

PTSD PERSONALITY SUBTYPES IN WOMEN EXPOSED TO
INTIMATE PARTNER VIOLENCE

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Myriah Kate Mulvogue, candidate for the degree of Master of Arts in Clinical Psychology, has presented a thesis titled, ***PTSD Personality Subtypes in Women Exposed to Intimate Partner Violence***, in an oral examination held on August 30, 2012. The following committee members have found the thesis acceptable in form and content, and that the candidate demonstrated satisfactory knowledge of the subject material.

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Abstract

There is considerable research indicating that intimate partner violence (IPV) is a particularly detrimental traumatic experience that seriously compromises women's physical, emotional, social, and mental health (Alexander, 2011; Campbell et al., 2002; Pico-Alfonso et al., 2006). A common reaction to IPV exposure is posttraumatic stress disorder (PTSD; Golding, 1999), which, though categorized singly, has a significantly heterogeneous presentation (Dickstein, Suvak, Litz, & Adler, 2010). Researchers have suggested underlying personality characteristics as potential reasons for differences in the expression of PTSD (Miller, Greif, & Smith, 2003). Specifically, a model with three personality subtypes (i.e., externalizing, internalizing, and simple) has been proposed to explain PTSD heterogeneity (Miller, 2003). The model has been supported by differential patterns of comorbid psychological disorders and sequelae associated with concepts of complex PTSD (Miller & Resick, 2007). The current study tested the PTSD personality subtype model in a sample of women exposed to a range of IPV experiences. When subjected to cluster analysis with three *a priori* groups, temperament patterns of women with high reports of PTSD symptoms replicated the three personality subtype patterns found in Miller and colleagues' (Miller et al., 2003; 2004; Miller & Resick, 2007) previous investigations (i.e., an externalizing subtype group characterized by high negative emotionality and low disinhibition, an internalizing subtype group characterized by high negative emotionality and low positive emotionality, and a simple subtype group characterized by mid-range scores across the temperament variables). Differences between these groups and between the women with low PTSD symptoms were found, with women reporting personality patterns consistent with the internalizing and

externalizing subtype groups exhibiting higher comorbid personality pathology and psychological difficulties. Implications for personality as a risk or resiliency factor in PTSD, and as an explanation of the heterogeneity of PTSD symptom expressions are discussed as are implications for IPV service providers and the potential inclusion of personality in future psychological diagnostic manuals.

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Dedication

I dedicate this thesis to my late father, David Mulvogue. This one—like everything that is meaningful to me—is for you, Dad.

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1.0 LITERATURE REVIEW

1.1 Brief Overview

Intimate partner violence (IPV) is a serious health concern for women in Canada and across the world and includes any act of physical, sexual, or psychological abuse perpetrated in an intimate partnership by one partner on the other (Saltzman, Fanslow, McMahon, & Shelley, 2002). Epidemiological estimates indicate between 10% and 71% of women will be exposed to abuse by their partner (e.g., Díez et al., 2009; Gracia, 2004), leading to significant personal and health care costs. Women exposed to all types of IPV have a higher incidence of depression, anxiety, suicidal ideation, and posttraumatic stress disorder (PTSD) relative to non-abused women (Pico-Alfonso et al., 2006). Meta-analytic data indicate 31% to 84% of women exposed to IPV develop PTSD (Golding, 1999), which may be particularly debilitating as certain PTSD symptoms appear to increase the odds of a woman being re-abused (Krause, Kaltman, Goodman, & Dutton, 2006).

The etiology of PTSD symptoms is not entirely clear because what appear to be similar levels of IPV abuse severity lead some, but not all, women to develop a posttraumatic stress reaction (Johnson, Zlotnick, & Perez, 2008). PTSD itself is not a heterogeneous disorder and within the spectrum of symptoms, individuals meeting diagnostic criteria can present, clinically, in several ways (Kelley, Weathers, McDevitt-Murphy, Eakin, & Flood, 2009). For example, a portion of IPV victims report PTSD symptoms that are nonetheless better conceptualized as complex PTSD – a syndrome of trauma-associated symptoms hypothesized to occur with prolonged exposure to trauma (Herman, 1992).

Evidence suggests that internal, individual variables may help to explain differential reactions to abuse. For example, underlying personality variables may facilitate heterogeneous symptom expressions for PTSD (Miller et al., 2003; Miller, Kaloupek, Dillon, & Keane, 2004; Miller & Resick, 2007). The only study to date examining the relationship between PTSD, IPV, and personality factors suggested that women who are victims of sexual assault with PTSD may fall into three personality subtypes (a) “internalizing”, (b) “externalizing”, and (c) “simple” (Miller & Resick, 2007). Accordingly, the notion of a three subtype structure of personality remains to be replicated, particularly in a sample of women who have been exposed to a variety of IPV experiences. Prior research has also found that some complex PTSD variables (e.g., dysfunctional sexual behaviour), but not others (e.g., dissociation), correlate with certain patterns of underlying personality variables (i.e., women reporting personality features categorized as externalizing) in women exposed to sexual violence (Miller & Resick, 2007).

1.2 Psychological Trauma

1.2.1 History of trauma. Prior to the late 19th century, the term “trauma” referred solely to a bodily wound (Jones & Wessely, 2007). In 1882, a young neurologist named Jean-Martin Charcot began to identify symptoms in veterans of the Franco-Prussian wars, such as mental disorientation and nightmares, with no known physical basis (Kinzie & Goetz, 1996; Micale, 2001). In doing so, Charcot may have formalized notions of ‘psychological trauma’. Charcot hypothesized that in people so predisposed, an event such as war could trigger a hysterical or nervous condition (Jones & Wessely, 2007). Cases of ‘hysterias’ continued to be documented by Charcot, and later by Pierre

Janet, Joseph Breuer, and Sigmund Freud, with the accepted understanding was that these reactions indicated a significant constitutional flaw or weakness (Hall & MacKay, 1934). Until World War One, or as some historians argue for some time after (e.g., Wessely, 2006), the belief remained that people of sound mind could not be irreparably changed by traumatic experiences.

During the First World War the sheer number of men returning from battle with psychological injuries led to a shift in the understanding of the influence of trauma (Kinzie & Goetz, 1996; Wessely, 2006). Lord Moran (nee Charles Wilson) was a medic serving the Western Front who made a particularly lasting contribution to contemporary understandings of trauma with his observation that no man had infinite resources to draw upon in his defense against trauma (Wessely, 2006). Eventually researchers and clinicians recognized that regardless of the strength of personal disposition and previous mental health, every person had a psychological “breaking point”. Recognition of the pervasive nature of potential harm from exposure to horrific events has formed the foundation of many subsequent propositions, investigations, and discourses and our current conceptualization of trauma (Monson, Friedman, & La Bush, 2010).

1.2.2 Definition of trauma. Psychological trauma can be defined in several ways depending on the discipline. In psychology and psychiatry, the definition of trauma is usually taken from the most recent edition of the Diagnostic and Statistical Manual (DSM-IV-TR; American Psychiatric Association; APA, 2000) diagnostic criteria for PTSD. According to the DSM-IV-TR, a stressor qualifies as sufficiently traumatic if “the person has experienced, witnessed, or been confronted with an event or events that involve actual or threatened death or serious injury, or a threat to the physical integrity of

oneself or others”, and “the person's response involved intense fear, helplessness, or horror” (APA, 2000, p.467). The DSM-IV-TR definition generally serves as a modern definition of trauma; however, the definition is relatively recent and has been subject to several revisions. For example, the DSM-III defined trauma as a stressor falling outside the range of regular human experience, not well tolerated by most people in the culture (APA, 1980).

1.2.3 Reactions to trauma. Research suggests several possible outcomes to traumatic exposure. Most people experience at least one stressor that would meet trauma criteria in their lifetime and the majority do not develop disordered behaviour as a result (Breslau & Kessler, 2001; Ozer, Best, Lipsey, & Weiss, 2003). In contrast, traumatic exposure can lead some people to experience chronic and debilitating psychological distress. Modern theories on the development of posttraumatic reactions tend to conceptualize a continuum of possible reactions to trauma with normal functioning (and in some cases positive growth) on one end and psychological impairment on the other (Bonanno, 2004; Brewin, Dalgleish, & Joseph, 1996; Joseph & Linley, 2005). Due to the myriad of associated personal and economic costs, substantial research on traumatic reactions examines risk factors that lead to pathological outcomes, including PTSD.

1.3 Posttraumatic Stress Disorder

1.3.1 PTSD defined. PTSD is an anxiety disorder characterized by significantly distressing and impairing symptoms of re-experiencing, avoidance, numbing, and hyper-arousal lasting for at least one month following a traumatic exposure. The DSM-IV-TR (APA, 2000) outlines several criteria for PTSD. Criterion A1 includes exposure to experienced, witnessed, or confronted trauma involving actual or threatened death,

serious injury, or bodily harm and criterion A2 includes reactions of intense fear, helplessness, or horror. Criterion B includes persistent re-experiencing in at least one of the following ways: recurrent, intrusive, and distressing recollection of the event; recurrent and distressing dreams of the event; experiencing “flashbacks” of the event or experientially reliving the trauma; intense psychological distress when exposed to trauma-related cues; and, intense physiological reactions to trauma-related cues. Criterion C includes persistent avoidance of trauma-related stimuli and general numbing responsiveness in at least three of the following ways: effortful avoidance of trauma-associated thoughts, feelings, and conversations; effortful avoidance of trauma-related activities, places or people; difficulty recalling important aspects of the trauma; diminished interest or participation in activities; feelings of estrangement or detachment; restricted access to affect; and, feeling that future is foreshortened. Criterion D includes persistent, increasing arousal in at least two of the following ways: sleep difficulties; irritability and outbursts; concentration difficulties; hyper-vigilance; and, exaggerated startle response. In addition, symptoms from criteria B, C, and D must last for at least one month (Criterion E) and cause significant distress or impairment (Criterion F). Several factor analyses of PTSD symptom profiles suggest that numbing symptoms should be considered distinct from avoidance (e.g., Asmundson, Stapleton, & Taylor, 2004; King, Leskin, King, & Weathers, 1998; Palmieri, Weathers, Difede, & King, 2007). The DSM-V will likely amend PTSD criteria to reflect these studies, requiring endorsements of both active avoidance and emotional numbing symptoms for a person to meet diagnostic criteria (www.dsm5.org). A recent study suggests that requiring both avoidance and

emotional numbing may help increase PTSD diagnostic specificity, reducing misdiagnoses of depression as PTSD in up to 25% of cases (Forbes et al., 2011).

1.3.2 History of the PTSD diagnosis. Since Charcot, there has been some acceptance that external factors such as exposure to trauma could impact psychological functioning; however, PTSD was not officially recognized as a disorder until its inclusion in DSM-III (APA, 1980). Criterion A was particularly different in DSM-III relative to DSM-IV-TR in that DSM-III described the event as something outside the usual range of human experiences that almost everyone would find markedly distressing (APA, 1980). As such, the initial concept of what constituted trauma was heavily influenced by historical descriptions of “traumatic neuroses” derived from veterans’ experiences rather than empirical investigation into symptom presentation across trauma (Lasiuk & Hegadoran, 2006). Most of the major symptoms included in the DSM-III changed little from the initial late 19th century descriptions (Kinzie & Goetz, 1996).

PTSD was officially recognized as a disorder in the second half of the 20th century for at least two reasons. First, our understanding of the course and prognosis of posttraumatic stress reactions shifted; second, PTSD had become a vehicle for antiwar politics and protest (McHugh & Treisman, 2007; McNally, 2003). In the First and Second World Wars, the experience of “shell-shock” reinforced an understanding that exposure to horrific events could trigger a constellation of these symptoms in previously healthy individuals. Traumatic exposure during the Vietnam War was also implicated in producing chronic debilitation (McNally, 2003). Antiwar psychiatrists then lobbied for a “post-Vietnam syndrome” diagnosis to support the treatment of veterans with long-term or delayed stress reactions. The DSM-III task force was reluctant to include a historical,

situation-specific condition in the manual; however, the task force relented as veterans' advocates produced clinical evidence suggesting that similar symptoms could be found in civilians exposed to non-war trauma (McNally, 2003). Accordingly, the DSM-III criteria continued to better accommodate the experiences of specific trauma groups (i.e., war veterans) instead of a full range of human trauma.

1.3.3 PTSD categorization challenges. The necessity to subjectively decide what constituted “a normal range” of human experience quickly became problematic and inspired much debate (e.g., Davidson & Foa, 1991; March, 1993). Researchers began to collect evidence of PTSD-reactions following relatively common stressful events, such as marital discord, financial difficulty, and being sued, suggesting that the subjective reaction of marked distress might be the important variable to accurate diagnosis (Solomon & Canino, 1990). Accordingly, trauma researchers expressed concern that the DSM-III Criterion A was too strict and several people in need would not be able to access services (Solomon & Canino, 1990).

The current conceptualization of trauma came with the publication of DSM-IV (APA, 1994; diagnostic criteria for PTSD changed insubstantially in the later, text revised edition published in 2000), which broadened the definition of traumatic stress. The definition was argued by some as too broad, potentiating a conceptual ‘bracket creep’ (McNally, 2003; 2009), because even vicarious exposure to trauma would now satisfy Criterion A1. Based on current Criterion A1 (i.e., the direct, witnessed, or confronted experience), epidemiological studies have indicated that almost all adults have experienced a traumatic stressor at some point in their lives (Breslau & Kessler, 2001). As such, the DSM-IV-TR conceptualization may have broadened the concept of trauma

too far to assess common underlying mechanisms that might explain why some, but not all, people develop PTSD (McNally, 2003; 2010).

Contention about diagnostic parameters for PTSD is ongoing (Koffel, Polusny, Arbisi, & Erbes, 2012). In anticipation of the forthcoming DSM-5, there has been a recent resurgence of interest into the diagnostic efficiency and utility of PTSD (e.g., Rosen & Lilienfeld, 2008). The main controversy continues to involve what should or should not be considered a potentially traumatic event. Criterion A1 may be over-inclusive, particularly with respect to vicarious traumatization; however, Criterion A2 may be under-inclusive or otherwise misrepresent the lived experiences of PTSD sufferers (McNally, 2009). Meeting Criterion A1 does not always predict PTSD symptoms better than chance (Bedard-Gilligan & Zoellner, 2008; Robinson & Larson, 2010) and some evidence suggests even daily events (e.g., the breakup of a significant relationship), if perceived as horrific, can potentiate traumatic responses (Rubin, Boals, & Berntsen, 2008). In contrast, some evidence suggests meeting Criterion A1 but not Criterion A2 strongly predicts failure to meet other PTSD diagnostic criteria (Breslau & Kessler, 2001). Hoffman, Diamond, and Lipsitz (in press) suggest that without a careful examination of Criterion A1 and A2 before diagnosing PTSD, endorsed symptoms (e.g., Criteria B, C, and D) may be indicative of non-PTSD distress, including the presence of ongoing threat or danger. Criterion A2 may be better reconceptualised as a strong risk indicator, rather than a diagnostic necessity (Karam et al., 2010), suggesting the criterion be removed in DSM-5 (O'Donnell, Creamer, McFarlane, Silove, & Bryant, 2010).

Most of the current discussion about PTSD involves Criterion A; however, the validity of the remainder of the diagnostic criteria for PTSD has also been criticized.

Some researchers have suggested there is a potential for Criteria B, C, and D to be widely reported by people who have never experienced a traumatic stressor (Lees-Haley, Price, Williams, & Betz, 2001). Other researchers have suggested that an evaluation of Criterion B, C, and D alone may produce misleading PTSD diagnoses and recommend that meeting full symptomatic criteria provides a more accurate case conceptualization (Boals & Hathaway, 2010). Inherent in these discussions is a warning against parsing the diagnostic criteria and examining them as independent, rather than interrelated, variables.

1.3.4 PTSD symptom expression. Research examining symptom profiles have found the expression of PTSD to vary across trauma type. Profile analyses have found differences in overall symptom severity, as well as differences in symptom clusters (i.e., different endorsement rates and specifics related to DSM Criterion B, C, and D symptoms), between women exposed to different potentially traumatic events (Kelley et al., 2009); specifically, sexual assault, motor vehicle accident, and a sudden, unexpected death of a loved one. The different profiles suggest the possibility of specific trauma-type variants of PTSD (Kirz, Drescher, Gussman, Klein, & Schwartz, 2001).

There are a variety of factors other than trauma type that may influence the development and clinical presentation of PTSD. Relative to single traumatic exposure of different types, multiple traumatic exposures may also result in differential profiles of PTSD and associated symptoms. People exposed to multiple traumas appear to have less self-confidence (Allen & Lauterbach, 2007), more denial, and more disengagement (Dale et al., 2009) when compared to individuals with single-incident traumas. Further, people experiencing single traumatic exposures have been found to direct anger outwards, whereas people with a history of multiple traumatic exposures tend to direct anger

towards themselves (Hagenaars, Fisch, & van Minnen, 2011). Experiencing trauma at an early age may also have different consequences relative to experiencing trauma at later ages; however, the findings to date have been equivocal. For example, trauma exposure before the age of 13 has been associated with significantly more comorbid depression than trauma exposure after age 13 (Maercker, Michael, Fehm, Becker, & Margraf, 2004), but there is contradictory evidence indicating no differences in symptoms between children before the age of 16 or adults (Hagenaars et al., 2011). Relatedly, high levels of hyperarousal (Criterion D) after childhood sexual abuse may mediate the relationship between child abuse and adult revictimization, suggesting that chronic hyperarousal may interfere with discriminating between high and low threat situations (Riser, Hetzel-Riggin, Thomsen, & McCanne, 2006).

1.3.5 PTSD as a continuum. Echoing the early criticisms of the PTSD diagnostic parameters, modern researchers disagree about the specificity of the disorder (e.g., Rosen & Talor, 2007; Taylor, Asmundson, & Carleton, 2006). Research using latent class analysis – a statistical technique used to find subgroups within multivariate data – suggests that PTSD may not be a discrete disorder (Breslau, Reboussin, Anthony, & Storr, 2005). Instead, groups representing no-PTSD, subthreshold PTSD, and full PTSD can be parsed from trauma data, suggesting there may be several categorical differences between PTSD and subthreshold PTSD. In contrast, research using taxometric statistics suggests that PTSD is best conceptualized as a disorder falling on one end of a continuum of stress symptoms (Broman-Fulks et al., 2006; Ruscio, Ruscio, & Keane, 2002). The debate continues as to whether a dimensional versus a categorical conceptualization of PTSD fits best. In the interim, expressions of PTSD outside the

DSM-defined diagnostic criteria, including subthreshold PTSD and complex PTSD, appear to warrant more research attention.

1.3.5.1 Subthreshold PTSD. Subthreshold PTSD is characterized as a less severe expression of the disorder that includes some, but not all, of the required symptoms from DSM-IV-TR (Cukor, Wyka, Jayasinghe & Difede, 2010). Rates of subthreshold PTSD have ranged from 3.7% (Stein, Walker, Hazen, & Forde, 1997) to 44% (Blanchard, Hickling, Taylor, & Loos, 1994) and have been found in many different types of trauma populations. In a study of posttraumatic sequelae from over 3,500 disaster recovery workers, participants who based on diagnostic interview met some, but not all, of the diagnostic criteria for PTSD suffered four times the impairment of participants who did not report any PTSD symptoms (Cukor et al., 2010). In the same study, participants who met, by clinician-administered diagnostic interview, all PTSD criteria reported 30% more impairment relative to the subthreshold group. Overall, people with subthreshold PTSD appear to have significant levels of distress and impairment, and, accordingly, should not be labelled non-pathological. Furthermore, large proportions of individuals with subthreshold PTSD (as much as 73%) report a desire for symptom treatment (Zlotnick, Franklin, & Zimmerman, 2002). The challenge for researchers and policy makers then becomes differentiating normal stress reactions from pathology. An expression of negative emotion is not in itself a sign of pathology and stress is a normative reaction to a stressor (Helmchen & Linden, 2000).

1.3.5.2 Complex PTSD. Current diagnostic criteria may not wholly capture the symptom expression of people with more chronic and severe PTSD stemming from prolonged and repetitive exposure to trauma. Herman (1992) was the first to propose that

PTSD criteria failed to adequately capture the experiences of individuals who were subjected to chronic abuse. These individuals demonstrated a clinical presentation different from PTSD; specifically, symptoms characterized by dissociation and somatic/affective symptoms, personality changes, and an increased vulnerability to subsequent trauma. The DSM-IV-TR (APA, 2000) does not accommodate the complex PTSD conceptualization as a distinct disorder; instead, there is an adjunct profile of *Disorders of Extreme Stress Not Otherwise Specified* (DESNOS). The DSM-IV PTSD taskforce identified the following domains of dysfunction to be necessary for a complex PTSD (DESNOS) diagnosis: (a) poor affective and impulse regulation, (b) altered attention or consciousness, (c) negative self-perception, (d) increased somatization, and (e) disrupted systems of meaning (Pelcovitz, van der Kolk, Roth, Mandel, Kaplan, & Resick, 1997). Currently, the DSM-5 PTSD working group is considering including complex PTSD with a reconceptualization of the symptoms as a developmental trauma disorder (Busuttil, 2009; van der Kolk, 2005).

Several experiences of chronic trauma and abuse seem to be associated with complex PTSD. Individuals exposed to childhood abuse, particularly physical and sexual abuse, have particularly high levels of complex PTSD (Cloitre et al., 2009; McLean & Gallup, 2003; McLean, Toner, Jackson, Desrocher, & Stuckless, 2006; Spitzer, Chevalier, Gillner, Freyberger, & Barnow, 2006; Zlotnick et al., 1996). Complex PTSD has also been associated with a variety of military traumas. Up to 40% of help-seeking war veterans may meet proposed criteria for complex PTSD 45 years after combat exposure (Jongedijk, Carlier, Schreuder, & Gersons, 1996). A history of childhood sexual assault is associated with complex PTSD (Luterek, Bittinger, & Simpson, 2011);

however, a substantial minority of combat veterans without childhood trauma experiences have also met criteria for complex PTSD (Ford & Kidd, 1998). Complex PTSD or DESNOS seems to be a potential consequence of intimate partner violence (Hien & Ruglass, 2009). For example, individuals who had experienced violent rapes but who did not report childhood sexual abuse were found just as likely to meet diagnostic criteria for complex PTSD as they were PTSD (Miller & Resick, 2007).

There is a growing body of research suggesting that the complex PTSD symptoms are sufficiently distinct from PTSD to warrant a separate diagnostic category (Dorahy et al., 2009; Roth, Newman, Pelcovitz, van der Kolk, & Mandel, 1997; Zucker, Spinazzola, Blaustein, & van der Kolk, 2006). Rather than an adjunct diagnosis, the complex PTSD symptom profile fits a group of individuals who may or may not also have PTSD, as suggested by the many veterans who meet criteria for DESNOS and/or PTSD (Ford, 1999). Despite the potential etiological and theoretical differences between complex PTSD, DESNOS, and PTSD, several studies have found no difference in treatment responses across the symptom profiles (Feeny, Zoellner, & Foa, 2002; Hembree, Cahill, & Foa, 2004; Taylor et al., 2006).

1.3.6 Psychological theories of PTSD. There are several explanatory models of PTSD. Some theories have garnered greater empirical support than others, but there is not a consensus amongst theorists or researchers as to which model is most accurate. The primary theories include conditioning theories, schema theories, information-processing theories, and cognitive theories.

1.3.6.1 Conditioning theories. Conditioning theories are based on Mowrer's (1960) two-factor theory of fear and anxiety. Fear and avoidance responses acquired

through classical and instrumental conditioning may account for PTSD symptoms (Cahill & Foa, 2007). Keane, Zimering, and Caddell (1985) proposed that the symptoms of PTSD could be explained by classical conditioning to various stimuli (e.g., sights, sounds, and smells) experienced at the time of a traumatic exposure, which results in these stimuli eliciting intense anxiety in the future. Higher order conditioning at the time of the trauma may also account for anxiety reactions to a wider range of stimuli. Characteristic re-experiencing symptoms of PTSD – considered part of the normal recovery – become chronic and maladaptive with greater higher-order generalizations to anxiety-provoking stimuli (Keane et al., 1985). There is an apparent contradiction inherent in Keane et al.'s (1985) explanation, in that repeated exposure to feared stimuli decreases anxiety symptoms; however, Cahill and Foa (2007) suggest that spontaneous exposures are incomplete because individuals with PTSD find re-experiencing symptoms so aversive that they avoid engaging for extended periods of time. Subsequent theorists (e.g., Barlow, 2002; Kilpatrick, Veronen, & Best, 1985) have also taken Mowrer's (1960) two-factor model as the basis of conditioning-based theories of PTSD similar to Keane et al.'s (1985) model. The conditioning theories of PTSD are parsimonious and persuasive, but they inadequately address startle responses and re-experiencing symptoms such as nightmares (Cahill & Foa, 2007).

1.3.6.2 Schema theories. There are two main schema theories of PTSD: (a) stress-response theory and (b) the theory of shattered assumptions. A common supposition is that a traumatic event requires processing and does not readily integrate into existing schemas or assumptions (Cahill & Foa, 2007). The stress response theory of PTSD (Horowitz, 1976) suggests that when a traumatic experience cannot be properly

integrated into a person's psyche, two competing mechanisms are activated. The first mechanism is defensive avoidance, which results in memory loss, dissociation, and cognitive and behavioural avoidance. The second mechanism is the need to process new experiences, which results in information about the trauma bursting past the defense mechanism and entering consciousness through nightmares, flashbacks, and intrusive re-experiencing (Brewin & Holmes, 2003). Stress response theory has fallen out of favour, likely due to its psychodynamic roots; however, current researchers (Brewin et al., 1996; Brewin & Holmes, 2003) acknowledge that stress response theory adds to contemporary theories by recognizing that trauma impacts beliefs about the self, the world, others, and the future. Limitations to the stress response theory include the inability to account for individual variations in traumatic response as well as the role of social support and other environmental factors (Brewin & Holmes, 2003).

The theory of shattered assumptions, proposed by Janoff-Bulman (1992), suggests pathological changes following trauma result from victim's unquestioned assumptions about themselves and the world being challenged. Most people hold beliefs that the world is fair, benevolent, and that they themselves are good and moral (Brewin & Holmes, 2003). When people encounter a situation such as being attacked without provocation, these strongly-held beliefs and assumptions can be shattered. Inherent in the theory of shattered assumptions is the understanding that people with the most positive life experiences will be most affected when exposed to trauma, whereas people who have experienced several hardships be less affected or differently affected (Brewin & Holmes, 2003). Research evidence has indicated the opposite, in that past trauma exposure appears to be a risk factor for developing PTSD following future trauma exposures (e.g., Coughle,

Resnick, & Kilpatrick, 2009; Dohrenwald et al., 2006). Despite the confounding empirical evidence, the theory introduced the basic building blocks of modern cognitive theories of PTSD; specifically, that traumatic reactions are due to beliefs about self-competence and the world being safe (e.g., Ehlers & Clark, 2000; Foa & Rothbaum, 1998).

1.3.6.3 *Information-processing theories.* Information-processing theories focus on the traumatic event and the way memories for the event are integrated into pre-existing schemas (Brewin & Holmes, 2003). An early informational processing model of PTSD proposed by Lang (1979) reworked strict behavioural accounts of fear acquisition into a cognitive framework. Attempts have also been made to incorporate individual perceptions and meanings of traumatic events into the model (Foa & Kozak, 1986; Foa, Steketee, & Rothbaum, 1989); specifically, when a traumatic event is experienced, it becomes represented in the person's memory differently than other memories might. Fear structures become pathological when (a) the associated stimuli no longer accurately represent reality, (b) escape and avoidance behaviours, and meanings of threat and danger are invoked from innocuous stimuli, and (c) any of these response mechanisms become so easily provoked they interfere with more adaptive behaviours (Cahill & Foa, 2007). The memory of a head-on automobile collision may become so heavily connected to fear and fear-based physiological and behavioural responses that it overrides innocuous past experiences of driving. When confronted with a cue (e.g., driving in a car), only the strong trauma-memory is retrieved, and the person experiences the hypervigilance, re-experiencing, and avoidance symptoms characteristic of PTSD (Brewin & Holmes, 2003). Information-processing theories include many of the basic assumptions

underlying conditioning explanations of PTSD, extending these explanations to accommodate meanings associated with the fear-evoking stimuli and anxiety responses (Cahill & Foa, 2007). The information-processing theories are limited because they do not adequately explain numbing and dissociation, they the focus on fear, and they do not explain other related emotions, such as anger and disgust (e.g., Dalgliesh & Power, 2004).

1.3.6.4 Cognitive theories. Cognitive theories of PTSD assume that the thoughts associated with a traumatic event and individual interpretations therein determine a pathological response, rather than the events themselves (Beck, Emery, & Greenberg, 1985). Information-processing theories hold emotions central, whereas cognitive theories consider thoughts to be the core process. Ehlers and Clark (2000) suggest that PTSD is the result of past maladaptive appraisals of threat that are processed in a way that leads to a current and persistent sense of danger (Cahill & Foa, 2007). Traumatic memories may be fragmented, unelaborated, and improperly incorporated into a person's autobiographical memory. When invoked, these memories are perceived as current indicators of threat.

Several studies have supported the relationship between the basic mechanisms of the cognitive model and the development of PTSD (e.g., Dunmore, Clark, & Ehlers, 1999; Ehling, Ehlers, & Glucksman, 2008; Laposa & Alden, 2003). As such, the cognitive model may be the most detailed account of the development and maintenance of PTSD (Brewin & Holmes, 2003); however, there are two key limitations of the cognitive model. The first limitation involves the inherent complexity of assessing cognitive processes and difficulties validating measurement (Brewin & Holmes, 2003).

The second limitation involves difficulties testing causal relationships between certain cognitive processes (such as dissociation or data-driven processing) and PTSD symptoms (Holmes, Brewin, & Hennessy, 2004).

1.3.7 PTSD prevalence. Approximately half of a nationally representative sample of Americans reported a traumatic exposure; however, only 10% of women and 5% of men were found likely to meet criteria for PTSD (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Similar statistics have been noted in representative Canadian samples. The lifetime prevalence of PTSD has been estimated at over 9%, with over 75% of Canadians reporting at least one Criterion A trauma (Van Ameringen, Mancini, Patterson, & Boyle, 2008). In Vietnam veterans exposed to combat-related trauma, the lifetime prevalence of PTSD has been estimated to be 31% for men, and 26% for women (Weiss et al., 1992). In contrast, PTSD prevalence rates have ranged from 5 to 20% in veterans of the Enduring Freedom and Iraqi Freedom operations (Ramchand et al., 2010). The lifetime prevalence rates for women exposed to intimate partner violence, as estimated by meta-analyses, ranges from 31% to 84% (Golding, 1999; Jones, Hughes, & Unterstaller, 2001).

1.3.8 Sex differences in PTSD prevalence. Researchers have identified a discrepancy between the incidence of traumatic exposure and PTSD between men and women. Epidemiological studies suggest that PTSD may be more prevalent among girls and women than boys and men (Breslau & Anthony, 2007; Breslau, Davis, Andreski, Peterson, & Schultz, 1997; Kessler et al., 1995; Stein, Walker, & Forde, 2000). The results suggest that women may be more susceptible to developing PTSD or that women

may have higher rates of exposure to particular traumas that are more likely to result in PTSD.

Despite differences in population, types of assessment, or additional methodological variables, a recent meta-analysis found women almost twice more likely than men to develop PTSD following a traumatic exposure (Tolin & Foa, 2008). In this meta-analysis, and consistent with large-scale epidemiological studies (e.g., et al., 1997; Kessler et al., 1995), higher PTSD prevalence was not related to women experiencing greater frequency of traumatic exposure. Instead, men were found more likely to report a history of trauma including accidents, nonsexual assault, combat, war, disaster, serious illness, and witnessing death or injury, while women were more likely to report sexual assault, and childhood sexual abuse (Tolin & Foa, 2008). Women typically report a higher lifetime incidence of rape and sexual assault and men a higher lifetime incidence of physical assault and combat experiences; however, differences in PTSD rates across sex are not robust over a lifetime (Freedman et al, 2002). That said, in men and women who report sexual assault and childhood sexual abuse, women remain more likely to meet PTSD criteria, and experience a greater severity of symptoms (Tolin & Foa, 2008).

1.3.8.1 *Peritraumatic variables and sex-differences.* Women report higher levels of immediate posttraumatic stress symptoms, peritraumatic dissociation, and perceived life threat relative to men (Solomon, Gelkopf, & Bleich, 2005). The difference remains even though objective stress measures such as cortisol level and heart-rate indicate no differences between men and women posttrauma (Irish et al., 2011). As such, differences in PTSD responses between men and women appear related to subjective cognitive interpretations and emotional reactions, rather than biological differences (Lilly, Pole,

Best, Metzler, & Marmar, 2009). For example, women appear more likely to report negative social reactions to their trauma than men, which are highly correlated with PTSD diagnoses (Andrews, Brewin, & Rose, 2003). In particular, exposure to violent crimes seems to carry different social stigma for women than men and repercussions of negative stigma seem to be differentially damaging (Andrews et al., 2003).

1.3.8.2 Neurophysiological differences and sex-differences. Animal models of stress reactions suggest that neurochemical and hormonal differences between men and women may partially influence PTSD development. A review of rat studies reported that sex differences in resting hypothalamic-pituitary-adrenal axis activity, structures and functions in the central nervous system, and the sympathoadrenal systems suggest that baseline physiological differences between males and females may partially account for discrepant PTSD responses (Cohen & Yehuda, 2011); however, differences in PTSD-reactivity may have little to do with baseline or reactive stress-systems (Mazor et al., 2009). To determine the usefulness of these animal model studies to our understanding of differences in PTSD between men and women, additional investigations of the effect of physiologic stress-systems in humans is necessary.

1.3.9 Gender role, the meaning of trauma, and PTSD. For traumas such as physical or sexual assault, a meaning involving ideas about what it is to be a man or a woman might work to exacerbate or mediate trauma responses. Several feminist-based arguments may be able to explain the differences in PTSD across sex (Gavranidou & Rosner, 2003). In line with the Social-Role theory proposed by Eagly (1987), men may more readily report certain traumas that correspond to their gender roles (e.g., physical assault, serious accidents), but may be hesitant to report any symptoms indicating

weakness (e.g., hypervigilance and fear; Gavranidou & Rosner, 2003). In contrast, women may more readily report symptoms of mental and emotional distress, which is more in line with their gender socialization.

Gender-specific interviewer effects may also account for discrepancies in PTSD reporting. For example, sexual assault appears to be difficult for both men and women to report or discuss (e.g., Sable, Danis, Mauzy, & Gallagher, 2006); however, women may be more reluctant to report certain traumas, such as sexual assault, to men rather than women. Similarly, men may feel uncomfortable reporting certain symptoms to women rather than men (Gavranidou & Rosner, 2003). Such gendered effects may serve to artificially accentuate the discrepancy between reported trauma and the development of PTSD across women and men. Gender-bias likely affects interviewers as well. Women interviewers have reported a lower severity threshold for PTSD in women participants (Grayson et al., 1996), suggesting that women expect other women to suffer more than men from the same traumatic exposures.

Trauma may also affect women more severely than men (e.g., Breslau, 2009) because women generally have fewer resources available to them (e.g., are poorer, less educated, have less free time; Gavranidou & Rosner, 2003). As such, women may have a harder time recovering from a further depletion of their resources. Women experiencing multiple barriers (e.g., lack of education, low socioeconomic status) may have an increased chance of developing higher rates of PTSD symptoms. The impact of multiple barriers on the development of PTSD after traumatic exposure has not been satisfactorily empirically tested; however, based on responses collected in the National Women's Study, a history of depression, alcohol abuse, and low education were all specific risk

factors for developing PTSD after interpersonal trauma (Acierno, Resnick, Kilpatrick, Saunders, & Best, 1999).

1.3.10 Etiology of PTSD. The etiological pathways for PTSD remain at the center of current PTSD research (Ozer & Weiss, 2004). There are several risk factors associated with the development of PTSD. Major meta-analytical studies of PTSD predictors (Brewin, Andrews & Valentine, 2000; Ozer et al., 2003) suggest four main categories of risk factors: (a) historical/static characteristics (e.g., childhood trauma, intelligence), (b) trauma severity, (c) peritraumatic and immediately posttraumatic variables (e.g., dissociation, negative cognitions), and (d) supportive or stressful variables following the trauma (e.g., social support, stressful life events). All four categories of risk and resiliency variables significantly predicted PTSD; however, the strength of prediction varied across the categories (Ozer & Weiss, 2004). Specifically, the more proximally situated factors (i.e., those factors that arose closer in time to the trauma) were better predictors of PTSD than distal variables. Instead of a single explanatory risk factor, PTSD likely results from the combined effects of several risk factors.

1.3.10.1 Historical and static characteristics. There are several historical and static characteristics beyond sex and gender that may predict PTSD. Meta-analysis has found that younger age, low socioeconomic status, lack of education, low intelligence, minority status race, psychiatric history, family psychiatric history, childhood abuse, adverse childhood events, and previous exposure to trauma have all been significant and robust risk factors for PTSD along with sex (Brewin et al., 2000). Indeed, a dose relationship appears to exist between the accumulation of traumas and the eventual

likelihood of PTSD development (Breslau, Chilcoat, Kessler, & Davis, 1999; Cogle et al., 2009; Dohrenwend et al., 2006).

Experiencing physical, sexual, and psychological abuse as a child may be a particularly strong predictor of current PTSD (Brewin et al., 2000; Cogle, Timpano, Sachs-Ericsson, Keough, & Riccardi, 2010; Hetzel & McCanne, 2005; Ozer et al., 2003; Rich, Gidycz, Warkentin, Loh, & Weiland, 2005). Childhood abuse has accounted for as much as 42% of the variance in PTSD symptoms in a sample of psychiatric inpatients (Carlson et al., 2001). Early abuse experiences may place people at greater risk of experiencing subsequent traumas, which might too increase their risk of PTSD (Boney-McCoy & Finkelhor, 1995; Cogle et al., 2009; Himelein, 1995); however, some research has failed to replicate these findings (Breslau & Peterson, 2010; Breslau, Peterson, & Schultz, 2008).

Age may make one more or less susceptible to developing PTSD. Younger age, rather than older age, may be predictive of PTSD development (e.g., Ditlevsen & Elklit, 2010; Piipisa, 2004); however, there is also evidence that middle aged men and women may suffer more psychological distress than younger or older men and women (Thompson, Norris, & Hanacek, 1993). Other researchers have reported that older (e.g., over 65) rather than younger age is predictive of PTSD development (Cardozo, Vergera, Agani, & Gotway, 2000; Eytan, Gex-Fabry, Toscani, Deroo, & Bovier, 2004). That said, older people may be more vulnerable simply because they have lived longer and thus are at an increased likelihood of experiencing multiple traumas.

1.3.10.2 *Trauma severity and type.* There is disagreement on the definition and measurement of trauma severity, making it difficult to compare results across studies

(Luszczynska et al., 2009). Being injured during a traumatic exposure may increase the risk for developing PTSD (e.g., Resnick, Kilpatrick, Best, & Kramer, 1992), but the evidence for a relationship between trauma severity and PTSD severity appears equivocal. For example, PTSD symptom severity has been positively correlated with injury in railroad accident victims (Selley et al., 1997), but negatively correlated in burn victims (Perry, Difede, Musngi, Frances, & Jacobsberg, 1992). Furthermore, injury severity, established through multiple measures (e.g., injury severity score, new injury severity score, and probability of survival score) did not predict the development of PTSD in multi-trauma and spinal cord injury inpatients whatsoever (Quale, Schanke, Frøslie, & Røise, 2009).

Early epidemiological evidence suggests there may be a differential risk of developing PTSD depending on the type of trauma exposure (e.g., Breslau et al., 1998; Kessler et al., 1995). Certain traumas, particularly interpersonal and combat-related traumas, seem more likely to result in a diagnosis of PTSD than other traumas (Kessler et al., 1995; Yasan, Saka, Ozkan, & Ertem, 2009). Some researchers have suggested a positive correlation between the direct experience of trauma (e.g., being physically abused rather than witnessing the physical abuse of another person) and PTSD (Wolfe, Crooks, Lee, McIntyre-Smith, and Jaffe, 2003); however, others have found comparable rates of PTSD across both direct and vicarious exposure experiences (Alden, Regambal, & Laposa, 2008; Kitzmann, Gaylord, Holt, & Kenny, 2003).

1.3.10.3 *Peritraumatic variables.* Peritraumatic dissociation – the feeling of unreality or an altered sense of self – has been suggested as the strongest predictor of PTSD, accounting for up to 25% of symptoms (Breh & Seidler, 2007; Ozer et al., 2003).

That said, the relationship between dissociation and PTSD may be almost entirely mediated by fears about death and losing control (Gershuny, Cloitre, & Otto, 2003). A review of the relationship between dissociation and PTSD found that in 35% of the eligible studies, the relationship between PTSD and peritraumatic dissociation was either nonsignificant or unclear (van der Hart, van Ochten, van Son, Steele, & Lensvelt-Mulders, 2008). As such, dissociation may be neither necessary nor sufficient for PTSD development.

1.3.10.4 Cognitive variables. Elwood, Hahn, Olantunji, and Williams (2009) suggest several key cognitive vulnerabilities for PTSD, including negative attributional style, rumination, and anxiety sensitivity. Negative attributional style – such as pessimism – is the tendency to attribute internal, stable, and global causes to experienced negative events and may be an important predictor of PTSD (Gray, Pumphrey, & Lombardo, 2003). Such attributions may be a particularly good predictor of PTSD in women victims of interpersonal abuses and traumas (Beck et al., in press; Elwood, Hahn et al., 2009).

Rumination – the tendency to think passively and repetitively about the emotions, symptoms, and precipitators of negative events – may also increase individual vulnerability to PTSD. Rather than subjecting themselves to thoughts of the full experience of the trauma, which might act as a natural exposure, rumination may be a way to avoid confronting the trauma by keeping one's mind occupied with specific details, such as the causes and consequences of trauma (e.g., Ehlers & Clark, 2000). Rumination has significantly predicted PTSD development in both adult (Ehlers, Mayou, & Bryant, 2003) and child (Mayou, Ehlers, & Bryant, 2002) trauma victims; however,

when original symptom levels are statistically controlled, rumination has no longer remained a robust significant predictor of PTSD (Ehlers, Mayou, & Bryant, 1998).

Anxiety sensitivity – conceptualized as the fear that anxiety and anxiety-related symptoms are harmful (Reiss, 1991) – has been associated with PTSD in several samples, including students (Collimore, McCabe, Carleton, & Asmundson, 2008), active-duty police officers (Asmundson & Stapleton, 2008), and women (Lang, Kennedy, & Stein, 2002). In longitudinal research controlling for baseline PTSD and anxiety symptoms, anxiety sensitivity appears to be a significant predictor of change in PTSD symptoms over time (Feldner, Zvolensky, Schmidt, & Smith, 2008); furthermore, anxiety sensitivity may be a maintenance factor for PTSD (Elwood, Mott, Williams, Lohr, & Schroeder, 2009; Taylor, 2003). Anxiety sensitivity is believed to be a stable, trait-like vulnerability, with elevations occurring as a product of traumatic exposure (Lang et al., 2002). Indeed, anxiety sensitivity and PTSD symptoms may both reduce after treatment (Fedoroff, Taylor, Asmundson, & Koch, 2000).

1.3.10.5 *Supportive or stressful variables following the trauma.* The amount of positive social support available after the trauma has been negatively associated with PTSD symptoms (Brewin et al. 2000; Ozer et al. 2003); however, strong post-trauma support might indicate a higher level of pre-trauma functioning (Ozer & Weiss, 2004). Longitudinal studies have not found a clear relationship between social support and PTSD (King, Taft, King, Hammond, & Stone, 2006; Laffaye, Cavella, Drescher, & Rosen, 2008). Researchers disagree about directionality for the relationship between social support and PTSD because PTSD symptoms can erode social support (Clapp & Beck, 2009). Post-trauma life stressors (e.g., recent move, job loss) may also facilitate the

development of PTSD (King, King, Foy, Keane, & Fairbank, 1999; Maes, Mylle, Delmeire, & Janca, 2001).

1.4 Personality

Personality has been defined as “the dynamic organization within the individual of those psychophysical systems that determine his [or her] unique adjustments to his [or her] environment” (Allport, 1937, p. 48). Personality is not generally understood as involving ability or talent, but does involve the propensity to engage in skill-related behaviour (Watson, Clark, & Harkness, 1994). Due to inherent complexities, personality is most often researched and conceptualized on the basis of measurable nomothetic traits rather than more transient states of mood or circumstantial behaviour (Tyrer, 2010). Such traits can be reliably measured, appear to remain stable over time, and are seemingly shaped by the joint influences of genetics and environment (Watson et al., 1994). A large body of evidence suggests that personality factors can be linked to outcomes throughout life, including health and life span (Hooker, Hoppmann, & Siegler, 2010), academic achievement (Smirtnik-Vitulić & Zupančič, 2011), job stress (Alacorn, Eschleman, & Bowling, 2009), divorce, and occupation attainment (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007).

1.4.1 Personality models. There is a rich history of the theory and science of personality psychology (See Dumont, 2010, for review); however, that history is largely beyond the scope of the present study. For the current purposes, it is sufficient to begin in the late 20th century, when personality researchers came to a near consensus about the structure of personality. Most modern research on the structure of personality is derived from the factor analysis of linguistic trait descriptions (e.g., “shy”, “energetic”,

“intellectual”). A tradition of lexical theory suggests that it is evolutionarily advantageous to be able to articulate the differences between people – and that natural language is the best means of capturing how people are similar and different from one another (Dumont, 2010; Poropat, 2002). There have been several different models proposed to best account for the underlying structure of personality. The currently supported models of personality in clinical research appear to be the five-factor model and the three-factor model.

1.4.1.1 *The five-factor model.* The five-factor model (Goldberg, 1993), which includes the “Big Five” factors of Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect/Imagination was, by the late 1990s, generally conceded to be the best representation of human personality (Ashton & Lee, 2007; Saulsman & Page, 2004). Proponents of the five-factor model suggest that the Big Five are universal personality traits representing individual responses to fundamental challenges faced by humans (Heine & Buchtel, 2009). Evolutionarily adaptive advantages may have been conferred for those able to judge who is reliable, trustworthy, and able to cope with negative experiences (Buss, 1991).

There has been an abundance of support for the five-factor model (e.g., Costa & McCrae, 1992; Digman, 1990), but the model has also been criticized. For example, Block (1995) argues that although researchers continue to utilize the five-factor model, a theoretical approach based on factor analysis may not provide the best objective rational to determining the structure of personality. Factor analytic approaches are limited by item-set selection biases, problems in the determination of the number of factors, and such approaches are associated with various concerns about the rotation of factor solutions. The five-factor model has been further criticized for lacking a theoretical basis

(Block, 1995). An evolutionary perspective works to explain why people are interested in understanding individual differences in one another; however, it fails to explain either how varying in personality traits is evolutionarily adaptive or why non-adaptive variability has not been selected (Heine & Buchtel, 2009). Recent evidence suggests that a six-factor model, as proposed by Ashton and Lee (2001), better accommodates the full spectrum of human personality than other contemporary models. Largely similar to the five-factor model, the six-factor HEXACO model (i.e., Honesty-Humility, Emotionality, eXtraversion, Agreeableness, Conscientiousness, Openness to experience) excludes Neuroticism and includes a broad sixth dimension. The newly posited sixth dimension, Honesty-Humility correlates modestly with the Big Five factors but appears to be a distinct but important factor (Ashton & Lee, 2005) that differentiates persons who are interpersonally deceptive without coming across as rude or harsh (e.g., score high on social adroitness and self-monitoring scales) from those who are both rude and harsh. Due to computing capacity limitations, the five-factor model was originally derived from a small fraction of the English language's personality lexicon (Ashton & Lee, 2007). Upon analysis of a more complete archival lexicon, and contrary to what previous research has suggested, a six-factor model appears to be best suited for English language personality adjectives (Ashton, Lee, & Goldberg, 2004). To date, the HEXACO model has been indicated in at least 12 different language lexicons, supporting a broad cross-cultural applicability (Ashton & Lee, 2007).

1.4.1.2 *The three-factor model.* Proposed by Tellegen (1985), the three-factor model of personality suggests personality can be explained by the higher-order dimensions of Positive Emotionality (PEM), Negative Emotionality (NEM), and

Constraint (CON). PEM includes traits such as Social Potency and Social Closeness. NEM includes traits such as Alienation and Aggression. CON includes traits such as Harm Avoidance and Control (as cited in Church, 1994). The three-factor model is closely related to categorizations of psychopathology as either externalizing or internalizing (Krueger, McGue, & Iacono, 2001). In addition, the model has been particularly useful for associating personality traits with emotions (Larsen & Ketelaar, 1991) and biological markers (Tomarken, Davidson, Wheeler, & Doss, 1992). Behaviour genetics studies (Robinson, Kagan, Reznick, & Corley, 1992) and studies of early temperaments (Rothbart, Derryberry, & Posner, 1994, as cited in Miller, 2003) have demonstrated high rates of heritability for the three factors.

1.4.2 Personality and psychopathology. Personality structure may have important implications in the etiology, development, and maintenance of psychopathology (Watson et al., 1994; Watson, Clark, & Chmielewski, 2008). Indeed, theorists can conceptualize mental disorders using the broad terms “externalizing” (i.e., the tendency to express distress outwards) and “internalizing” (i.e., the tendency to express distress inwards; Kessler et al., 1994). Disorders associated with externalizing factors include alcohol dependence and antisocial personality disorder; in contrast, disorders associated with internalizing factors include depressive disorders, generalized anxiety disorder, phobias, social anxiety, and panic (Beesdo-Baum et al., 2009; Krueger, 1999). These categorizations appear to encapsulate most of the Axis I comorbidity patterns seen in clinical samples (Beesdo-Baum et al., 2009). Comorbidity of disorders within the broad categories of internalizing or externalizing is relatively common, whereas comorbidity of disorders across the categories is relatively uncommon (Kotov,

Gamez, Schmidt, & Watson, 2010; Wilamowska et al., 2010). Accordingly, this very basic model of personality and psychopathology offers an intuitive and concise shorthand organization for our understanding of common pathological process (Beesdo-Baum et al., 2009).

Personality disorders have features of the personality traits described in the 3-factor model (e.g., high Negative Emotionality, high Constraint, low Constraint) and can be conceptualized as falling on a continuum of normal personality (e.g., Clark, 2007); however, the current DSM does not include an understanding of personality structure in its conceptualization of psychopathology. High comorbidity has been found between Axis I disorders (e.g., depression, anxiety, eating disorders) and personality disorders. For example, somatization disorder has been significantly positively correlated with all the personality disorders; indeed, moderate effect sizes have been found for antisocial, borderline, narcissistic, histrionic, and dependent personality disorder (Bornstein & Gold, 2008). As well as assessing abnormal personality, assessing individual variations within normal personality structures may have utility in the conceptualization of psychopathology (Hopwood, 2011).

1.4.2.1 *Personality and PTSD.* The relationship between personality and PTSD has been examined less relative to relationships with anxiety and depression. Miller (2003) suggests the paucity of such research may result from PTSD having been reconceptualised as a natural human response to extremely horrific events rather than a sign of dispositional weakness. Before the DSM-III (APA, 1980), prolonged adverse reactions to trauma were considered to reflect a premorbid personality flaw (e.g., Hall & MacKay, 1934). In DSM-III, the traumatic event was described as an etiological

occurrence and the symptom sequelae of PTSD were considered a natural reaction to extraordinary circumstances (Yehuda & McFarlane, 1995).

Other anxiety and depressive disorders are generally found to have comorbid conditions that fall within either the internalizing or externalizing personality factors; however, PTSD is found to associate with both internalizing and externalizing disorders. (Brown, Campbell, Lehman, Grisham, & Mancil, 2001). This heterogeneous PTSD symptom expression has been identified between different trauma types (Kelley et al., 2009) and within the same trauma types (Dickstein et al., 2010), suggesting that individual factors may affect the development and maintenance of the disorder. Certain personality traits may be differentially associated with cluster-specific symptoms of PTSD. For example, high negative affectivity (the tendency to experience negative emotional states; Watson & Clark, 1984) has been associated with more avoidance, more arousal, and less intrusion symptoms; in contrast, high social inhibition is associated with high avoidance symptom reports (Mommersteeg et al., 2010; Rademaker, van Zuiden, Vermetten, & Geuze, 2011).

In 2003, Miller, Greif, and Smith found three distinct personality profile clusters in 221 male combat veterans, which they conceptualized as simple (i.e., normal personality features; comparatively unlikely to show comorbidity), internalizing (i.e., high in introversion; more likely to have comorbid depression), and externalizing (i.e., high in aggression, impulsivity and emotional lability; more likely to have a comorbid substance use problem). Miller and his colleagues (Miller et al., 2004) replicated his initial findings with a new sample of 726 male veterans with PTSD. The results categorized 31% of the participants into an uncomplicated subtype, 28% into an

externalizing subtype, and 41% into an internalizing subtype. A similar PTSD personality subtype model was found using Latent Profile Analysis with data from 208 predominately male veterans with PTSD (Wolf, Miller, Harrington, & Reardon, 2012). The PTSD personality subtype model was identified in men and women exposed to workplace-related traumas (Sellbom & Bagby, 2009), as well as in women exposed to sexual assault (Miller & Resick, 2007).

1.5 Intimate Partner Violence

Intimate partner violence (IPV) can be defined as any act of physical, sexual, or psychological abuse perpetrated by one person in a current or former intimate partnership (e.g., marriage, dating, romance) on the other member of that partnership (Saltzman et al., 2002; Weaver, Turner, Schwarze, Thayer, & Carter-Sand, 2007). IPV can be perpetrated by women against men; however, national statistics derived from telephone data collected in the United States suggest that women are nearly three times as likely to report experiencing physical violence by their male partners as men are from their female partners (i.e., 20.4% compared to 7%; Tjaden & Thoennes, 2000). In addition, women are more likely than men to experience severe and chronic abuse, as well as psychosocial consequences (Ansara & Hindin, 2011; Tjaden & Thoennes, 2000).

A recent examination of Canadian data found that women who experienced violence fell into three classes: (a) physical aggression with no controlling behaviours; (b) physical aggression, control, and verbal abuse; and (c) severe violence, control, and verbal abuse. In this survey, men who experienced violence fell into either (a) physical aggression with no controlling behaviours, or (b) moderate violence, control, and verbal abuse (Ansara & Hindin, 2011). Men were also more likely to report that the physical

violence they experienced had no negative effects. Women were more likely to report feeling fearful in response to partner violence, whereas men were more likely to report feeling upset, confused, and frustrated. The differences in self-report suggest IPV experienced by men and women is quantitatively different and the attributed meaning is qualitatively different. As victims of IPV construct meaning, their schemas, beliefs, expectations, and assumptions about themselves, others, and the world may be altered (McCann & Pearlman, 1990).

1.5.1 Prevalence of IPV. Reported rates of IPV vary greatly. Studies conducted worldwide report lifetime IPV exposure rates for women vary between 10% and 71% (Breiding, Black, & Ryan, 2011; Díez et al., 2009; Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2006; Gracia, 2004; Koss, 1993). A basic barrier to more definitive estimates of IPV is that there is no consensus regarding the defining parameters (Gelles, 2000). IPV can defensibly be defined as including only physical and sexual violence or, just as defensibly defined as any form of violence (e.g., emotional abuse). Controversy also exists as to whether IPV should be limited to couples who are married (or living in common-law relationships) or whether it should be extended to couples who are dating (Tjaden & Thoennes, 2000). IPV estimates are also complicated by the fact that the events are largely hidden. Specifically, most IPV occurs behind closed doors with few or no witnesses. Furthermore, women may be reluctant to report IPV for cultural reasons, economic dependence, fear of negative experiences with police, and concern about the repercussions of child protective service involvement (Wolf, Ly, Hobart, & Kernic, 2003).

Estimates of IPV prevalence rates are primarily derived from three sources, all of which may underrepresent IPV. The first IPV data source is clinical data, which includes emergency room admittance and shelter usage. The second IPV data source is official report data, which includes police and child protective services reports. The third IPV data source is large scale social surveys (Gelles, 2000), which relies primarily on self-report from broad samples. Data derived from clinical and official report data can underestimate the rate of IPV exposure because women may not seek medical assistance or call the police until violence escalates to the point where their physical safety and lives are at risk. Women may be reluctant to report abuse not physically verifiable by breaks, bruises, or blood (Wolf et al., 2003). Social survey data has the potential benefits of being comprehensive, anonymous, and generalizable; however, data derived from such broad studies is also likely an underrepresentation. In a review of rape studies, Koss (1993) found nondisclosure to be the most serious threat to the validity of victimization data. For women, the stigma and embarrassment (Knapp & Kirk, 2003; Miller, Canales, Amacker, Backstrom, & Gidycz, 2011) associated with violence perpetrated by a romantic or conjugal partner can be a barrier to some methods of self-reporting; moreover, women who underreport may excuse or normalize their partner's violent acts as expressions of affection (Kimmel, 2002).

1.5.2 Costs of IPV.

1.5.2.1 Physical consequences. Women exposed to IPV rightfully utilize emergency, hospital outpatient, primary care, pharmacy, and specialty services at a greater rate than non-abused women (Bonomi, Anderson, Rivara, and Thompson, 2009); moreover, those women continue to utilize services at significantly higher rates even 5

years after leaving an abusive relationship (Rivara et al., 2007). Accordingly, IPV appears to have several long-term health consequences beyond immediate violence-attributed bodily injury (e.g., bruising, lacerations, broken bones, internal bleeding). Women who report IPV have been more likely to report chronic illness (e.g., hypertension; Ruiz-Peréz, Plazaola-Castaña, & del Río-Lozano, 2007) or chronic pain (Wuest et al., 2008) than women who did not report IPV. Women who have experienced IPV may also be at significantly higher risk for migraines, breathing problems, and abdominal pain (Díez et al., 2009), as well as gynaecological, central nervous system, and stress-related problems (Campbell et al., 2002). Women with a history of IPV have also been found to report increased health-risk behaviours such as smoking, heavy alcohol consumption, drug use, and unsafe sex (Bonomi et al., 2006).

1.5.2.2 Socioeconomic and relational consequences. Women who have been subjected to IPV often suffer profound social consequences. Past IPV exposure predicts unemployment and poverty (Byrne, Resnick, Kilpatrick, Best, & Saunders, 1999), as well as housing instability and homelessness (Pavao, Alvarez, Baumrind, Indura, & Kimerling, 2007). The dynamics of power and control inherent in chronic IPV have direct consequences on women's work history; specifically, in up to 93% of cases women report the abuser also interfered with their work (Alexander, 2011). Such interference would have a direct negative impact on employment stability and ongoing employability. IPV also appears to affect victims' subsequent social relationships and interpersonal processes. Women abused by their partners report being less likely to trust people in their community (Bonomi et al., 2006) and report feeling disconnected from potential systems of support in their community (Kulkarni, 2009).

1.5.2.3 *Mental health consequences.* Mental health consequences associated with IPV exposure, particularly depression, anxiety, and suicidal ideation, have been well documented. Women exposed to all types of IPV have a higher incidence and severity of depression, PTSD, and suicidal thoughts than non-abused women (Pico-Alfonso et al., 2006). Women exposed to IPV have four times the lifetime rate of depression and anxiety relative to women who have experienced other types of traumas (e.g., car accidents; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). Furthermore, women exposed to IPV have been demonstrated as experiencing higher rates of externalizing disorders, internalizing disorders, and suicidal ideation relative to non-abused women (Afifi et al., 2009).

1.5.2.4 *IPV and PTSD.* Meta-analytic data indicate 31% to 84% of women exposed to IPV meet criteria for PTSD (Golding, 1999). All types of IPV are associated with the development of PTSD; however, psychological/emotional abuse seems to result in particularly high levels of PTSD symptoms (Pico-Alfonso, 2005). The association of IPV with certain PTSD vulnerability and maintenance factors, such as trauma-related guilt (Street, Gibson, & Holohan, 2005) and shame (Beck et al., in press), may facilitate the development of the disorder following IPV. Similarly, certain PTSD symptoms, particularly numbing, have been found to increase the odds of a women being re-abused (Krause et al., 2006).

1.5.3 *IPV, PTSD, and personality.* Very little research has explored the relationship between personality factors, PTSD, and IPV. Instead, researchers have focused on external trauma factors (e.g., severity or length of the abuse) – possibly to avoid any risk of engaging in a discourse of victim-blaming (Goodman, Dutton, Vankos,

& Weinfurt, 2005; Perez & Johnson, 2008). That said, personality factors may not be responsible for IPV; however, such factors may help us understand why some women develop PTSD in response to partner violence, while others do not. Furthermore, personality may help us understand why women do or do not eventually seek help for IPV.

The only study published on personality and PTSD in IPV was conducted by Miller and Resick (2007). Participants included 143 women who were seeking help for rape-related distress. The results suggested that the three theorized subtypes of PTSD symptoms (i.e., internalizing, externalizing, and simple) may identify differences between PTSD and complex PTSD. Individuals with PTSD in the internalizing or externalizing categories reported a range of symptoms captured by the construct of complex PTSD, although the symptom expressions were different. In contrast, individuals in the simple category reported normative personality scores and relatively few comorbid concerns. The results appeared consistent with previous research suggesting that complex PTSD may not be a disorder, per se, but may be better understood as a range of potential symptoms (Briere & Spinazzola, 2005) explained by internalizing and externalizing personality subtypes. The Miller and Resick study identified no differences in trauma history between the three subtypes, which contrasted previous suggestions that early childhood and repeated traumatization differentiates PTSD from complex PTSD (Herman, 1992). The different results may have been due to high endorsement rates and restricted ranges for lifetime traumas within the Miller and Resick sample.

Miller and Resick (2007) used the Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark, 1996) to determine membership within each of the three

theorized personality subtypes (i.e., simple, internalizing, and externalizing). The SNAP was not specifically designed to measure the three-factor model of personality that supports the three theorized personality subtypes; however, the SNAP temperament scales have been theoretically and empirically correlated with the broad three-factor traits of positive emotionality (.73), negative emotionality (.88), and control (-.71; Clark, 1996). In addition, the SNAP and the more recent SNAP-2 (Clark, Simms, Wu, & Casillas, 2008) have been empirically supported for directly assessing both normal and disordered personality features, and allowing researchers to test hypotheses dealing with the continuity of these dimensions (Clark, 1996; Clark et al., 2008). As such, use of the SNAP appears to be well-justified for investigating relationships between the three theorized personality subtypes and complex PTSD. To determine the PTSD personality subtypes, Miller and Resick (2007) conducted a k-means cluster analysis with three clusters set a priori on the temperament patterns (positive temperament, negative temperament, and disinhibition) simultaneously, uncovering groups with specific temperament patterns. The externalizing subtype group was characterized by high levels of negative emotion and disinhibition. The internalizing subtype group was characterized by high levels of negative emotion and low levels of positive emotion. The simple subtype group was characterized by mid-range scores across all three scales.

The Miller and Resick (2007) study had several important limitations. The participant sample was relatively small and consisted primarily of repeated sexual assault survivors who were seeking psychological therapy; as such, the sample was not representative of the full spectrum of IPV victims. The results indicated no between-group differences in the trauma history demographics collected, such as presence of

childhood physical and sexual abuse, number of times a victim of crime, and years since rape; however, the study did not assess or differentiate IPV abuse histories leaving it unclear whether the three theorized personality subtypes (i.e., simple, internalizing, and externalizing) are associated with different abuse experiences. In addition, Miller and Resick's assessment of complex PTSD was derived from a collection of measures (i.e., the Trauma Symptom Inventory, Briere, 1995; the Pennebaker Inventory of Limbic Languidness, Pennebaker, 1982; the State-Trait Anger Expression Inventory, Spielberger, 1988), rather than a scale specifically designed to measure complex PTSD.

The results of the Miller and Resick (2007) study, which suggest that the three theorized personality subtypes may account for the heterogeneity of PTSD and phenomenology associated with complex PTSD in women exposed to IPV, sets a foundation for further research. Previous research has examined Axis I and II comorbidity and normal personality features in individuals with PTSD who belong to the simple, internalizing, and externalizing personality subtypes; however, research has yet to fully examine whether the patterns of PTSD symptom expression differ across the three theorized personality subtypes. Miller and Resick (2007) compared the PTSD cluster B, C, and D symptom subscores of the PTSD personality subtypes and found that individuals belonging to the internalizing subtype reported significantly ($p = .004$) more cluster D symptoms than individuals belonging to the other two personality subtypes. Furthermore, individuals in the internalizing group reported significantly ($p = .025$) more PTSD symptoms across all symptom clusters (i.e., B, C, and D) than the other subtypes. Differences between the PTSD personality subtypes and symptom patterns from the four-

factor model of PTSD (i.e., distinguishing avoidance and numbing; Asmundson et al., 2004) remain to be explored.

2.0 CURRENT INVESTIGATION

2.1 Purpose

The current study was designed to replicate and extend Miller and colleagues' investigations of personality structure as a model for heterogeneous PTSD expressions in women exposed to IPV (Miller et al., 2003; 2004; Miller & Resick, 2007). To do so, the three theorized personality subtypes (i.e., simple, internalizing, and externalizing) and the relationships therein with complex PTSD were investigated using data from a sample of women exposed to IPV. Furthermore, the study was designed to examine differences in IPV history and PTSD symptom profile patterns across the three theorized personality subtypes, and to compare these variables with women with low reports of PTSD symptoms.

2.2 Hypotheses

2.2.1 Main hypotheses.

The three theorized personality subtypes (i.e., internalizing, externalizing, and simple) identified by Miller and his colleagues (Miller et al., 2003; 2004; Miller & Resick, 2007) were expected to be replicated in a sample of women exposed to IPV who reported high levels of PTSD symptoms. These three personality subtypes have been found to emerge when the three personality temperament factors of negative emotionality, positive emotionality, and disinhibition are entered together in cluster analysis. The internalizing subtype can be characterized by high negative emotionality, low positive emotionality, and normative disinhibition. The externalizing subtype can be

characterized by high negative emotionality, normative positive emotionality, and high disinhibition. The simple subtype can be characterized by normative (i.e., mid-range) reports of all three factors. Women who participated but did not report symptom severity consistent with a diagnosis of PTSD (Walker, Newman, Dobie, Ciechanowski, & Katon, 2002) were placed into a fourth category (i.e., “low symptoms”) for subsequent pairwise comparisons.

- 1) Participants placed into the internalizing subtype group were expected to report significantly ($p < .05$) higher scores of negative emotionality relative to the simple subtype and low symptom groups.
- 2) Participants placed into the internalizing subtype group were expected to report significantly ($p < .05$) lower scores of positive emotionality relative to the externalizing subtype, simple subtype, and low symptom groups.
- 3) Participants placed into the internalizing subtype group were expected to report significantly ($p < .05$) higher scores of detachment, avoidant personality disorder, dependent personality, and depression relative to the externalizing subtype, simple subtype, and low symptom groups.
- 4) Participants placed into the externalizing subtype group were expected to report significantly ($p < .05$) higher scores of negative emotionality relative to the simple subtype and low symptom groups.
- 5) Participants placed into the externalizing subtype group were expected to report significantly ($p < .05$) higher scores of disinhibition, aggression, exhibitionism, impulsivity, and manipulateness relative to the internalizing subtype, simple subtype, and low symptom groups.

- 6) Participants placed into the externalizing subtype group were expected to report significantly ($p < .05$) more drug and alcohol use and higher scores of antisocial, borderline, histrionic, and narcissistic personality disorders relative to the internalizing subtype, simple subtype, and low symptom groups.
- 7) Participants placed into the simple subtype group and the low symptoms group were expected to report temperament (negative emotionality, positive emotionality, and disinhibition) at t-scores within normal ranges.
- 8) Participants placed in the simple subtype group and the low symptom group were expected to report significantly ($p < .05$) lower levels of personality disorder scores and depression relative to the internalizing subtype group and the externalizing subtype group.

2.2.2 Corollary predictions.

- 1) Individuals belonging to the internalizing and externalizing subtype groups were expected to report significantly ($p < .05$) higher scores of complex PTSD symptomology relative to individuals belonging to the simple subtype group and low symptom groups.
- 2) Individuals belonging to the internalizing and externalizing subtype groups were expected to report significantly ($p < .05$) higher adverse childhood experience frequencies relative to individuals belonging to the simple subtype and low symptom groups.
- 3) Differences in PTSD symptom profiles were expected across the internalizing, externalizing, and simple subtype groups.

- a) Members of the internalizing subtype group were expected to report significantly ($p < .05$) higher levels of avoidance symptoms (PTSD Criteria C1 and C2) relative to individuals in the externalizing and simple subtype groups.
 - b) Members of the internalizing subtype group were expected to report significantly ($p < .05$) higher PTSD severity across all symptom criteria (i.e., B, C, D) relative to the simple subtype group.
 - c) Members of the externalizing subtype group were expected to report significantly more numbing symptoms (Criteria C3 - C7) relative to individuals in the internalizing and simple subtype groups.
 - d) Members of the externalizing and internalizing subtype groups were expected to report significantly more hyperarousal (Criterion D) symptoms relative to members of the simple subtype group.
 - e) Members of the simple subtype group were expected to report less ($p < .05$) avoidance, numbing and hyperarousal symptoms, and similar ($p > .05$) re-experiencing (Criterion B) symptoms relative to individuals in the internalizing and externalizing subtype groups.
- 4) Differences in types of reported IPV exposure were expected across individuals belonging to the internalizing, externalizing, simple, and low symptom groups.
- a) Significantly more ($p < .05$) individuals reporting “severe combined abuse” (as determined by the Composite Abuse Scale; CAS; Hegarty, Sheehan, & Schonfeld, 1999), and women experiencing both physical and emotional abuse (but no severe combined abuse incidents) were expected to belong to the

internalizing subtype group or externalizing subtype group, relative to the simple subtype group and low symptom group.

- b) Significantly more ($p < .05$) individuals reporting only physical abuse or only emotional abuse were expected to belong to the simple subtype group or the low symptom group, relative to the internalizing and externalizing subtype groups.

2.3 Method

2.3.1 Recruitment. Women between 18 and 65 years of age who have experienced IPV were recruited from across Canada via free online community notice boards as well as via posters mailed to directors of IPV community resources (e.g., transition homes, women's centres). To be eligible for the study, women had to report experiencing abuse within the context of an intimate partnership that lasted at least one month, had to self-identify as female, and give consent to participate. Participant recruitment was open for four months. In lieu of compensation a donation was made to the Canadian Women Foundation's "Shelter from the Storm" Campaign on behalf of every completed questionnaire.

2.3.2 Measures. *Lifetime Traumatic Events Checklist-Revised* (LTEC-R; Carleton, Brundin, Asmundson, & Taylor, unpublished measure; see Appendix A). The LTEC is a checklist developed by the Anxiety and Illness Behaviours Laboratory at the University of Regina to assess trauma history. Respondents are asked to indicate whether they have experienced a range of possible traumatic events (e.g., motor vehicle accident, combat exposure) and then asked to indicate which exposure, if more than one has been reported, caused or causes them the most distress. The LTEC asks participants to indicate

when the event first occurred (e.g., *within the last month, 7 months to 1 year ago, 4 or more years ago*), and if it occurred more than once, when the event last occurred.

Family Health History–Female Version (FHH; Centers for Disease Control and Prevention, 2008; See Appendix B). The FHH is one of the questionnaires designed by the US Centers for Disease Control and Prevention and Kaiser Permanente for use in the Adverse Childhood Experiences Study (Felitti et al., 1998). The full questionnaire consists of 68 questions of various types of early-age risk factors such as physical, sexual, and emotional abuse, neglect, and household dysfunctions. For the purpose of the current study, only questions related to participant’s experiences before the age of 18 were included.

PTSD Checklist–Stressor Specific Version (PCL-S; Weathers, Litz, Herman, Huska, & Keane, 1993; see Appendix C). The PCL-S is a modified version of the 17-item self-report PCL (Weathers et al., 1993) wherein participants are assessed for reactions to a specific trauma. The items correspond to symptoms described in the DSM-IV-TR as Criteria B, C, and D for PTSD. Participants are asked to indicate how bothered they have been by several symptoms over the past month on a Likert scale of 1 (*not at all*) to 5 (*extremely*). Total scores range from 17 to 85 and symptom cluster scores (e.g., re-experiencing, avoidance, numbing, hyper-arousal) can be obtained by summing the respective item numbers. The PCL has been found to have good overall mean diagnostic power (.81; Forbes, Creamer, & Biddle, 2001). A cut-off score of 30 has been found to correctly identify a community sample of women with significant PTSD-related distress from those without, with the highest sensitivity (.82) and specificity (.76; Walker et al., 2002). Reliability analysis for the current sample is presented in Table 1.

Composite Abuse Scale (CAS; Hegarty et al., 1999; See Appendix D). The CAS is a self-report measure assessing type and severity of violence experiences that consists of 30 abusive behaviour items on four subscales (i.e., harassment, emotional abuse, physical abuse, and severe combined abuse). Respondents indicate on a Likert scale from 0 (*never*) to 5 (*daily*) how often they have experienced each act of abuse in the last 12 months. Internal consistency for the scale has been high (Hegarty et al., 1999; Hegarty, Bush, & Sheehan, 2005). The CAS can be used to group participants into four discrete abuse-type groups. First, women who have endorsed at least one item from the severe combined abuse subscale, alone, or in combination with any other subscale endorsement; second, women who have experienced both physical abuse and emotional abuse and/or harassment; third, women who have experienced physical abuse only; and fourth, women who have experienced emotional abuse and/or harassment only (Hegarty et al., 2005). Reliability analysis for the current sample is presented in Table 1.

Schedule for Nonadaptive and Adaptive Personality—II (SNAP-2; Clark et al., 2008). The SNAP-2 is a self-report measure of dimensional normal and abnormal personality features. The SNAP-2 contains 390 true/false items, factor-analytically derived, measuring personality traits on 12 scales, temperament on three scales, personality disorders on 12 scales, and test validity on seven scales. The SNAP-2 shows good internal consistency (.80 - .85) in samples of college students, recurrent depressed patients, normative adults, and back pain patients (Clark et al., 2008). Further, the SNAP-2 has been found to show good convergent validity with theoretically similar Multidimensional Personality Questionnaire (Tellegen, in press) scales, the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975), NEO Five Factor Inventory

(Costa & McCrae, 1992), and the Minnesota Multiphasic Personality Inventory-2nd Edition (Butcher, Dahlstrom, Graham, Tellegen, & Kreamer, 1989) scales (Clark et al., 2008). Reliability analysis for the current sample is presented in Table 1.

The Self-report Instrument for Disorders of Extreme Stress (SIDES-SR; Pelcovitz, et al., 1997). The SIDES-SR is a 45-item self-report measure developed to evaluate complex PTSD according to the criteria for DESNOS outlined in the DSM-IV-TR. The SIDES-SR is based on the structured interview format used for the original DESNOS DSM-IV field trial measuring the following criteria: (a) alterations in regulation of affect and impulses, (b) alterations in attention or consciousness, (c) alterations in self-perception, (d) alterations in relationships with others, (e) somatization, and (f) alterations in systems of meaning. Presence or absence of DESNOS is assessed by respondents answering (*yes* or *no*) questions about their current (within the past six months) or lifetime experiences of the symptoms. Internal consistency has been supported (.56 – .93) for the scales in the interview version (Pelcovitz et al., 1997) and adequate reliability (.68 - .82) has been found for the scales in the self-report version (Luxenberg, Spinazzola, & van der Kolk, 2001). Reliability analysis for the current sample is presented in Table 1.

Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977; see Appendix E). The CES-D is comprised of 20 items assessing past-week symptoms of depression on a 4-point Likert scale ranging from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). The CES-D has been found to show good internal consistency (.84 - .90) and adequate test-retest reliability (.57; Radloff, 1977). Indeed, a substantial number of past studies have found support for the utility of the CES-D in measuring depression (e.g., Boyd, Weissman, Thompson, & Myers, 1982; Santor, Zuroff,

Table 1. Reliability analysis for measure subscales and totals with current sample

Measure	Kuder-Richardson Formula 20	Measure	Cronbach's alpha
<u>SNAP-2 (Personality)</u>		<u>CAS (IPV Experiences)</u>	
Disinhibition	.811	Total Score	.948
Negative Temperament	.924	Severe Combined Abuse	.811
Positive Temperament	.896	Emotional Abuse	.911
Aggression	.863	Physical Abuse	.936
Dependency	.815	Harrassment	.869
Detachment	.789	<u>PCL-S (PTSD)</u>	
Eccentric Perceptions	.829	Total Score	.939
Entitlement	.814	Cluster B Symptoms	.895
Exhibitionism	.827	Cluster C Symptoms	.882
Impulsivity	.788	“Avoidance Symptoms”	.742
Manipulativeness	.802	“Numbing” Symptoms	.886
Mistrust	.878	Cluster D Symptoms	.854
Propriety	.733	<u>CES-D (Depression)</u>	
Self-Harm	.877	Total Score	.760
Workaholism	.825	<u>AUDIT-C (Alcohol)</u>	
Paranoid PD	.852	Total Score	.798
Schizoid PD	.824	<u>DAST-10 (Drugs)</u>	
Schizotypal PD	.822	Total Score	.816
Antisocial PD	.795	<u>SIDES-SR (Complex PTSD)</u>	
Borderline PD	.864	Total Score	.928
Histrionic PD	.768	Affect/Impulse Regulation	.795
Narcissistic PD	.705	Attention/Consciousness	.775
Avoidant PD	.870	Self-perception	.777
Dependent PD	.836	Relationships	.669
Obsessive-Compulsive PD	.695	Somatization	.672
		Meaning	.688

Note. SNAP-2 = Schedule for Nonadaptive and Adaptive Personality-2; CAS = Composite Abuse Scale; PCL-S = PTSD Checklist-Specific Stressor; CES-D = Center for Epidemiologic Studies Depression Scale; AUDIT-C = AUDIT Alcohol Consumption Questionnaire; DAST-10 = Drug Abuse Screening Test-Short Form; SIDES-SR = Self-Report Instrument for Disorders of Extreme Stress.

Ramsay, Cervantes, & Palacios, 1995). Severity of depression symptoms can be scored by summing item scores. Reliability analysis for the current sample is presented in Table 1.

Alcohol Use Disorders Identification Test (AUDIT-C; Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998; See Appendix F). The AUDIT-C is comprised of three questions on a 5-point Likert scale ranging from 0 (*never*) to 4 (*daily or almost daily*) taken from the original ten-item Alcohol Use Disorders Identification Test. Scores are obtained by summing items and range from 0 to 12. For men, a cut-off score of 4 has been found to best differentiate heavy drinking/alcohol abuse with good sensitivity and specificity (Bush et al., 1998). In women, a score of 3 has been found to provide the best sensitivity and specificity for problem drinking (Bradley et al, 2003). The AUDIT-C has displayed comparable sensitivity (.56 - 1.00) and specificity (.53 – 1.00) to the full AUDIT and has performed favourably on psychometric evaluations of test-retest reliability (.68 - .98) and consistency (.69 - .91; Reinert & Allen, 2007). Reliability analysis for the current sample is presented in Table 1.

The Drug Abuse Screening Test-Short Form (DAST-10; Skinner, 1982; See Appendix G). The DAST-10 is comprised of ten dichotomous (*yes* or *no*) questions (e.g., “have you used drugs other than those required for medical reasons?”) assessing drug use and abuse over the past year (modified to past three months for the purpose of the current study). Scores range from 0 to 10, with higher scores indicating more problems associated with substance use. For the DAST-10 a cut-off of 3 has been found to have the highest sensitivity and specificity (Skinner, 1982). In a comprehensive review of studies using the DAST-10 has been found to show moderate to high levels of internal

consistency (.94), sensitivity (.80 - .85) and specificity (.88 - .99; Yudko, Lozhkina, & Fouts, 2007). Reliability analysis for the current sample is presented in Table 1.

2.4 Results

Participants were assessed for basic eligibility by determining sex, minimum age, and IPV experiences. A total of 129 women (ages 18-65; $M_{\text{age}} = 35.68$; $SD = 11.03$) met basic eligibility and completed all measures were included in the study. Excluded from the study were 2 participants who reported their sex as male, and 170 participants who began, but did not complete the full set of measures (for a 43% completion rate). Participants reported having been in an abusive partnership for an average of 5.83 years ($SD = 3.54$). For women who chose to report time since their abuse ($n = 40$), the majority (52.5%) reported being free from IPV for 4 or more years. Most of the participants ($n = 104$; 81%) scored 30 or higher on the PCL-S, suggesting clinically-significant PTSD symptoms. A series of t-tests indicated no statistically significant differences between women scoring above or below the PCL-S cut off in mean age, time experienced abuse, and length of time since last abuse (all $ps > .05$). Significant differences emerged between the two groups when household income was examined grouping participants into less than \$30,000, \$30,001-\$60,000, and greater than \$60,000. A Kruskal Wallis Test found significant differences in reported income between groups reporting significant PTSD symptoms or low symptoms ($\chi^2 = 10.81$, $p = .004$). A series of Mann-Whitney Tests with Bonferroni correction found that the percentage of women with high PTSD symptoms reporting household income less than \$30,000 (94%) was significantly different than the percentage of women with high PTSD symptoms reporting household income between \$30,001 and \$60,000 (72%; $U = 743.00$, $p = .004$), and greater than \$60,000 (70%; $U =$

802.00, $p = .002$). Similarly, significant differences emerged between women with high and low PTSD symptoms when education was examined grouping participants into those finishing high school or less, those completing a post-high school diploma or some University, and those completing a post-secondary degree (B.A., M.A., or Ph. D.). A Kruskal Wallis Test found significant differences in reported education between high or low PTSD symptom groups ($\chi^2 = 8.07, p = .018$). A series of Mann-Whitney Tests with Bonferroni correction found that the percentage of women with high symptoms who reported completing high school or less (89%) was significantly different than the percentage of women with high symptoms who reported completing a post-secondary degree (58%; $U = 296.50, p = .008$). The difference between the percentage of women with high symptoms who reported completing high school or less compared to women who completed a post-high school diploma or some University (74%) verged on, but did not quite meet the strict requirements of the Bonferroni correction. Participant demographic information (i.e., ethnicity, relationship status, employment status, household income, education, Canadian province of residence) is presented in Table 2.

2.4.1 Main hypotheses. A *k*-means cluster analysis of the SNAP-2 temperament scale scores (i.e., positive temperament, negative temperament, disinhibition) with *a priori* specification of three clusters was performed on the proportion of participants meeting or exceeding the PCL-S cut off. The *k*-means is a method of finding clusters within unlabeled data (Hastie, Tibshirani, & Friedman, 2009) and was chosen as the method of analysis for two reasons. First, the overarching aim of the current study is to investigate whether the previously determined three groups with specific properties would be found in this independent sample. Second, among competing methods of

analysis that could serve the same function, this method of analysis was chosen as the current study was designed as a replication and extension and the *k*-means cluster analysis with specification of three *a priori* groups was the method used by Miller and Resick (2007) in their precedent research.

Once subjected to a *k*-means cluster analysis, 34 (26%) participants were found to be assigned to Cluster 1 (i.e., the simple subtype group), 18 (14%) participants to Cluster 2 (i.e., the externalizing subtype group), and 52 (40%) participants to Cluster 3 (i.e., the internalizing subtype group). The remaining 25 (19%) participants were then classified into a fourth Cluster (i.e., the low symptom group). A series of ANOVAs were utilized to test predicted differences between clusters. *Post hoc* comparisons were performed using Tukey's HSD. Means, standard deviations, *F* values, significance values, pairwise contrast, and effect sizes for the dependent variables are presented in Tables 3, 4, and 5.

In line with hypothesis 1, participants belonging to the internalizing subtype group reported significantly ($p < .001$) higher scores of negative emotionality relative to the participants in the simple subtype and low symptom group. In line with hypothesis 2, participants placed into the internalizing subtype group reported significantly ($p < .001$) lower scores of positive emotionality relative to the participants belonging to the externalizing subtype, simple subtype, and low symptom groups. In line with hypothesis 3, participants placed into the internalizing subtype group reported significantly ($p < .001$) higher scores on the detachment trait scale and avoidant personality disorder scale relative to participants belonging to the externalizing subtype, simple subtype, and low symptom group. In partial support of hypothesis 3, pairwise contrasts indicated that participants in the internalizing subtype group were found to score higher ($p < .001$) than

participants belonging to the simple subtype and low symptom groups on the dependent personality disorder diagnostic scale; however, significantly higher scores were reported by participants in the externalizing subtype group ($p = .001$). Partially in line with hypothesis 3, pairwise contrasts indicated depression scores from the internalizing subtype group were significantly different from participants in the simple subtype group ($p = .011$) and the low symptom group ($p < .001$). No differences were found between depression scores in individuals belonging to the internalizing and externalizing subtype groups ($p = .943$).

Consistent with hypothesis 4, participants belonging to the externalizing subtype group reported significantly ($p < .001$) higher scores of negative emotionality relative to the simple subtype and low symptom groups. In line with hypothesis 5, participants placed into the externalizing subtype group scored significantly ($p < .001$) higher on the disinhibition temperament scale and the trait scales of aggression, exhibitionism, impulsivity, and manipulateness relative to the internalizing subtype, simple subtype, and low symptom groups. In line with hypothesis 6, women in the externalizing subtype group scored significantly ($p < .001$) higher on the alcohol and drug use measures, as well as the antisocial, borderline, histrionic, and narcissistic personality disorder scales relative to participants in the internalizing subtype, the simple subtype, and the low symptom groups.

Consistent with hypothesis 7, participants placed in the simple subtype and low symptom groups reported mid-range scores on the temperament (i.e., positive emotionality, negative emotionality, and disinhibition) scales. Partially in line with

Table 2. Participant Demographic Information

Demographic Variable	Frequency	Percent	Demographic Variable	Frequency	Percent
<u>Ethnicity</u>			<u>Household Income</u>		
Caucasian	114	88.4	< \$10,000	10	7.8
First Nations / Metis	10	7.8	\$10,000 - \$20,000	29	22.5
South Asian	1	.8	\$20,001 - \$30,000	14	10.9
Other	2	1.6	\$30,001 - \$40,000	17	13.2
<u>Education</u>			\$40,001 - \$50,000	11	8.5
< Grade 12	5	3.0	\$50,001 - \$60,000	8	6.2
High School	19	14.7	\$60,001 - \$70,000	6	4.7
Post-High School Diploma	20	15.5	\$70,001 - \$80,000	7	5.4
Some University	47	36.4	\$80,001 - \$90,000	7	5.4
Bachelor's Degree	26	20.2	> \$90,000	20	15.5
Post-Bachelor's Diploma	3	2.3	<u>Employment Status</u>		
M.A. / Ph.D.	9	7.0	Employed Full Time	60	46.5
<u>Province of Residence</u>			Employed Part Time	14	10.9
British Columbia	42	32.6	Homemaker	15	11.6
Alberta	12	9.3	Student (Full Time)	11	8.5
Saskatchewan	21	16.3	Student (Part Time)	5	3.9
Manitoba	4	3.1	Retired	3	2.3
Ontario	32	24.8	On Disability	14	10.9
Quebec	2	1.6	Otherwise Unemployed	7	5.4
Nova Scotia	2	1.6	<u>Relationship Status</u>		
New Brunswick	5	3.9	Married or Common-Law	63	48.8
Newfoundland / Labrador	4	3.1	Single	42	32.6
Prince Edward Island	3	2.3	Divorced or Separated	21	16.3
Yukon Territory	2	1.6	Widowed	1	.8
			No Answer	2	1.6

hypothesis 8, pairwise contrasts indicated that participants placed in the simple subtype and low symptom group reported significantly ($p < .05$) lower scores on the paranoid, schizotypal, borderline, and dependent personality disorder scales relative to the internalizing and externalizing subtype groups. Participants in the simple subtype and low symptom groups reported significantly ($p < .05$) lower scores on the antisocial, histrionic and narcissistic personality disorder scales relative to the externalizing subtype group. No such differences were found between the simple subtype group, the low symptom group, and the internalizing subtype groups were found (all $ps > .05$). Similarly, participants in the simple subtype and low symptom groups reported significantly ($p < .05$) lower scores on the schizoid personality disorder scale relative to the internalizing subtype group. No such differences were found between the simple subtype group, the low symptom group, and the externalizing subtype groups (all $ps > .05$). The low symptom group reported significantly ($p < .05$) lower scores on the avoidant personality disorder scale relative to the internalizing and externalizing subtype groups. A significant ($p < .05$) difference was only found between the internalizing subtype group and the simple subtype group on the avoidant personality disorder scale. No differences emerged between the simple and externalizing subtype groups on the avoidant personality disorder scale (all $ps > .05$). Similarly, the low symptom group reported significantly ($p < .05$) lower scores on the obsessive-compulsive personality disorder scale relative to the internalizing and externalizing subtype groups. The simple subtype group scores were not significantly different from the other group scores on the obsessive-compulsive personality disorder scale ($p > .05$).

Table 3. SNAP-2 invalidity index, temperament, and trait scale mean T scores by clusters

Measure	PTSD Personality Clusters				F	p	Pairwise contrast	η^2
	Simple (1)	Externalizing (2)	Internalizing (3)	Low Symptom (4)				
Invalidity Index	57.54 (10.31)	54.49 (9.39)	56.71 (7.00)	53.52 (9.35)	1.31	ns	ns	.03
Temperament Scales								
Disinhibition	49.65 (7.85)	68.68 (8.14)	49.50 (6.89)	38.34 (8.71)	32.96	.001	2 > 1 & 3 & 4	.44
Negative Temperament	57.37 (7.11)	70.66 (3.49)	66.67 (5.76)	49.67 (9.64)	50.20	.001	2 & 3 > 1 > 4	.43
Positive Temperament	51.43 (6.46)	43.99 (11.96)	30.72 (6.41)	47.96 (10.00)	52.94	.001	1 > 2 > 3 / 4 > 3	.56
Trait Scales								
Aggression	52.34 (9.87)	68.51 (11.49)	58.15 (13.29)	49.94 (9.42)	11.06	.001	2 > 1 & 3 & 4 / 3 > 4	.21
Dependency	52.37 (10.21)	64.87 (10.08)	58.19 (11.89)	46.65 (8.14)	12.67	.001	2 & 3 > 4 / 2 > 1	.23
Detachment	59.40 (9.04)	56.78 (9.89)	65.15 (8.87)	51.02 (9.80)	13.98	.001	3 > 1 & 2 > 4	.25
Eccentric Perceptions	58.35 (11.26)	65.73 (10.35)	56.94 (12.09)	50.00 (9.88)	7.00	.001	2 > 1 & 3 > 4	.14
Entitlement	47.69 (11.16)	49.31 (11.32)	42.66 (11.27)	48.29 (10.49)	2.73	.047	ns	.06
Exhibitionism	45.96 (9.91)	56.52 (8.69)	40.51 (6.79)	45.73 (9.01)	16.39	.001	2 > 1 & 3 & 4	.28
Impulsivity	52.11 (10.21)	63.39 (8.70)	49.90 (9.13)	50.05 (8.41)	10.30	.001	2 > 1 & 3 & 4	.22
Manipulativeness	48.62 (7.82)	70.83 (10.50)	51.26 (8.95)	47.38 (8.87)	30.82	.001	2 > 1 & 3 & 4	.43
Mistrust	64.18 (10.38)	73.74 (10.45)	68.42 (10.36)	51.76 (10.37)	19.76	.001	2 > 1 & 4 / 3 > 4	.32
Propriety	52.15 (8.08)	52.80 (7.96)	53.04 (7.84)	48.78 (7.67)	ns	ns	ns	.04
Self-Harm	63.62 (13.46)	83.08 (16.38)	75.16 (15.03)	51.31 (8.48)	25.10	.001	2 & 3 > 1 > 4	.19
Workaholism	60.05 (11.89)	52.97 (9.47)	55.83 (11.96)	50.22 (8.80)	4.135	.008	1 > 4	.09

Note. Table lists group means with standard deviations in parentheses. All pairwise contrasts are significant at $p < .05$. SNAP = Schedule for Nonadaptive and Adaptive Personality-2.

Table 4. SNAP-2 personality disorder diagnostic scale mean T scores by clusters

Measure	PTSD Personality Clusters				<i>F</i>	<i>p</i>	Pairwise contrast	η^2
	Simple (1)	Externalizing (2)	Internalizing (3)	Low Symptom (4)				
Cluster A								
Paranoid	62.53 (9.77)	74.86 (10.22)	70.21 (9.56)	51.01 (10.99)	27.58	.001	2 & 3 > 1 > 4	.18
Schizoid	58.13 (10.18)	57.49 (11.73)	68.80 (11.71)	49.86 (9.86)	12.2	.001	3 > 1 & 2 & 4 / 1 > 4	.31
Schizotypal	61.58 (10.51)	69.08 (9.54)	67.18 (8.34)	50.65 (9.96)	20.43	.001	2 & 3 > 1 > 4	.33
Cluster B								
Antisocial	52.14 (8.77)	68.93 (9.33)	52.23 (8.76)	50.34 (8.48)	19.96	.001	2 > 1 & 3 & 4	.32
Borderline	61.09 (9.05)	82.52 (13.16)	68.78 (10.78)	50.56 (7.54)	38.66	.001	2 > 3 > 1 > 4	.48
Histrionic	50.23 (8.46)	65.74 (9.64)	48.26 (8.38)	45.09 (7.91)	23.89	.001	2 > 1 & 3 & 4	.36
Narcissistic	48.06 (8.58)	55.75 (10.07)	45.33 (9.76)	45.77 (8.39)	6.05	.001	2 > 1 & 3 & 4	.13
Cluster C								
Avoidant	60.79 (10.40)	64.56 (9.33)	72.28 (7.57)	50.92 (11.98)	29.93	.001	3 > 1 & 2 > 4	.26
Dependent	54.87 (10.67)	78.96 (12.61)	66.28 (13.59)	47.98 (9.02)	29.76	.001	2 > 3 > 1 & 4	.31
Obsessive- Compulsive	54.32 (9.99)	57.10 (8.07)	57.33 (11.59)	48.65 (9.79)	4.24	.007	2 & 3 > 4	.09

Note. Table lists group means with standard deviations in parentheses. All pairwise contrasts are significant at $p < .05$. SNAP = Schedule for Nonadaptive and Adaptive Personality-2.

Table 5. Other clinical measure mean scores by clusters

Measure	PTSD Personality Clusters				<i>F</i>	<i>p</i>	Pairwise contrast	η^2
	Simple (1)	Externalizing (2)	Internalizing (3)	Low Symptom (4)				
CAS (Partner Abuse)								
Total Score	70.91 (34.12)	47.33 (27.72)	59.65 (31.54)	47.12 (24.32)	3.86	.011	1 > 2 & 4	.08
Severe Combined Abuse	9.82 (9.14)	4.94 (4.74)	8.38 (7.09)	2.88 (3.47)	6.02	.001	1 > 4	.13
Emotional Abuse	34.08 (14.42)	23.56 (12.23)	29.23 (14.59)	26.12 (14.52)	2.67	.050	1 > 2*	.06
Physical Abuse	15.53 (10.65)	12.11 (9.63)	14.08 (9.09)	10.56 (7.29)	1.57	ns	ns	.04
Harassment	11.47 (6.25)	6.72 (5.99)	7.96 (6.46)	7.56 (5.78)	3.38	.021	1 > 2	.07
PCL-S (PTSD)								
Total Score	47.68 (13.67)	55.61 (12.97)	53.65 (13.89)	-	ns	ns	ns	.05
Cluster B symptoms	13.68 (4.30)	15.67 (4.41)	15.50 (5.13)	-	ns	ns	ns	.03
Cluster C symptoms	20.56 (6.81)	22.17 (6.20)	21.73 (6.94)	-	ns	ns	ns	.01
“Avoidance” symptoms	6.06 (2.26)	5.78 (1.96)	6.35 (2.54)	-	ns	ns	ns	.01
“Numbing” symptoms	14.50 (5.25)	16.39 (5.10)	15.38 (5.43)	-	ns	ns	ns	.01
Cluster D symptoms	13.44 (4.74)	17.78 (4.91)	16.42 (5.11)	-	5.82	.004	2 & 3 > 1	.10
CES-D (Depression)								
Total Score	22.76 (8.56)	29.78 (8.97)	28.60 (7.38)	16.40 (9.04)	17.54	.001	2 & 3 > 1 > 4	.30
AUDIT-C (Alcohol Use)								
Total Score	2.97 (2.37)	4.94 (3.17)	2.54 (2.72)	3.00 (2.24)	3.83	.012	2 > 3	.08
DAST-10 (Drug Use)								
Total Score	2.12 (2.121)	4.39 (3.50)	1.73 (1.70)	1.52 (1.16)	8.29	.001	2 > 1 & 3 & 4	.17

Note. Table lists group means with standard deviations in parentheses. All pairwise contrasts are significant at $p < .05$. SNAP = Schedule for Nonadaptive and Adaptive Personality-2; CAS = Composite Abuse Scale; PCL-S = PTSD Checklist-Specific Stressor; CES-D = Center for Epidemiologic Studies Depression Scale; AUDIT-C = AUDIT Alcohol Consumption Questionnaire; DAST-10 = Drug Abuse Screening Test-Short Form.

2.4.2 Corollary predictions. A series of ANOVAs were used to assess for differences on SIDES-SR total and symptom scale scores between the PTSD personality subtype groups and low symptom groups. All subtype groups were compared to investigate whether complex PTSD and PTSD may be different disorders (e.g., Ford, 1999). In contrast to corollary prediction 1, no statistically significant differences between the groups were found for the total score ($p > .05$), or the alteration in affect/impulse regulation, attention/consciousness, self-perception, relationships with others, somatization, and meaning symptom scales (all $ps > .05$). Means, standard deviations, F values, statistical significance values, pairwise contrast, and effect sizes for complex PTSD and related variables (i.e., proposed diagnostic criteria, adverse childhood experiences, and lifetime trauma history) are presented in Table 6.

Differences in the number and severity of adverse childhood experiences across clusters were determined by ANOVA (Table 6). In contrast to corollary prediction 2, no statistically significant differences were found between the total number of adverse childhood experiences reported or the severity of each adverse childhood experience across any of the PTSD personality subtype groups or low symptom group (all $ps > .05$). To further examine differences in type of adverse childhood experiences of particular interest to the conceptualization of complex PTSD, a series of Kruskal-Wallis ANOVAs were conducted to compare the proportions of participants meeting membership for child sexual abuse, child physical abuse, child emotional abuse, child physical neglect, child emotional neglect, and child witness to family violence between clusters. The results were contrary to corollary prediction 2 in that no differences were identified across the PTSD personality subtype groups or low symptom group (all $ps > .05$). To further

examine the dose hypothesis of trauma and PTSD (e.g., Breslau, Chilcoat, Kessler, & Davis, 1999; Cougle et al., 2009; Dohrenwend et al., 2006), an ANOVA was conducted comparing lifetime history of trauma across the subtype and low symptom groups. The only difference identified was that the simple subtype group reported significantly ($p = .01$) more traumatic experiences than the low symptom group.

Consistent with corollary prediction 3, results of the ANOVAs indicated that participants in the externalizing and internalizing subtype groups reported statistically significantly more hyperarousal symptoms ($p = .004$) relative to participants in the simple subtype group; however, no statistically significant differences were identified between subtype groups on the total PCL-S score, the intrusive recollections subscale score, or the avoidance and numbing subscale scores (all $ps > .05$). Consistent with corollary prediction 4, statistically significant ($p < .05$) differences were identified on the CAS total score, as well as the severe combined abuse, emotional abuse, and harassment subscales (all $ps < .05$); however, contrary to the hypothesized direction, the simple subtype group reported statistically significantly higher scores than the externalizing subtype group on the CAS total score, as well as the emotional abuse and harassment scales. The simple subtype group also reported higher scores than the low symptom group on the CAS total score and the severe combined abuse subscale (all $ps < .05$). A high proportion of the current sample ($n = 107$, 83%) reported IPV experiences qualifying as combined severe abuse (e.g., “tried to rape me”, “used a knife or gun or other weapon”, “kept me from medical care”). To further test whether a higher proportion of women reporting severe combined abuse were clustered into the externalizing and internalizing subtype groups, a chi-square analysis was conducted using the frequency of women belonging to the severe

Table 6. Complex PTSD and related variable mean scores by clusters

Measure	PTSD Personality Clusters				<i>F</i>	χ^2	<i>p</i>	Pairwise contrast	η^2
	Simple (1)	Externalizer (2)	Internalizer (3)	NoPTSD (4)					
SIDES-SR (Complex PTSD)									
Total score	35.32 (20.18)	29.28 (16.34)	30.61 (18.41)	29.44 (20.15)	ns		ns	ns	.02
Affect/impulse regulation	12.21 (7.37)	10.00 (5.75)	10.37 (6.64)	10.24 (8.14)	ns		ns	ns	.02
Attention/consciousness	4.53 (3.92)	3.28 (2.63)	3.27 (3.13)	2.92 (2.47)	ns		ns	ns	.04
Self-perception	5.74 (3.78)	5.44 (4.13)	5.48 (4.15)	4.72 (4.00)	ns		ns	ns	.01
Relationships	4.29 (2.93)	4.00 (2.68)	4.37 (2.98)	3.76 (3.09)	ns		ns	ns	.01
Somatization	4.18 (2.72)	2.33 (2.34)	3.25 (2.98)	4.00 (2.75)	ns		ns	ns	.05
Meaning	4.38 (3.31)	4.22 (2.78)	3.88 (2.54)	3.80 (3.16)	ns		ns	ns	.01
FHH (Adverse Childhood Experiences)									
Total Score	24.12 (17.24)	28.94 (19.44)	23.94 (16.48)	22.36 (17.30)	ns		ns	ns	.01
Number of ACEs	4.18 (2.47)	5.22 (2.98)	4.27 (2.91)	3.64 (2.90)	ns		ns	ns	.03
Child Sexual Abuse (%)	62%	67%	58%	44%		ns	ns	ns	
Child Physical Abuse (%)	68%	83%	67%	56%		ns	ns	ns	
Child Emotional Abuse (%)	35%	44%	44%	36%		ns	ns	ns	
Child Physical Neglect (%)	24%	22%	19%	20%		ns	ns	ns	
Child Emotional Neglect (%)	59%	56%	60%	44%		ns	ns	ns	
Witnessed Abuse (%)	18%	39%	35%	36%		ns	ns	ns	
LTEC (Trauma History)									
Number of different traumas reported	7.62 (2.88)	7.17 (2.83)	6.46 (2.71)	5.24 (2.40)	3.97		.010	1 > 4	.09

Note. Table lists group means with standard deviations in parentheses. All pairwise contrasts are significant at $p < .05$. SIDES-SR = Self-Report Instrument for Disorders of Extreme Stress; FHH = Family Health History-Female Version; LTEC = Lifetime Traumatic Events Checklist.

combined abuse or not. Contrary to the hypothesis, no statistically significant group by cluster differences were found ($p > .05$).

2.5 Discussion

The aim of the current study was to replicate and extend Miller and colleagues' investigations of personality patterns as a model for heterogeneous PTSD expressions in women exposed to IPV (Miller & Resick, 2007). The study was designed to investigate the relationships between the theorized PTSD personality patterns and symptoms associated with complex PTSD. Further, the current study aimed to examine differences in IPV history and PTSD symptom patterns across the three theorized personality subtypes. Finally, the study compared differences between all these variables in women with low and high symptoms of PTSD.

2.5.1 Personality patterns. The first objective of the current study was to assess whether previous findings suggesting heterogeneous presentations of PTSD may have resulted from personality-based internalizing and externalizing subtypes in a group of women exposed to IPV with PTSD symptoms. Consistent with previous studies examining PTSD clusters in male combat veterans (Miller et al., 2003; 2004) and female rape victims (Miller & Resick, 2007), the sample meeting or exceeding a cut-off score of 30 on the PCL-S consisted of three groups; specifically, a “simple” PTSD group characterized by normative SNAP temperament scores and relatively low levels of comorbid pathology (e.g., depression, substance use, and personality disorders), as well as two groups with higher comorbid pathology denoted as “internalizing” and “externalizing”. Participants belonging to the internalizing subtype group were characterized by low scores on the SNAP-2 positive temperament scale and high scores

on the negative temperament scale, the detachment and self-harm trait scales, and the avoidant personality disorder diagnostic scale. The internalizing subtype group was also characterized by high scores of depression.

Participants belonging to the externalizing subtype group were characterized by high scores on the SNAP-2 disinhibition and negative temperament scales, as well as high scores on the aggression, dependency, eccentric perceptions, entitlement, exhibitionism, impulsivity, manipulateness, mistrust, and self-harm scales. The externalizing subtype group reported high scores on the SNAP-2 paranoid, schizoid, schizotypal, antisocial, borderline, histrionic, narcissistic, and dependent personality disorder scales. The externalizing subtype group also reported high scores on measures of alcohol and drug use, and depression.

The current results further support Miller and colleagues' (Miller et al., 2003; 2004; Miller & Resick, 2007) evidence that different presentations of PTSD can be explained by underlying personality temperament and traits. Specifically, in the current sample of women exposed to IPV with heightened PTSD symptomology, personality temperament patterns characterized by internalizing or externalizing personality traits were associated with greater comorbid pathology. The increased levels of comorbid pathology were not associated with group differences in severity of PTSD symptoms or differences in severity of IPV experiences. These findings are consistent with research indicating that PTSD associates with both internalizing and externalizing disorders, whereas other anxiety and depressive disorders are generally found to have comorbid conditions that fall within either the internalizing or externalizing personality factors (Brown et al., 2001). The differential patterns of personality and comorbidity displayed

by the internalizing and externalizing subtype groups may account for the heterogeneity of PTSD presentations. Further, the specific patterns displayed by the internalizing and externalizing subtype groups may serve to inform future personality-specific intervention strategies.

2.5.2. Comparisons with a less symptomatic group. The current research was also designed to compare personality and post-trauma symptoms from women exposed to IPV who exhibited high PTSD symptomology to those who did not. To that end, the low symptom group was designated as a fourth group and compared to the other three subtype groups (i.e., simple, internalizing, externalizing) on demographics and personality patterns. The results suggest two main conclusions. First, the personality patterns identified by Miller and colleagues (Miller et al., 2003; 2004; Miller & Resick, 2007) were readily differentiated, and remained so in pairwise contrasts even with the addition of the low symptom group. Identifying the same personality patterns within the three PTSD personality subtype groups with the addition of the low symptom group suggests that the differences in comorbidity patterns between the proposed PTSD personality subtypes are robust. The current results represent the first such extension. Second, contrary to the current hypotheses, women in the low symptom group reported having experienced comparable levels of abuse severity and time since last abuse to those who did report symptoms consistent with PTSD. Indeed, there were no significant trauma-related differences identified between women in the low symptom, internalizing, or externalizing subtype groups; however, there were significant differences between their self-reported personality variables. Women in the externalizing and internalizing subtype groups reported higher nonadaptive personality features (e.g., negative emotionality,

disinhibition) relative to the simple subtype and low symptom groups. In contrast, differences were found between the simple subtype group and the low symptom group based on trauma severity, but not based on personality features. The simple subtype group reported experiencing significantly higher levels of IPV relative to the low symptom group. Accordingly, there appears to be evidence that personality features may function as vulnerability factors for the development of PTSD.

Personality profiles with temperaments and traits falling in normative (i.e., middle) ranges, coupled with low scores on personality disorder diagnostic scales, may have functioned as resiliency factors for PTSD symptoms; however, women who have experienced more trauma were also reporting higher levels of PTSD symptoms, supporting prior notions of a “dose”-dependent relationship (e.g., Breslau, Chilcoat, Kessler, & Davis, 1999; Cogle et al., 2009; Dohrenwend et al., 2006). Indeed, graded, overlapping factors – including personality temperament and traits – as well as severity of abuse, economic security, education, and other established PTSD factors likely combine to determine individual risk and resiliency. Assuming personality features are indeed fixed and primary (Tyrer, 2010; Watson et al., 1994), then despite the cross-sectional nature of the current research design there appears to be evidence that some personality features may also function as vulnerabilities for PTSD.

2.5.3 PTSD personality subtypes and different IPV experiences. Replicating the Miller and Resick (2007) study with a more heterogeneous sample served to test the robustness of the proposed three-factor personality model of PTSD (Miller et al, 2003; 2004; Miller & Resick, 2007). The original research plan was to further subdivide the sample into different IPV groups (e.g., emotional and/or psychological abuse only,

physical and emotional abuse, severe combined abuse) and then compare personality factors and PTSD symptom clusters across those groups; however, most participants reported combined severe abuse experiences, which made such sample groupings impractical. Instead, the proportion of women reporting severe combined abuse experiences was compared across the PTSD personality subtype groups and the low symptom groups. No differences were found, suggesting that the type of abuse experienced by women may not be a factor in determining membership in the PTSD personality subtype or low symptom groups.

2.5.4 PTSD personality subtypes and complex PTSD. The current results have also added to the data for conceptualizing complex PTSD. Herman (1992) suggested that people who developed complex PTSD have greater personality dysfunction, severity of symptoms, and an increased likelihood of future trauma exposure. Miller and Resick (2007) found that different presentations of PTSD (as expressed through the different PTSD personality subtypes) differed on some, but not all, complex-PTSD-related symptoms (e.g., externalized anger, dysfunctional sexual behavior and tension reduction behaviour). In the current study, despite expectations that the internalizing and externalizing subtype groups would report more complex PTSD symptoms than the other groups, no such differences were identified. In other words, although the internalizing and externalizing subtype groups reported greater personality dysfunction, they did not report more intense complex PTSD symptoms.

Herman's (1992) complex PTSD description also included notions that personality features may result in different severity levels for PTSD symptoms; however, the current results indicated there were no such differences. Women in the internalizing

and externalizing subtype groups reported more severe comorbid symptoms (e.g., depression, personality disorders, alcohol and drug use), but only minor differences in PTSD symptoms (i.e., higher symptoms of hyperarousal) relative to the simple subtype group. Herman's complex PTSD description also implicated early childhood trauma as a vulnerability factor. Indeed, there is a well-established association between childhood trauma and complex PTSD (Cloitre et al., 2009; McLean & Gallup, 2003; McLean et al., 2006; Spitzer et al., 2006; Zlotnick et al., 1996). Contrary to that previous literature and the current hypotheses, but in line with Miller and Resick's (2007) original findings, there were no differences between the subtype groups in reported adverse childhood events. Miller and Resick (2007) suggested the absent differences may be specific to this type of sample (i.e., women with extensive interpersonal abuse histories) having globally higher histories of childhood adversity. This sample, similar to Miller and Resick's (2007) sample, reported particularly high levels of adverse childhood events. Such consistently high levels of reported childhood abuse make it difficult to uncover statistically significant differences across groups in the relationship between adverse childhood events and negative impact; however, this does not suggest that adverse childhood events do not have a negative impact. Indeed, the increased history of childhood adversity may increase risk for subsequent traumatic exposure (Nishith, Mechanic, & Resick, 2000).

Miller and Resick (2007) suggested that the three PTSD personality subtypes may account for differences between simple and complex presentations of PTSD. The results of the current study suggest that the internalizing and externalizing subtype groups do indeed present with more "complex" PTSD expressions (i.e., associated with higher

levels of comorbid symptoms such as depression, personality disorders, and drug and alcohol use); however, these differences in expressions of PTSD are not captured by the proposed diagnostic criteria for complex PTSD. As such, the relationship between PTSD personality patterns and complex PTSD may not be as straightforward as an overlapping of symptoms conceptualized through two different models. The current results do not support the notion that the current conceptualization of complex PTSD is isolated within the internalizing and externalizing subtype groups as proposed by Miller and Resick.

2.5.5 Personality and the DSM-5. In the imminent presence of DSM-5, the results of the current study have implications for incorporating normative personality features into the conceptualization and diagnosis of psychological disorders.

Incorporating personality variables in such ways is contentious with arguments for (e.g., Costa & McCrae, 2010; Krueger & Eaton, 2010) and against (First, 2010; Gunderson, 2010; Skodol & Bender, 2009) inclusion. The clinical utility of the PTSD personality subtype model remains untested; however, the current results do support the potential etiological importance of personality features for the development and maintenance of PTSD symptoms and complex PTSD symptoms. As such, dimensional considerations of personality features may improve the diagnostic specificity of PTSD and prove clinically useful.

2.4.6 Implications for IPV service providers. The results of this study have implications for service providers working with women exposed to IPV. Women whose personality patterns are consistent with the internalizing and externalizing patterns have greater severity of comorbid variables that may interfere with decisions to leave an abusive relationship (Edwards, Gidycz, & Murphy, 2011), increase distress (Adkins and

Dush, 2010), and increase future exposure to violence and risk of harm (Testa, Livingston, & Leonard, 2003). The PTSD personality subtype model is still at a beginning stage of being tested but service providers may be warranted to consider women displaying the internalizing and externalizing personality patterns as at a higher risk than women displaying more normative (i.e., mid-range) personality patterns. Previous research suggests that compared to women who choose to leave, women who choose to stay in abusive relationships have higher levels of depression (Walker, 1984) and self-blame (O'Neill & Kerig, 2000; i.e., variables consistent with the internalizing subtype). Such cross-sectional research does not allow for directional analysis; however, internalizing subtype features may make the process of leaving an abusive feel more overwhelming and less desirable. Somewhat opposite information exists for anger (i.e., a variable consistent with the externalizing subtype): women reporting high levels of anger have been found to be more likely to leave abusive relationships than women with low anger (Shurman & Rodriguez, 2006; Walker, 1984). Women displaying high levels of externalized anger also seem to be at greater risk of future revictimization (Kuijpers, van der Kamp, & Winkel, 2012).

2.5.7 Limitations and future directions. The current study has several limitations that provide directions for future research. Including a community-derived sample of women with heterogeneous IPV experiences allowed the investigation of a broad range of traumatic responses. That said, the sample is not entirely representative. Most participants were recruited through online community classifieds sites meaning that the sample is largely comprised of women with computer and internet access. Poster advertising for the study was sent to relevant services (e.g., women's shelters, YWCA's,

community victim's service centers) across Canada who agreed to support the project in an attempt to gather participants without access to a computer; however, only a small proportion of total participants were successfully recruited from such sources. Second, only half of the participants who started the study completed it and only women who completed the entire study were included in the analysis. Women who completed the study may have been more motivated to report their reactions to abuse because of their experiences were more severe. Women who were subjected to more severe abuse and suffered prolonged negative reactions may also have been more motivated to share their experiences to help other women through the charity donations offered in lieu of individual compensation. Accordingly, future research should attempt to control for socioeconomic and other demographic variables.

Participant recruitment fell short of the originally desired sample; however, the current replication with this size sample speaks to the robust nature of the relationship patterns identified Miller and colleagues (Miller et al., 2003; 2004; Miller & Resick, 2007). Future research should include a larger sample to further assess for potential differences. That said, if differences exist that would undermine the robust nature of the patterns, but require very large samples, the impact of those differences on individual experiences may be minimal.

To date, research on the PTSD personality subtype model has focused on male veterans and women survivors of IPV. As such, heightened personality dysfunction may yet be specific to interpersonal traumas such as combat and IPV (e.g., Dorahy et al., 2009). Future research should explore the model in samples with different primary trauma experiences, such as motor vehicle accidents or natural disasters.

The absence of overlap between the internalizing and externalizing groups and increased complex PTSD symptom reports suggests future research should focus on determining whether considering personality subtypes or complex PTSD best facilitates prevention, diagnoses, or intervention of post-trauma distress. Previous research has provided mixed evidence regarding the utility of a complex PTSD diagnosis. Some researchers suggest complex PTSD is distinguishable from PTSD (Dorahy et al., 2009; Roth et al., 1997; Zucker et al., 2006), while other researchers argue that the distinction is impractical (Feeny et al., 2002; Hembree et al., 2004; Taylor et al., 2006). Research comparing the utility of the complex PTSD and the personality subtype classification in relation to clinical outcomes would further inform the debate.

Determining the personality patterns of victims post-trauma may allow mental health workers to focus efforts and prevent posttrauma reactions to persist and become debilitating. Most comprehensive personality measures (e.g., the SNAP-2, the MMPI) will score negative affect, positive affect, and disinhibition; however, the financial and temporal costs of such measures can become prohibitive. As such, the development of a short personality measure that serves to determine PTSD personality subtype groups may be beneficial for screening. Assuming personality features are indeed fixed (Tyrer, 2010; Watson et al., 1994), the cross-sectional nature of the current data does not prohibit inferences about the relationship between PTSD and personality. That said, future research should longitudinally investigate the predictive power of the personality patterns before expected traumatic exposure (e.g., pre-deployed military, training emergency medical response workers) and immediately following trauma (e.g., women leaving abusive relationships). In many cases PTSD interventions are functionally impractical

(e.g., circumstances where ensuring basic necessities and physical safety must be prioritized) and debriefing alone may not improve PTSD resiliency (e.g., Rose, Bisson, Churchill, & Wesley, 2002). Despite such complications, a recent meta-analysis supports early interventions of trauma-focused Cognitive Behavioural Therapy as effective for reducing trauma-related stress symptoms (Kornør et al., 2008). Subtype assessments that predict PTSD-related vulnerability may improve primary and secondary prevention for marginalized populations by directing resources for providing those early interventions.

2.6 Conclusions

The current study provided replication evidence for the proposed PTSD personality subtype model in an independent, heterogeneous, community sample of women who have experienced a range of IPV. High negative emotion coupled with low positive emotion characterized participants into the internalizing personality subtype group. High negative emotion coupled with high disinhibition characterized participants clustered in the externalizing subtype group. A third group, characterized by normative temperament patterns, constituted the simple PTSD subtype. For the current study, a fourth “low symptoms” group was created with women who reported IPV experiences but did not report significant PTSD symptoms in order to provide a baseline comparison group for personality features. Participants in the internalizing and externalizing subtype groups reported higher comorbid symptoms including depression, drug and alcohol use, and personality pathology than participants in the simple subtype group and low symptoms group. Furthermore, participants in the internalizing and externalizing subtype groups reported comparable trauma histories, IPV frequencies, IPV severities, and PTSD symptoms to participants in the simple subtype group and low symptoms group.

Contrary to expectations, no differences in variables currently conceptualized as complex PTSD were found between the subtype groups.

Beyond replicating the personality patterns supported by Miller and colleagues' (Miller et al., 2003; 2004; Miller & Resick, 2007) previous work, this study compared personality temperament and trait features in women who did and did not develop significant PTSD-related symptoms and distress post-trauma. Women with normative (i.e., mid-range) personality patterns who reported heightened PTSD symptoms (i.e., the simple subtype group) reported significantly higher rates and severity of abuse than women in the other subtype groups, whereas the women with normative personality patterns who did not report heightened PTSD symptoms (i.e., the low symptom group) reported the same level and severity of abuse as women in the externalizing and internalizing subtype groups. Accordingly, personality features may serve as important vulnerability and resiliency factors for PTSD symptoms. The current study also provides no evidence that personality patterns are associated with the frequency or severity of IPV; however, IPV service providers may be warranted to consider women displaying personality patterns consistent with the internalizing and externalizing subtypes, at differential risk of not leaving abusive relationships, or at greater risk of exposure to future violence.

Despite the current limitations, the results of this study provide a strong starting point for additional research investigating the replicability and utility of the three proposed PTSD personality subtypes, as well as more comprehensive work examining the role of personality in the development, assessment, and intervention of PTSD symptoms. The current research is the first to examine personality features as risk and

resiliency variables for the development of PTSD symptoms after exposure to IPV trauma. These findings, with replication, follow-up, and further investigation, should help researchers, clinicians, and service providers better understand and support women's different reactions to IPV.

3.0 References

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4.0 Appendices

Appendix A

Lifetime Traumatic Events Checklist—Revised

Many people have witnessed or experienced events (or a series of events) that are very distressing or traumatic. We are interested in knowing about distressing or traumatic events that you have witnessed or experienced at some point in your life. Please put a check mark beside all of the events that you have witnessed or experienced.

- Natural disaster (e.g., tornado, flood)
- Motor vehicle accident
- Other serious accident (e.g., industrial, farm)
- Fire
- Seeing someone being seriously injured or killed
- Sexual abuse as a child (under age 16; any unwanted sexual contact or attempted sexual contact)
- Sexual assault as an adolescent/adult (age 16 or older; unwanted sexual contact)
- Physical abuse as a child (under age 16; resulting in bruises, burns, cuts, or broken bones)
- Physical assault as an adult (age 16 or older; resulting in bruises, burns, cuts, or broken bones)
- Military combat or peacekeeping in a war zone
- Civilian (i.e., non-military) living in a war zone
- Terrorist attack
- Torture
- Unexpected death of loved one
- Armed robbery
- Serious illness (e.g., cancer, AIDS)
- Being publicly humiliated (worse than others)
- Being severely bullied, but not assaulted (worse than others)
- Being ridiculed (very badly teased, worse than others)
- The breakup of a significant relationship
- Other - Please specify _____

If you checked only one event, please SKIP to the next question. If you checked more than one of the events listed above, please indicate which one you are or were most distressed or traumatized by.

- Natural disaster (e.g., tornado, flood)
- Motor vehicle accident
- Other serious accident (e.g., industrial, farm)
- Fire
- Seeing someone being seriously injured or killed

- Sexual abuse as a child
- Sexual assault as an adolescent/adult
- Physical abuse as a child
- Physical assault as an adolescent/adult
- Military combat or peacekeeping in a war zone
- Civilian (i.e., non-military) living in a war zone
- Terrorist attack
- Torture
- Unexpected death of loved one
- Armed robbery
- Serious illness (e.g., cancer, AIDS)
- Being publicly humiliated (worse than others)
- Being severely bullied, but not assaulted (worse than others)
- Being ridiculed (very badly teased, worse than others)
- The breakup of a significant relationship
- Other - Please specify _____

The following questions are about the most distressing or traumatic event (or series of events) you have witnessed or experienced:

Did you experience intense fear, helplessness, or horror in response to this event?
(yes/no)

When did this event first occur?

- With the last month
- 1 to 3 months ago
- 4 to 6 months ago
- 7 months to 1 year ago
- 1 to 3 years ago
- 4 or more years ago

If the event occurred more than once, or was ongoing, when did it last occur?

- With the last month
- 1 to 3 months ago
- 4 to 6 months ago
- 7 months to 1 year ago
- 1 to 3 years ago
- 4 or more years ago

Appendix B

Family Health History (FHH)

<i>During your first 18 years of life...</i>		
1	Did you live with anyone who used street drugs?	1=yes 2=no
2	Were your parents ever separated or divorced?	1=yes 2=no
3	Did you ever live with a stepfather?	1=yes 2=no
4	Did you ever live with a stepmother?	1=yes 2=no
5	Did you ever live in a foster home?	1=yes 2=no
6	Did you ever run away from home for more than one day?	1=yes 2=no
7	Did your brothers or sisters run away from home for more than one day?	1=yes 2=no
8	Was anyone in your household depressed or mentally ill?	1=yes 2=no
9	Did anyone in your household attempt to commit suicide?	1=yes 2=no
10	Did anyone in your household go to prison?	1=yes 2=no
11	Did anyone in your household ever commit a serious crime?	1=yes 2=no
12a	Have you ever attempted to commit suicide?	1=yes 2=no
12b	If "yes", how old were you the first time you attempted suicide?	Age__
12c	If "yes", how old were you the last time you attempted suicide?	Age__
12d	How many times have you attempted suicide?	# times
12e	Did any suicide attempt ever result in an injury, poisoning, or overdose that had to be treated by a doctor or nurse?	1=yes 2=no
<i>Sometimes physical blows occur between parents. While you were growing up in your first 18 years of life, how often did our father (or stepfather) or mother's boyfriend do any to these things to your mother (or stepmother)?</i>		
13	Push, grab, slap or throw something at her?	1=never 2=once, twice 3=sometimes 4=often 5=very often

14	Kick, bite, hit her with a fist, or hit her with something hard?	1=never 2=once, twice 3=sometimes 4=often 5=very often
15	Repeatedly hit her over at least a few minutes?	1=never 2=once, twice 3=sometimes 4=often 5=very often
16	Threaten her with a knife or gun, or use a knife or gun to hurt her?	1=never 2=once, twice 3=sometimes 4=often 5=very often
<i>Sometimes parents spank their children as a form of discipline. While you were growing up during your first 18 years of life:</i>		
17	How often were you spanked?	1=never 2=once or twice 3=a few times a year 4=many times a year 5=weekly or more
18	How severely were you spanked?	1=not hard 2=a little hard 3=medium 4=quite hard 5=very hard
19	How old were you the last time you remember being spanked?	Age _____
<i>While you were growing up, during your first 18 years of life, how true were each of the following statements?</i>		
20	You didn't have enough to eat?	1=never true 2=rarely true 3=sometimes true 4=often true 5=very often true

21	You knew there was someone to take care of you and protect you?	1=never true 2=rarely true 3=sometimes true 4=often true 5=very often true
22	People in your family called you things like “lazy” or “ugly”?	1=never true 2=rarely true 3=sometimes true 4=often true 5=very often true
23	Your parents were too drunk or high to take care of the family?	1=never true 2=rarely true 3=sometimes true 4=often true 5=very often true
24	There was someone in your family who helped you feel important or special?	1=never true 2=rarely true 3=sometimes true 4=often true 5=very often true
25	You had to wear dirty clothes?	1=never true 2=rarely true 3=sometimes true 4=often true 5=very often true
26	You felt loved?	1=never true 2=rarely true 3=sometimes true 4=often true 5=very often true
27	You thought your parents wished you had never been born?	1=never true 2=rarely true 3=sometimes true

		4=often true 5=very often true
28	People in your family looked out for each other?	1=never true 2=rarely true 3=sometimes true 4=often true 5=very often true
29	You felt that someone in your family hated you?	1=never true 2=rarely true 3=sometimes true 4=often true 5=very often true
30	People in your family said hurtful or insulting things to you?	1=never true 2=rarely true 3=sometimes true 4=often true 5=very often true
31	People in your family felt close to each other?	1=never true 2=rarely true 3=sometimes true 4=often true 5=very often true
32	You believe that you were emotionally abused?	1=never true 2=rarely true 3=sometimes true 4=often true 5=very often true
33	There was someone to take you to the doctor if you needed it?	1=never true 2=rarely true 3=sometimes true 4=often true 5=very often true

34	Your family was a source of strength and support?	1=never true 2=rarely true 3=sometimes true 4=often true 5=very often true
<i>Sometimes parents or other adults hurt children. While you were growing up, that is, during your first 18 years of life, how often did a parent, step-parent, or adult living in your home:</i>		
35	Swear at you, insult you, or put you down?	1=never 2=once, twice 3=sometimes 4=often 5=very often
36	Threaten to hit you or throw something at you, but didn't do it?	1=never 2=once, twice 3=sometimes 4=often 5=very often
37	Actually push, grab, shove, slap you, or throw something at you?	1=never 2=once, twice 3=sometimes 4=often 5=very often
38	Hit you so hard that you had marks or were injured?	1=never 2=once, twice 3=sometimes 4=often 5=very often
39	Act in a way that made you afraid that you might be physically hurt?	1=never 2=once, twice 3=sometimes 4=often 5=very often
<i>Some people, while growing up in their first 18 years of life, had a sexual experience with an <u>adult or someone at least five years older than themselves</u>. These experiences may have involved a relative family friend or stranger. During the first 18 years of life, did an adult or older relative, family friend or stranger ever:</i>		
40	Touch or fondle your body in a sexual way?	1=yes 2=no
	IF "YES"	

The first time this happened, how old were you?		Age_____
The first time, did this happen against your wishes?		1=yes 2=no
The last time this happened, how old were you?		Age_____
About how many times did this happen to you?		# of times_____
How many different people did this to you?		# of people_____
What was the sex of the person(s) who did this?		1=male 2=female 3=both
41	Have you touch their body in a sexual way?	1=yes 2=no
IF "YES"		
how old were you?		Age_____
The first time, did this happen against your wishes?		1=yes 2=no
The last time this happened, how old were you?		Age_____
About how many times did this happen to you?		# of times_____
How many different people did this to you?		# of people_____
What was the sex of the person(s) who did this?		1=male 2=female 3=both
42	Attempt to have any type of sexual intercourse (oral, anal, or vaginal) with you? If "Yes":	1=yes 2=no
The first time this happened, how old were you?		Age_____

The first time, did this happen against your wishes?		1=yes 2=no
The last time this happened, how old were you?		Age_____
About how many times did this happen to you?		# of times_____
How many different people did this to you?		# of people_____
What was the sex of the person(s) who did this?		1=male 2=female 3=both
43	Actually have any type of sexual intercourse with you (oral, anal, or vaginal) with you? If “Yes”:	1=yes 2=no
The first time this happened, how old were you?		Age_____
The first time, did this happen against your wishes?		1=yes 2=no
The last time this happened, how old were you?		Age_____
About how many times did this happen to you?		1=once 2=twice 3=3-5 times 4=6-10 times 5=more than 10 times
How many different people did this to you?		1=one person 2=two people 3=three people 4=four people 5=five or more people
What was the sex of the person(s) who did this?		1=male 2=female 3=both
<i>If you answered “No” to each of the last 4 questions (59a-62a) about sexual experiences with older persons, please skip to question 67a. Mark all that apply. Did any of these sexual experiences with an adult or person at</i>		

<i>least 5 years older than you involve:</i>		
45	A relative who lived in your home?	1=yes 2=no
46	A non-relative who lived in your home?	1=yes 2=no
47	A relative who didn't live in your home?	1=yes 2=no
48	A family friend or person who you knew and who didn't live in your household?	1=yes 2=no
49	A stranger?	1=yes 2=no
50	Someone who was supposed to be taking care of you?	1=yes 2=no
51	Someone you trusted?	1=yes 2=no
<i>Did any of these sexual experiences involve:</i>		
52	Trickery, verbal persuasion, or pressure to get you to participate?	1=yes 2=no
53	Being given alcohol or drugs?	1=yes 2=no
54	Threats to harm you if you didn't participate?	1=yes 2=no
55	Being physically forced or overpowered to make you participate?	1=yes 2=no
56	Have you ever told a doctor, nurse, or other health professional about these sexual experiences?	1=yes 2=no
57	Has a therapist or counsellor ever suggested to you that you were sexually abused as a child?	1=yes 2=no
58	Do you think that you were sexually abused as a child?	1=yes 2=no
<i>Apart from other sexual experiences you have already told us about, while you were growing up during your first 18 years of life</i>		
59a	Did a boy or group of boys about your own age ever force or	1=yes 2=no

	threaten to harm you in order to have sexual contact?	
59b	If yes did the contact involve someone touching your sexual parts or trying to have intercourse with you (oral, anal, vaginal)?	1=yes 2=no
59c	If yes how many times did someone do this to you?	1=once 2=twice 3=3-5 times 4=6-10 times 5=more than 10 times
59d	Did the contact involve a person actually having intercourse with you (oral, anal, vaginal)?	1=yes 2=no
59e	If yes how many times did someone do this to you?	1=once 2=twice 3=3-5 times 4=6-10 times 5=more than 10 times

Appendix C

The Posttraumatic Checklist-Stressor Specific Version (PCL-S)

Below is a list of problems and complaints that women sometimes have in response to intimate partner violence. Please read each one carefully, and indicate how much you have been bothered by that problem *in the last month*.

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 experience from the past?					
3.	Suddenly <i>acting or feeling</i> as if a stressful experience <i>were happening again</i> (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</i> or <i>situations</i> because <i>they 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</i> or <i>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</i> or <i>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 D

The Composite Abuse Scale (CAS)

This section asks about your experiences in adult intimate relationships. By adult intimate relationship, we mean a husband, partner or boy/girlfriend for longer than one month.

1. Have you ever been in an adult intimate relationship? Yes/No
(Since you were 16 years of age)
2. Are you currently in a relationship? Yes/No
3. Are you currently afraid of your partner? Yes/No
4. Have you ever been afraid of any partner? Yes/No

I would like to know if you experienced any of the actions/threats below and how often it happened in the last 12 months that you were with your abusive ex/partner. The following items are worded as if you were directly responding to them. Please indicate the number that matches the frequency over the 12 month period.

Action/Threat	How Often it Happened					
	Never	Only Once	Several Times	Once a month	Once a week	Daily
1. Told me that I wasn't good enough.	0	1	2	3	4	5
2. Kept me from medical care.	0	1	2	3	4	5
3. Followed me.	0	1	2	3	4	5
4. Tried to turn my family, friends and children against me.	0	1	2	3	4	5
5. Locked me in the bedroom.	0	1	2	3	4	5
6. Slapped me.	0	1	2	3	4	5
7. Raped me. (definition: physically forced sexual act)	0	1	2	3	4	5

8.	Told me that I was ugly.	0	1	2	3	4	5
9.	Tried to keep me from seeing or talking to my family.	0	1	2	3	4	5
10.	Threw me.	0	1	2	3	4	5
11.	Hung around outside my house.	0	1	2	3	4	5
12.	Blamed me for causing their violent behaviour.	0	1	2	3	4	5
13.	Harassed me over the telephone.	0	1	2	3	4	5
14.	Shook me.	0	1	2	3	4	5
15.	Tried to rape me.	0	1	2	3	4	5
16.	Harassed me at work.	0	1	2	3	4	5
17.	Pushed, grabbed or shoved me.	0	1	2	3	4	5
18.	Used a knife or gun or other weapon.	0	1	2	3	4	5
19.	Became upset if dinner/housework wasn't done when they thought it should be.	0	1	2	3	4	5
20.	Told me I was crazy.	0	1	2	3	4	5
21.	Told me no one would ever want me.	0	1	2	3	4	5
22.	Took my wallet and left me stranded.	0	1	2	3	4	5
23.	Hit or tried to hit me with something.	0	1	2	3	4	5
24.	Did not want me to socialize with my female friends.	0	1	2	3	4	5

25.	Put foreign objects in my vagina.	0	1	2	3	4	5
26.	Refused to let me work outside the home.	0	1	2	3	4	5
27.	Kicked me, bit me or hit me with a fist.	0	1	2	3	4	5
28.	Tried to convince my family, friends, or children that I was crazy.	0	1	2	3	4	5
29.	Told me that I was stupid.	0	1	2	3	4	5
30.	Beat me up.	0	1	2	3	4	5

Appendix E

The Center for Epidemiological Studies – Depression Scale (CES-D)

Below is a list of some of the ways people feel at different times. Please identify which statement best describes how often you felt that way **during the past week.**

	Rarely (less than 1 day) or none of the time	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
I was bothered by things that usually don't bother me				
I did not feel like eating; my appetite was poor				
I felt that I could not shake off the blues, even with help from family and friends				
I felt that I was just as good as other people				
I had trouble keeping my mind on what I was doing				
I felt depressed				
I felt that everything I did was an effort				
I felt hopeful about the future				
I thought my life had been a failure				
I felt fearful				
My sleep was restless				
I was happy				
I talked less than usual				
I felt lonely				
People were unfriendly				
I enjoyed life				
I had crying spells				
I felt sad				
I felt that people disliked me				
I could not "get going"				

Appendix F

Alcohol Use Disorders Identification Test (AUDIT-C)

Now I am going to ask you some questions about your use of alcoholic beverages (beer, wine, coolers, spirits, etc.) during this past year.

1) How often do you have a drink containing alcohol?				
Never	Monthly or less	2 to 4 times a month	2 to 3 times a week	4 or more times a week
2) How many standard drinks containing alcohol do you have on a typical day?				
1 or 2	3 or 4	5 or 6	7, 8, or 9	10 or more
3) How often do you have six or more drinks on one occasion?				
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

Appendix G

Drug Abuse Screening Test (DAST-10)

The following questions concern your potential involvement with drugs **EXCLUDING ALCOHOL and TOBACCO** during the past 3 months.

When the words “drug abuse” are used, they mean the use of prescribed or over-the-counter medications/drugs in excess of the directions and any non-medical use of drugs. The various classes of drugs may include:

- Cannabis (e.g., marijuana, pot, hash), Inhalants (e.g., glue, nitrous, petrol)
- Tranquilizers (e.g., sleeping pills, valium)
- Barbituates (e.g., Phenobarbital, Amytal)
- Cocaine (e.g., coke, crack)
- Stimulants (e.g., speed, crank, methamphetamines)
- Hallucinogens (e.g., LSD, Special K, mushrooms)
- Opioids (e.g., Heroin, oxycontin, morphine)

Remember that these questions **DO NOT INCLUDE ALCOHOL OR TOBACCO.**

THESE QUESTIONS REFER TO THE PAST 3 MONTHS		YES	NO
1.	Have you used drugs other than those required for medical reasons?		
2.	Do you use/abuse more than one drug at a time?		
3.	Are you always able to stop using drugs when you want to? (If haven't used drugs in the past 3 months, answer YES)		
4.	Have you had “blackouts” or “flashbacks” as a result of drug use?		
5.	Do you ever feel bad or guilty about your drug use? (If haven't used drugs in the past 3 months, answer NO)		
6.	Does your family or friends ever complain about your involvement with drugs?		
7.	Have you neglected your family because of your drug use?		
8.	Have you engaged in illegal activities in order to obtain drugs?		
9.	Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?		
10.	Have you had medical problems as a result of your drug use (e.g., memory loss, hepatitis, convulsions, bleeding)?		