewis, 1971; Tangney & Dearing, 2002; Tangney & Fischer, 1995). Otherwise, descriptions were coded as “no”. For the negative emotion variable, descriptions were coded as “yes” if one of the following words or variations of these words or phrases was included in the description: angry, mad, sad, guilty, fearful, afraid, helpless, horrified, terrified, feeling bad, feeling hurt. Otherwise, descriptions were coded as “no”.

For all written descriptions, a relationship memory and a specific event must have been described in order for the memory to be identified as “target”. In addition, a shameful psychological abuse memory description must have referred to an act of psychological abuse and included shame-related content, but not to an act(s) of physical or sexual abuse, to be identified as a “target” memory. To be identified as a “target”, an emotionally-neutral relationship memory description must have described a non-abuse relationship event, but not any act of psychological, physical or sexual abuse. If an emotionally-neutral memory description included any shame-related or negative emotion content, it was identified as a non-target memory.

Data analysis plan. A 2 x 2 (Memory Group [shameful psychological abuse memory, emotionally-neutral relationship memory] x Time of Assessment [pre-recall, post-recall]) mixed-design ANOVA tested the primary hypothesis that women would report greater past-day PTS symptom severity 24 hours after recall of a shameful psychological abuse memory compared to pre-recall. In a follow-up analysis, physical and sexual abuse history and shame-proneness were tested as covariates. A series of four 2 x 2 (Memory Condition [psychological abuse memory, non-abuse relationship memory] x Time of Assessment [pre-recall, post-recall]) mixed-design ANOVAs were used to test ancillary hypotheses regarding specific PTS symptom clusters for women. Exploratory analyses evaluated differences in pre- and post-recall past-day PTS symptom severity among men who recalled a shameful psychological abuse memory.

All data were found to be missing completely at random. No measure was more likely to have missing data points than any other measure. Of all possible data points, less than 5% were missing. Overall, missing data did not appear to threaten the validity of

Experiment 2 for women or men. For women, one outlier was identified for each of the CTS2 scales. Given that both data points were within the range of expected values for the respective scales, both were retained for statistical testing of primary hypotheses. For men, no outliers were found.

Results

Women.

Demographics and relationship characteristics. Women ($n = 34$) were 21.46 ($SD = 1.78$) years old on average (see Table 4). The majority were non-Hispanic white Americans, and were enrolled as college undergraduates. Just under half of the women reported a history of psychological treatment. The majority were not currently taking prescription medications.

Women's most recent former relationships, on average, lasted about one and one-half years ($M = 1.67$; $SD = 1.28$) and ended about five and one-half months ago ($M = 5.59$, $SD = 3.39$). The majority of women reported that their relationships were with a male partner and characterized their relationship as dating and monogamous. About one-third of women were currently partnered.

Abuse history and other characteristics. Descriptive statistics for women's abuse history and other characteristics are presented in Table 5. With regard to abuse experiences in their most recent former intimate relationships, levels of psychological abuse were higher than those observed in other samples of college students (Kasian & Painter, 1999). Levels of other relationship abuse (i.e., physical and sexual abuse) were similar to those observed in other samples of similarly aged women (Straus, 1996).

Levels of shame-proneness were lower than those observed in other samples of similarly aged women (e.g., Benetti-McQuoid & Bursik, 2005; Ranganadhan & Todorov, 2010). With regard to overall negative posttraumatic cognitions, levels were similar to those observed in samples of women with PTSD (see Table 6; e.g., Foa et al., 1999). With regard to specific negative cognitions, women reported negative beliefs about the self, negative beliefs about the world, and self-blame at levels similar to those observed in samples of individuals with PTSD (Foa et al., 1999).

Memory group comparisons. Means for the relationship characteristic variables and the abuse history variables were compared between the two memory groups. There were no statistically significant differences between memory groups for any of the variables (see Table 7).

Memory characteristics. For women ($n = 17$) in the shameful psychological abuse memory group, the recalled event occurred an average of 7.18 ($SD = 3.73$) months ago, and the extent of reliving during recall was 2.59 ($SD = 1.00$). For women ($n = 17$) in the emotionally-neutral relationship memory group, the recalled event occurred an average of 10.71 ($SD = 6.79$) months ago, and the extent of reliving during recall was 2.47 ($SD = 0.72$). Wilcoxon-Mann-Whitney tests revealed that the groups did not differ in time since the recalled event ($Z = 1.72, p = .09, r = 0.29$) or reliving ($Z = -0.49, p = .62, r = -0.08$).

To help evaluate whether shameful memories and emotionally-neutral memories were recalled, pre-recall and post-recall state shame were compared for each memory group using Wilcoxon signed-rank tests. For women in the shameful psychological abuse memory group, the Wilcoxon signed-rank test approached significance, $S = 34.00, p$

$= .05$, $PS_{dep} = .65$, with women reporting increased shame from pre-recall ($M = 9.06$, $SD = 5.34$, $Mdn = 6.00$) to post-recall ($M = 10.65$, $SD = 5.73$, $Mdn = 10.00$). An effect size of $PS_{dep} = .65$ corresponds to a medium effect size (Grissom, 1994; Grissom & Kim, 2012), and is comparable to the effect size corresponding increase in pre- to post-recall state shame observed for psychological abuse memory recall in Experiment 1 (i.e., $PS_{dep} = .68$).

For women in the emotionally-neutral relationship memory group, a Wilcoxon signed-rank test revealed no difference in pre-recall ($M = 8.29$, $SD = 3.48$, $Mdn = 7.00$) and post-recall ($M = 7.35$, $SD = 4.00$, $Mdn = 6.00$) state shame, $S = -17.50$, $p = .18$, $PS_{dep} = .24$. Together, these results suggest that the shameful psychological abuse memory manipulation was successful in eliciting memories that produced increased state shame and, likewise, the emotionally-neutral relationship memory manipulation was successful in eliciting memories that did not produce increased state shame.

Fisher's Exact Tests revealed that significantly more women reported feeling helpless while recalling the shameful psychological abuse memory ($n = 7$) compared with the emotionally-neutral relationship memory ($n = 1$), $p = .04$. Three women in the shameful psychological abuse memory group reported feeling fearful and two women reported feeling horrified. None of the women in the emotionally-neutral relationship memory group reported feeling fearful or horrified. Fisher's Exact Tests revealed no differences between groups for current fear, $p = .23$, or horror, $p = .48$.

Posttraumatic stress symptom severity. Descriptive statistics for past-day PTS symptom severity are presented in Table 5, along with intercorrelations among primary variables. At pre-recall and at post-recall, levels of past-day PTS symptom severity were

similar to levels of past-week symptom severity observed in a non-clinical sample of college-aged individuals with histories of trauma (Adkins et al., 2008). Shapiro-Wilke tests revealed that the past-day PTS symptom severity was non-normally distributed at all measurement points for the total sample, and for women who recalled an emotionally-neutral relationship memory. Log transformations improved skewness and kurtosis for the sample overall; however, it was not possible to achieve normal distributions for this variable for both memory groups. Because there were no differences in results when tests were conducted with non-transformed versus transformed data, the results for the non-transformed data for each cluster are reported.

Means and standard deviations for past-day PTS symptom cluster severity are presented in Table 8. Shapiro-Wilke tests revealed that the past-day PTS symptom severity variable was non-normally distributed at all measurement points for each cluster. Log transformations improved skewness and kurtosis for the intrusive reexperiencing cluster only. No differences in results were observed when tests were conducted with non-transformed versus transformed data. Therefore, the results for the non-transformed data are reported.

Test of hypothesis 2. Levene's tests revealed that the homogeneity of variance assumption was met. As noted above, past-day PTS symptom severity was non-normally distributed at each time point and it was not possible to normalize the distribution through transformations. All other assumptions of mixed-design ANOVA were met.

A 2 x 2 mixed-design ANOVA for past-day PTS symptom severity revealed a main effect for time of assessment, $F(1,32) = 6.80$, $p = .01$, $\eta_p^2 = .18$ (see Figure 7). Women, overall, reported lower PTS symptom severity post-recall ($M = 30.19$, $SD =$

10.53) compared to pre-recall ($M = 33.65, SD = 13.59$). The main effect for memory group was not statistically significant, $F(1,32) = 0.33, p = .57, \eta_p^2 = .01$. The interaction between memory group and time of assessment was not statistically significant, $F(1,32) = 1.68, p = .20, \eta_p^2 = .05$. A review of Cook's D and leverage values revealed that none of the observations had undue influence on the model.

Follow-up analyses. Physical assault chronicity, sexual abuse chronicity, and shame-proneness were included as subject-level covariates in a 2 x 2 mixed-design ANCOVA. As noted earlier, one outlier was identified for both the physical assault chronicity and sexual coercion chronicity variables. Because ANCOVA is highly sensitive to outliers in the covariates, both cases for which there was an outlier were removed. Both of the removed cases were from the shameful psychological abuse memory group, resulting in unequal *ns* for the ANCOVA. The assumptions of a 2 x 2 mixed-design ANCOVA were examined in the final sample size of 32. Welch's equality of means tests revealed that heterogeneity of variance assumption was met. Though the assumption of normality was violated, all other assumptions were met.

Results revealed that physical assault chronicity was a statistically significant individual predictor of past-day PTS symptom severity, $F(1, 27) = 5.38, p = .03$. Neither sexual coercion chronicity, $F(1,27) = 0.47, p = .50$, nor shame-proneness, $F(1, 27) = 2.52, p = .12$ were statistically significant individual predictors. After controlling for the covariates, the interaction between memory group and time of assessment for past-day PTS symptom severity was not statistically significant, $F(1, 30) = 1.90, p = .18$. The main effect of time of assessment continued to be statistically significant, $F(1, 30) = 6.98, p = .01$, with greater severity at pre-recall compared to post-recall.

Test of hypothesis 3. Levene's tests revealed that the homogeneity of variance assumption was met for all clusters. Though the assumption of normality was not met, all other assumptions of mixed-design ANOVA were met for all symptom clusters.

The results of a series of 2 x 2 mixed-design ANOVAs for past-day PTS symptom cluster severity are presented in Table 9 and Figure 8. For intrusive reexperiencing, there was no statistically significant main effect of either memory group or time of assessment, and there was no statistically significant interaction between these variables. For effortful avoidance, the main effect of time of assessment approached significance, $F(1,32) = 3.67$, $p = .06$, $\eta_p^2 = .10$, but this was qualified by a statistically significant interaction between memory group and time of assessment, $F(1,32) = 5.88$, $p = .02$, $\eta_p^2 = .16$. Simple main effects analysis investigated whether pre- and post-recall scores differed between groups. Women in the shameful psychological abuse memory group reported significantly greater effortful avoidance severity pre-recall ($M = 4.88$, $SD = 2.34$) compared to post-recall ($M = 3.88$, $SD = 1.96$), $F(1,32) = 9.42$, $p < .01$. There was not a statistically significant difference in pre-recall ($M = 3.88$, $SD = 2.15$) and post-recall ($M = 4.00$, $SD = 1.87$) effortful avoidance severity for women who recalled an emotionally-neutral relationship memory, $F(1,32) = 0.13$, $p = .72$. For both hyperarousal and dysphoria, there were significant main effects of time of assessment, $F(1,32) = 5.03$, $p = .03$, $\eta_p^2 = .14$ and $F(1,32) = 4.76$, $p = .04$, $\eta_p^2 = .13$, respectively. Women, overall, reported greater hyperarousal severity and greater dysphoria pre-recall compared to post-recall. There were neither a statistically significant main effect of memory group nor a statistically significant group by time of assessment interaction for either hyperarousal or dysphoria.

A review of Cook's *D* and leverage statistics revealed that no observation had undue influence in any model.

Manipulation check. Of the 17 women in the shameful psychological abuse memory group, four women described a target memory. Of the 13 women who described a non-target memory, one woman described a non-specific memory, four women describe a non-specific memory with no shame-related content, three included content that could be characterized as physical abuse, and five did not include words or phrases indicating that they felt shame during recall. Notably, it is not possible to definitively state that the women whose descriptions did not include shame-related words or phrases did not recall a shameful psychological abuse memory. Similarly, women who described general memories may have recalled experiences that are generally consistent with the definition of a target shameful psychological abuse memory.

Of the 17 women in the emotionally-neutral memory group, ten women recalled a target memory. Of the seven women who recalled a non-target memory, one woman described a non-specific memory, one included content that could be characterized as psychological or other abuse, and five experienced shame or another negative emotion during recall.

Given that many women in both memory groups recalled a non-target memory, the recall of non-target memories could pose a serious threat to the validity of Experiment 2. To evaluate whether recall of non-target memories confounded study results, Wilcoxon-Mann-Whitney tests compared mean past-day PTS symptom severity reported by women who recalled target memories versus those who recalled non-target memories. Comparisons were made separately for each memory group. For women assigned to

recall a shameful psychological abuse memory, there were no statistically significant differences between the target ($n = 4$) and non-target memory groups ($n = 13$) in pre-recall ($Z = -0.06, p = .95, r = -0.01$) or post-recall ($Z = 0.28, p = .78, r = 0.07$) past-day PTS symptom severity. For women assigned to recall an emotionally-neutral relationship memory, there were no statistically significant differences between the target ($n = 10$) and non-target ($n = 7$) memory groups in pre-recall ($Z = -0.64, p = .53, r = -0.16$) or post-recall ($Z = -0.29, p = .77, r = -0.07$) past-day PTS symptom severity. Together, the comparisons suggest that the classification of women's written descriptions as target or non-target was not likely to confound the results of this study. Therefore, all women were retained for statistical testing of Experiment 2.

To increase confidence in the findings of the main analyses, Wilcoxon signed-rank tests were used to compare pre- and post-recall past-day PTS symptom severity in subsamples of women who recalled a target memory in each memory group. For the women ($n = 4$) who recalled a target shameful psychological abuse memory, there was no statistically significant difference between pre-recall ($M = 32.75, SD = 10.25, Mdn = 34.50$) and post-recall ($M = 32.00, SD = 9.49, Mdn = 31.50$) past-day PTS symptom severity, $S = 1.00, p = .75, PS_{dep} = .75$. An effect size of $PS_{dep} = .75$ corresponds to a large effect size (Grissom, 1994; Grissom & Kim, 2012), and suggests that, if a woman is randomly selected from the subsample of four women, there is a 75% chance of selecting a woman for whom post-recall past-day PTS symptom severity is greater than pre-recall. Notably, the conclusions that can be drawn from this effect size estimate are limited because PS_{dep} is relatively unstable in small sample sizes (i.e., $n < 20$; Grissom, 1994; Grissom & Kim, 2014). For the women ($n = 10$) who recalled a target emotionally-

neutral relationship memory, there was no statistically significant difference between pre-recall ($M = 36.54$, $SD = 16.63$, $Mdn = 30.50$) and post-recall ($M = 30.00$, $SD = 10.13$, $Mdn = 26.22$) past-day PTS symptom severity, $S = -5.00$, $p = .52$, $PS_{dep} = .40$. The pattern of means in the subsample was consistent with the results of the primary analysis and, therefore, increases confidence in the findings reported earlier.

Men.

Demographics and relationship characteristics. The mean age of the 6 eligible men was 21.88 ($SD = 3.92$) years (see Table 4). Half of the men were Hispanic American/Latino. All were enrolled as college undergraduates. Half of the men reported a history of previous psychological treatment, and none were currently taking prescription medication.

Men's most recent former relationships, on average, lasted 1.28 ($SD = 1.28$) years and ended 4.17 ($SD = 4.02$) months ago. The majority of men characterized their former relationship as heterosexual and as dating and monogamous. None of the men were currently partnered.

Abuse history and other characteristics. Descriptive statistics for abuse history and other characteristics for men are presented in Table 10. With regard to experiences in their most recent former intimate relationships, levels of psychological abuse severity were higher than, and levels of other types of relationship abuse (i.e., physical and sexual) were similar to, levels observed in other samples of similarly aged men (e.g., Kasian & Painter, 1999; Straus, 1996). Levels of shame-proneness compared were lower than levels in samples of similarly-aged men (Benetti-McQuoid & Bursik, 2005). With regard to overall negative posttraumatic cognitions, levels were higher than observed in a

sample of adults with histories of trauma without PTSD, but lower than observed in individuals with PTSD (Foa et al., 1999). Regarding specific types of negative cognitions, negative cognitions about the world and self-blame were endorsed at levels similar to those observed in individuals with PTSD (Foa et al., 1999). Negative cognitions about the self were endorsed at levels similar to those observed in individuals with histories of trauma without PTSD, but lower than observed in individuals with PTSD (Foa et al., 1999).

Exploratory analyses. Of the six eligible men with complete data, five men were in the shameful psychological abuse memory group and one man was in the neutral relationship memory group. Among the five men who recalled a shameful psychological abuse memory, the recalled event occurred an average of 3.40 ($SD = 2.07$) months ago. The five men, on average, rated the extent to which they were reliving the as 2.80 ($SD = 1.10$). During shameful psychological abuse memory recall, one man reported feeling fearful and one man reported feeling helpless; none of the men reported feeling horrified.

To evaluate whether shameful memories were recalled by men, pre- and post-recall state shame were compared among the five eligible men. A Wilcoxon signed-rank test revealed that there was no difference in men's pre-recall ($M = 8.30$, $SD = 2.99$, $Mdn = 7.50$) and immediate post-recall ($M = 10.80$, $SD = 6.76$, $Mdn = 7.00$) state shame, $S = 3.00$, $p = .38$, $PS_{dep} = .60$. Although an effect size of $PS_{dep} = .60$ corresponds to a small effect size (Grissolm, 1994; Grissolm & Kim, 2012), the absence of a statistically significant increase in state shame from pre- to post-recall suggests that the results should be interpreted with a degree of caution, and in light of the results of the manipulation check.

Because of the small sample size of men and unequal sample sizes between memory groups, exploratory analysis considered associations between memory recall and PTS total symptom severity for the five men who recalled shameful psychological abuse memories. A Wilcoxon signed-rank test comparing pre-recall ($M = 31.00$, $SD = 10.12$, $Mdn = 25.00$) and post-recall ($M = 27.20$, $SD = 11.37$, $Mdn = 20.00$) PTS symptom severity approached significance, $S = -7.50$, $p = .06$, $PS_{dep} = .20$, with men reporting decreased total PTS symptom severity from pre- to post-recall.

Manipulation check. Using the written description coding procedure, none of the men's shame psychological abuse memories were identified as target memories. None of the men used words or phrases that indicated they experienced shame during recall, with one of these men recalling a non-psychological abuse relationship memory and one of these men recalling a non-specific memory. These findings suggest that the manipulation of shameful memory recall was not successful for men.

Discussion

Experiment 2 aimed to establish the second piece of the proposed mediational model of psychological abuse memory recall and PTS symptom severity by evaluating associations between recall of a shameful psychological abuse memory and increased past-day PTS symptom severity from pre-recall to post-recall (see Figure 2). Neither hypothesis 2 nor hypothesis 3 was supported by the results.

Hypothesis 2, which predicted that there would be an interaction between memory group and time of assessment for past-day PTS symptom severity, was not supported. Women, overall, reported decreased past-day PTS symptom severity from pre-recall to post-recall. When physical and sexual abuse history and shame-proneness were included

as covariates, the interaction between memory recall and time assessment was not statistically significant.

Hypothesis 3, which considered specific PTSD symptom clusters, was also unsupported. Women, overall, reported decreased past-day hyperarousal and dysphoria severity from pre-recall to post-recall. For women in the shameful psychological abuse memory group, decreases in effortful avoidance severity from pre-recall to post-recall were also observed. Although Figure 8 illustrates an apparent decrease in intrusive reexperiencing for women in the shameful psychological abuse memory group, no statistically significant difference in pre- and post-recall intrusive reexperiencing severity was observed for either group.

For the five men who recalled a shameful psychological abuse memory, exploratory analyses revealed a trend towards decreased past-day PTS symptom severity from pre- to post-recall. Importantly, the results of the manipulation check revealed that manipulation of shameful memory recall was largely unsuccessful for men and, therefore, it was not possible to draw conclusions from these exploratory analyses. Therefore, the following discussion considers Experiment 2 findings for women only.

In sum, the results of Experiment 2 did not provide evidence for the hypothesized association between recall of a shameful psychological abuse memory and PTS symptom severity among women. Within the experimental-causal-chain design, these results may imply that shame during recall was not a causal mechanism underlying associations between psychological abuse memory recall and PTS symptom severity. This explanation is not inherently incompatible with Rubin et al.'s (2008) mnemonic model, given that the model does not specify which negative emotions may play a role in the maintenance of

PTS symptoms. Alternatively, perhaps shame does play a role in the maintenance of PTS symptoms, but levels of shame experienced during recall of psychological abuse memories by women in this sample were not intense not intense enough to precipitate PTS symptoms. Indeed, Rubin et al. (2008) suggest the role of negative emotion in the maintenance of PTS symptoms may be mediated by the intensity of the emotion during autobiographical memory recall, though they do not posit what threshold of emotion intensity is needed to maintain symptoms. Furthermore, perhaps shame during recall of psychological abuse memories does play a role in PTS symptoms, but only among individuals with higher levels of PTS symptoms. Although this latter possibility cannot be ruled out, it seems unlikely, given that participants in this sample experienced a range of symptoms. Importantly, before the role of shame as a mediator of psychological abuse memory recall and PTS symptoms is prematurely dismissed, it is also important to consider several other possibilities that may account for the findings of Experiment 2.

Manipulation of memory recall. Another explanation for the findings of Experiment 2 is that manipulation of the independent variable, memory recall, was not successful. If manipulation of either type of memory was unsuccessful in Experiment 2, it would not be appropriate to draw conclusions about shame during recall as a causal mechanism underlying associations between psychological abuse memory recall and PTS symptom severity (Spencer et al., 2005).

The results of the manipulation check for women in Experiment 2 were mixed. The coding procedure for women's written descriptions of memories suggested that target memories were not recalled by most women. For women in the shameful psychological abuse memory group, the most common reason memories were identified

as non-target was because shame-related words or phrases were not included in the written description. For women in the emotionally-neutral relationship memory group, the most common reason that memories were identified as non-target was because descriptions included words or phrases indicating that women experienced shame or other negative emotions during recall. Based upon the coding of written descriptions, efforts to manipulate the emotional nature of the memory appear to be unsuccessful.

It is important to consider the possibility that efforts to manipulate memory recall were successful, but the written descriptions or the coding procedure did not capture this. Indeed, the use of the written descriptions as a manipulation check may have been problematic. First, women were given a limited amount of time to describe a memory and, as a result, the possibility that women were unable to fully describe recalled memories cannot be ruled out. Second, women may have experienced shame during recall, but, for a variety of reasons, did not include shame-related content in their descriptions. For example, women may have experienced more than one negative emotion and, if the other emotion was more intense, women may have chosen to write about that emotion. Or, given that shame is typically experienced as an unpleasant emotion that involves feelings of wanting to hide (Tugney & Dearing, 2002) perhaps women's experiences of shame were unwanted and, thus, they chose not to write about them. In light of these possibilities, the validity of the coding procedure for assessing the success of memory recall is unclear.

In contrast with the results of the coding procedure, comparisons for state shame suggested that efforts to manipulate the shameful nature of the memory were successful. Women who recalled shameful memories did, as expected, report a trend towards

increased state shame from pre- to post-recall, while women who recalled emotionally neutral memories did not. These results suggest that, at least for the majority of women in the shameful psychological abuse memory group, a shameful psychological abuse memory was recalled. Further, they imply that the written descriptions did not successfully capture changes in state shame from pre- to post-recall. While the nonparametric comparisons for state shame do not rule out the possibility that other negative emotions were recalled by women in the emotionally-neutral relationship memory group, they do suggest that women, on average, did not experience increased state shame during recall.

This study proposes that the results of the nonparametric comparisons for pre-recall and post-recall state shame should be weighed more heavily than the results of the coding procedure when evaluating the success of the memory recall manipulation. Accordingly, the manipulation check was cautiously judged to be successful in Experiment 2. If the manipulation of memory recall was indeed successful, it is necessary to turn to other explanations for the results of Experiment 2.

Other memory properties. It is also possible that other unmeasured memory properties of shameful psychological abuse memories may have confounded the results. Rubin et al. (2011) proposed that, in addition to negative emotion intensity during recall, other memory properties may contribute to whether or not recall of a pathogenic memory contributes to the maintenance of PTS symptoms including emotional regulation during recall, properties of the memory (e.g., centrality of memory, rehearsal of memory), the sense of importance of the event, and the tendency to ruminate. These factors were not considered in the present study, though Experiment 2 made efforts to control for aspects

of rehearsal by asking participants not to discuss memories between visits. Future studies may wish to consider whether any of these factors interact with recall of shameful psychological abuse memories in influencing the subsequent experience of PTS symptoms.

Measurement of posttraumatic stress symptoms. A final potential explanation for the unexpected findings of Experiment 2 relates to concerns regarding the measurement of PTS symptoms. Recall that this study attempted to improve upon methodologies used in past studies of shameful memory recall by differentiating between pre-recall and post-recall PTS symptom severity (e.g., Matos & Pinto-Gouveia, 2010; Robinaugh & McNally, 2010). To do so, participants completed measures of past-day PTS symptoms prior to (pre-recall) and 24 hours after recall (post-recall) of a relationship memory. Contrary to the hypothesis, women reported decreased past-day PTS symptoms severity from pre- to post-recall. For some women, the observed decreases in past-day PTS symptom severity were relatively large, underscoring the perplexing nature of these results. For example, four women reported clinical levels of PTS symptoms (i.e., a PCL-C score > 50) at pre-recall, but only one of these women reported clinical levels of PTS symptoms 24 hours post-recall. However, this is qualified by the fact that past-day PTS symptoms were measured, rather than past-week PTS symptoms which are used when making the clinical diagnosis of PTSD (APA, 2013).

Several factors could account for the unexpected, and relatively large, decreases in past-day PTS symptom severity from pre- to post-recall. Given that many clinical interventions for posttraumatic stress disorder involve writing about the trauma in order to facilitate cognitive processing and re-integration of the traumatic event memory, it is

possible that some participants processed the pathogenic memory to an extent by writing about the recalled memory during the study (Ehlers, Clark, Hackmann, McManus, & Fennell, 2005). If writing about the recalled memory allow for participants to process pathogenic memories, decreases in PTS symptoms would be expected, to a degree. Notably, several sessions of writing, coupled with other inventions design to facilitate emotional and cognitive processing of the trauma, are often required to see meaningful changes in PTS symptoms in clinical context. Thus, it is unlikely that the decreases in past-day PTS symptom severity observed in this study can be explained by cognitive processing that occurred through the writing process.

Instrumentation problems with the measurement of PTS symptoms offer an alternative, and perhaps more plausible, explanation for the present findings. One possibility is that the time period (i.e., the past 24 hours) with regard to which participants complete the PTS symptom severity measure was inconsistent across measurement points (i.e., pre- and post-recall). Although women were instructed to complete the PTS symptom severity measure with regard to symptoms that had occurred in the past-day, it is possible that the absence of an anchoring point for the pre-recall referent time period could have contributed to inconsistencies in the reporting of PTS symptoms. That is, at visit 2 (i.e., when post-recall symptoms were measured), women may have used the time of their first research visit as an anchor point for reporting symptoms. At visit 1, on the other hand, women did not have a clear time point to use as an anchor. As a result, women may have reported symptoms that had been bothering them for several days, which could have contributed to higher total PTS symptom

severity at pre-recall. Inconsistencies in reporting PTS symptoms across time points could have threatened the internal validity of this study.

It is also possible that a 24 hour period is not sufficient for capturing a true picture of PTS symptoms. In order to capture changes related to the recall of target memories, this study assessed PTS symptom severity over a 24 hour period, the minimum time period in which changes in PTS symptoms were expected to emerge (e.g., problems with sleep). Typically, PTS symptom measures evaluate symptoms over a one-week period (Weathers et al., 1993). Although it was expected that some changes would emerge within the 24 hour period following memory recall, it is possible that measurable changes in symptoms may not be evident when symptoms are measured over such a brief timeframe. Although a strength of this experiment was its ability to differentiate between pre- and post-recall PTS symptoms, the time frame over which symptoms were measured may have limited this study's ability to capture a full picture of participants' PTS symptoms.

Summary. The results of Experiment 2 did not provide support for an association between shameful psychological abuse memory recall and increased post-recall PTS symptom severity. The absence of an association was unexpected, given that prior studies have linked psychological abuse-related feelings of shame to PTS symptoms (Beck et al., 2011; Street & Arias, 2001). Though one interpretation of the present findings is that shame during recall is not a causal mechanism underlying associations between psychological abuse memory recall and increased PTS symptom severity, several other explanations for these unexpected findings were considered.

Given that the manipulation of memory recall was judged to be largely successful, the unexpected findings of the present study reflect potential problems related to the measurement of PTS symptom severity. The possibility that unmeasured factors, like emotional regulation during recall and meaningfulness of the psychological abuse event, somehow confounded the results of Experiment 2 also cannot be ruled out. Therefore, it would be premature to discount the possibility that shame during recall of psychological abuse memories contributes to increased post-recall PTS symptom severity. Ultimately, future studies, including those that use the mnemonic model framework, are needed to further clarify potential relationships between shameful psychological abuse memory recall and post-recall PTS symptoms.

GENERAL DISCUSSION

To further understanding of why psychological abuse has been linked to PTS symptoms in past studies, the present study used an experimental-causal-chain study design to test a proposed mediational model of psychological abuse and PTS symptoms. Specifically, shame during recall of a psychological abuse memory was hypothesized to mediate associations between psychological abuse memory recall and PTS symptom severity (see Figure 2).

Experiment 1 aimed to establish a relationship between recall of a psychological abuse memory and increased post-recall shame. Consistent with the hypothesis, increased state shame was observed from pre- to post-recall of a psychological abuse memory, but not from pre- to post-recall of a non-abuse relationship memory. Thus, the first piece of the proposed mediational model was established. This pattern of findings held after controlling for physical and sexual abuse and shame-proneness, providing further support for the link between psychological abuse and shame.

Experiment 2 aimed to establish a relationship between recall of a shameful psychological abuse memory and increased post-recall PTS symptom severity. Contrary to the hypothesis, Experiment 2 revealed that there was not a statistically significant interaction between memory group and time of assessment for past-day PTS symptom severity. This pattern held after controlling for physical and sexual abuse and shame-

proneness. An unexpected finding was that for women, overall, PTS symptom severity decreased from pre-recall to post-recall. For all women, decreases in PTS symptom severity were driven by decreases in hyperarousal and dysphoria symptoms. For women who recalled a shameful psychological abuse memory, decreases in effortful avoidance symptoms were also observed. In sum, the results of Experiment 2 did not support the second piece of the proposed mediational model.

Exploratory analyses for men in Experiment 1 revealed an association between psychological abuse memory recall and increased shame from pre- to post-recall. For Experiment 2, the manipulation of memory recall was judged to be unsuccessful and, therefore, no conclusions should be drawn from this data. Therefore, the following discussion focuses on findings for women.

When the results of Experiment 1 and Experiment 2 are considered together, the present application of the experimental-causal-chain study design did not establish a causal pathway from recall of a psychological abuse memory to increased PTS symptom severity via shame during memory recall for women (see Figure 2). However, for a number of reasons discussed earlier, it would be premature to dismiss shame as a potential mediator. Although the potential pathway between shameful psychological abuse memory recall and PTS symptoms remains unclear, psychological abuse memory recall was linked to increased state shame, providing empirical evidence to support the role of shame as a particularly salient negative emotion among individuals with histories of psychological abuse.

By experimentally manipulating recall of a psychological abuse memory, this study linked recall of such a memory to increases in state shame, even after controlling

for other abuse experiences and shame-proneness. As such, this study expands upon correlational studies that have linked retrospective reports of psychological abuse history and shame (Beck et al., 2011; Street & Arias, 2001). Increased state shame was not observed when non-abuse memories were recalled, suggesting that feelings of shame may be tied specifically to memories of psychological abuse experiences. Overall, the results of this study suggests that shame may be a particularly salient emotion among individuals with psychological abuse histories.

At a conceptual level, these results contribute to the understanding of how events that are threatening to the social self, like psychological abuse, may play a role in posttraumatic stress responses. Budden (2009) proposed a dual pathway through which events that are threatening to the social self may contribute to traumatic stress responses via shame. In the context of an interpersonal relationship, when a person experiences either domination and subjugation, or when a person's expectations about the world are threatened, these experiences may be attributed to the self. A sense of inferiority and a tendency to make global, internal attributions following a failure to meet expectations may emerge, reflecting some of the core features of the cognitive features that contribute to the affective experience of shame (Tangney & Dearing, 2002). When these feelings are linked to a traumatic experience, one's perceived vulnerability is exposed and a person may be unable to assure his or her sense of personal safety within the world, contributing to the onset of PTS symptoms (Budden, 2009).

The present consideration of psychological abuse memory recall and shame extends Budden's (2009) model by providing evidence for the role of shame over time. Specifically, shame may continue to play a role in PTS symptoms following exposure to

events that are threatening to the social self through shame that occurs during recall of event memories. Shame during recall, in turn, may contribute to a persistent sense of threat to one's internal and external safety which, theoretically, could contribute to the maintenance of PTS symptoms, as well as to other mental health problems (see Gilbert, 2009).

Given that shame has been linked with a number of deleterious and persistent mental and negative health outcomes, including PTS symptoms (Gilbert, 2009; Tangney & Dearing, 2002), the emerging connections between psychological abuse and shame may have important implications for conceptualizations of psychological abuse and mental health. Although a link between shameful psychological abuse memory recall and PTS symptoms was not established, this study's findings regarding shame highlights the need for future studies to consider shame and PTS symptoms in survivors of psychological abuse. The mnemonic model of PTSD may provide a useful framework for future studies. Importantly, future applications of this model should give careful attention to how PTS symptoms are measured and may wish to consider other memory properties that may confound study results.

Limitations, Future Directions, and Clinical Considerations

Limitations and future directions. This study's novel application of the mnemonic model of PTSD (Rubin et al., 2008) contributes to the body of literature addressing psychological abuse and PTS symptoms severity, though its contributions must be considered in light of several potentially important limitations. First, this study considered college aged women and men with histories of psychological abuse in a past adult dating or cohabitating relationship. The vast majority of participants were currently

enrolled in college, perhaps suggesting a level of relatively good adjustment among this sample. Therefore, the results of this study may not generalize to other types of intimate partner psychological abuse experiences (e.g., clinical populations, help-seeking individuals, or people with spousal abuse histories). Future replications of this study may wish to consider individuals with a broader range of intimate partner abuse experiences.

This study recruited individuals with high levels of psychological abuse and, therefore, results may not generalize to individuals with less severe abuse. It is important to note that participants were not excluded based upon severity of psychological abuse history. This is important in light of past studies in which associations between psychological abuse and PTS symptoms were not observed among individuals with histories of relatively low levels of psychological abuse (Avant et al., 2011; Sabina & Straus, 2008). It remains unclear what threshold of psychological abuse severity must be reached in order to potentially impact PTS symptom severity. Although descriptive analyses for both Experiment 1 and Experiment 2 revealed that women and men experienced relatively high rates of psychological abuse compared to other samples of similarly aged individuals, it is possible that the level of psychological abuse was not high enough to precipitate PTS symptoms.

While a strength of this study relates to its ability to experimentally test hypotheses as a result of its conceptualization of psychological abuse and PTS symptoms within the mnemonic model, there are limitations that result from this approach. By isolating a specific psychological abuse memory in order to empirically test hypotheses, this study does not fully address the potentially pervasive dysfunction in autobiographical memory process. Some conceptualizations of memory recall and PTS symptoms, such as

Rubin et al.'s (2011) Autobiographical Memory Theory of PTS and – notably – the mnemonic model itself, propose that PTS symptomatology is not linked to specific memories (Rubin et al, 2008; Rubin et al., 2011). Rather, these conceptualizations posit that PTS symptomatology follows from dysfunction that occurs across memory processes. On a related note, some data suggest that the presence of PTS symptoms may contribute to overly general autobiographical memory processes (Moore & Zoellner, 2007). By limiting memory recall to specific memories, and by excluding individuals who could not recall a specific memory as described in memory recall prompts, it is possible that a group of participants that may have been more likely to have psychological abuse-related PTS symptoms were excluded from the present study. Additionally, this study did not account for a number of other features that have been implicated in pathogenic memory process, such as the individual's evaluation of the importance of the memory. Future studies may wish to consider multiple abuse memories, or to design studies so that individuals with overly general autobiographical memories are not excluded. Future studies may also wish to consider other variables that may impact pathogenic memory processes, such as emotional regulation during recall, rumination, and centrality of memories.

An additional strength of the present application of the mnemonic model is that pre- and post-recall changes in state shame (Experiment 1) and PTS symptoms severity (Experiment 2) could be differentiated. In order to differentiate pre- and post-recall symptoms, shame and PTS symptom severity were measured both before and after recall of psychological abuse memories. Earlier, concerns were raised about the measurement of PTS symptoms, particularly in Experiment 2. While it is essential that a relatively brief

time interval is used when pre- and post-recall PTS symptoms are considered, it is likely important to measure symptoms over a period longer than 24 hours. Future studies that aim to differentiate between pre- and post-recall symptoms may benefit from evaluating symptoms pre-recall, shortly after recall (i.e., 24 hours), and at a third time point further from initial recall (i.e., one week). Or, studies may consider using daily experience sampling approach over a similar time frame (e.g., one week; Been-Zeev & Young, 2010).

Careful consideration of the referent time period for which PTS symptoms are measured is warranted in future studies. Measures may need to be tied to the recall manipulation (i.e., participants could be instructed to complete measures with regard to symptoms that have emerged since they attended the initial research visit), rather than to a specific time period (i.e., past-day or past-week symptoms). Similarly, researchers may want to contact participants prior to the first research visit in order to create an anchor point for which pre-recall symptoms can be evaluated.

Another strength of this study is its use of the experimental-causal-chain study design to test the proposed mediational model. The experimental-causal-chain study design allows for causal relationships to be established when manipulation of the mediator variable – in this case, shame during memory recall – is easily manipulated and when the outcome measure – in this case, PTS symptom severity – is easily measured. While memory recall manipulations were judged to be largely successful for women, the manipulation of shameful memory recall was not successful for men. Future studies should carefully consider how memory recall manipulation prompts are designed, particularly when considering men.

There were also concerns about how PTS symptoms were measured in this study. Future studies that use experimental-causal-chain designs to test PTS symptoms following recall of abuse memories should select a referent time period for PTS symptom measures that balances the need to capture a full picture of symptoms following memory recall with the need to reduce noise from potentially confounding variables, such as other life stressors and recall of pathogenic memories of other abuse experiences.

This study proposed that focusing on shame, a negative emotion linked with events that are threatening to the social self, would be a fruitful starting point for considerations of psychological abuse and PTS symptoms. Indeed, this study's consideration of shame revealed potentially important links between shame and psychological abuse memory recall. However, other negative emotions, like anger and guilt, may also be important to consider. In doing so, future studies have the potential to provide a more complete picture of the mechanisms that may underlie relationships between psychological abuse and PTS symptom severity.

Finally, analyses of this data collected from men were exploratory in nature and conducted in small sample sizes. Thus, the conclusions that can be drawn with regard to recall of psychological abuse memories, shame during recall, and PTS symptom severity were limited, though psychological abuse memory recall was tentatively linked with shame. Accordingly, future studies should consider these phenomena in men.

Clinical Considerations. Several clinical implications follow from the results of the present study. On a broad level, the present study's findings, coupled with the findings of past studies, underscore the importance of screening for psychological abuse among clinical populations, in addition to screening for other abuse experiences (i.e.,

physical and sexual abuse, stalking). Moreover, clinicians working with individuals with histories of stressful relationships must be sensitive to the potential impact of psychological abuse, even when it occurs in the context of other abuse experiences.

This study highlights the possibility that psychological abuse may be a particularly potent precipitator of shame. As such, shame may be a particularly salient emotion among help-seeking individuals with psychological abuse histories. Therefore, clinicians should consider the potential for shame-based responses among individuals with histories of psychological abuse. By doing so, a more complete clinical picture of a person's symptoms may emerge. When shame-based responses are evident, clinicians may consider interventions that address the affective, cognitive, and behavioral components of shame (Matos & Pinto-Gouveia, 2010). For example, Gilbert's (2009) Compassion-Focused Therapy may be a potentially fruitful therapeutic intervention for individuals with shame-related symptoms. Through interventions aimed at increasing the client's self-soothing abilities and fostering a sense of safety rooted in self-compassion, Compassion-Focused Therapy addresses the chronic feelings of internal and external vulnerability that are particularly striking among individuals with high-levels of shame, including among some individuals with histories of chronic interpersonal traumas such as psychological abuse (Gilbert, 2009).

Although proposed associations between shameful psychological abuse and PTS symptoms were not supported, the potential role of shameful memories in the development and maintenance of PTS symptoms, and the clinical implications of this possibility, should not be dismissed. Given that many interventions for PTSD and other trauma-related problems are grounded in a theoretical framework in which the role of

fear, helplessness, and horror are emphasized (e.g, Prolonged Exposure; Foa, Hembree, & Rothbaum, 2007), clinicians may wish to tailor interventions to address this affective response, or to select interventions that address shame-based responses specifically.

Summary and Conclusions

This study represents a novel application of the mnemonic model of PTSD symptoms (Rubin et al., 2008). Using this framework, this study tested a proposed mediational model in which shame during recall of a psychological abuse memory (M) was hypothesized to mediate associations between psychological abuse memory recall (X) and PTS symptom severity (Y). The results of Experiment 1 provided support for the first piece of the proposed mediational model ($X \rightarrow M$). Specifically, recall of a psychological abuse memory was associated with increases in state shame from pre- to post-recall. The results of Experiment 2 did not support the second piece of the proposed mediational model ($M \rightarrow Y$). Specifically, recall of a shameful psychological abuse memory was not associated with statistically significant increases in past-day PTS symptom severity from pre- to post-recall. Problems with the measurement of PTS symptoms were offered as a primary explanation for the unexpected finding of Experiment 2, although the possibility that other, unmeasured memory properties confounded the study results cannot be ruled out.

Although the proposed mediational model was only partially supported, the results of this study suggest that further consideration of this model is warranted. The mnemonic model of PTSD symptoms provides a useful framework for conceptualizing this mediational pathway because it allows for experimental testing of hypothesis through manipulation of memory recall. Future studies wishing to use mnemonic model

framework should carefully select measures of PTS symptoms and may wish to consider additional properties of psychological abuse memories.

Findings from this study also highlighted the potential role of shame in post-abuse mental health among survivors of intimate partner abuse. In addition to considering PTS symptoms, future studies should consider associations among psychological abuse, shame, and other mental health outcomes. Clinicians working with individuals with psychological abuse histories should also be aware of potential shame-related post-abuse outcomes.

Table 1

Demographics and Relationship Characteristics for Experiment 1

Variable	Women (<i>n</i> = 34)	Men (<i>n</i> = 16)
Age	20.81(2.00)	20.89(2.53)
Race/Ethnicity		
Non-Hispanic White American	50.00% (<i>n</i> = 17)	37.50% (<i>n</i> = 6)
Hispanic American/Latina/Latino	17.65% (<i>n</i> = 6)	31.25% (<i>n</i> = 5)
African American	14.71% (<i>n</i> = 5)	0.00% (<i>n</i> = 0)
Native American	2.94% (<i>n</i> = 1)	6.25% (<i>n</i> = 1)
Asian American	2.94% (<i>n</i> = 1)	6.25% (<i>n</i> = 1)
Biracial/Multiracial	11.76% (<i>n</i> = 4)	12.50% (<i>n</i> = 2)
Other	0.00% (<i>n</i> = 0)	6.25% (<i>n</i> = 1)
Academic Class		
Freshman	35.29% (<i>n</i> = 12)	43.75% (<i>n</i> = 7)
Sophomore	29.41% (<i>n</i> = 10)	25.00% (<i>n</i> = 4)
Junior	11.76% (<i>n</i> = 4)	18.75% (<i>n</i> = 3)
Senior	23.53% (<i>n</i> = 8)	12.50% (<i>n</i> = 2)
Other/Not Enrolled	0.00% (<i>n</i> = 0)	0.00% (<i>n</i> = 0)
History of Psychological Treatment	41.18% (<i>n</i> = 14)	37.50% (<i>n</i> = 6)
Current Prescription Medications	35.29% (<i>n</i> = 12)	6.25% (<i>n</i> = 1)
Relationship Length	2.27(2.56)	1.74(1.15)
Time Since Relationship Ended	4.85(3.37)	5.69(3.81)
Heterosexual Relationship	94.12% (<i>n</i> = 32)	100% (<i>n</i> = 16)
Level of Commitment		
Dating and Not Monogamous	14.71% (<i>n</i> = 5)	12.50% (<i>n</i> = 2)
Dating and Monogamous	61.76% (<i>n</i> = 21)	75.00% (<i>n</i> = 12)
Cohabiting	23.53% (<i>n</i> = 8)	12.50% (<i>n</i> = 2)
Currently Partnered	26.47% (<i>n</i> = 9)	12.50% (<i>n</i> = 2)

Note. Values are means and standard deviations or percentages (*n*). Values for Relationship Length are in years. Values for Time since Relationship Ended are in months.

Table 2

Primary Variables for Women in Experiment 1: Descriptives and Intecorrelations (n = 34)

Variable	<i>M(SD)</i>	<i>Mdn(IQR)</i>	<i>Min</i>	<i>Max</i>	1	2	3	4	5	6	7	8 ^a
1. Pre-Recall State Shame: PAM	7.56(4.05)	5.50(3.00)	5.00	20.00	-							
2. Post-Recall State Shame: PAM	9.97(4.78)	9.50(7.00)	5.00	21.00	.67***	-						
3. Pre-Recall State Shame: NAM	7.21(3.69)	5.00(3.00)	5.00	19.00	.50**	.52**	-					
4. Post-Recall State Shame: NAM	7.57(3.39)	6.00(5.00)	5.00	19.00	.71***	.85***	.39*	-				
5. Psychological Abuse Severity	121.89(44.32)	123.00(65.00)	53.00	208.00	.15	.38*	.09	.49**	-			
6. Physical Assault Chronicity	11.38(29.58)	2.50(6.00)	0.00	158.00	.16	.06	.10	.19	.32	-		
7. Sexual Coercion Chronicity	15.06(31.33)	3.50(12.00)	0.00	148.00	.37*	.18	.13	.19	.16	.16	-	
8. Shame-Proneness ^a	29.68(7.56)	32.00(8.00)	12.00	43.00	.20	.35*	-.12	.40*	.12	.28	.16	-
9. Past-Day PTS Symptom Severity	37.80(15.49)	35.50(20.00)	17.00	79.00	.69***	.72***	.66***	.67***	.50**	.30	.29	.24

Note. All variables, with the exception of psychological abuse severity, were non-normally distributed. Therefore, Spearman's Rho is reported for all correlations. PAM = Psychological Abuse Memory; NAM = Non-Abuse Relationship Memory.

^a $n = 32$

* $p < .05$

** $p < .01$

*** $p < .001$

Table 3

Primary Variables for Men in Experiment 1: Descriptives and Intercorrelations (n = 16)

Variable	<i>M(SD)</i>	<i>Mdn(IQR)</i>	<i>Min</i>	<i>Max</i>	1	2	3	4	5	6	7	8
1. Pre-Recall State Shame: PAM	7.81(4.31)	6.50(3.50)	5.00	21.00	-							
2. Post-Recall State Shame: PAM	9.63(5.38)	8.00(8.00)	5.00	23.00	.69***	-						
3. Pre-Recall State Shame: NAM	8.31(4.21)	6.50(6.00)	5.00	20.00	.73**	.58*	-					
4. Post-Recall State Shame: NAM	8.13(4.44)	6.50(4.00)	5.00	22.00	.79***	.71**	.80***	-				
5. Psychological Abuse Severity	111.26(37.21)	119.08(47.00)	49.00	198.00	.45	.54*	.34	.36	-			
6. Physical Assault Chronicity	17.13(35.61)	2.50(16.50)	0.00	139.00	.76***	.52*	.68***	.59**	.72**	-		
7. Sexual Coercion Chronicity	13.63(23.55)	0.50(19.50)	0.00	73.00	.58**	.59*	.46	.41	.81***	.61**	-	
8. Shame-Proneness	25.33(4.49)	26.70(6.00)	16.00	31.90	.42	.47	.05	.47	.28	.34	.06	-
9. Past-Day PTS Symptom Severity	37.60(15.75)	35.03(125.00)	17.00	67.00	.72**	.70**	.92***	.83***	.47	.64**	.54*	.25

Note. Physical assault chronicity, shame-proneness, and past-day PTS symptom severity were normally-distributed; all other variables were non-normally-distributed. Pearson's *r* are reported for correlations between normally-distributed variables. All other correlations are Spearman's Rho. PAM = Psychological Abuse Memory; NRM = Non-Abuse Relationship Memory.

**p* < .05

***p* < .01

****p* < .001

Table 4

Demographics and Relationship Characteristics for Experiment 2

Variable	Women			Men
	Full Sample (<i>n</i> = 34)	Shameful Memory (<i>n</i> = 17)	Emotionally-Neutral Memory (<i>n</i> = 17)	Full Sample (<i>n</i> = 6)
Age	21.46(1.78)	21.01(1.56)	21.92(1.90)	21.88(3.92)
Race/Ethnicity				
Non-Hispanic White American	61.76% (<i>n</i> = 21)	58.82% (<i>n</i> = 10)	64.71% (<i>n</i> = 11)	16.67% (<i>n</i> = 1)
Hispanic American/Latina/Latino	11.76% (<i>n</i> = 4)	17.65% (<i>n</i> = 3)	5.88% (<i>n</i> = 1)	50.00% (<i>n</i> = 3)
African American	17.65% (<i>n</i> = 6)	25.53% (<i>n</i> = 4)	11.76% (<i>n</i> = 2)	16.67% (<i>n</i> = 1)
Native American	0.00% (<i>n</i> = 0)	0.00% (<i>n</i> = 0)	0.00% (<i>n</i> = 0)	16.67% (<i>n</i> = 1)
Asian American	0.00% (<i>n</i> = 0)	0.00% (<i>n</i> = 0)	0.00% (<i>n</i> = 0)	0.00% (<i>n</i> = 0)
Biracial/Multiracial	5.88% (<i>n</i> = 2)	0.00% (<i>n</i> = 0)	11.76% (<i>n</i> = 2)	0.00% (<i>n</i> = 0)
Other	2.94% (<i>n</i> = 1)	0.00% (<i>n</i> = 0)	5.8% (<i>n</i> = 1)	0.00% (<i>n</i> = 0)
Academic Class ^{a, b}				
Freshman	15.15% (<i>n</i> = 5) ^a	18.75% (<i>n</i> = 3) ^b	11.76% (<i>n</i> = 2)	33.33% (<i>n</i> = 2)
Sophomore	21.21% (<i>n</i> = 7) ^a	25.00% (<i>n</i> = 4) ^b	17.65% (<i>n</i> = 3)	66.67% (<i>n</i> = 4)
Junior	30.30% (<i>n</i> = 10) ^a	43.75% (<i>n</i> = 7) ^b	17.65% (<i>n</i> = 3)	0.00% (<i>n</i> = 0)
Senior	27.27% (<i>n</i> = 9) ^a	12.50% (<i>n</i> = 2) ^b	41.18% (<i>n</i> = 7)	0.00% (<i>n</i> = 0)
Other/Not Enrolled	6.06% (<i>n</i> = 2)	0.00% (<i>n</i> = 0)	11.76% (<i>n</i> = 2)	0.00% (<i>n</i> = 0)
Psychological Treatment History	47.06% (<i>n</i> = 16)	35.29% (<i>n</i> = 6)	58.82% (<i>n</i> = 10)	50.00% (<i>n</i> = 3)
Current Prescription Medications	41.18% (<i>n</i> = 14)	29.41% (<i>n</i> = 5)	52.94% (<i>n</i> = 9)	0.00% (<i>n</i> = 0)
Relationship Length	1.67(1.28)	1.75(1.48)	1.58(1.08)	1.28(1.28)
Time Since Relationship Ended	5.59(3.39)	5.35(3.30)	5.82(3.56)	4.17(4.02)
Heterosexual Relationship	91.18% (<i>n</i> = 31)	88.24% (<i>n</i> = 2)	94.12% (<i>n</i> = 16)	66.67% (<i>n</i> = 4)
Level of Commitment				
Dating and Not Monogamous	0.00% (<i>n</i> = 0)	0.00% (<i>n</i> = 0)	0.00% (<i>n</i> = 0)	33.33% (<i>n</i> = 2)
Dating and Monogamous	76.47% (<i>n</i> = 26)	82.35% (<i>n</i> = 14)	70.59% (<i>n</i> = 12)	66.67% (<i>n</i> = 4)
Cohabiting	23.53% (<i>n</i> = 8)	17.65% (<i>n</i> = 3)	29.41% (<i>n</i> = 5)	0.00% (<i>n</i> = 0)
Currently Partnered	32.35% (<i>n</i> = 11)	35.29% (<i>n</i> = 6)	29.41% (<i>n</i> = 5)	0.00% (<i>n</i> = 0)

Note. Values are means and standard deviations or percentages(*n*). Relationship Length is in years. Time since Relationship Ended is in months.

^a *n* = 33 for full sample of women.

^b *n* = 16 for shameful memory group

Table 5

Primary Variables for Women in Experiment 2: Descriptives and Intercorrelations

Variable	<i>M</i> (<i>SD</i>)	<i>Mdn</i> (<i>IQR</i>)	<i>Min</i>	<i>Mix</i>	1	2	3	4	5
<u>All Women (<i>n</i> = 34)</u>									
1. Pre-Recall Past-Day PTS Symptom Severity	33.65(13.59)	30.50(17.00)	17.00	71.00	-				
2. Post-Recall Past-Day PTS Symptom Severity	30.19(10.53)	27.50(15.00)	17.00	60.00	.81***	-			
3. Psychological Abuse Severity	132.25(39.53)	125.50(61.00)	54.67	205.00	.34*	.25	-		
4. Physical Assault Chronicity	14.97(45.42)	3.00(11.00)	0.00	262.00	.29	.31	.62***	-	
5. Sexual Coercion Chronicity	13.59(21.23)	5.00(25.00)	0.00	106.00	.24	.22	.33	.33	-
6. Shame-Proneness	31.86(7.52)	30.50(13.00)	17.00	46.00	.26	.40*	.16	.10	.06
<u>Shameful Psychological Abuse Memory Group (<i>n</i> = 17)</u>									
1. Pre-Recall Past-Day PTS Symptom Severity	35.65(15.16)	36.00(19.00)	17.00	71.00	-				
2. Post-Recall Past-Day PTS Symptom Severity	30.47(9.73)	30.00(15.00)	17.00	49.00	.93***	-			
3. Psychological Abuse Severity	134.82(40.74)	125.00(54.00)	73.00	205.00	.18	.24	-		
4. Physical Assault Chronicity	20.59(62.79)	3.00(4.00)	0.00	262.00	.28	.34	.59*	-	
5. Sexual Coercion Chronicity	13.76(26.08)	5.00(12.00)	0.00	106.00	.42	.45	.53*	.57*	-
6. Shame-Proneness	31.91(6.08)	30.00(11.14)	23.00	41.00	.24	.29	.39	.36	.35
<u>Emotionally-Neutral Relationship Memory Group (<i>n</i> = 17)</u>									
1. Pre-Recall Past-Day PTS Symptom Severity	31.65(11.94)	27.00(.56)	17.00	60.00	-				
2. Post-Recall Past-Day PTS Symptom Severity	29.91(11.56)	25.00(14.00)	19.00	60.00	.61**	-			
3. Psychological Abuse Severity	129.68(39.36)	126.00(52.00)	54.67	196.00	.44	.30	-		
4. Physical Assault Chronicity	9.35(15.70)	3.00(11.00)	0.00	55.00	.23	.29	.64**	-	
5. Sexual Coercion Chronicity	13.41(15.80)	5.00(25.00)	0.00	49.00	-.10	-.06	.06	.09	-
6. Shame-Proneness	31.82(8.92)	31.00(15.00)	17.00	46.00	.17	.52*	-.00	-.09	-.21

Note. Spearman's Rhos are reported for the full sample because all variables, except for shame-proneness, were non-normally distributed. For the shameful psychological abuse memory group, Pearson's *r*s are reported for correlations among pre-recall past-day PTS symptom severity, post-recall past-day PTS symptom severity, and psychological abuse severity, all of which were normally-distributed; all other correlations are Spearman's Rhos. For the emotionally-neutral relationship memory group, Pearson's *r* is reported for the correlation between psychological abuse severity and shame-proneness; all other correlations are Spearman's Rho.

**p* < .05

***p* < .01

****p* < .001

Table 6

Descriptives for Negative Posttraumatic Cognitions for Women in Experiment 2

Variable	<i>M(SD)</i>	<i>Mdn(IQR)</i>	<i>Min</i>	<i>Max</i>
Negative Posttraumatic Cognitions	102.49(37.40)	104.00(67.00)	47.00	164.00
Shameful Psychological Abuse Memory	100.21(38.24)	96.00(66.00)	47.00	164.00
Emotionally-Neutral Relationship Memory	104.76(37.58)	117.0(67.00)	50.00	155.00
Self	2.55(1.20)	2.57(2.14)	1.00	4.70
Shameful Psychological Abuse Memory	2.44(1.24)	2.29(1.95)	1.00	4.70
Emotionally-Neutral Relationship Memory	2.66(1.18)	2.90(1.2.14)	1.00	4.24
World	4.62(1.34)	4.79(2.00)	2.14	7.00
Shameful Psychological Abuse Memory	4.68(1.32)	3.57(1.86)	2.43	7.00
Emotionally-Neutral Relationship Memory	4.55(1.40)	5.00(2.00)	2.14	6.71
Self-Blame	3.46(1.28)	3.60(2.20)	1.00	5.60
Shameful Psychological Abuse Memory	3.41(1.23)	3.60(1.00)	1.00	5.60
Emotionally-Neutral Relationship Memory	3.51(1.36)	3.60(2.40)	1.00	5.20

Note. Descriptives for the entire sample ($n = 34$) are presented in bold. Descriptives for each memory group ($n_s = 17$, for both) are also presented.

Table 7

Group Comparisons for Memory Groups

Variable	Test	Test Statistic	<i>p</i>
Race	Fisher's Exact	-	.40
Academic Class	Fisher's Exact	-	.16
History of Psychological Treatment	Chi Square	$\chi^2 = 1.89$	.17
Current Medications	Chi Square	$\chi^2 = 1.96$	.16
Heterosexual Relationship	Fisher's Exact	-	1.00
Level of Commitment	Fisher's Exact	-	.69
Currently Partnered	Chi Square	$\chi^2 = .13$	.71
Age	Wilcoxon-Mann-Whitney	$z = 1.50$	.13
Relationship Length	Wilcoxon-Mann-Whitney	$z = .02$	.99
Time Since Relationship Ended	Wilcoxon-Mann-Whitney	$z = .29$	.77
Psychological Abuse Severity	Wilcoxon-Mann-Whitney	$z = .16$	.86
Physical Assault Chronicity	Wilcoxon-Mann-Whitney	$z = .44$	.66
Sexual Coercion Chronicity	Wilcoxon-Mann-Whitney	$z = .44$	.65
Shame-Proneness	Wilcoxon-Mann-Whitney	$z = -.07$	.94
Negative Posttraumatic Cognitions	Wilcoxon-Mann-Whitney	$z = .19$	.85
Self	Wilcoxon-Mann-Whitney	$z = .48$	.63
World	Wilcoxon-Mann-Whitney	$z = .07$	.95
Self-Blame	Wilcoxon-Mann-Whitney	$z = .33$	.74

Table 8

Descriptives for Past-Day PTS Symptom Cluster Severity for Women

	<i>M(SD)</i>	<i>Mdn(IQR)</i>	<i>Min</i>	<i>Max</i>
<u>Shameful Psychological Abuse Memory (<i>n</i> = 17)</u>				
Intrusive Reexperiencing				
Pre-Recall	10.82(4.88)	10.00(6.00)	5.00	23.00
Post-Recall	9.00(2.81)	8.00(4.00)	5.00	14.00
Effortful Avoidance				
Pre-Recall	4.88(2.34)	4.00(4.00)	2.00	9.00
Post-Recall	3.88(1.96)	4.00(2.00)	2.00	9.00
Hyperarousal				
Pre-Recall	3.82(2.40)	3.00(2.00)	2.00	9.00
Post-Recall	3.47(1.77)	3.00(2.00)	2.00	8.00
Dysphoria				
Pre-Recall	16.12(7.01)	16.00(10.00)	8.00	30.00
Post-Recall	14.12(4.74)	13.00(7.00)	8.00	23.00
<u>Emotionally-Neutral Relationship Memory (<i>n</i> = 17)</u>				
Intrusive Reexperiencing				
Pre-Recall	8.99(3.34)	8.00(2.00)	5.00	18.00
Post-Recall	8.68(2.65)	8.00(3.00)	5.00	14.00
Effortful Avoidance				
Pre-Recall	3.88(2.15)	3.00(3.00)	2.00	10.00
Post-Recall	4.00(1.87)	3.00(2.00)	2.00	8.00
Hyperarousal				
Pre-Recall	3.88(1.83)	4.00(3.00)	2.00	7.00
Post-Recall	3.35(1.87)	2.00(2.00)	2.00	7.00
Dysphoria				
Pre-Recall	14.92(6.55)	12.00(5.00)	8.00	31.00
Post-Recall	13.88(6.77)	10.00(9.00)	8.00	31.00

Table 9

Mixed-design ANOVAs for Past-Day PTS Symptom Cluster Severity for Women

Source	<i>df</i>	<i>SS</i>	<i>F</i>	<i>p</i>	η_p^2
<u>Intrusive Reexperiencing</u>					
Between-Subjects					
A	1	19.86	1.06	.31	.03
S/A	32	600.67			
Within-Subjects					
B	1	19.32	3.15	.09	.09
AxB	1	9.75	1.59	.22	.05
BXS/A	32	196.33			
Total	33				
<u>Effortful Avoidance</u>					
Between-Subjects					
A	1	3.31	.42	.52	.01
S/A	32	250.41			
Within-Subjects					
B	1	3.31	3.67	.06	.10
AxB	1	5.31	5.88	.02	.16
BXS/A	32	28.88			
Total	33				
<u>Hyperarousal</u>					
Between-Subjects					
A	1	.01	.00	.96	.00
S/A	32	231.29			
Within-Subjects					
B	1	3.31	5.03	.03	.14
AxB	1	.13	.20	.66	.01
BXS/A	32	21.06			
Total	33				
<u>Dysphoria</u>					
Between-Subjects					
A	1	8.67	.12	.73	.00
S/A	32	2300.32			
Within-Subjects					
B	1	39.33	4.76	.04	.13
AxB	1	3.90	.47	.50	.01
BXS/A	32	264.53			
Total	33				

Table 10

Abuse History and Other Characteristics for Men in Experiment 2 (n = 6)

Variable	<i>M(SD)</i>	<i>Mdn(IQR)</i>	<i>Min</i>	<i>Max</i>
Psychological Abuse Severity	113.17(44.71)	106.00(85.99)	59.00	167.00
Physical Assault Chronicity	3.00(5.51)	0.50(3.00)	0.00	14.00
Sexual Coercion Chronicity	10.33(13.34)	4.00(25.00)	0.00	29.00
Shame-Proneness	25.83(7.31)	24.50(14.00)	18.00	36.00
Negative Posttraumatic Cognitions	91.33(39.63)	73.00(58.00)	60.00	158.00
Self	2.23(1.31)	1.74(2.10)	1.00	4.33
World	4.14(1.11)	4.21(1.71)	2.43	5.43
Self-Blame	3.23(1.58)	3.00(2.4)	1.60	5.80

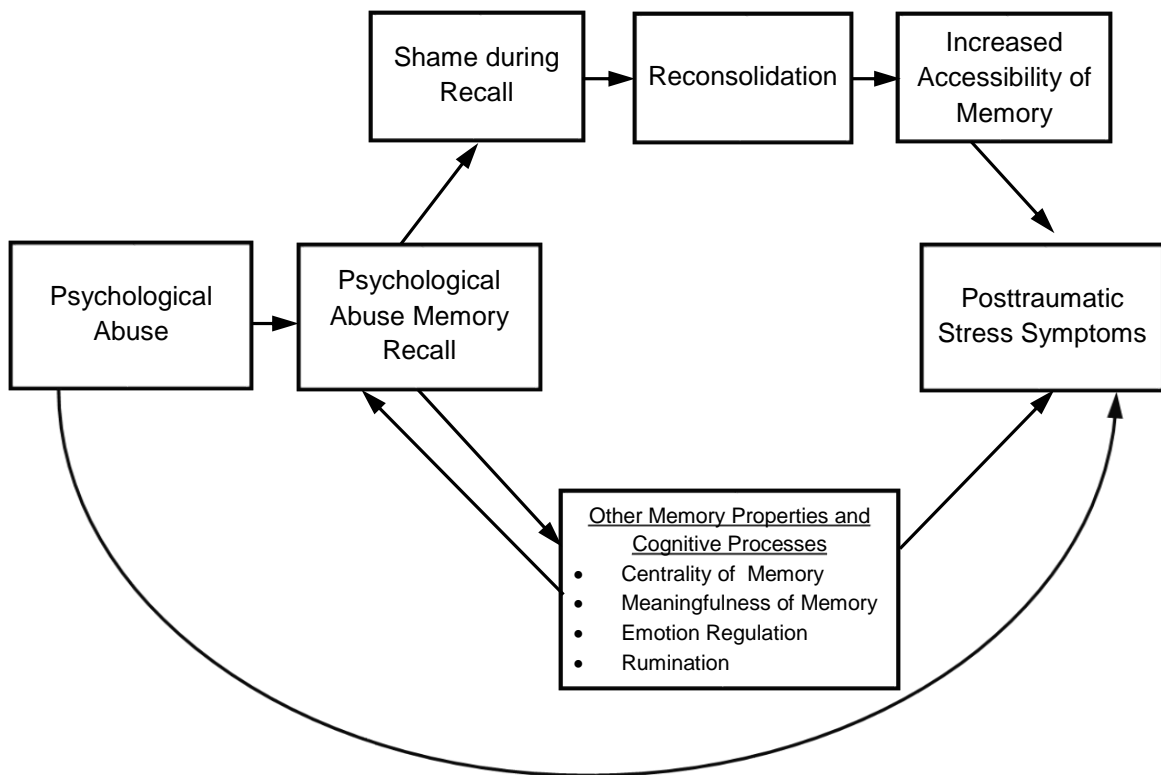


Figure 1. Psychological abuse in the context of the mnemonic model of PTSD. This model illustrates some of the proposed pathways leading from negative emotion during recall to increases in posttraumatic stress symptoms from pre-recall to post-recall; however, it is far from inclusive. Note that this figure illustrates the hypothesized direction of relationships between variables; it does not reflect how these relationships change over time.

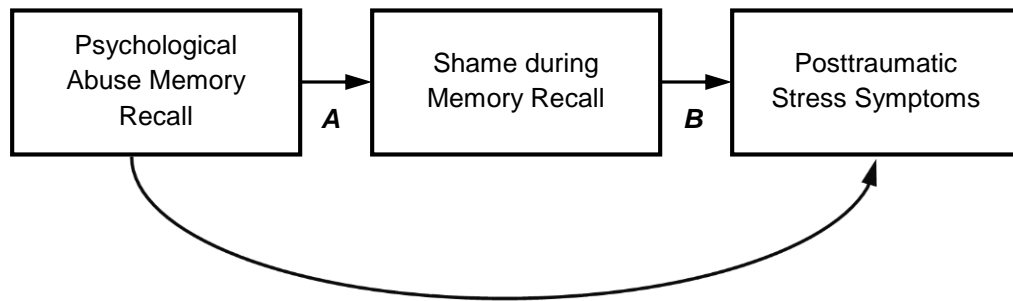


Figure 2. The proposed mediational model. The present study tested a piece of this hypothesized model. Specifically, this study tested the hypothesis that shame during psychological abuse memory recall mediates associations between memory recall and PTS symptoms. Experiment 1 tested the first piece of the mediational model (*A*) by evaluating associations between recall of a psychological abuse during memory and post-recall state shame. Experiment 2 tested the second piece of the mediational model (*B*) by evaluating associations between shameful psychological abuse memory and post-recall PTS symptoms. If both pieces of the model are supported by the results of both experiments, the mediational model will be supported.

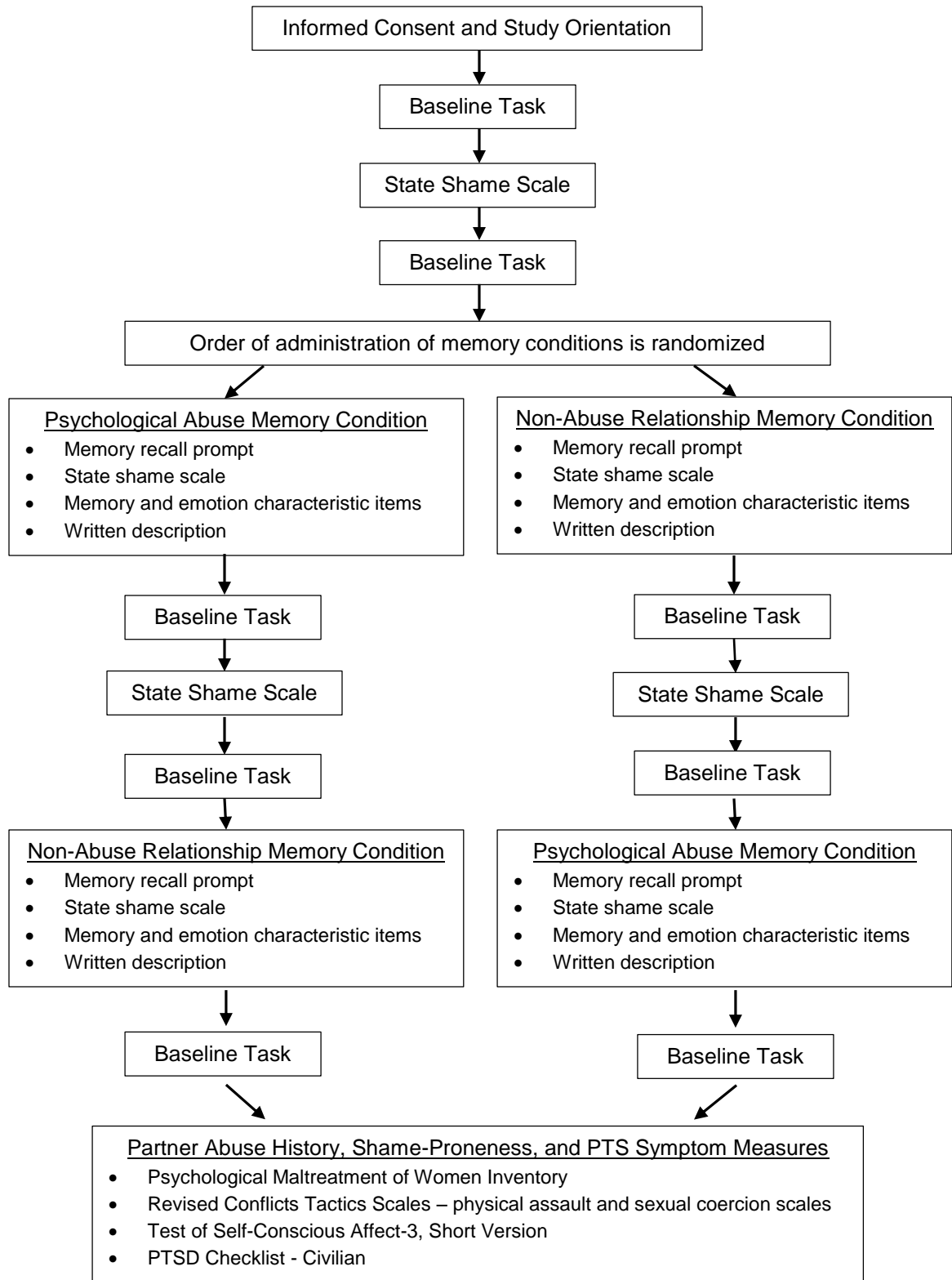


Figure 3. Experiment 1 procedure.

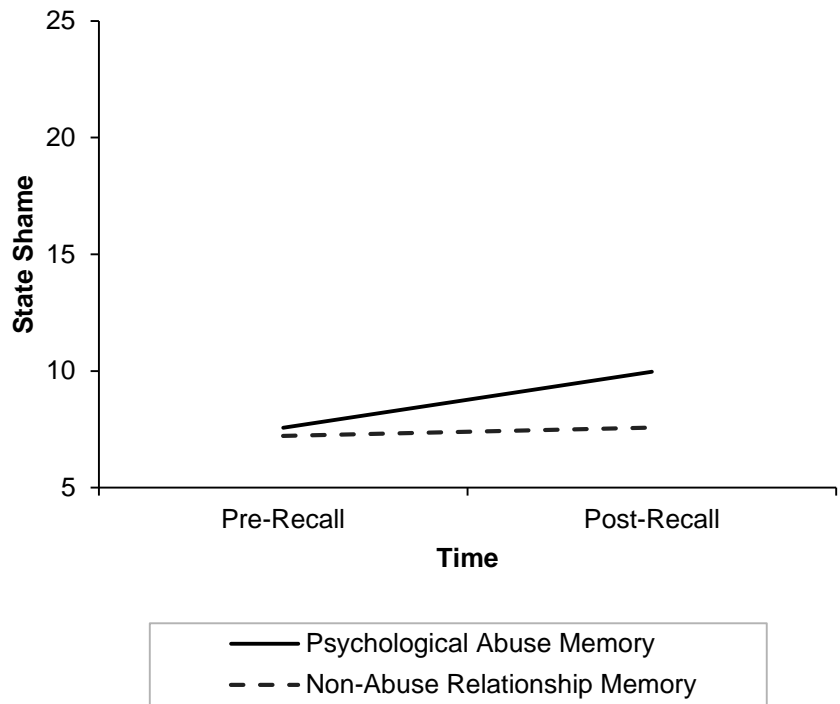


Figure 4. Means for pre-recall and post-recall state shame for women. Means for state shame at pre-recall and post-recall are presented for each memory condition.

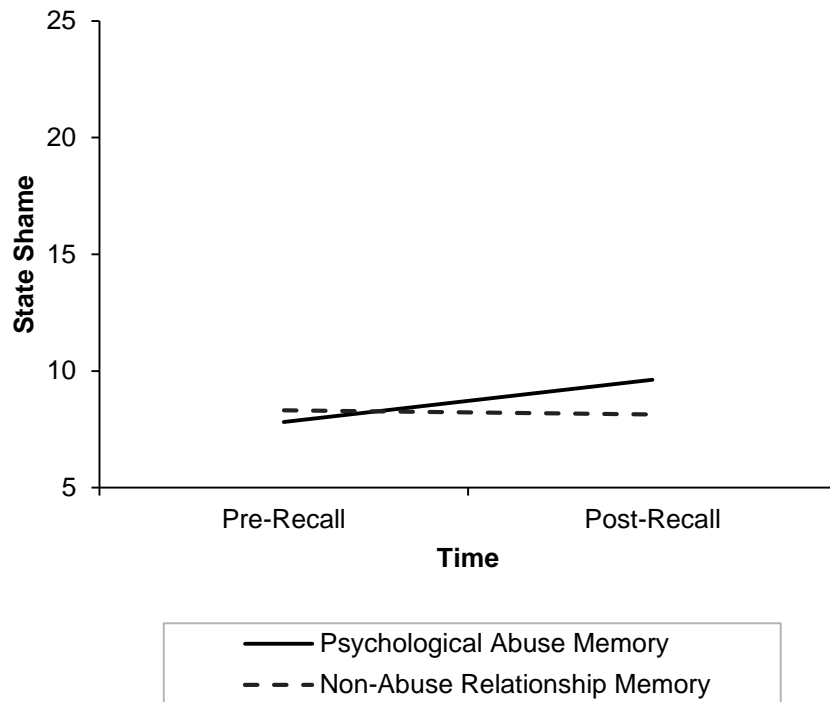


Figure 5. Means for pre-recall and post-recall state shame for men. Means are presented for each memory condition.

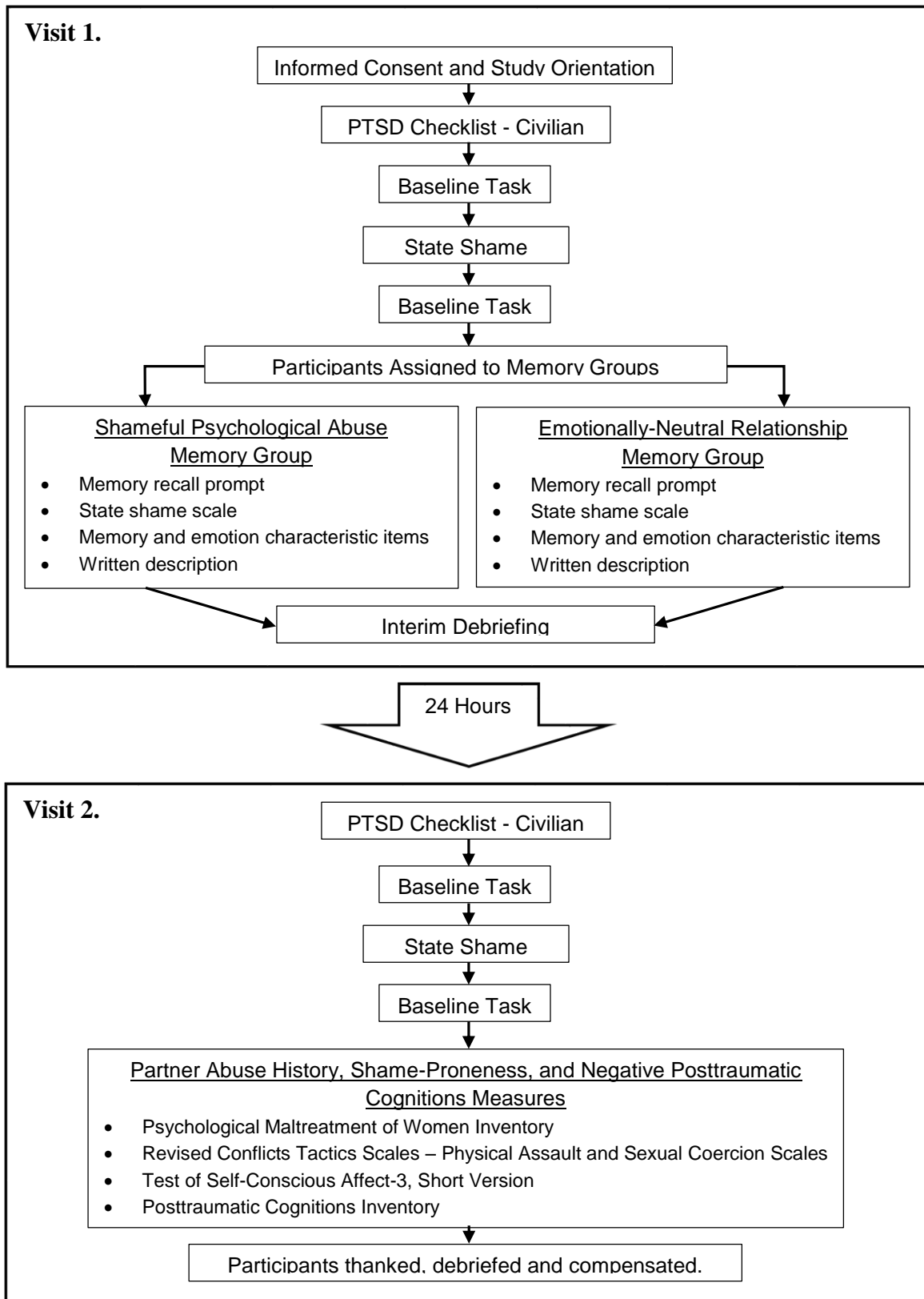


Figure 6. Experiment 2 procedure.

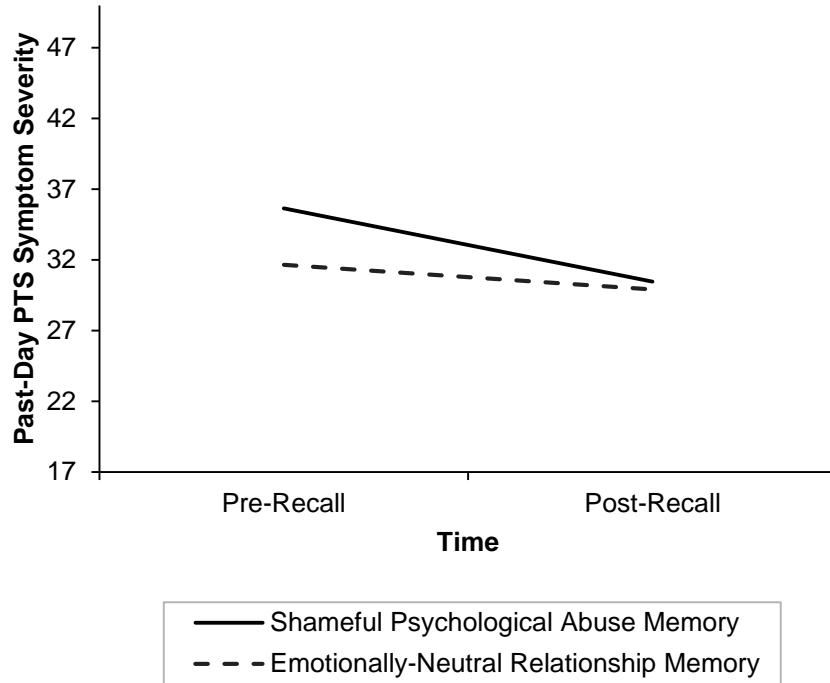
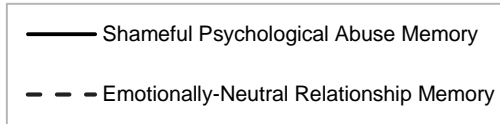
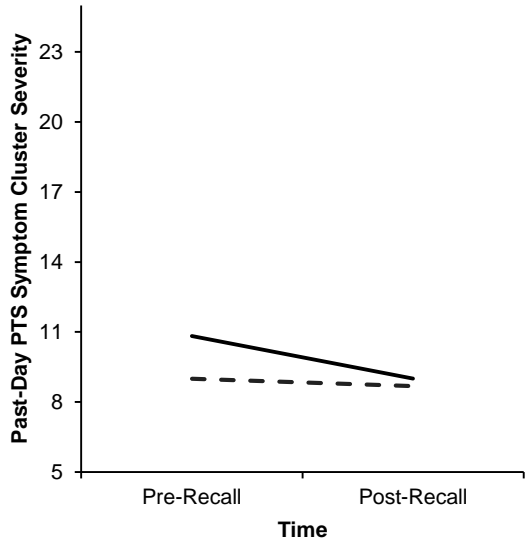
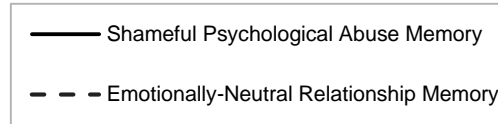
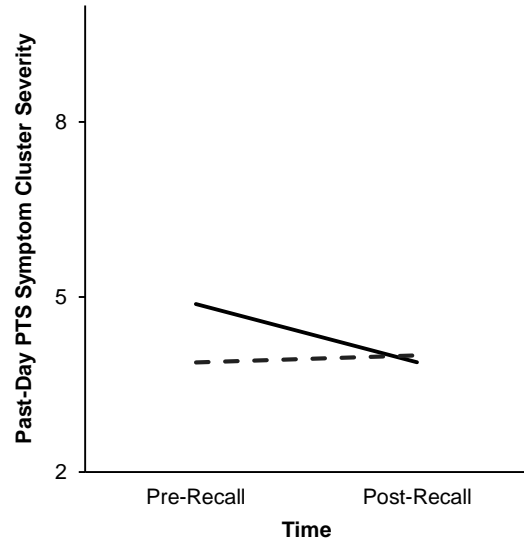


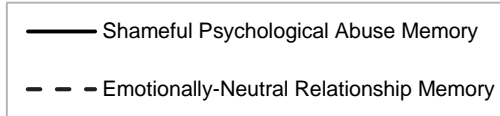
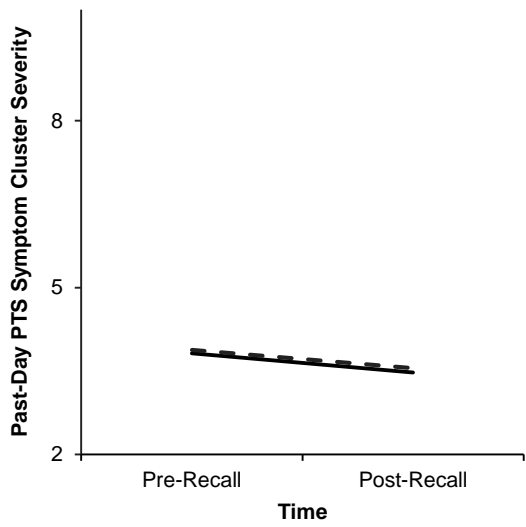
Figure 7. Means for pre-recall and 24 hour post-recall past-day PTS symptom severity for women.



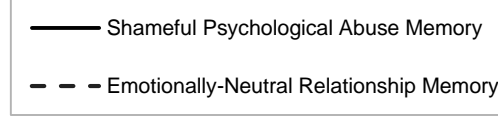
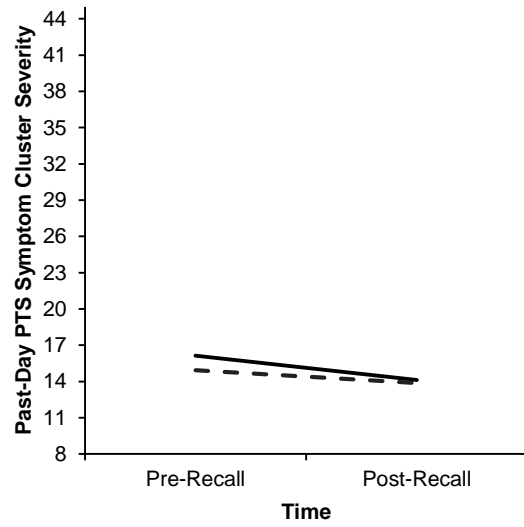
A. Intrusive Reexperiencing



B. Effortful Avoidance



C. Hyperarousal



D. Dysphoria

Figure 8. Means for pre-recall and 24 hour post-recall past-day PTS symptom cluster severity for women. For each cluster, the y-axis scale reflects the possible range of expected values for that cluster (e.g., the possible range of scores for the intrusive reexperiencing cluster is 5.00 to 25.00).

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APPENDICES

Appendix A

Sona Systems Advertisements

Sona Systems Advertisement for Relationships and Health I at University 1

Study Name: Relationships and Health I

Description: This study is for men and women between the ages of 19 and 30 who's most recent dating or cohabiting intimate relationship ended at least one month ago, but not more than one year ago. This intimate relationship must have begun after you turned 18 years of age. In this relationship, you must have experienced **many times** when your former partner:

- Verbally attacked you.
- Controlled what you could or could not do.
- Withheld information from you.
- Isolated you from friends and family.
- Denied you access to money or other basic resources.

The purpose of this study is to understand memories, emotions, and mental health in college undergraduates who have ended stressful intimate relationships.

This study will involve one research visit to a Belknap Campus research lab. The research visit will last two hours. You will receive two research credits for this experiment, or \$16.00 cash.

Research volunteers will complete questionnaires about their health, dating relationships, and thoughts and feelings about these relationships. They will be asked to recall and describe different events in their former dating relationships.

For more information, contact Kimberly Fleming, M.A. at knflem01@louisville.edu or (502)852-2665.

Eligibility: * Men and women, 19 to 30 years of age
* Most recent adult dating or cohabiting intimate relationship ended between one and twelve months ago
* In most recent former relationship, experienced **many times** when your partner: verbally attacked you, controlled what you could or could not do, withheld information from you, isolated you from friends or family, denied you access to money or other basic resources.
*You are **NOT** eligible if your **current partner** has ever done of the following things
- Your **current partner** ever pushed or slapped you
- Your **current partner** has ever threatened you with violence
- Your **current partner** ever thrown, broken, or punched things in your presence
*You are **NOT** eligible if you have ever been married

Duration: 2 hours

Compensation: 2.0 Research Credits or \$16.00 cash

Researchers: Kimberly Fleming, M.A.; email: knflem01@louisville.edu
Tamara Newton, Ph.D.; email: tnewt01@louisville.edu

Sign-Up

Deadline: At least 24 hours before research visit

Cancellation

Deadline: At least 12 hours before research visit

Sona Systems Advertisement for Relationships and Health II at University 1

Study Name: Relationships and Health II

Description: This study is for men and women between the ages of 19 and 30 who's most recent dating or cohabiting intimate relationship ended at least one month ago, but not more than one year ago. This intimate relationship must have begun after you turned 18 years of age. In this relationship, you must have experienced **many times** when your former partner:

- Verbally attacked you.
- Controlled what you could or could not do.
- Withheld information from you.
- Isolated you from friends and family.
- Denied you access to money or other basic resources.

The purpose of this study is to understand memories, emotions, and mental health in college undergraduates who have ended stressful intimate relationships.

This study will involve two research visits to a Belknap Campus research lab. The first research visit will last one hour. The second research visit will last one hour. You will receive one research credit after the first visit and one research credit after the second visit. Or, you will receive \$8.00 after the first visit, and \$8.00 after the second visit.

Research volunteers will complete questionnaires about their health, dating relationships, and thoughts and feelings about these relationships. They will be asked to recall and describe an event in their former dating relationships.

For more information, contact Kimberly Fleming, M.A. at knflem01@louisville.edu or (502)852-2665.

Eligibility: * Men and women, 19 to 30 years of age
* Most recent adult dating or cohabiting intimate relationship ended between one and twelve months ago
* In most recent former relationship, experienced **many times** when your partner: verbally attacked you, controlled what you could or could not do, withheld information from you, isolated you from friends or family, denied you access to money or other basic resources.
* You are **NOT** eligible if you if your **current partner** has ever done of the following things
- Your **current partner** ever pushed or slapped you
- Your **current partner** has ever threatened you with violence
- Your **current partner** ever thrown, broken, or punched things in your presence

*You are **NOT** eligible if you have ever been married

Duration: 2 hours (two 1-hour visits)

Compensation: 2.0 Research Credits or \$16.00 cash

Researchers: Kimberly Fleming, M.A.; email: knflem01@louisville.edu
Tamara Newton, Ph.D.; email: tnewt01@louisville.edu

Sign-Up

Deadline: At least 24 hours before research visit

Cancellation

Deadline: At least 12 hours before research visit

Sona Systems Advertisement for Relationships and Health I at University 2

Study Name: Relationships and Health I

Description: This study is for men and women between the ages of 19 and 30 who's most recent dating or cohabiting intimate relationship ended at least one month ago, but not more than one year ago. This intimate relationship must have begun after you turned 18 years of age. In this relationship, you must have experienced **many times** when your former partner did any of the following things:

- Verbally attacked you.
- Controlled what you could or could not do.
- Withheld information from you.
- Isolated you from friends and family.
- Denied you access to money or other basic resources.

The purpose of this study is to understand memories, emotions, and mental health in college undergraduates who have ended stressful intimate relationships.

This study will involve one research visit to a UNM main campus research lab. The research visit will last two hours. You will be offered your choice of either two research credits or \$16 cash compensation for this experiment.

Research volunteers will complete questionnaires about their health, dating relationships, and thoughts and feelings about these relationships. They will be asked to recall and describe different events in their former dating relationships.

For more information, contact Kimberly Fleming, M.A. at knflem01@louisville.edu.

Other options of obtaining course credit are available. Information about these options can be provided by your course instructor.

Eligibility: * Men and women, 19 to 30 years of age
* Most recent adult dating or cohabiting intimate relationship ended between one and twelve months ago
* In most recent former relationship, experienced **many times** when your partner did any of the following things: verbally attacked you, controlled what you could or could not do, withheld information from you, isolated you from friends or family, denied you access to money or other basic resources.
*You are **NOT** eligible if your **current partner** has ever done of the following things
- Your **current partner** ever pushed or slapped you
- Your **current partner** has ever threatened you with violence

- Your **current partner** ever thrown, broken, or punched things in
your presence
*You are **NOT** eligible if you have ever been married

Duration: 2 hours

Compensation: 2.0 Research Credits or \$16 cash

Researchers: Kimberly Fleming, M.A.; email: knflem01@louisville.edu
Elizabeth Yeater, Ph.D.; email: eyeater@unm.edu

Sign-Up

Deadline: At least 12 hours before research visit

Cancellation

Deadline: At least 12 hours before research visit

Sona Systems Advertisement for Relationships and Health II at University 2

Study Name: Relationships and Health II

Description: This study is for men and women between the ages of 19 and 30 who's most recent dating or cohabiting intimate relationship ended at least one month ago, but not more than one year ago. This intimate relationship must have begun after you turned 18 years of age. In this relationship, you must have experienced **many times** when your former partner did any of the following things:

- Verbally attacked you.
- Controlled what you could or could not do.
- Withheld information from you.
- Isolated you from friends and family.
- Denied you access to money or other basic resources.

The purpose of this study is to understand memories, emotions, and mental health in college undergraduates who have ended stressful intimate relationships.

This study will involve two research visits to a UNM main campus research lab. The first research visit will last one hour. The second research visit will last one hour. You will be offered your choice of either one research credit or \$8 cash compensation after the first visit and your choice of either one research credit or \$8 after the second visit.

For more information, contact Kimberly Fleming, M.A. at knflem01@louisville.edu.

Other options of obtaining course credit are available. Information about these options can be provided by your course instructor.

Eligibility: * Men and women, 19 to 30 years of age
* Most recent adult dating or cohabiting intimate relationship ended between one and twelve months ago
* In most recent former relationship, experienced **many times** when your partner: verbally attacked you, controlled what you could or could not do, withheld information from you, isolated you from friends or family, denied you access to money or other basic resources.
* You are **NOT** eligible if you if your **current partner** has ever done of the following things
- Your **current partner** ever pushed or slapped you
- Your **current partner** has ever threatened you with violence
- Your **current partner** ever thrown, broken, or punched things in your presence

*You are **NOT** eligible if you have ever been married

Duration: 2 hours (two 1-hour visits)

Compensation: 2.0 Research Credits or \$16 cash

Researchers: Kimberly Fleming, M.A.; email: knflem01@louisville.edu
Elizabeth Yeater, Ph.D.; email: eyeater@unm.edu

Sign-Up

Deadline: At least 24 hours before research visit

Cancellation

Deadline: At least 12 hours before research visit

Flyer for Relationships and Health I

University of Louisville • Dept. of Psychological & Brain Sciences • Stress & Health Lab • Tamara L. Newton, Ph.D., Principal Investigator • Kimberly N Fleming, M.A., Investigator • IRB #13.0044

ATTENTION MEN & WOMEN!

Volunteers needed for a research study on memory, emotion, and mental health
\$16.00 compensation
One afternoon visit to Belknap Campus lab
2 hours total

Eligibility:

- Men and women, 19 to 30 years of age
- Most recent adult dating or cohabiting intimate relationship ended between one and twelve months ago
- In most recent former relationship, experienced many times when your partner:
 - ♦ verbally attacked you
 - ♦ controlled what you could or could not do
 - ♦ withheld information from you
 - ♦ isolated you from friends or family
 - ♦ denied you access to money or other basic resources
- You are **NOT** eligible if your current partner has ever done of the following things
 - ♦ Your current partner ever pushed or slapped you
 - ♦ Your current partner has ever threatened you with violence
 - ♦ Your current partner ever thrown, broken, or punched things in your presence
- You are **NOT** eligible if you have ever been married

Questions? Interested in participating?

Call us at 852-2665, or e-mail us at knflem01@louisville.edu

Relationships and Health I Call 852-2665 or email knflem01@louisville.edu	Relationships and Health I Call 852-2665 or email knflem01@louisville.edu	Relationships and Health I Call 852-2665 or email knflem01@louisville.edu	Relationships and Health I Call 852-2665 or email knflem01@louisville.edu	Relationships and Health I Call 852-2665 or email knflem01@louisville.edu	Relationships and Health I Call 852-2665 or email knflem01@louisville.edu	Relationships and Health I Call 852-2665 or email knflem01@louisville.edu	Relationships and Health I Call 852-2665 or email knflem01@louisville.edu	Relationships and Health I Call 852-2665 or email knflem01@louisville.edu	Relationships and Health I Call 852-2665 or email knflem01@louisville.edu
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University of Louisville • Dept. of Psychological & Brain Sciences • Stress & Health Lab • Tamara L. Newton, Ph.D., Principal Investigator • Kimberly N Fleming, M.A., Investigator • IRB #13.0044

ATTENTION MEN & WOMEN!

Volunteers needed for a research study on memory, emotion, and mental health
\$16.00 total compensation (\$8 per visit)
Two afternoon visits to Belknap Campus lab
2 hours total (1hour per visit)

- Men and women, 19 to 30 years of age
- Most recent adult dating or cohabiting intimate relationship ended between one and twelve months ago
- In most recent former relationship, experienced many times when your partner:
 - ♦ verbally attacked you
 - ♦ controlled what you could or could not do
 - ♦ withheld information from you
 - ♦ isolated you from friends or family
 - ♦ denied you access to money or other basic resources
- You are **NOT** eligible if your current partner has ever done of the following things
 - ♦ Your current partner ever pushed or slapped you
 - ♦ Your current partner has ever threatened you with violence
 - ♦ Your current partner ever thrown, broken, or punched things in your presence
- You are **NOT** eligible if you have ever been married

Questions? Interested in participating?

Call us at 852-2665, or e-mail us at knflem01@louisville.edu

Relationships and Health II Call 852-2665 or email knflem01@louisville.edu	Relationships and Health II Call 852-2665 or email knflem01@louisville.edu	Relationships and Health II Call 852-2665 or email knflem01@louisville.edu	Relationships and Health II Call 852-2665 or email knflem01@louisville.edu	Relationships and Health II Call 852-2665 or email knflem01@louisville.edu	Relationships and Health II Call 852-2665 or email knflem01@louisville.edu	Relationships and Health II Call 852-2665 or email knflem01@louisville.edu	Relationships and Health II Call 852-2665 or email knflem01@louisville.edu	Relationships and Health II Call 852-2665 or email knflem01@louisville.edu	Relationships and Health II Call 852-2665 or email knflem01@louisville.edu
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Appendix B

Demographics and Relationship Questionnaire

Demographic Information

Please provide the following information about yourself.

What is your age? _____

What is your gender? (Choose an option below)

- 1) Male
- 2) Female
- 3) Other

What is your race? (Choose an option below)

- | | |
|--------------------------------|------------------------------------|
| 1) Non-Hispanic White American | 2) Hispanic American/Latina/Latino |
| 3) African American | 4) Native American |
| 5) Asian American | 6) Biracial / Multiracial |
| 7) Other | |

What is your current academic class? (Choose an option below)

- | | |
|--------------|--------------------------------------|
| 1) Freshman | 3) Junior |
| 2) Sophomore | 4) Senior |
| | 5) Not currently enrolled in college |

Have you ever participated in psychotherapy or counseling? (Choose an option below)

- 1) Yes
- 2) No

Are you currently taking any prescription medications? (Choose an option below)

- 1) Yes
- 2) No

Relationship History

Intimate relationships are relationships in which you are dating or cohabiting with an intimate or romantic partner. Please answer the following questions with regard to intimate relationships that *began* after you turned 18 years old.

Excluding any current intimate relationships, did your most recent intimate relationship last at least one month? (Chose an option below)

- 1) Yes
- 2) No

Did this intimate relationship end more than one month ago? (Chose an option below)

- 1) Yes
- 2) No

Did this intimate relationship end more than twelve months ago? (Choose an option below)

- 1) Yes
- 2) No

Please answer the following questions based on your most recent intimate relationship that has ended.

How long did your former intimate relationship last? _____

How long ago did your former intimate relationship end? _____

What was the gender of your partner? (Circle an option below)

- 1) Male
- 2) Female
- 3) Other

Please indicate the level of commitment in your most recent former intimate relationship.
(Circle an option below)

- 1) Cohabiting
- 2) Dating and monogamous
- 3) Dating but not monogamous

Are you currently in an intimate relationship? (Circle and option below)

- 1) Yes
- 2) No

Appendix D

Psychological Maltreatment Inventory

This questionnaire asks about actions you may have experienced in your ***most recent relationship*** with your ***former partner***. Answer each item as carefully as you can by circling a number next to each statement according to the following scale:

1 = never

2 = 1 – 2 times

3 = 3 – 5 times

4 = 6 – 10 times

5 = 10 – 20 times

6 = more than 20 times

- | | | | | | | |
|--|---|---|---|---|---|---|
| 1. My partner put down my appearance | 1 | 2 | 3 | 4 | 5 | 6 |
| 2. My partner insulted or shamed me in front of others | 1 | 2 | 3 | 4 | 5 | 6 |
| 3. My partner trusted me with members of the opposite sex | 1 | 2 | 3 | 4 | 5 | 6 |
| 4. My partner treated me like I was stupid | 1 | 2 | 3 | 4 | 5 | 6 |
| 5. My partner was insensitive to my feelings | 1 | 2 | 3 | 4 | 5 | 6 |
| 6. My partner told me I couldn't manage by myself | 1 | 2 | 3 | 4 | 5 | 6 |
| 7. My partner said things to spite me | 1 | 2 | 3 | 4 | 5 | 6 |
| 8. My partner brought up things from my past to hurt me | 1 | 2 | 3 | 4 | 5 | 6 |
| 9. My partner called me names | 1 | 2 | 3 | 4 | 5 | 6 |
| 10. My partner swore at me | 1 | 2 | 3 | 4 | 5 | 6 |
| 11. My partner yelled and screamed at me | 1 | 2 | 3 | 4 | 5 | 6 |
| 12. My partner treated me like I was inferior | 1 | 2 | 3 | 4 | 5 | 6 |
| 13. My partner sulked and refused to talk about problems | 1 | 2 | 3 | 4 | 5 | 6 |
| 14. My partner stomped out of the house or yard during a disagreement | 1 | 2 | 3 | 4 | 5 | 6 |
| 15. My partner gave me the silent treatment | 1 | 2 | 3 | 4 | 5 | 6 |
| 16. My partner withheld affection from me | 1 | 2 | 3 | 4 | 5 | 6 |
| 17. My partner did not let me talk about my feelings | 1 | 2 | 3 | 4 | 5 | 6 |
| 18. My partner was insensitive to my sexual needs and desires | 1 | 2 | 3 | 4 | 5 | 6 |
| 19. My partner monitored my time and made me account for my whereabouts | 1 | 2 | 3 | 4 | 5 | 6 |
| 20. My partner treated me like his/her personal servant | 1 | 2 | 3 | 4 | 5 | 6 |
| 21. My partner ordered me around | 1 | 2 | 3 | 4 | 5 | 6 |
| 22. My partner was jealous and suspicious of my friends | 1 | 2 | 3 | 4 | 5 | 6 |
| 23. My partner was jealous of other men/women | 1 | 2 | 3 | 4 | 5 | 6 |
| 24. My partner did not want me to go to school or to other self-improvement activities | 1 | 2 | 3 | 4 | 5 | 6 |
| 25. My partner did not want me to socialize with my same sex friends | 1 | 2 | 3 | 4 | 5 | 6 |

26. My partner accused me of seeing another man/woman	1	2	3	4	5	6
27. My partner tried to keep me from seeing or talking to my family	1	2	3	4	5	6
28. My partner interfered in my relationship with family members	1	2	3	4	5	6
29. My partner tried to keep me from doing things to help myself	1	2	3	4	5	6
30. My partner told me my feelings are irrational or crazy	1	2	3	4	5	6
31. My partner blamed me for his/her problems	1	2	3	4	5	6
32. My partner tried to turn my family and friends against me	1	2	3	4	5	6
33. My partner blamed me for causing his/her violent behavior	1	2	3	4	5	6
34. My partner tried to make me feel like I was crazy	1	2	3	4	5	6
35. My partner's moods changed radically, from very calm to very angry or vice versa	1	2	3	4	5	6
36. My partner blamed me when upset even if I had nothing to do with it	1	2	3	4	5	6
37. My partner tried to convince my family and friends that I was crazy	1	2	3	4	5	6
38. My partner threatened to hurt him/herself if I left him/her	1	2	3	4	5	6
39. My partner threatened to have an affair with someone else	1	2	3	4	5	6
40. My partner threatened to leave the relationship	1	2	3	4	5	6

Appendix E

Revised Conflict Tactics Scale: Physical Assault and Sexual Coercion Scales

Physical Assault Scale

*This questionnaire asks about actions you may have experienced in **your most recent former relationship** with your **ex-partner**.*

How often did this happen in your most recent former romantic relationship?

My partner threw something at me

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner twisted my arm or hair

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner pushed or shoved me

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner used a knife or gun on me

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner punched or hit me with something that could hurt

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner choked me

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner slammed me against a wall

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner beat me up

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner grabbed me

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner slapped me

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner burned or scalded me on purpose

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner kicked me

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

Sexual Coercion Scale

*This questionnaire asks about actions you may have experienced in **your most recent former relationship** with your **ex-partner**.*

How often did this happen in your most recent former romantic relationship?

My partner made me have sex without a condom

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner used force to make me have oral or anal sex

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner used force to make me have sex

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner insisted that I have sex when I didn't want to (but did not use physical force)

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner used threats to make me have oral or anal sex

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner insisted I have oral or anal sex (but did not use physical force)

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

My partner used threats to make me have sex

0	1	2	3	4	5	6
Never	Once	Twice	3-5 times	6-10 times	11-20 times	More than 20 times

Appendix F

Test of Self-Conscious Affect-3, Short Version

Below are situations that people are likely to encounter in day-to-day life, followed by several common reactions to those situations.

As you read each scenario, try to imagine yourself in that situation. Then indicate how likely you would be to react in each of the ways described. We ask you to rate ***all*** responses because people may feel or react more than one way to the same situation, or they may react different ways at different times.

For example:

You woke up early one Saturday morning It is cold and rainy outside.

- | | | | | | |
|--|------------|---|---|---|-------------|
| a) You would telephone a friend to catch up on news. | ① | 2 | 3 | 4 | 5 |
| | not likely | | | | very likely |
| b) You would take the extra time to read the paper. | 1 | 2 | 3 | 4 | ⑤ |
| | not likely | | | | very likely |
| c) You would feel disappointed that it's raining. | 1 | 2 | ③ | 4 | 5 |
| | not likely | | | | very likely |
| d) You would wonder why you woke up so early. | 1 | 2 | 3 | ④ | 5 |
| | not likely | | | | very likely |

In the above example, I've rated ***all*** of the answers by circling a number. I circled a "1" for answer (a) because I wouldn't want to wake up a friend very early on a Saturday morning – so it's not at all likely that I would do that. I circled a "5" for answer (b) because I almost always read the paper if I have time in the morning (very likely). I circled a "3" for answer (c) because for me it's about half and half. Sometime I would be disappointed about the rain and sometimes I wouldn't – it would depend on what I had planned. And I circled a "4" for answer (d) because I would probably wonder why I had awakened so early.

Please do not skip any items – rate all responses.

1. You make plans to meet a friend for lunch. At 5 o'clock you realize you stood your friend up.

- | | | | | | |
|--|-----------------|---|---|---|------------------|
| a) You would think: "I'm inconsiderate." | 1
not likely | 2 | 3 | 4 | 5
very likely |
| b) You would think: "Well, my friend will understand." | 1
not likely | 2 | 3 | 4 | 5
very likely |
| c) You'd think you should make it up to your friend as soon as possible. | 1
not likely | 2 | 3 | 4 | 5
very likely |
| d) You would think: "My boss distracted me just before lunch." | 1
not likely | 2 | 3 | 4 | 5
very likely |

2. You break something at work and then hide it.

- | | | | | | |
|--|-----------------|---|---|---|------------------|
| a) You would think: "This is making me anxious. I need to either fix it or get someone else to." | 1
not likely | 2 | 3 | 4 | 5
very likely |
| b) You would think about quitting. | 1
not likely | 2 | 3 | 4 | 5
very likely |
| c) You would think: "A lot of things aren't made very well these days." | 1
not likely | 2 | 3 | 4 | 5
very likely |
| d) You would think: "It was only an accident." | 1
not likely | 2 | 3 | 4 | 5
very likely |

3. At work, you wait until the last minute to plan a project, and it turns out badly.

- | | | | | | |
|---|-----------------|---|---|---|------------------|
| a) You would feel incompetent. | 1
not likely | 2 | 3 | 4 | 5
very likely |
| b) You would think: "There are never enough hours in the day." | 1
not likely | 2 | 3 | 4 | 5
very likely |
| c) You would feel: "I deserve to be reprimanded for mismanaging the project." | 1
not likely | 2 | 3 | 4 | 5
very likely |
| d) You would think: "What's done is done." | 1
not likely | 2 | 3 | 4 | 5
very likely |

4. You made a mistake at work and find out a coworker is blamed for the error.

- | | | | | | |
|---|-----------------|---|---|---|------------------|
| a) You would think the company did not like the coworker. | 1
not likely | 2 | 3 | 4 | 5
very likely |
| b) You would think: "Life is not fair." | 1
not likely | 2 | 3 | 4 | 5
very likely |
| c) You would keep quiet and avoid the coworker. | 1
not likely | 2 | 3 | 4 | 5
very likely |
| d) You would feel unhappy and eager to correct the situation. | 1
not likely | 2 | 3 | 4 | 5
very likely |

5. *When playing around, you throw a ball and it hits your friend in the face.*

a) You would feel inadequate that you can't even throw a ball.	1 not likely	2	3	4	5 very likely
b) You would think maybe your friend needs more practice at catching.	1 not likely	2	3	4	5 very likely
c) You would think: "It was just an accident."	1 not likely	2	3	4	5 very likely
d) You would apologize and make sure your friend feels better.	1 not likely	2	3	4	5 very likely

6. *You are driving down the road and you hit a small animal.*

a) You would think the animal shouldn't have been on the road.	1 not likely	2	3	4	5 very likely
b) You would think: "I'm terrible."	1 not likely	2	3	4	5 very likely
c) You would feel: "Well, it was an accident."	1 not likely	2	3	4	5 very likely
d) You'd feel bad you hadn't been more alert driving down the road.	1 not likely	2	3	4	5 very likely

7. *You walk out of an exam thinking you did extremely well. Then you find out you did poorly.*

- | | | | | | |
|---|------------|---|---|---|-------------|
| a) You would think: “Well, it’s just a test.” | 1 | 2 | 3 | 4 | 5 |
| | not likely | | | | very likely |
| b) You would think: “The instructor doesn’t like me.” | 1 | 2 | 3 | 4 | 5 |
| | not likely | | | | very likely |
| c) You would think: “I should have studied harder.” | 1 | 2 | 3 | 4 | 5 |
| | not likely | | | | very likely |
| d) You would feel stupid. | 1 | 2 | 3 | 4 | 5 |
| | not likely | | | | very likely |

8. *While out with a group of friends, you make fun of a friend who’s not there.*

- | | | | | | |
|---|------------|---|---|---|-------------|
| a) You would think: “It was all in fun; it’s harmless.” | 1 | 2 | 3 | 4 | 5 |
| | not likely | | | | very likely |
| b) You would feel small... like a rat. | 1 | 2 | 3 | 4 | 5 |
| | not likely | | | | very likely |
| c) You would think that perhaps that friend should have been there to defend him/herself. | 1 | 2 | 3 | 4 | 5 |
| | not likely | | | | very likely |
| d) You would apologize and talk about that person’s good points. | 1 | 2 | 3 | 4 | 5 |
| | not likely | | | | very likely |

9. *You make a big mistake on an important project at work. People were depending on you, and your boss criticizes you.*

a) You would think your boss should have been more clear about what was expected of you.	1 not likely	2	3	4	5 very likely
b) You would feel like you wanted to hide.	1 not likely	2	3	4	5 very likely
c) You would think: "I should have recognized the problem and done a better job."	1 not likely	2	3	4	5 very likely
d) You would think: "Well, nobody's perfect."	1 not likely	2	3	4	5 very likely

10. You are taking care of your friend's dog while you friend is on vacation and the dog runs away.

a) You would think: "I am irresponsible and incompetent."	1 not likely	2	3	4	5 very likely
b) You would think your friend must not take very good care of the dog or it wouldn't have run away.	1 not likely	2	3	4	5 very likely
c) You would vow to be more careful next time.	1 not likely	2	3	4	5 very likely
d) You would think your friend could just get a new dog.	1 not likely	2	3	4	5 very likely

11. You attend your coworker's housewarming party and you spill red wine on a new cream-colored carpet, but you think no one notices.

- | | | | | | |
|--|-----------------|---|---|---|------------------|
| a) You think your coworker should have expected some accidents at such a big party. | 1
not likely | 2 | 3 | 4 | 5
very likely |
| b) You would stay late to help clean up the stain after the party. | 1
not likely | 2 | 3 | 4 | 5
very likely |
| c) You would wish you were anywhere but at the party. | 1
not likely | 2 | 3 | 4 | 5
very likely |
| d) You would wonder why your coworker chose to serve red wine with the new light carpet. | 1
not likely | 2 | 3 | 4 | 5
very likely |

Shame-proneness Scale Scoring: The shame-proneness scale score is calculated by summing ratings on the following items: 1a, 2b, 3a, 4c, 5a, 6b, 7b, 8b, 9b, 10a, and 11c.

Appendix G
State Shame Scale

The following are some statements which may or may not describe how you are feeling ***right now***. Please rate each statement using the 5-point scale below. Remember to rate each statement based on how you are feeling ***right at this moment***.

	Not feeling this way at all		Feeling this way somewhat		Feeling this way very strongly
1. I want to sink into the floor and disappear.	1	2	3	4	5
2. I feel small.	1	2	3	4	5
3. I feel like I am a bad person.	1	2	3	4	5
4. I feel humiliated, disgraced	1	2	3	4	5
5. I feel worthless, powerless	1	2	3	4	5

Appendix H

PTSD Checklist – Civilian

Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please complete the following task with regard to problems and complaints you've had in response to your ***most recent romantic relationship that has ended***. Keeping this relationship in mind, please read each one carefully, put an "X" in the box to indicate how much you have been bothered by that problem *in the last 24 hours*.

No.	Response	Not at all (1)	A little bit (2)	Moderately (3)	Quite a bit (4)	Extremely (5)
1.	Repeated, disturbing <i>memories, thoughts or images</i> of a stressful experience from the past?					
2.	Repeated, disturbing <i>dreams</i> of a stressful event from the past?					
3.	Suddenly <i>acting or feeling</i> as if a stressful experience <i>were happening</i> again (as if you were reliving it)?					
4.	Feeling <i>very upset</i> when <i>something reminded</i> you of a stressful experience from the past?					
5.	Having <i>physical reactions</i> (e.g., heart pounding, trouble breathing, or sweating) when <i>something reminded</i> you of a stressful experience from the past?					
6.	Avoid <i>thinking about</i> or <i>talking about</i> a stressful experience from the past or avoid <i>having feelings</i> related to it?					
7.	Avoid <i>activities or situations</i> because they <i>remind you</i> of a stressful experience from the past?					
8.	Trouble <i>remembering important parts</i> of a stressful experience from the past?					
9.	Loss of <i>interest in things that you used to enjoy</i> ?					
10.	Feeling <i>distant or cut off</i> from other people?					
11.	Feeling <i>emotionally numb</i> or being unable to have loving feelings for those close to you?					
12.	Feeling as if your <i>future</i> will somehow be <i>cut short</i> ?					
13.	Trouble <i>falling or staying asleep</i> ?					
14.	Feeling <i>irritable</i> or having <i>angry outbursts</i> ?					
15.	Having <i>difficulty concentrating</i> ?					
16.	Being " <i>super alert</i> " or watchful on guard?					
17.	Feeling <i>jumpy</i> or easily startled?					

Appendix I

Posttraumatic Cognitions Inventory

We are interested in the kind of thoughts which you may have had after certain experiences. Please complete the following task with regard to problems and complaints you've had in response to your **most recent romantic relationship that has ended**

Below are a number of statements that may or may not be representative of your thinking. Please read each statement carefully and tell us how much you AGREE or DISAGREE with each statement.

People react to traumatic events in many different ways. There are no right or wrong answers to these statements.

	(1) Totally disagree	(2) Disagree Very Much	(3) Disagree Slightly	(4) Neutral	(5) Agree Slightly	(6) Agree Very Much	(7) Totally Agree
1. The event happened because of the way I acted							
2. I can't trust that I will do the right thing							
3. I am a weak person							
4. I will not be able to control my anger and will do something terrible							
5. I can't deal with even the slightest upset							
6. I used to be a happy person but now I am always miserable.							
7. People can't be trusted							
8. I have to be on guard all the time							
9. I feel dead inside							
10. You can never know who will harm you							
11. I have to be especially careful because you never know what can happen next							
12. I am inadequate							
13. If I think about the event, I will not be able to handle it							

14.	The event happened to me because of the sort of person I am						
15.	My reactions since the event mean that I am going crazy						
16.	I will never be able to feel normal emotions again						
17.	The world is a dangerous place						
18.	Somebody else would have stopped the event from happening						
19.	I have permanently changed for the worse						
20.	I feel like an object, not like a person						
21.	Somebody else would not have gotten into this situation						
22.	I can't rely on other people						
23.	I feel isolated and set apart from others						
24.	I have no future						
25.	I can't stop bad things from happening to me						
26.	People are not what they seem						
27.	My life has been destroyed by the trauma						
28.	There is something wrong with me as a person						
29.	My reactions since the event show that I am a lousy coper						
30.	there is something about me that made the event happen						
31.	I feel like I don't know myself anymore						
32.	I can't rely on myself						
33.	Nothing good can happen to me anymore						

CURRICULUM VITAE

Kimberly N. Fleming, M.A.

CONTACT INFORMATION

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EDUCATION

- 2008 – present Ph.D. Clinical Psychology**
University of Louisville
Degree Expected: May 2015
Mentor: Tamara Newton, Ph.D.
Dissertation: Intimate partner psychological abuse and posttraumatic stress symptoms: The role of shame during recall of psychological abuse memories
Proposed: December 2012
- 2013 - 2014 Predoctoral Internship**
Southwest Consortium Predoctoral Psychology Internship
Raymond G. Murphy Veterans Affairs Medical Center
University of New Mexico Hospital
First Nations Community Healthsource
- 2008 – 2011 M.A., Clinical Psychology**
University of Louisville
Mentor: Tamara Newton, Ph.D.
Master's Thesis: Intimate partner stalking and intimate partner violence in women
- 2004 – 2008 B.A., Political Science**
The University of the South: Sewanee
Mentor: Paige Schneider, Ph.D.

AREAS OF CLINICAL AND RESEARCH INTEREST

- Mechanisms of action leading from interpersonal trauma to post-abuse mental health symptoms
- The role of negative emotion in the development, maintenance, and treatment of trauma-related mental health symptoms
- Evidenced-based treatments of posttraumatic stress disorder and integrative psychotherapy for trauma-related symptoms
- Women and trauma-related physical and mental health symptoms

CLINICAL EXPERIENCE

2015 – present **Psychology Post-Internship Practicum in Program Development**

Raymond G. Murphy Veterans Affairs Medical Center

- ***Ward 7 (Inpatient Psychiatric Unit)***

Duties: Developed curriculum for two Health Behavior groups to be implemented by nursing staff. Trained nursing staff in group psychotherapy and co-facilitated groups.

Supervisor: Elizabeth Sullivan, Ph.D.

2013 – 2014 **Southwest Consortium Predoctoral Psychology Internship Raymond G. Murphy Veterans Affairs Medical Center (Fall 2013)**

- ***STARR (Substance abuse, Trauma, and Rehabilitation***

Residence: Six-month major rotation/4 days per week

Duties: Providing individual and group psychotherapy Veterans with histories of comorbid posttraumatic stress disorder and substance use disorders. Providing individual Prolonged Exposure and Cognitive Processing. Co-facilitating *In Vivo* Exposure, Dialectical Behavior Therapy Skills, Motivational Interviewing, and interpersonal process groups. Collaborating with interdisciplinary team to develop Veteran-centered treatment plans. Conducting screening and placement evaluations for veterans interested in VA residential rehabilitation programs.

Supervisor: Ella Nye, Ph.D.

- ***Suicide Prevention Team:*** Six-month minor rotation/1 day per week

Duties: Conducting risk evaluations and developing suicide prevention plans for veterans in an acute inpatient psychiatric unit and in the VA emergency room. Providing individual therapy to a chronically suicidal veteran using Collaborative Assessment and Management of Suicidality.

Supervisor: Brenda Mayne, Ph.D.

- **Individual Psychotherapy Clinic:** one-year rotation
Duties: Providing individual psychotherapy to veterans with Severe Mental Illness using Social Skills Training for Schizophrenia. Providing individual therapy to veterans with histories of posttraumatic stress disorder using Seeking Safety.
Supervisor: Erika Johnson-Jiminez, Ph.D.
- **Individual Assessment Clinic:** six-month rotation
Duties: Providing transplant evaluations and ADHD assessments for Veterans.
Supervisor: Shelley Leiphart, Psy.D.

University of New Mexico Hospital (Spring 2014)

- **Psychiatry Consultation and Liaison Service:** six-month major rotation/ 2 days per week
Duties: Providing consultations to medical providers to address psychological factors affecting medical treatment in a large medical hospital. Common assessment and consultation questions included risk evaluations, factors affecting the management of health problems, and competency evaluations. Reviewing medical and psychiatric records and conducting brief cognitive assessments to support consultations. Providing brief psychotherapy to adults to address acute trauma symptoms. Attending daily consultation-liaison service rounds.
Supervisor: Janet Robinson, Ph.D.

First Nations Community Healthsource (Spring 2014)

- **Behavioral Health Clinic:** six-month minor rotation/1 day per week
Duties: Providing individual and outpatient psychotherapy to individuals from Native American and other underserved populations. Providing Cognitive Processing Therapy, Seeking Safety, and Interpersonal Therapy. Co-facilitating Seeking Safety, Dialectical Behavior Therapy skills, and narrative therapy groups.
Supervisor: Anita Treloar, Ph.D.

2008 – 2013

**Graduate Student Therapist
Nobel H. Kelley Psychological Services Center
University of Louisville**

- Cognitive and Behavioral Psychotherapy Team (2011 – 2013)
Duties: Providing individual psychotherapy to adults with PTSD, depression, anxiety, and personality disorders using CBT interventions, Prolonged Exposure, and Cognitive Processing therapy.
Supervisor: Janet Woodruff-Borden, Ph.D.
- Integrative Psychotherapy Team (2010 – 2011)

Duties: Providing individual psychotherapy to adults with PTSD, trauma-related complex problems, and personality disorders using Systematic Treatment Selection and Prescriptive Psychotherapy.

Supervisor: Jay Irby, Ph.D.

- Mindfulness and Acceptance-Based Psychotherapy Team (2008 – 2010)

Duties: Providing individual psychotherapy to adults with depression, PTSD, chronic pain, and chronic health problems using Mindfulness Based Cognitive Therapy and Acceptance Based Therapy.

Supervisor: Paul Salmon, Ph.D.

- Psychological Assessment Clinic (2008 – 2013)

Duties: Providing full diagnostic assessments to adults and children for a wide-range of referral questions. Common referrals included ADHD assessment and differential diagnoses.

Supervisor: David Winsch, Ph.D.

CLINICAL WORKSHOPS

2014 **Historical Trauma Unresolved Grief & Group Interpersonal Psychotherapy**

Center for Rural and Community Behavioral Health
University of New Mexico Department of Psychiatry

2013 **Motivational Interviewing I**

New Mexico VA Healthcare System

2013 **Prolonged Exposure Workshop for Psychology Interns and Postdoctoral Fellows**

New Mexico VA Healthcare System

RESEARCH EXPERIENCE

2012 – present **Investigator**

Dissertation: *Intimate partner psychological abuse and posttraumatic stress symptoms: The role of shame during recall of psychological abuse memories*

Chair: Tamara Newton, Ph.D.

- Study examining relationships between recall of intimate partner psychological abuse memories, shame during recall, and posttraumatic stress disorder symptoms within the framework of the mnemonic model of posttraumatic stress disorder

2008 – 2013 **Graduate Research Assistant**
Health and Stress Lab
University of Louisville

Mentor: Tamara Newton, Ph.D.

- Research assistant on the NIH-funded Women's Stress and Aging Study (WOMSA) which investigated relationships between intimate partner violence, posttraumatic stress symptoms, and physical health
- Developed recruitment strategy and collected longitudinal data for the WOMSA Follow-Up Study

PUBLICATIONS

Fleming, K.N., Newton, T.L., Fernandez-Botran, R., Miller, J.J., Lorenz, D.J., & Burns, V.E. (2012). Intimate partner stalking victimization and posttraumatic stress symptoms in post-abuse community women. *Violence Against Women, 18*(12), 1368-1389.

Newton, T.L., Fernandez-Botran, R., Miller, J.J., Loren, D.J., Burns, V.E., & Fleming, K.N. (2011). Markers of inflammation in midlife women with intimate partner violence histories. *Journal of Women's Health, 20*(12), 1871-1880. doi: 10.1089/jwh.2011.2788.

MANUSCRIPTS IN PROGRESS

Fleming, K.N., Szabo, Y.S. Newton, T.L., Fernandez-Botran, R., Miller, J.J., Lorenz, D.J., & Burns, V.E. Intimate partner psychological abuse and posttraumatic stress: Understanding the roles of depression and abuse types.

PRESENTATIONS

Szabo, Y.S., Fleming, K.F., Newton, T.L., Fernandez-Botran, R., Miller, J.J., Loren, D.J., & Burns, V.E. (2013) Past emotional/verbal abuse predicts current depression symptom clusters in post-abuse community-dwelling women. Poster presented at The International Society for Traumatic Stress Studies Annual Meeting, Philadelphia, PA, November 2013.

Fleming, K.N., Knight, H., Newton, T.L., Fernandez-Botran, R., Miller, J.J., & Burns, V.E. (2012). Histories of intimate partner stalking and intimate partner violence in post-abuse women: Associations with current posttraumatic stress symptoms. Poster presented at the National Conference on Health and Domestic Violence, San Francisco, CA, March 2012

Newton, T.L., Fernandez-Botran, R., Miller, J.J., Fleming, K.N., & Burns, V.E. (2012). Remitted intimate partner violence and hematologic measures in midlife women. Presentation at the National Conference on Health and Domestic Violence, San Francisco, CA, March 2012.

Fleming, K.N., Knight, H., Newton, T.L., Fernandez-Botran, R., Miller, J. J., & Burns, V.E. (2012). Emotional/verbal abuse predicts severity of posttraumatic stress and depression symptoms in post-abuse women. Poster presented at the National Congress on Women's Health, Washington, D.C., March 2012.

Knight, H., Fleming, K., Newton, T. L., Fernandez-Botran, R., Miller, J.J., & Burns, V.E., (2012). Inflammatory responses when anticipating recall of a potentially traumatic stressor. Poster presented at the National Congress on Women's Health, Washington, D.C., March 2012.

Allison, K., Fleming, K., Newton, T., Botran, R., Miller, J.J., & Burns, V.E. (2009). Current PTSD symptoms moderate associations between past intimate partner violence and physical health status in postmenopausal women. Poster presented at The International Society for Traumatic Stress Studies Annual Meeting, Atlanta, GA, November 2009.

COMMUNITY PRESENTATIONS

Fleming, K.N. (2014). *Posttraumatic Stress Disorder and the DSM-5*. Presentation to the Consultation-Liaison Service, University of New Mexico Hospital, Albuquerque, NM, March 2014.

Fleming, K.N. (2013). *Intimate partner psychological abuse in college-aged men and women*.

Invited Presentation to the Department of Nursing at Bellarmine University, Bellarmine University, Louisville, KY, January 2013.

Fleming, K.N., & Salmon, P.S. (2010). *Working with stress: A mindfulness perspective*. Invited Presentation to Department of Theatre Arts Graduate Program, University of Louisville, Louisville, KY, December 2010.

Fleming, K.N., & Floyd, J.B. (2010). *Interpersonal relationships across the lifespan: A practical approach*. Presentation to Jefferson Community College, Louisville, KY, March, 2010.

Fleming, K.N., & Salmon, P.S. (2009). *Working with stress: A mindfulness perspective*. Presentation to Department of Theater Arts Graduate Program, University of Louisville, Louisville, KY, December 2009.

SELECTED TEACHING EXPERIENCE

- 2014** **Tests and Measurement II**
Subject Matter Expert, Web-Based Course Content Developer,
and Author
The Learning House, Inc.
- 2014** **Psychology of Gender**
Subject Matter Expert, Web-Based Course Content Developer,
and Author
The Learning House, Inc.
- 2014** **Abnormal Psychology**
Subject Matter Expert, Web-Based Course Content Developer,
and Author
The Learning House, Inc.
- 2013** **Tests and Measurement**
Subject Matter Expert, Web-Based Course Content Developer,
and Author
The Learning House, Inc.
- 2013** **Advanced Statistics I and II**
Laboratory Instructor
University of Louisville
- 2008 – 2013** **Graduate Teaching Assistant**
University of Louisville
Courses
- Abnormal Psychology
 - Experimental Psychology
 - Social Psychology
 - Personality

SELECTED PROFESSIONAL ACTIVITIES AND SERVICE

- 2013** **Manuscript Co-Reviewer**
Journal of Interpersonal Violence
- 2012 – present** **Graduate Student Peer Mentor**
University of Louisville
- 2008-2012** **Department Representative**
University of Louisville Graduate Student Council

2010 – 2011 **Travel Funds Administrator**
University of Louisville Graduate Student Council

2008 – 2013 **Student Senator**
University of Louisville Student Senate

2008 **Technology Support**
University of Louisville IClicker Conference

AWARDS

2014-2015 **Graduate Research Grant**
University of Louisville Graduate Student Council