

VULNERABILITY TO TRAUMATIC EVENTS:
DEPENDENCY AND SELF-CRITICISM

by

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Submitted in partial fulfillment of the requirements for the degree of Doctor of
Philosophy

at

Dalhousie University
Halifax, Nova Scotia
November, 2005

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ISBN: 978-0-494-16705-2

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ISBN: 978-0-494-16705-2

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Abstract

Vulnerability is an important consideration in traumatology. Recent reviews have noted the need for both longitudinal research and predictive models that combine proximal and distal factors. The present two studies aimed to address these concerns by introducing Dependency & Self-Criticism (distal personality factors) and emotional expression and social support (proximal behavioral factors) in the prediction of PTSD symptoms. Using a sample of introductory psychology students (N = 444), Study 1 attempted to: 1) determine the frequency of various traumatic events, and 2) predict symptoms and functioning using a novel set of vulnerability personality factors. Study 2 (N=109) (using both paper and pencil and interview techniques) complimented Study 1 by adding a longitudinal component to test whether people who have been sexually assaulted experienced more pathological symptoms over time than did a group of people who had not been sexually assaulted. The second study tested whether Dependency and Self-Criticism interacted with, or were mediated by, social support and emotional expression. Overall, it was found 1) that Self-Criticism plays an important role in the prediction of PTSD symptoms over and above dysphoria and number of traumatic events, 2) that participants in the sexual assault group were diagnosed more frequently with anxiety disorders than were participants in the comparison group (despite no differences on the continuous measures), 3) that Self-Criticism, Dependency, and the number of traumatic events interacted in the prediction of PTSD symptoms, and 4) that *Dependency's* relationship with PTSD symptoms, rather than *Self-Criticism* as predicted, was partially mediated by emotional expression and social support. Despite Dependency's ability to predict PTSD symptoms, Self-Criticism's role was more robust. Limitations and implications of the studies' finding are discussed.

Key Words: trauma, proximal factors, distal factors, emotional expression, dependency, self-criticism, longitudinal study, frequency, functioning, symptoms

Acknowledgements

I would like to acknowledge the following people for their help (direct and otherwise) in the completion of this thesis. First, I would like to thank my thesis supervisor, Dr. Darcy Santor, for his patience and guidance throughout the course of this project. Also, thank you to Dr. Sherry Stewart and Dr. Christine Chambers for their wisdom and advice. Thanks to Dr. Steve Porter for reading and providing feedback on this paper.

Thank you to Dr. John Swaine (a.k.a. John-John), Dr. Chris Bilsbury, and Dr. Tanna Mellings for providing me with excellent clinical training, and for being exemplary role models and mentors. Thank you to Dr. Louise Balfour and Dr. George Tasca, for providing a residency year that was restorative (in more ways than one!), fun, intellectually stimulating, and critical to my professional development. I am also indebted to Dr. Tasca for his kind assistance in uncovering the mysteries of non-parametric statistics. A big thanks to Dr. Gretchen Conrad, who continues to be an outstanding supervisor, mentor, and cheerleader well beyond my residency, and to Dr. Monique Lefebvre, Dr. Amy Silverman, and Dr. John Kowal, good friends who have provided vital support and encouragement.

Thanks to Banana...from fat days and enduring stats in our first year, to innumerable, possibly life-saving trips to the movie theater and the Halifax Film Festival in our final year. Thanks to Japes for all the technical support, music talk, and diversion.

A very special thanks to Bucky, whose support, caring, and constant companionship will never be forgotten.

Finally, thanks to all of the important people who weren't around for the years at Dal, but whose influence and support was omnipresent.

This thesis is dedicated to my grandfather, Dr. Ernesto Valdivia Pezo, whose academic achievements and work ethic, even well into his 90s, have always been awe-inspiring.

Chapter 1: Introduction

I. Preamble

Psychological disorders such as Major Depressive Disorder (MDD) and Post Traumatic Stress Disorder (PTSD) represent large costs to society in terms of time lost in the workplace and cost to treat (Kessler, 2000). These disorders have both been shown to develop at an increased rate subsequent to the experience of one or more serious negative life events (e.g., Breslau, Davis, Peterson, & Schultz, 2000; Yehuda, Schmeidler, Wainberg, Binder-Brynes, & Duvdevani, 1998). Determining how to optimally intervene is of paramount importance if costs are to be curtailed, and harm to the affected individuals is to be minimized.

Not everyone is affected the same way after experiencing a negative life event. Vulnerability research represents one possible route by which clinicians can predict who will be more likely to develop psychological disorders in this context than others. Ideally, preventative interventions could be implemented if clinicians and policy makers know the key vulnerability and risk factors; such methods are already taking shape (e.g., Jacobson, Fruzzetti, Dobson, Whisman, & Hops, 1993). To date, studies aiming to create predictive models for these disorders have been mixed in their findings depending on the specific populations and variables used (Brewin, Andrews, & Valentine, 2000). However, there is an ever-present need for the trial of new vulnerability factors, and the testing of aggregate predictive models in prospective research if improvements to our understanding and ability to identify individuals at risk is to be achieved.

The two present studies: 1) documented the incidence rates of various types of traumatic and negative life events in a sample of university students, and 2) tested the

personality traits *Dependency* and *Self-Criticism*, the context variable *social support*, and the behavior *emotional expression* as the primary variables in a model predicting the development of pathological symptoms (i.e., primarily post traumatic stress and dysphoria) and/or a decline in functioning (i.e., primarily role functioning and physical health) that may take place after experiencing traumatic life events.

The studies also 3) followed selected participants over an academic year to see whether a year at university might result in decompensation for those individuals with proportionally greater vulnerability, 4) documented the effects of multiple traumatic events, and 5) examined the specific effects of sexual assault above and beyond other trauma. In the following sections, the nature of vulnerability in general, vulnerability factors in particular, and traumatic/negative life events are discussed. Key personality traits *Dependency* and *Self-Criticism* are also discussed, as were other potential predictive factors, such as emotional expression and social support. Sexual assault, a specific and severe traumatic event is also discussed. An attempt to integrate these two areas of study then follows.

The present studies aimed to fill in specific gaps in the literature, including the lack of reliability and validity data for the presence of PTSD and traumatic experiences (e.g., the incidence rates of multiple Potentially Traumatic Events). Also, many studies in the past have grouped together several age groups, whereas the present studies used a sample with a restricted age range in an attempt to make conclusions about the age group. The studies that follow used a university sample so as to permit comparisons to other studies in the literature. As well, few studies have used a comparison/control group when testing predictive models; accordingly, the present studies used a comparison group so

that it would be possible to make a more definitive statement about the nature of any change that occurs over time. Few studies of this sort have utilized a longitudinal design, and thus, the present studies did so to determine whether specific vulnerability factors have predictive power over time. Finally, as alluded to above, there is a strong clinical need for this brand of research so that “at risk” patients might be better identified and treated, potentially derailing any severe disruption to their lives. Study 1 widely surveyed a university sample and established links between Dependency and Self-Criticism and PTSD symptoms. Study 2 applied this to a specific trauma group (i.e., sexual assault) and then proposed separate moderation and mediation models as potential pathways for the connection between personality and PTSD.

II. Vulnerability: Theory and Research

The Nature of Vulnerability

Vulnerability research is an ever expanding area of study that is now several decades old (Ingram, Miranda, & Segal, 1998). This area of study is important so that clinicians and researchers will be able to reliably predict who will be more likely than others to manifest or develop different forms of psychopathology, such as MDD or PTSD and who will respond best to treatment. Indeed, some theorists contend that for psychotherapeutic intervention to be maximally effective, treatments must address the vulnerability factors themselves, or that which caused the disorder into existence in the first place (Ingram & Price, 2001). Vulnerability research helps to delineate not only that

which brings about a disorder, but also describes the processes that maintain a disorder, and those that perpetuate the existence of residual symptoms following recovery.

Although there is a lack of a consistent definition of vulnerability in the literature, there are nevertheless some core features that consistently appear. These are: 1) vulnerability as a stable trait, 2) the intrinsic/endogenous and latent nature of vulnerability, and 3) the role of stress in eliciting vulnerability. These three features are briefly discussed below.

The first core feature is that vulnerability is a stable trait. For example, some have argued for a genetic basis for schizophrenia and a stable trait underlying the psychiatric disorder (e.g., Zubin & Spring, 1977). This stability means that it is not possible to reduce the absolute level of vulnerability. In contrast, psychological disorders are (potentially) transient *states*, which are made possible due in part to a stable *trait* that is intrinsic to the individual. Thus, the vulnerability and the disorder are not equivalent; for example, Meehl's (1962) "schizotaxia" trait makes one vulnerable to develop the *state of schizophrenia*. These symptoms or states that emerge from the vulnerability are often amenable to psychological and/or psychiatric treatment. Although the traits may be stable (i.e., resistant to change), that does not necessitate that they are permanently fixed (unless they are genetic), a foundation on which psychotherapy is based. That is, new learning experiences can be corrective, and indeed, address the underlying causative factors in psychopathology (e.g., challenging and replacing core beliefs/schemas in cognitive-behavior therapy).

The second core feature is that vulnerability is endogenous and latent. In the case of endogenous (i.e., carried *within* the individual), this could either imply that the trait is

inborn or that it is acquired through an early learning process. This is in contrast to a *risk factor* that is *external* to the individual (e.g., poverty). Risk is any set of descriptive variables (i.e., as opposed to causal factors) that predicts the likelihood of disorder (Ingram & Price, 2001), but it does not specify the mechanism by which the disorder emerges. *Latent* in this case refers to the quality of vulnerability wherein it can be somnolent prior to activation, and thus, not easily observed. Thus, even though an individual may not show overt signs of a particular disorder, they may nonetheless be vulnerable to its development subsequent to the introduction of an eliciting stimulus. Evidence of such traits may be brought forth in experimental “challenge” paradigms conducted in the laboratory (e.g., Shelton, Hollon, Purdon, & Loosen, 1991).

The third and final core feature is that stress is necessary in bringing about a specific disordered state that may be a logical sequelae of an endogenous, latent, and enduring trait. Stress in this case can be defined as any life event that the individual interprets as aversive (e.g., Luthar & Zigler, 1991), or any event that disrupts the “normal” state of an individual in a cognitive, emotional, or physical way (Monroe & Simons, 1991). This essential connection has been referred to as a *stress-diathesis*. This means that there is a predisposition to illness, whether it be cognitive, physical, or interpersonal, which is activated upon presentation of a stressful life event that precipitates a disordered state. Stress is considered vital to vulnerability models, without which, psychopathology might not be elicited (Ingram & Price, 2001).

A Note on Risk and Resilience: Distinction from Vulnerability

As alluded to above, risk is distinguished from vulnerability in the literature, even though they are often used synonymously. Risk refers to the empirical connection between specific *external* factors and the incidence of psychopathology. In this case, the connection is correlational versus causative, and risk serves to increase the probability of the emergence of disordered states. Some writers (e.g., Albee, 2000) have suggested that special attention should be allocated to the risk factors in psychotherapy as well since treatments may not be effective until these barriers are addressed. In this case, risk could be seen as a stressful stimulus that interacts with vulnerability, triggering the dysregulated systems that then bring forth disorder (Rutter, 1987). Said in another way, it could have a *moderating* effect, whereas vulnerability might be seen more frequently as a *mediating* effect.

Conversely, resilience (also referred to as invulnerability, protective factors, and competence) describes the reverse of vulnerability. This refers to the fact that even in the face of a stressful stimulus, the individual is resistant to stress' harmful effects. Although the effect of stress is reduced, it is still present, and psychopathology may emerge nonetheless (Ingram & Price, 2001). In this way, resilience is thought to be the polar opposite of vulnerability on a spectrum, where varying amounts of stress could elicit psychopathology depending on the individual's level of (in)vulnerability. At the resilient end, for example, a great deal of stress would be needed to trigger psychopathology, whereas less stress would be required at the vulnerable end of the spectrum (Ingram & Price, 2001).

The discussion of vulnerability will now shift to the specific factors that will be used in the present studies: Dependency and Self-Criticism. The rationale for using these personality traits with PTSD is twofold: 1) there is an extensive literature examining these variables in the context of dysphoria, and 2) there are a growing number of researchers who are recognizing that there are similarities between PTSD and depression (see below). With this in mind (coupled with the preliminary studies that have been conducted to date), it was decided to test the utility of Dependency and Self-Criticism in the prediction of PTSD symptoms.

Dependency and Self-Criticism

Scores of vulnerability factors have been suggested to predict the myriad psychological disorders, many of which are founded in childhood, a sensitive (if not critical) period of development. For example, one of the earliest vulnerability factors is the familial environment, and many interpersonal theories of depression emphasize social environment and the development of healthy relationships during these early years (Joiner & Coyne, 1999). Bifulco, Moran, Ball, and colleagues (2002) showed that mothers who are vulnerable to depression transmit their vulnerability to their children. The result of being the child of a vulnerable mother was a fourfold increase in the rate of psychopathology, and a twofold increase in experienced childhood adversity of some sort. Being exposed to erratic parenting has been linked to developing insecure attachment styles (Cummings & Cicchetti, 1990), to which we turn next.

Attachment theory as a precursor to personality traits

Attachment theory (Bowlby, 1969, 1980) describes a system of behavior that ensures the survival of young children by keeping them close to their caregivers, solidified by intensely emotional relationships. Accordingly, young children not in the company of their caregivers may experience negative affect (e.g., separation anxiety, bereavement), moving them to restore proximity to the caregiver. Bowlby (1980) stated that children who have parents who are trustworthy, dependable, accessible, and supportive, will help the child to create models of the self and other in like fashion. Conversely, parents who treat a child with inconsistency and unresponsiveness will likely result in a model of self and other that includes expectancies of abandonment, Self-Criticism, and Dependency. Having the latter cognitive structure makes one increasingly vulnerable to psychopathology upon presentation of stressors (Garber & Flynn, 2001).

Hazan and Shaver (1987) conceptualized three categories of adult attachment style: avoidant, secure, and anxious/ambivalent. Not unlike psychoanalytic theory that came before, Hazan and Shaver asserted that adult interpersonal discourse was based, to a large extent, on the learning experiences with the primary caretaker. Secure individuals were said to exhibit behavior indicative of someone who is comfortable with intimate relationships. They have learned that people can be trusted and are able to risk being emotionally injured for the pursuit of intimacy. Those who are avoidant, evade intimate relationships. They learned from their caretaker(s) that people are not to be trusted and that relationships are dangerous. Finally, anxious/ambivalent individuals likely experienced inconsistent care giving; as a result, they are torn between knowing the benefits of close social contact, and fearing its consequences (Hazan & Shaver, 1987).

Bartholomew and Horowitz (1991) have since added both the *fearful avoidant* and *dismissive avoidant* categories to the nomenclature. Fearful avoidant people acknowledged the importance of close relationships, but fear them too much to meaningfully engage in them. Dismissive avoidant people, on the other hand, do not endorse any understanding of the need for close relationships, and instead value their own autonomy. See below for a brief discussion of how Dependency and Self-Criticism are linked to attachment.

Autonomy and Sociotropy: A Brief Acknowledgment

Specific vulnerability to pathology itself has been proposed to be perpetuated by certain personality traits (e.g., Blatt, 1974) or cognitive factors (e.g., Beck, 1983). While Beck outlined the concepts of sociotropy and autonomy, Blatt has suggested the constructs of Dependency and Self-Criticism (see below). Beck stated that *sociotropically*-oriented people were concerned with approval and acceptance by others; social events have a significant impact on their sense of self-worth, and these individuals are especially sensitive to rejection. Conversely, *autonomous* people place great value on personal accomplishment and reaching specific goals. Failure of personal plans tends to be interpreted as a personal failure, regardless of the level of control they actually had. These vulnerability schemas are acquired in childhood (e.g., Kovacs & Beck, 1978).

Dependency and Self-Criticism: An Overview

Blatt (1974) suggested a typology of depression based on a derailment in the development of object representations and, as a result, the development of dysfunctional

coping mechanisms. He and his colleagues created the Depressive Experiences Questionnaire (DEQ; Blatt, D’Afflitti, & Quinlan, 1976) to measure depressotypic experiences that were unrelated to specific symptoms of dysphoria. Three factors emerged from a principal components analyses of the DEQ: Dependency, Self-Criticism, and Efficacy; only the first two of which were consistent with Blatt’s model of anaclitic (i.e., dysphoria related to the loss of a cathected object) and introjective (i.e., dysphoria related to the internalization of negative attributes) depression. Efficacy, not included in the original theory, involves feelings of satisfaction, independence, and self-confidence. Since their inception, Dependency and Self-Criticism have become the most well-researched constructs in the field of personality and depression (Coyne & Whiffen, 1995), they have been shown to be stable traits rather than transient mood states (Zuroff, Blatt, Sanislow, Bondi, & Pilkonis, 1999), and they have the strongest empirical support for the link with depression of any personality trait (Enns & Cox, 1997).

Upon cursory examination, Dependency and Self-Criticism appear to be similar constructs to sociotropy and autonomy, but there are important differences between them, at least insofar as they are currently measured. Blaine and Kutcher (1991) have found there to be a more substantial relationship between DEQ Dependency and sociotropy, as measured by the Sociotropy and Autonomy Scales (SAS; Beck, Epstein, Harrison, & Emery, 1983) and the Dysfunctional Attitudes Scales (DAS; Weissman & Beck, 1978) than among DEQ measured Self-Criticism and SAS measured autonomy. Blaney and Kutcher (1991) asserted that SAS autonomy might be best conceptualized as “counter-dependency” rather than a quality of Self-Criticism, which is consonant with Beck’s (1983) description of the construct. Further, while the DAS Perfectionism scales

measures contingencies, the DEQ examines an individual's direct assessment of their nature (Rector, Bagby, Segal, Joffe, & Levitt, 2000).

Dependency and Self-Criticism have both been demonstrated to be characterized by insecure social rank, however, they adapt to these states in different ways (Santor & Zuroff, 1997). Specifically, Self-Criticism has been related not only to lower agency, but to fearful avoidant attachment (Zuroff & Fitzpatrick, 1995), while Dependency has been related to submissiveness in laboratory observations (Santor & Zuroff, 1997), and also to anxious attachment (Zuroff & Fitzpatrick, 1995). Each trait influences the nature of the social environments individuals participate in, and the responses that they elicit from others (Blatt & Zuroff, 1992).

While people high on these traits may behave "ordinarily" under common, non-threatening conditions, situations involving stress might trigger such cognitive structures. For example, threats to the self not only affect the feelings about oneself, but they also affect how a person interacts with other people. Significant threats have the potential to increase aggressive behavior and competitiveness, diminish cooperative behavior, and reduce, or at least alter, the quality of interpersonal exchange altogether. Santor and Zuroff (1997; 1998) examined competitive behavior in such a group of people. They found that women scoring highly on Dependency chose to respond as their friend did when they were outperforming them. Further, these women tended to minimize disagreement, going so far as to praise their friend even when they disagreed. Women high in Self-Criticism behaved in the opposite manner; they aggressively staked claim to resources (regardless of the status of their friend), they withheld praise from friends, and they contested threats to their status.

Attachment theory, which is rooted in evolutionary/ethological thinking, is related to Dependency and Self-Criticism in that depression is viewed as a response to loss of rank and perceived inferiority, and the conflict between the pursuits of interpersonal connectedness and rank (Zuroff & Fitzpatrick, 1995). It has been argued that attachment behavior is involved in the elicitation of care-seeking behaviors, and that adult behavior is more consistent with forming and maintaining alliances within a social group (Zuroff, Moskowitz, & Cote, 1999; Gilbert, 1992). People who are unsuccessful in this capacity are vulnerable to depression. People high in Self-Criticism tend to behave less communally and derive less pleasure from communal behavior, which could be seen as an impairment in the alliance formation system (Zuroff et al., 1999). Furthermore, they disclose less emotional material (Zuroff & Fitzpatrick, 1995). Although it is important to develop both self-definition and interconnectedness, over reliance on either one is a marker for vulnerability (Blatt & Zuroff, 1992; Robins, 1995).

There has been controversy surrounding the question of whether or not Dependency and Self-Criticism are orthogonal constructs as they were intended by the original Depressive Experiences Questionnaire (DEQ; Blatt, D'Afflitti, & Quinlan, 1976). While some studies have found non-significant correlations between them (e.g., Blatt, Quinlan, Chevron, McDonald, & Zuroff, 1982), others have found reliable, small to moderate correlations (e.g., Brown & Silberschatz, 1989). Fuhr and Shean (1992) found that the two scales shared 40 % of their total variance. It should be noted, however, that Blatt and colleagues (1982) have argued that severe depression may result from a combination of these types of schemata, thus, from this perspective, having two non-orthogonal factors is not a theoretical concern. Santor, Zuroff, Mongrain, and Fielding

(1997) revised the DEQ (i.e., the McGill Revision), answering some of the critics of the original scale. While preserving the fundamental properties of the scale, the authors used unit-weighted items that best predicted Dependency and Self-Criticism. This resulted in the scale's psychometric properties being improved by creating a scale with two orthogonal factors. The scale has been validated with the BDI and measures of personal striving (e.g., Santor et al, 1997). The unique properties of each of Dependency and Self-Criticism will now be explored.

Dependency

Dependent people have been shown to be anxious in regards to relationships; although people with this trait would very much like to be in intimate relationships, they do not feel confident that they will be safe in them, or that their needs will be met.

Descriptors of this trait usually include such *externally* focused issues, such as: loneliness, helplessness, feeling a need to be reliant on others, and difficulty in managing anger associated with anticipated social loss (Fuhr & Shean, 1992). Despite the strong desire for communion, people of this type will likely be unassertive about their own desires for fear of losing support. As a result, they suffer from intense fears of abandonment, and feeling unprotected and uncared for (Blatt & Zuroff, 1992). In this way, it is evident that there has been a disruption in attachment learning; as mentioned, links have been made to submissiveness and anxious attachment styles (Zuroff & Fitzpatrick, 1995). Likewise, due to a disproportionate need to be accepted, dependent people are unlikely to act in aggressive or assertive ways so as not to be perceived negatively. For example, it has been shown that dependent women are more likely to

behave in a submissive way when in the company of close friends (Santor & Zuroff, 1997), they are less likely to express feeling of hostility (Zuroff, Moskowitz, Wielgus, Powers & Franko, 1983), and they score higher than average on agreeableness (Zuroff, 1994).

Although it was originally shown that the DEQ's Self-Criticism scale had highly significant correlations with symptom-based measures of depression, they only had marginal correlations with DEQ Dependency. Zuroff and Moskowitz (1999) reported that in order to determine differences in communality and agency, Dependency needed to be first broken down into two component parts: *neediness (or dependence)*, the less "mature" form of Dependency, and *connectedness (or relatedness)*. Neediness includes feelings of helplessness, fears and apprehensions about separation and rejection, and concerns about relational loss. Connectedness includes items that have to do with feelings of loss and loneliness in reaction to a disrupted relationship (Blatt, Zohar, Quinlan, Zuroff, & Mongrain, 1995). Neediness predicts lower levels of agency and connectedness predicts communion (Zuroff & Moskowitz, 1999). Moreover, people high on connectedness were less anxious in relationships than those high on neediness, and they were likely not to be agentic so as to avoid hurting others. That is, people high on neediness likely avoid agency to avoid losing needed social support. It has been shown that connectedness is a positive factor that promotes affiliative behavior and actually protects against dysphoric experiences, especially in women (Rude & Burnham, 1995). In contrast, neediness is the important contributor to the variance accounted for between Dependency and dysphoria (Blatt et al., 1995).

It is possible, then, that within the context of traumatic life events, people who score high on Dependency might be particularly vulnerable to the disruptive effects of these events. This might be especially true if they are interpreted to be a threat to interpersonal connectedness. Although it is known that negative life events trigger depression (see below), because these events are *traumatic* in nature, it is of theoretical interest whether they would develop into symptoms of PTSD as well as symptoms of dysphoria.

Self-Criticism

Just as Dependent people are ambivalent about relationships, so too are Self-Critical people. However, unlike dependent people, they do not have an intense fear of abandonment, but rather, they have a strong desire for acceptance, approval, and respect; they fear losing face, independence, and control (Blatt & Schichman, 1983). Additional descriptors of this trait are generally *internally* focused concerns: guilty, empty, hopeless, threatened by change, and blameworthy (Fuhr & Shean, 1992). Self-Critical people are conceptualized as being afraid of expressing warmth, and indeed, their emotions and thoughts in general, due to the possibility of rejection and/or disapproval. As a consequence of this style of relating, they would be most clearly linked to the fearful-avoidant style of attachment and resultant behavioral strategies; this has been demonstrated via self-report measures (Zuroff & Fitzpatrick, 1995). Further, college students have been found to pursue less intimate and affiliative contact (Mongrain & Zuroff, 1994), and they have scored low on agreeableness (Zuroff, 1994). Zuroff and Moskowitz (1999) found that self-critical people were low in both trait-based and

behavior-based measures of communion. It is not clear as to whether Self-Criticism is related to agency in any consistent way. However, people of this type do evidence significant submissive, and combative behavior. It was also found that communal and agentic behavior is negatively related to positive affect for these individuals (Zuroff and Moskowitz, 1999). The authors speculated that this negative relationship exists due to the fear of being hurt, and of “retaliation” by the other person in the interaction. Zuroff and Moskowitz (1999) also found Self-Criticism to be associated with low average level of positive affect and high average levels of negative affect. In fact, Self-Criticism has been shown to be consistently and significantly related to depressive severity with student and patient samples (see Nietzel & Harris, 1990 for a review).

As stated above with Dependency, it is of theoretical interest whether or not Self-Criticism might be linked to the development of PTSD symptoms subsequent to the experience of a traumatic life event. Again, if the traumatic event was interpreted as a threat to status, then this vulnerability factor might be triggered and symptoms might result.

Models of Linkage between Dependency, Self-Criticism, and Depression

Since this is a *vulnerability* model, these traits have been thought of as a *diathesis* for depression; that is, being high on Dependency and Self-Criticism, coupled with a stressful life event, will trigger a depressive episode (Brown & Harris, 1978). These traits would remain latent until a certain intrusion coaxes them into activity (Kovacs & Beck, 1978). For example, a stressful event can frequently lead to depressotypic thinking, and to a change in behavior (Zuroff & Mongrain, 1987). Santor, Pringle, and

Israeli (2000) argued for the need for an expanded vulnerability model, which would include mood, cognition, and behavior. Behavior could be widely defined; it could be the moment to moment interpersonal exchanges, or it could be the end result of such micro-behaviors, such as how one functions in the main spheres of life: for example, work/school performance, omnibus assessments of the degree to which one is successful at the navigation of interpersonal conduct, and self-care.

Events are theorized to trigger the diathesis via the congruency hypothesis (see below). However, it has been argued by Coyne and colleagues (e.g., Coyne & Whiffen, 1995; Coyne, Gallo, Klinkman, & Calarco, 1998) that Dependency and Self-Criticism may serve as outcomes rather than vulnerability factors of depression. Specifically, in the “*scar*” model, it is purported that Dependency and Self-Criticism would develop as a result of depression. Evidence surrounding this hypothesis is sparse (Shahar, Blatt, Zuroff, Kuperminc, & Leadbeater, 2004). It has also been proposed that the vulnerability and scar models are not mutually exclusive. These traits could lead to depression, and, over time, depression could lead to a fortification of the traits themselves. This latter model is called the *reciprocal-causality model*. Using structural equation modeling, Shahar and colleagues (2004) showed that there was support for this model, but only involving Self-Criticism among girls. Thus, there was evidence to suggest that depression and Self-Criticism influence each other over time in early adolescent girls.

The Congruency Hypothesis: Connections between Personality and Negative Life Events

The originators of the *congruency hypothesis* (Beck, 1983; Blatt, Quinlan, Chevron, McDonald, & Zuroff, 1982) assert that specific events activate specific

vulnerabilities. Life events that match an individual's latent schema activate that schema, and thus, it is more likely to lead to dysphoria than those negative events that are incongruent with the schema of the individual. For example, a threat to status or achievement to a dependent individual might not directly lead to dysphoria unless there was some chance the event could result in a loss of connectedness. Analogously, a threat to interpersonal relatedness towards a Self-Critical person might prove equally ineffective. Support for this theory is mixed (e.g., Clark et al., 1999). There are many studies that either fully or partially support it (Hammen & Goodman-Brown, 1990; Luthar & Blatt, 1995; Little & Garber, 2000), and others that have failed to find any support for it (e.g., Bagby, Segal, & Schuller, 1995; Smith, O'Keefe, & Jenkins, 1988). Those that do not fully support the hypothesis have found that Dependency is generally related to events that threaten interpersonal relatedness (e.g., Robins, Bock, & Peselow, 1990; Lakey & Ross, 1994), whereas Self-Criticism has been more inconsistently found to be related to achievement oriented disruptive events. However, there are some studies that have supported that Self-Criticism alone is related to events that threaten achievement or status (e.g., Segal, Shaw, Vella, & Katz, 1992). A recent study showed that when asked to recall the most stressful event in the past year, high school students who were high on Dependency recalled an interpersonal event while Self-Critical participants recalled a threat to autonomy (Abela, McIntyre-Smith, & Dechef, 2003).

Rotter (1954) has suggested that the structures activated could be related to the personal need that was threatened by the event. Subjectivity is inherent to this idea; different events may threaten the same need, while one event may threaten more than one need, depending on interpretation. The alternative is that certain events affect all people

in the same way, or at least similarly. Accordingly, a recent study (Voyer & Cappeliez, 2002) attempted to disentangle the effects of the congruency hypothesis by including another variable: the individual's own appraisal as to the nature of the negative event (i.e., whether the event was a threat to connectedness or to status). Previous research had classified the events *a priori*, thus not accounting for the idiosyncratic taxonomies of the participants. Using the Dysfunctional Attitude Scale (DAS), they were able to show that Dependency schemas and subjectively judged threats to interpersonal connectedness predicted the relapse of depression in a geriatric sample. Although they revealed a trend towards a connection between self-critical schemata and subjectively defined threats to autonomy, the relationship was not significant. Interestingly, it has been shown that repeated depressive episodes may increase the broadness of activation of depressotypic schemas. That is, multiple episodes work in a sort of "kindling" model where more, and perhaps less severe events, trigger information processing methods that are characteristic of dysphoric states (Clark, Beck, & Alford, 1999; Ingram, Miranda, & Segal, 1998).

Summary: The Scope of Dependency and Self-Criticism and their Potential Usefulness in the Trauma Literature

Dependency and Self-Criticism are personality traits that have shown their usefulness in predicting who will become depressed under what circumstances; they have the strongest link with depression of any personality trait (Enns & Cox, 1997). Dependent people are anxious in regards to relationships even though they would like to be involved with them. They are typically lonely, unassertive, anxiously attached, and focused on social losses. Dependency is composed of two parts: neediness, the

“immature” part of the trait that is associated with fears and apprehensions concerning relationships, and connectedness, the “mature” part, which is associated with a desire to connect with other people. While the former has been linked to negative behavioral and emotional consequences, the latter has been shown to be protective. It is thought that events that represent a threat to interpersonal connectedness trigger latent Dependency and lead to dysphoria. People high on Self-Criticism are also anxious about relationships, but they have a strong need for acceptance, independence, and control. They fear rejection, and are thus hesitant to take risks in the interpersonal realm; they are said to have a fearful-avoidant attachment style. These individuals are status driven, and thus, threats to interpersonal status are thought to trigger latent Self-Criticism and lead to dysphoria.

People high on Dependency and Self-Criticism may experience significant difficulty in their lives, either as a result of damage accrued by the receipt of something negative from outside, or as a result of their behavior giving rise to negative events (see below for a discussion on the mediating and moderating effects of these traits).

Unsatisfying and/or inappropriate social interactions have many implications for a vulnerability model. Data have demonstrated that people who are high on Dependency and Self-Criticism are more likely to experience stressful life events (Mongraine & Zuroff, 1994). Their adaptation to these events becomes problematic since help seeking behavior and emotional expression would be impaired or unsatisfactory due to low levels of communion behavior (Moskowitz & Zuroff, 1991).

Personality traits such as these are important to the area of vulnerability to the potentially deleterious effects of trauma. Interpersonal models would suggest that a

disruption of the social support system is a vital link in understanding how an individual becomes depressed. The imposition of a traumatic life event could act as a trigger of cognitive structures and/or coping methods. Reactions would differ depending on the specific nature of the trauma and the subjective perception of how the trauma could potentially affect one's perception of the self, or the status of personal relationships. In essence, a cascade of reactions takes place: events trigger cognitions, cognitions trigger behavior. Although studies have examined the links between Dependency, Self-Criticism, depression, and life events in a general way, there have been few studies which have examined the link between these traits and traumatic events. In the following sections, traumatic life events and their effects will be discussed, and then a synthesis of the Dependency and Self-Criticism and trauma literatures will be attempted.

III) Traumatic Life Events and their Consequences

Life Events and their Effects

The vulnerability literature has repeatedly shown that adverse experiences during one's early years have the potential to derail the developmental process. Evidence of this foundational notion extends from animal models to complex longitudinal human-based data. It has been long known that interactions with the environment can change the structural organization of the cortex, coping styles, neuroendocrine responsiveness to stress, social skills, central nervous system reactivity, gene expression, cognitive functioning (Sanchez, Ladd, & Plotsky, 2001) and the psychobiological development of mood and anxiety disorders (Heim, 2001). These physiological changes that result from

exposure to the environment may help to decide whether or not someone is vulnerable to future events.

The Nature and Importance of Traumatic Events

Life events need not necessarily be considered “traumatic” to affect an individual (e.g., Brown & Harris, 1978; Kovacs & Beck, 1978). However, according to the DSM-IV-TR (APA, 2000), traumatic events are those events that 1) involve actual or threatened death or serious injury, or a threat to the physical integrity to the individual personally or someone whom they know, and 2) the event is responded to with intense fear, helplessness, or horror. In children, this latter quality can be replaced with agitated or disorganized behavior. PTSD is a condition that *may* follow exposure to an event that conforms to the above criteria. This disorder is characterized by symptoms of re-experiencing the event (such as in nightmares, intrusive thoughts, and physiological reactions), avoidance of stimuli that reminds the individual of the event, emotional numbing, and other symptoms such as hyper-arousal, irritability, and sleep disturbance (APA, 2000). It has been shown that this disorder is not culturally bound (e.g., Ruchkin, Schwab-Stone, Jones, et al., 2005).

Vulnerability to PTSD is one of the most important topics in the area of traumatology (Yehuda et al., 1998). An important goal of this research is to identify people who have experienced traumas and predict who will require assistance so as to provide treatment to those who require it versus treating those who do not. Caution is warranted, as there are people who experience trauma who not only do not require assistance, but who may also actually be harmed by such interventions (Rose, Bisson, &

Wessely, 2002). Conversely, there is evidence that not receiving *any* form of support following a disaster (i.e., not necessarily related to mental health) is linked to a greater number of PTSD symptoms than those who have experienced a more severe event but who have received support (Wang, Gao, Shinfuku, Zhang, Zhao, & Shen, 2000). Thus, there should be two main goals of the assessment of trauma: the first is to be efficient and efficacious in the administration of treatment, and the second should be the avoidance of harm towards those who do not require or want psychological/psychiatric treatment. A first step in accomplishing these goals is determining which factors predict who will eventually develop psychopathology or experience a reduction in functioning that is related to trauma.

The documentation of the deleterious effects of trauma and PTSD is extensive. For example, data demonstrate that adolescents who meet criteria for PTSD are likely to experience comorbid psychopathology (e.g., Lipschitz et al., 1999; Wozniak, Crawford, Biederman, Faraone, Spencer, Taylor, & Blier, 1999; Deas et al., 1998), be misdiagnosed (Berenson, 1998), engage in serious risk-taking behaviors (Meester et al., 1998), receive lower grades and higher parental reports of behavioral difficulties (Jurgens et al., 1996), and manifest insecure attachment styles (Allen et al., 1996). Interestingly, the experience of trauma does not always lead to serious effects.

The Prevalence of PTSD versus Traumatic Experiences

Antiquated conceptualizations of PTSD define the condition as a normal reaction to an abnormal situation, attributing the causal priority to the traumatic event itself rather than focusing on vulnerability factors (DSM-III; American Psychiatric Association,

1980). In this conceptualization, a traumatic stressor was one “that would evoke significant symptoms of distress in almost everyone” (p. 238). It has since been shown that this is not the case, as existing research suggests that the prevalence of traumatic events far exceeds the prevalence of PTSD (e.g., Bowman, 1999; Yehuda & McFarlane, 1995). Recent editions of the DSM have rectified the situation by redefining the stressors to be more consistent with subjective value (DSM-IV; APA, 1994; DSM-IV-TR; APA, 2000).

Breslau and colleagues (1991) found that nearly 40% of their sample of urban young adults experienced a clinically significant trauma, while 60.7% of men, and 51.3% of women in Kessler and colleagues’ (1995) study were similarly exposed. Vrana and Lauterbach (1994) found that 84% of the first year university students in their sample had experienced at least one life event that would qualify as a “trauma” according to formal diagnostic criteria, and the DSM-IV PTSD field trials showed that 93% of their community sample were exposed (Kilpatrick, Resnick, Freedy, Pelcovitz, Resick, Roth, & van der Kolk, 1991). Further, clinical data suggests that most adolescent inpatients (81%) have experienced a traumatic event, linking traumatic events with psychopathology in an as yet unspecified direction of causality (Weine et al., 1997).

Epidemiological data suggests that PTSD exists in only about only 1-3% of the general population (Cuffe, Addy, Garrison, et al., 1998; APA, 2000) which stands in stark contrast to the incidence rates observed for the events themselves. There is variation in these estimates, however. Amongst the various studies, 23.6% of exposed participants developed PTSD in Breslau and colleagues’ (1991) study, 8.2% of exposed men and 20.4% of exposed women developed PTSD in NCS study (7.8% overall; Kessler

et al., 1995), and 10.3% of exposed people in the DSM-IV field trial developed PTSD (Kilpatrick et al., 1991).

Breslau, Kessler, Chilcoat, Schultz, Davis, and Andreski (1998) found that within the various types of traumatic events, the conditional probability of developing PTSD was highest following assaultive violence (20.9%), but the largest proportion of people with PTSD in the community (31%) was in those individuals following the unexpected death of a loved one, something that 60% of the sample experienced. Cuffe and colleagues (1998) found that rape and childhood sexual abuse, and witnessing an accident or medical emergency were associated with increased rates of PTSD. Kessler and colleagues (1995) found that combat exposure in men, and sexual molestation among women were the events most likely to lead to PTSD. Using a longitudinal design to follow a group of adolescents who were involved in a cruise ship disaster, Yule, Bolton, Udwin and colleagues (2000) found that 51.7% had developed PTSD at some point since the disaster, 30% of whom recovered within the first year. Using the same sample, Bolton, O’Ryan, Udwin and colleagues (2000) showed high comorbidity rates with anxiety and affective disorders; over 80% of participants with PTSD also had another diagnosable disorder. Following Hurricane Hugo, Shannon, Lonigan, Finch, and Taylor (1994) found that 5% of children surveyed met criteria for PTSD; the younger the child, the more likely they were to develop symptoms. They also found that trait anxiety and emotional reactivity were most predictive of the development of symptoms (Lonigan, Shannon, Taylor, Finch, & Sallee, 1994).

Less clear is the epidemiology of multiple traumas (Pfefferbaum, 1997), and the prevalence rates in children and adolescents (Malcarne & Hansdottir, 2001), although

there is evidence that experiencing multiple traumas increases one's risk for the development of PTSD, especially among males (Deykin & Buka, 1997). The issue of multiple traumas will be addressed next.

The Effects of Multiple Traumatic Experiences

Although there remains a paucity of data on the subject in young people, some specific information has emerged regarding the effects of cumulative trauma over time. It has been argued that trauma at an early age, followed by re-traumatization can lead to augmented responses later in life which serve as a vulnerability factor for the development of psychopathology and related problems (Yehuda et al., 2001). Specifically, Dyl (2002) showed that chronic sexual and physical abuse which occurred in childhood, combined with a large number of traumatic events significantly impairs ego development (i.e., as measured by the Sentence Completion Test) into adulthood. Further, Wonderlich and colleagues (2001) showed that repeated childhood sexual abuse had a significant impact on personality in adulthood as compared to groups that had experienced rape/sexual assault as an adult and those who had no sexual assault. Moreover, they demonstrated that the additive effects of childhood sexual abuse and abuse as an adult were negligible in terms of measures of personality. In a study of adolescent girls in the community who had experienced prolonged and repeated exposure to multiple traumas, it was found that an increased number of violent events was positively correlated with symptom criteria for PTSD and severity scores (Horowitz, Weine, & Jekel, 1995).

In adults, Cardozo and colleagues (2000) found that cumulative life events were predictive of increased symptom development and a decline in social functioning in a group of ethnic Albanians 15 years and older. Messman-Moore and colleagues (2000) also found support for the cumulative effect of trauma but not for the differential effects for child to adult revictimization. In this sample, women who had been revictimized and had multiple adult assaults were found to have more difficulties than those women who only reported one form of adult abuse or no victimization. Women who had experienced childhood sexual abuse were similar in their symptom profiles to those who had been revictimized as an adult. Women with multiple sexual assaults were more likely to experience PTSD related symptoms than those with adult physical abuse alone.

There is evidence to suggest that women who have been the victim of childhood sexual abuse are more likely to experience additional traumatic experiences in the future. In particular, Nishith, Mechanic, and Resick (2000) found that the women who had experienced childhood sexual abuse were more likely than average to experience a sexual assault once again in the future. That is, the authors proposed that CSA was a vulnerability factor for future sexual assault; it also contributed significantly to the number of PTSD symptoms present in conjunction with other adult traumatic events. In a related way, Stevens and colleagues (1999) found that members of the police department were more likely than average to have multiple past violent traumatic events; their joining the police force puts them at risk for experiencing further traumatic events. Further, the study revealed that the individuals with more traumatic events were among the first to leave the job. Using the Personality Diagnostic Questionnaire –Revised, Lauterbach (2001) found that people who had more traumatic events (i.e., > 5) had

significantly higher elevations on antisocial, borderline, and narcissistic personality versus those people with fewer events.

As alluded to above, trauma and negative life events are linked to other psychological disorders. The following brief sections will examine the connections between life events and depression, depression's connection with PTSD, and the connection between trauma and alcohol. As these are variables in the present studies, it is important to understand how they are linked.

Stressful Life Events and MDD

The research has demonstrated a clear link between stressful life events and depression in both adults (e.g., Brown & Harris, 1989) and children (e.g., Compas, Grant, Ey, 1994). Conclusions are less clear regarding depression following discrete events, such as individual disasters, but it is clearer regarding cumulative negative life events (Compas et al, 1994). Retrospective studies have found that amongst people who are presently depressed, they tend to have more stressful life events in the past year than non-depressed people (Williamson, Birmaher, Anderson, Al-Shabbout, & Ryan, 1995). Prospective studies have also shown that, when following children and adolescents, those with the greater number of events are the ones more likely to become depressed while controlling for prior depressive symptoms (e.g., Leadbeater, Kuperminc, Blatt, & Hertzog, 1999), over months (Wagner, Compas, & Howell, 1998), and over years (Velez, Johnson, & Cohen, 1989).

In a review of adult community studies, approximately 70% to 95% of depressed people had severe life events in their past, as compared to 25% to 40% of non-depressed

people (Brown & Harris, 1989), which suggests that the majority of depressions may be triggered by negative life events. Even when these individuals are not depressed, they tend to be involved in interactions that are conflicted, stressful, and disruptive (Davila, Hammen, Burge, Daley, & Paley, 1995). There seems to be an association between the number of depressive episodes and the pathogenic effect of stressful life events, however (Kendler, Thornton, & Gardner, 2000). For episodes zero through nine, the effects of stress become progressively weaker and thereafter asymptotes. In an attempt to discern whether different rates of stressful life events could explain the greater frequency of MDD in women, Kendler, Thornton, and Prescott (2001) found that although women identified more interpersonal stressors, and men reported more work-related and legal stressors, most life events influenced both genders equally. As well, this study found rates of stressful events roughly equivalent between genders.

The connection between life events and depression is an established one. It is also known that these events trigger the cognitive schemas Dependency and Self-Criticism, in a specific fashion depending on their congruency. If this is the case, the question becomes: what is the connection between PTSD and MDD?

Linking PTSD and MDD

Recent research suggests that vulnerability subsequent to the presentation of a traumatic life event is uniform in nature, that is, there do not seem to be different vulnerability factors for those who develop PTSD from those who develop depression, as the two disorders appear to co-exist (Breslau et al., 2000). In fact, in a study that looked at 1st degree family members of rape victims who developed PTSD, it was found that

there was a familial vulnerability to major depression (Davidson et al., 1998). The authors speculated that PTSD could be a form of major depression brought on by extreme stress; they suggest that this linkage should be explored with other types of traumatic events. However, it has also been shown that major depression develops subsequent to PTSD remission at the same rate as it does subsequent to the amelioration of other anxiety disorders and that pre-existing major depression can act as a vulnerability factor for the development of PTSD symptoms (Breslau et al, 1997). This has also been shown in recent studies of natural disasters, where depression and PTSD have been shown to be the most significant reciprocal predictors (Roussos, Goenjian, Steinberg, et al., 2005). Given that there may be a common vulnerability present, it is therefore of theoretical interest as to whether or not Dependency and Self-Criticism might have a predictive role in determining who experiences pathological posttraumatic stress subsequent to a traumatic event.

Alcohol and Trauma

Substance use disorders occur relatively frequently in conjunction with the anxiety disorders and with mood disorders, and 53% have a co-morbid disorder of any sort (Regier, Farmer, Rae et al, 1990). Co-morbid rates for PTSD and lifetime prevalence of alcohol abuse or dependence range from 68% to 82 % (Hyer, 1993), and in 32.5% of individuals with MDD (Grant & Harford, 1995). Kilpatrick and Resnick (1993) reviewed data from a large national probability sample and found that those women who had PTSD and had experienced a violent crime were 3.2 times more likely to have a serious alcohol problem than those women who did not have PTSD subsequent to a violent crime, and

those who did not experience a violent crime. In addition, it was shown that the extent of exposure to a natural disaster and subsequent degree of PTSD symptoms was associated with binge drinking in adolescents (Schroeder & Pulusny, 2004). Further, as many as 72% of adolescents with an alcohol use disorder use multiple substance, most commonly alcohol plus either marijuana or hallucinogens (Martin, Kaczynski, Maisto, & Tarter, 1996). As well, alcohol abuse/dependence very commonly develops in women after they have been sexually assaulted (Winfield, George, Swartz, & Blazer, 1990). It has been suggested that women who were sexually abused who have alcohol dependency may drink to reduce their avoidance of sexual activity due to sex being a reminder of the trauma (Skorina & Kovach, 1986). PTSD symptoms have been proposed to mediate the relationship between the experience of trauma and the abuse of alcohol, as symptoms are more strongly related to alcohol abuse than exposure to trauma or trauma severity (Stewart, 1996).

The discussion will now shift to what has been shown to be the most severe of traumatic events: sexual assault in women. The following sub-section will document the difference in prevalence rates in women and men in PTSD, establish the prevalence rates of rape and sexual assault in general, document some of the risk factors for the development of symptoms following exposure, and briefly discuss the link between sexual assault and psychopathology.

Sexual Assault: A Specific and Severe Traumatic Event in Women

Prevalence Rates for PTSD by Gender

Women have been shown to experience PTSD more frequently than men (e.g., Breslau et al., 1991; Breslau et al., 1997; Stein, Walker, Hazen & Forde, 1997). Although the prevalence of PTSD is five to six times more likely in women, the prevalence of single and multiple traumatic events is higher in men (Breslau et al., 1991, 1997; Norris, 1992; Kessler et al., 1995; Stein et al., 2000; Davis & Siegal, 2000), and two times higher adjusting for trauma type (Breslau, Chilcoat, Kessler, Peterson, & Lucia, 1999). Even when the type of traumatic event is held constant, women still have a higher risk of developing PTSD (Kessler et al., 1995; Stein et al., 2000). However, the data are mixed as to whether or not men and women experience different rates of various traumas (e.g., Giaconia et al., 1995). Stein and colleagues (2000) showed that assaultive trauma was more likely to lead to symptoms of PTSD than was non-assaultive trauma and that women are more at risk than men following assaultive trauma.

Rape as a Severe Traumatic Event

Rape is estimated to be the most powerful event-related risk factor for the development of PTSD (McNally, 2001; Yule et al., 2000). Breslau and colleagues (1991) found that it is experienced by 1.6% of women, with 80% going on to develop PTSD at some point in their lives. The NCS study also demonstrated that rape is the most consistently traumatic stressor, with both men and women citing the rape as the most distressing event that they ever experienced (Kessler, Sonnega, Bromet, Hughes, &

Nelson, 1995). This study also found that rape was more common than Breslau and colleagues (1991): 9.2% of women and 0.7% of men. Thus, women are more likely to experience this event, but rape is just as likely to produce PTSD in men and women (Deykin & Buka, 1997), perhaps even more so for men (65% for men vs. 45.9% for women as reported in Kessler et al., 1995). The NCS showed that for people with PTSD in their study, the most common associated events were: 29.9% of women subsequent to rape, and for men, 28.8% after combat (Kessler et al, 1995). Also, Lipschitz and colleagues (1999) showed that sexual abuse was the most common traumatic stressor in 69% of cases with PTSD in hospitalized adolescents.

Giaconia and colleagues (1995) found that rape victims were eight times more likely to show symptoms of avoidance and numbing , 12 times more likely that the symptoms have persisted for more than one month, and 7 times more likely to meet all DSM-III-R criteria for PTSD than people who had other traumas. In comparison, other high magnitude events, such as non-sexual assault, results in PTSD in only 22.6% of the cases, and only 24% of those who had been exposed to other types of traumatic events (Breslau et al., 1991).

Childhood Sexual Abuse

Using path analysis, researchers showed that Childhood Sexual Abuse (CSA) is an important risk factor to predict episodes of depression in women (Gladstone, Parker, Mitchell, Malhi, Wilhelm, & Austin, 2004). There are few studies which examine the occurrence of multiple abuse types within individuals, but one study showed that among those with any sort of maltreatment as children, more than one third of the victims

reported that they experienced multiple forms of maltreatment (Edwards, Holden, Felitti, & Anda, 2003). In turn, the more types of abuse, the worse mental health scores were. MacMillan and colleagues (2001) showed that a history of abuse in childhood increases the likelihood of lifetime psychopathology, and that this connection is stronger for women. Specifically, men and women with physical abuse had an increased risk of anxiety disorders, alcohol abuse/dependence, and antisocial behavior. Women had a higher risk of depression and illicit substance use. CSA was associated with higher rates of all considered disorders, but for men, it was only associated with alcohol related disorders (MacMillan et al., 2001).

Child sexual abuse appears to increase the chances of experiencing victimization as an adult, and furthermore, vulnerability to PTSD following adult victimization (Nishith et al., 2000). In a group of 92 sexually abused children, it was shown that 43.9% met DSM-III-R criteria for PTSD (McLeer, Deblinger, Hendry, & Orvaschel, 1992). All of the children who met criteria for PTSD were abused by adults, and none of the children who were abused by another child met criteria. No correlation was found between the length of time that had elapsed and the presence of PTSD. In a controversial meta-analytic study, Rind, Tromovitch, and Bauserman (1998) asserted that the data from various studies were at best inconclusive in regards to the impact that CSA has on adult psychopathology. The study showed that the college students were slightly less well adjusted than average, but this effect was confounded with family environment, and CSA became non-significant when familial environment was controlled for. They concluded that the public's belief in the severity of CSA is unwarranted. Several authors criticized this work, citing poor choice of samples, an overly inclusive definition of CSA,

inaccurate reporting of the original data, and that they committed numerous methodological errors (Dallam, Gleaves, Cepeda-Benito, Silberg, Kraemer, & Spiegel, 2001; Ondersma, Chaffin, Berliner, Cordon, & Goodman, 2001).

Sexual Assault: Broader Inclusion

Some data suggest that sexual assault in general (i.e., not necessarily rape, per se) is more common than was once thought, being experienced by approximately 13% of women over the age of 18 (Roth et al., 1990). Santello and Leitenberg's (1993) estimate was higher; they found that sexual assault by an acquaintance was actually experienced by 26% of undergraduates since the age of 16. Among women who have been sexually assaulted, prevalence rates of PTSD are as high as 80% in a community sample of urban adolescents (Breslau et al., 1991), and 70% in a retrospective analysis of women aged 10-71 (Bownes & O'Gorman, 1991), to the lower end at 32% (Resnick et al., 1993). While the majority of women who have survived rape will experience transient anxiety symptoms, there are some victims who will continue to have chronic difficulties (Hanson, 1990; Resick, 1993). More specifically, it has been shown that at 3 months post incident, rates of PTSD can be as high as 48% in rape victims, versus 25% in non-sexual crime victims (Foa, 1997). Symptom severity of PTSD have been shown to decline significantly over the course of three months following the incident, but initial severity is significantly related to the severity at three months (Valentiner, Foa, Riggs, & Gershuny, 1996). PTSD symptoms following rape have been shown to be as high as 94% one week following the event, declining to 65% at week four, and 47% at week 12; those participants who did not meet criteria for PTSD at the three-month mark improved

steadily over time (Rothbaum, Foa, Riggs, & Murdock, 1992). To our knowledge, there are no existing data on the frequency of sexual assault or rape in Nova Scotia.

Predictive Factors Associated with Sexual Assault

Risk factors for PTSD following sexual assault have included history of depression, alcohol abuse, or experienced injury during the attack (Acierno, Resnick, Kilpatrick, & Saunders, 1999). Life threat and physical injury has been shown to discriminate PTSD status. That is, greater physical injury and a threat against one's life make it more likely that one will develop PTSD (Epstein et al., 1997). Moreover, dissociative symptoms, which are related to prior sexual assault as a child, predict PTSD symptoms following assault as an adult (Dancu et al., 1996). Further, relational capacity has been shown to be a significant factor in explaining persistent PTSD symptoms in women (aged 17-47 yrs) who have been raped (Regehr & Marziali, 1999). Also, if a woman was raped in a previously deemed "safe" location, and if she was assaulted by a "dangerous" individual, she is more likely to develop PTSD (Cascardi, Riggs, Hearst-Ikeda, & Foa, 1996). When looking at the effects of multiple cumulative assaults, it was found that child sexual abuse and adult victimization are equal in terms of generating symptoms in adult women, and in turn, these women were worse off than those women with only one assault or no assault (Messman-Moore, Long, & Siegfried, 2000). Rape survivors have been shown to be lower than controls on self disclosure (Miller, Williams, & Bernstein, 1982; Resick, 1983), and have poorer social adjustment than controls (Cohen & Roth, 1987; Wyatt & Notgrass, 1990).

People who have experienced rape were more likely to be alexithymic than were comparison subjects, while ratings of alexithymia increased with additional episodes of violence indicating that it is more likely following repeated trauma (Zeitlin, McNally, & Cassiday, 1993). An internal Locus of Control has been shown to be related to less depression and better long-term recovery (Regehr, Cadell, & Jansen, 1999) following rape. Enduring beliefs about long-term competence was related to better outcomes (i.e., mood and recovery from traumatic reactions) in this group.

Conversely, early life experiences in general appear to foster resiliency in young women who have experienced rape. Women who have had positive life experiences prior to the sexual trauma were generally better able to activate their supports, and were better at coping than were those people who said that they had negative life experiences prior to the sexual assault (Reghr et al., 1999). Positive experiences in the past were predictive of positive views of the self and others, while negative experiences predicted the reverse. Once again, social support is demonstrated to be an important variable that predicts outcome subsequent to trauma.

The predictors of symptom development in those who have experienced trauma in general will now be discussed.

Predictive Variables for PTSD Previously Identified

There are multiple possible pathways where trauma is concerned. In addition to the convention “trauma leads to psychopathology” pathway, psychopathology can lead to additional trauma, or make one more vulnerable to the effects of trauma. For example, it has been shown that people who have experienced child or adolescent physical or sexual

abuse had an earlier onset of Bipolar disorder, more Axis I and Axis II disorders, a higher rate of suicide attempts, and more psychosocial stressors when compared to a group of people who have not had this experience (Leverich et al., 2002). Further, it has been shown that early childhood neglect and abuse can dysregulate the normal stress response which leads to enhanced vulnerability to psychopathology, specifically substance abuse disorders (De Bellis, 2002). Lysaker and colleagues (2001) showed that adults diagnosed with schizophrenia who had been sexually assaulted during childhood had higher scores on the “N” scale of the NEO PI (i.e., a vulnerability for experiencing emotional turmoil), did not possess the skills necessary for building and maintaining intimacy, and experienced poorer role functioning.

Individual vulnerabilities appear to play an important part in the prediction of PTSD (Silva, Alpert, Munoz, et al., 2000). Accordingly, there have been many studies that have attempted to identify which variables are successful in the prediction of PTSD and PTSD symptomatology. Variables examined include those that predate the traumatic event, those that were concurrent with the event, and those that post-dated the event. In a large retrospective community study of metropolitan Detroit, Breslau, Davis, Andreski, and Peterson (1991) found that gender, extraversion, neuroticism, less than a college education, history of childhood conduct problems, and a family history of psychiatric disorder increased the chances that someone would be exposed to a traumatic event. Following up on their participants three years later, only extraversion and neuroticism continued to predict exposure, while education, race, and gender were reduced to marginal predictions (Breslau, Davis, & Andreski, 1995).

Other predictive variables include: life threat and parental psychopathology (Green, Korol, Grace, et al., 1991), low social support (e.g., Boscarino, 1995), family instability and pre-military traumatic events (King, King, Foy, & Gudanowsky, 1996), family or personal history of mood and anxiety disorders, childhood separation from parents (Breslau et al., 1991), having a parent who survived the Holocaust (Yehuda, Schneidler, Wainberg, Binder-Brynes, & Duvdevani, 1998), severity of injury and emotion-focused coping styles (Jeavons, 2000), problem-oriented coping (Schnyder, Moergeli, Klaghofer & Buddeberg, 2001), assaultive trauma versus non-assaultive trauma in women (Stein et al., 2000), lower intelligence (Silva et al., 2000; McNally & Shin, 1995), lower levels of education, and more stressful life events in the six months subsequent to the traumatic event (Epstein et al., 1998), drug abuse and having parents who were treated drug abusers (Deykin & Buka, 1997), high PTSD symptom levels immediately post motor vehicle accident (Zatnick, Kang, Muller et al., 2002), negativism, somatization, and psychopathology as measured by the Dutch version of the MMPI (Bramsen, Dirkzwager, & van der Ploeg, 2000), pre-military personality as measure by the MMPI (Schnurr, Friedman, & Rosenberg, 1993), attentional bias (Pine, Mogg, Bradley, et al., 2005), and even elevated heart rate shortly after the event (Shalev, Peri, Canetti, & Schreiber, 1996).

Complicating matters, Silva and colleagues (2000) demonstrated that the presence of PTSD at different time periods was associated with different variables at each period. At three months, highest expectations of death and emotion-focused coping predicted symptoms; at six months, emotion focused coping, self rated injury, and history of psychiatric illness (i.e., anxiety) were important; finally at 12 months, emotional-focused

coping, fear and distress experienced about the accident, and time spent in the hospital were effective predictors of PTSD.

Despite the large number of studies testing myriad risk and vulnerability factors, for the most part, studies have been inconsistent and heterogeneous in their examination of predictive variables (Brewin et al., 2000). A meta-analysis of the risk literature by Brewin and colleagues (2000) revealed a number of reliable factors that predict PTSD. Variables that were present before the event took place included: female gender, social, educational, and intellectual disadvantage, psychiatric history, and previous adversity. However, these effect sizes were small when compounded; larger effect sizes were found for variables temporally situated during and after the trauma took place. The three most powerful predictors of PTSD were found to be severity of the trauma, lack of social support, and more subsequent life stress. Finally, the effect size for younger age at trauma was greater among men than women.

Other important data generated from the meta-analysis include a warning about the generalizability of predictive models to all populations. While certain factors may be adequate predictors in some groups, they may fail in others. For example, female gender lost its effect in military samples, while experiencing trauma at an earlier age was only significant for military samples.

Brewin and colleagues (2000) concluded from their analyses that pre-trauma variables might be useful insofar as are related to the responses to the trauma and trauma severity that increases the risk for PTSD. The authors suggest that it may be more efficacious to investigate proximal predictors rather than distal predictors. For example, Epstein and colleagues (1998) found that stressful events experienced subsequent to an

air disaster predicted the development of PTSD. Further, they suggest creating a model of aggregated variables.

Summary: The Impact of Trauma

The impact of trauma can be severe. The literature is replete with studies documenting co-morbid psychopathology, risk taking behavior, poor scholastic functioning, and behavioral problems, amongst others. Despite the high prevalence of traumatic life events (i.e., approximately 84%), people who experience trauma react in myriad ways; the effects range from being frankly unaffected to the development of PTSD. Assaultive violence appears to be the event most strongly linked to PTSD, while the unexpected death of a loved one is the event that is most frequently responsible for triggering PTSD. Multiple traumatic events are more likely to lead to PTSD than one alone, and traumatic events in and of themselves may be a risk factor for experiencing future traumatic events. Researchers have found that rape and sexual assault in particular (i.e., a type of assaultive violence) are the most powerful event-related predictors of PTSD, with the latter (i.e., the more general and inclusive category) experienced more commonly than was once thought. Symptoms of PTSD can develop subsequent to rape in up to 94% of cases after one week, and in up to 80% after sexual assault in general. Experiencing a sexual assault appears to be predictive of future sexual assaults, while social support appears to reduce its detrimental impact.

Critics of the literature have asserted that many of the tested predictors of PTSD have been utilized inconsistently with heterogeneous populations; variables temporally situated near to the trauma have been found most valuable. Negative events have also

been shown to be linked to the development of MDD, and up to 95% of people who develop the disorder experienced a negative event with temporal proximity to the onset of symptoms. Recent research has shown that PTSD and MDD frequently co-exist, and some have suggested that it may in fact be the same disorder, or at least one that is triggered by the same vulnerability factors. If this is indeed the case, then the vulnerability factors Dependency and Self-Criticism may play a role in the development and maintenance of PTSD. The following section will outline a possible connection between vulnerability factors typically associated with dysphoria to trauma and PTSD.

IV) Vulnerability and Trauma: Linking Theories

Attachment and Sexual Assault: A Point of Entry for Dependency and Self-Criticism

Since there are few studies in existence which examines the connection between Dependency and Self-Criticism and sexual assault (see below), it is necessary to look towards the next closest construct, which is attachment. By looking to attachment, it will be possible to see what outcomes might be expected when Dependency and Self-Criticism are applied to a predictive model linking trauma and psychopathology.

People who have been raped have been reported to experience greater fear surrounding intimacy and they differ from controls on all aspects of attachment, although trait anxiety was able to eliminate differences save for fear of abandonment (Thelen, Sherman, & Borst, 1998). Along similar lines, Allen, Hauser, and Borman-Spurrell (1996) postulated that an insecure attachment style in people who have experienced rape

might predispose someone to experiencing psychopathology due to the inability to participate in interpersonal relationships and a difficulty with understanding social rules.

Roche and colleagues (1999) demonstrated that Childhood Sexual Abuse (CSA) predicts attachment style and psychological adjustment in adulthood. However, CSA no longer predicted adjustment when attachment was partialled out; thus, attachment mediated the relationship between CSA and adjustment, which held for all the scales on the Trauma Symptom Inventory, their measure of functionality. The CSA group was found to have a more negative model of the self and other than did a no abuse group.

Dependency, Self-Criticism, and Trauma

Relatively few studies have been conducted that examine possible links between depressive vulnerability factors and the effects of trauma. It has been shown, however, that traumatic childhood events predict cognitive vulnerability to depression. Childhood sexual abuse and harsh parental control has been found to predict current dysfunctional attributional style and hopelessness (Rose, Abramson, Hodulik, Halberstadt, & Leif, 1994). Other vulnerabilities such as self-blame, helplessness, and negative attributions in adults have been found to be associated childhood physical or sexual abuse (Andrews & Brewin, 1990; Brewin & Vallance, 1997; Kuyken & Brewin, 1999). These studies, while demonstrating that traumatic events are related to several correlates of depression, have not assessed a wide-range of traumatic experiences, especially ones beyond childhood, nor have they focused on Dependency and Self-Criticism.

Three published studies used Dependency and Self-Criticism in the context of trauma research. In a study attempting to better define the affective component of PTSD,

Southwick, Yehuda, and Giller (1991) found that patients with PTSD had scores on the Hamilton that were non-significantly higher than those people with MDD. Further, patients with PTSD had higher scores on the Self-Criticism scale, but not on the Dependency scale of the Depressive Experiences Questionnaire (DEQ). They concluded that Dependency and Self-Criticism may have important implications for understanding the depressive qualities of PTSD. Yehuda, Kahana, Southwick, and Giller (1994) examined depressive features, including Dependency and Self-Criticism, in holocaust survivors with PTSD. Holocaust survivors with PTSD scored higher on Self-Criticism than those without PTSD. They suggest that groups suffering different types of trauma may show some cognitive similarities to patients with MDD. Finally, McCranie and Hyer (1995) studied Vietnam war veterans and used Self-Criticism to predict depression. They showed that Self-Criticism scores predicted greater PTSD severity, independently of symptomatic depression.

In an unpublished study examining child sexual trauma, job satisfaction and strain, and Dependency and Self-Criticism, it was found that Dependency and Self-Criticism predicted job strain, although Self-Criticism produced the strongest effect (Martin, 1997). Fifty-nine percent of the variance in job strain was explained when personality, trauma symptoms, coping, and trauma were in the model. In a dissertation study examining prison inmates with a history of sexual abuse, it was found that rape and Self-Criticism were the best predictors of depression (Rose, 1996), and Self-Criticism moderated the relationship between rape and depression for participants who had not been raped as adults.

Mendelson, Robins, and Johnson (2002) investigated the relation between self-reported childhood trauma, negative parenting style, and the related constructs of sociotropy and autonomy in psychiatric inpatients. Using regression and controlling for depression, they found that emotional abuse was related to sociotropy, and emotional abuse and lack of parental care was associated with autonomy. Sexual abuse, witnessing violence, emotional neglect, physical neglect, and loss were not significant predictors of sociotropy and autonomy. Emotional abuse, therefore, might be instrumental in the formation of this type of cognitive vulnerability (Mendelson et al, 2002). As well, Mazure, Bruce, Maciejewski, and Jacobs (2000) used a sample of psychiatric outpatients to show that several adverse life events (i.e., not necessarily trauma, per se), the need for control, and sociotropy and autonomy were able to predict diagnostic status for 88% of the participants. Further, specific event types interacted with sociotropy and autonomy in predicting response to treatment. Using a multivariate model, they were able to explain 65% of the variance in predicting treatment outcome with pharmacotherapy.

It is conceivable that Dependency and Self-Criticism might represent a common pathway to experiencing the development of psychopathology that is present in both the individual with MDD or PTSD. As there is a high level of comorbidity between PTSD and MDD (O'Donnell, Creamer, & Pattison, 2005), and their co-occurrence has been shown to enhance the risk for suicidal behavior (Oquendo, Brent, Birmaher, et al., 2005), it is important to know which people will be vulnerable to experiencing an episode of depression (or a decline in functioning in general), subsequent to the introduction of a traumatic life event. As well, several cognitive styles seem to be shared in common between MDD and anxiety disorders, such as negative self-statements, negative cognitive

errors, and frequent “off-task” thoughts (e.g., Silverman & Ginsburg, 1995). People who are high on Dependency and/or Self-Criticism might be triggered by the stress of the trauma, thus producing the necessary *stress-diathesis*. More specifically, traumas might differentially affect individuals based on whether the type of event matches with the specific vulnerability type of the individual as delineated in the *congruency hypothesis*.

A trauma of interpersonal connectedness (e.g., sudden death of an attachment figure) might catalyze the development of psychopathology when a person is high on trait Dependency. Likewise, a trauma of status or autonomy (e.g., an assault) might preferentially affect the development of psychopathology in someone who is high on trait Self-Criticism. Sexual assault might trigger individuals high in either trait depending on how the event is interpreted (Voyer & Cappeliez, 2002). A sexual assault might be thought of as a global threat to connectedness if the individual begins to question the safety in relationships with others or in a specific way if the individual is assaulted by someone she knows. Alternatively, it might trigger Self-Criticism if the event represents a loss of autonomy or personal power, which might lead to self-blame.

It could be that people who are high in Dependency and Self-Criticism might develop depressive symptoms when presented with a traumatic stressor, they could develop PTSD more readily, or they could develop both concurrently or sequentially; depression might be seen as a separate construct in the acute, but not the chronic aftermath of trauma (O’Donnell, Creamer, & Pattison, 2005). Indeed, there are some researchers who posit that PTSD and MDD are the same disorder and have a shared vulnerability with similar predictive variables (e.g., O’Donnell, Creamer, & Pattison, 2004; Davidson, Tupler, Wilson, & Connor, 1998). Following the principle of

multifinality, specific vulnerability processes may have different psychopathological outcomes across different individuals depending on genotype and developmental history (Cicchetti & Rogosch, 1996).

Additional Predictive Variables for Consideration

Emotional Expression

Emotional expression is thought to be a positive behavior. While there is evidence to suggest that emotional expression is not a universally positive experience (Littrell, 1998; Donnelly et al., 1991; Murray, Lamnin, & Carver, 1989; Greenberg, Wortman, & Stone, 1996), negative outcomes are generally limited to situations where the individuals expressing themselves may not be in a safe, structured environment. Further, many studies examine the affect immediately following the disclosure, not subsequent to the passage of time (Pennebaker, 1997), which might be more typical of people who have experienced a traumatic life event.

Overall, research supports the long-term benefits of emotional expression. For example, researchers have demonstrated that emotional expression is beneficial to one's health (Esterling et al., 1999; Petrie et al., 1998; Pennebaker, 1997; Pennebaker & Francis, 1996; Pennebaker, 1987). Pennebaker (1987) reported that when emotion associated with traumatic or upsetting events is not expressed, it takes a great deal of work by the body to ensure that it is kept in abeyance. Pennebaker's model is that affect associated with stressful events does not dissipate over time, but rather remains, demanding effort to avoid expression.

It has been demonstrated that first year university students who described their homesickness and anxiety in written form for twenty minutes a day over four consecutive days were superior to controls in terms of grade point average and positive mood at a follow-up (Pennebaker, 1990). Similarly, in a study by Smyth et al. (1998), writing tasks lead to significantly improved health outcomes in healthy participants in terms of physical health, psychological well being, physiological functioning, and general functioning, despite health behaviors not being altered.

Emotional expression has also been associated with a number of other specific positive physical consequences. Physiologically, emotional expression significantly increases circulating total lymphocytes and CD4 T lymphocyte levels (Booth et al., 1997; Petrie et al., 1998), whereas thought suppression resulted in a significant decrease in CD3 T lymphocyte levels. As well, participants in an emotional expression group showed significantly higher antibody levels against a hepatitis B vaccine at the 4 and 6-month follow-up periods (Petrie et al., 1995). It has been shown that subjects' Skin Conductance Levels (SCL) increased when expressing negative emotions and when using denial and the passive voice, whereas SCLs dropped when participants used positive emotion words and self-references and at the conclusion of sentences or thought units (Hughes et al., 1994). Emotional disclosers and listeners have inverse SCL patterns (Shortt & Pennebaker, 1992).

Emotional expression has been demonstrated to help people adjust psychologically. Psychosocially, expression of emotion is associated with lower levels of withdrawal and acting out in children aged 6-11 (Vano & Pennebaker, 1997), subjects who wrote about losing their jobs were more likely to find reemployment in the months

following the study than controls were (Spera et al., 1994), and absenteeism was reduced in those who disclosed about personal traumatic events (Francis & Pennebaker, 1992). Participants who wrote about negative events showed a significant relationship between complexity and improvement in psychological well-being (Suedfeld & Pennebaker, 1997).

Emotional Expression, Attachment, and Trauma

Given that emotional disclosure under specific conditions is positive (e.g., Pennebaker, et al., 1987, 1990, 1993, 1997; Petrie et al., 1995; Suedfeld & Pennebaker, 1997; Booth et al., 1997; Francis & Pennebaker, 1992), it would be helpful to know about what factors are involved in determining whether someone discusses a traumatic event following its occurrence. Attachment may be one possible mechanism to explain how people who have experienced trauma may regulate their affect (Fuendeling, 1999; Voran, 1995). It has been reported that different attachment styles are associated with unique patterns of socializing emotion; secure infants have a wide range of emotions attended to by parents while mothers of avoidant infants were unresponsive and mothers of resistant infants were responsive to negative affect, but not to positive (Goldberg et al., 1994). Insecurely attached children have been shown to inhibit negative emotion (Malatesta et al., 1989). Also, it has been shown that there is a significant tendency among children who have been sexually abused to deny or belittle their experiences (Sjoberg & Lindblad, 2002). It has also been found that a secure attachment style is predictive of memories of being maternally reinforced for emotional expression as a child, while people with an

avoidant attachment style recalled negative reactions of their mothers to emotional expression (Halpern, 1999).

One study showed that a negative attitude towards emotional expression has been shown to predict PTSD symptoms following traumatic exposure, especially symptoms of intrusion (Nightingale & Williams, 2000). Also, Pennebaker, Kiecolt-Glaser, and Glaser (1988) conducted a study wherein 50 healthy undergraduates were instructed to write about traumatic experiences for four consecutive days. Using two measures of cellular-immune functioning and health center visits, they showed discussing traumatic experience was physically beneficial. Greenberg and Stone (1992) later confirmed this, but found the effect only with the disclosure of severe traumas, not with those that are less serious. Greenberg argued that health benefits can be realized regardless of whether the trauma was previously discussed or not, and that it was moderated only by trauma severity. As well, participants who were asked to verbally disclose traumas reduced their overall intrusive thoughts over the course of the study (Lutgendorf & Antoni, 1999). Further, people with avoidant attachment styles have been found to disclose child sexual abuse later than secure individuals, and they expected less support following the disclosure (Distel, 1999).

For the present studies, Dependency and Self-Criticism, since they are related to attachment theory, likely play an important role in a relationship with emotional expression. In a study examining the link between emotional expression, Dependency and Self-Criticism and the experience of life events, it was shown the Dependency and Self-Criticism were linked to negative relationships and ambivalence over emotional disclosure for women which predicted depression (Mongrain & Zuroff, 1994). Men

showed the same pattern for Dependency, but Self-Criticism was linked to only ambivalence over emotional expression, which predicted depression. Further, people high on Dependency are less likely to express feelings of hostility (Zuroff, et al., 1983), and in high Self-Criticism, emotional expression would be impaired or unsatisfactory due to low levels of communion behavior (Moskowitz & Zuroff, 1991).

Social Support, Trauma, Dependency and Self-Criticism

"Human beings of all ages are found to be at their happiest and to be able to deploy their talents to best advantage when they are confident that, standing behind them, there are one or more trusted persons who will come to their aid should difficulties arise." -- John Bowlby (1973, p. 359)

Social support can be defined as the availability or existence of people on whom we can rely (Sarason, Levine, Basham, & Sarason, 1983). Bowlby's theories of attachment relies on this interpretation of social support (1969, 1980). Bowlby postulated that having a reliable social support early in life as a model teaches a child to become self-reliant and function as a support for others. The availability of social supports makes one more resilient to withstand frustrations and serves as a buffer against psychopathology.

Boscarino (1995) tested whether people who had lower levels of social support also had higher levels of PTSD and related disorders amongst Vietnam veterans. It was found that combat exposure was the best predictor of traumatic stress, depression, and generalized anxiety. A low level of social support was found to predict all disorders

studied except for substance related disorders. In a study identifying women who developed PTSD symptoms subsequent to “normal” childbirth, the researchers found that perceived low levels of social support (along with loss of control and patterns of blame) was an important predictor of the development of symptoms six weeks post birth (Czarnocka & Slade, 2000). In their epidemiological study Davidson, Hughes, Blazer, and George (1991) showed that PTSD was related to impaired social support, greater job instability, increased bronchial asthma, hypertension, and peptic ulcer. They noted that chronic PTSD in particular had reductions in social support.

Dependency and Self-Criticism have also been shown to be related to social support. Mongrain (1998), attempted to map Dependency and Self-Criticism on to social support by using the Support Evaluation List (Cohen et al, 1985), to evaluate the quality and quantity of social support received by each type. People high in Self-Criticism were shown to make fewer requests for support and have lower perceptions of support, despite peers reporting that they did not provide less support than average. Peers also reported that people high on Self-Criticism were less emotionally expressive, and stated that they knew them less well than others. Priel and Shahar (2000) showed that for Self-Critical individuals, increased stress and decreased social support mediated the relationship between Self-Criticism and distress. Priel and Besser (2000) examined the frequency of depressive symptoms in high Dependency and highly Self-Critical first time mothers. They found that Self-Criticism reduces the perceived availability of social support and increases depressive symptoms. Dependent individuals were found to increase the availability of social support, therefore reducing the level of depressive symptoms experienced.

Summary: Vulnerability to PTSD

It has been found that insecure attachment style is predictive of psychopathology subsequent to rape, and that Childhood Sexual Abuse is predictive of attachment style. Few studies have been conducted using Dependency and Self-Criticism as predictors of PTSD in general, and none specifically in the context of Sexual Assault. People with PTSD have higher Self-Criticism scores, and Self-Criticism has been shown to predict scores on PTSD independently of dysphoria. Sociotropy and Autonomy, similar constructs to Dependency and Self-Criticism, have been used in like fashion. Because PTSD and MDD have been shown to have strong connections, there is reason to believe that the vulnerability to these two disorders might be similar. Emotional expression and social support have demonstrated their usefulness in mitigating the effects of negative life events. Secure attachment style has also been associated with higher levels of social support and emotional expression. Likewise, it has been shown that Dependency and Self-Criticism are linked to ambivalence over, and low levels of, emotional expression. In particular, low levels of expressions of hostility in Dependent people, and low levels overall for Self-Critical people. Consonantly, Self-Critics elicit less social support, and social support has been shown to mediate the relationship between Self-Criticism and distress. The evidence is equivocal for Dependency.

V) The Present Studies

Contribution of the Present Studies to the Literature

The following studies have emerged from a twofold need. Firstly, there are a number of important gaps in the literature, including the lack of reliability and validity

data for PTSD and traumatic experiences. As a result, the frequency of PTSD, single traumatic events, and multiple traumatic events is still uncertain (Schwarz, 1998; Pfefferbaum, 1997). Further, many studies have amalgamated various age groups and samples together (Brewin et al., 2000). The use of a distinct age group, a homogenous sample, and a specific trauma permit specificity of results; data from studies with specific populations show that certain vulnerability factors that are relevant for certain groups are not relevant for others (Brewin et al., 2000). Our research utilized a university sample for both studies and a specific trauma group (i.e., sexual assault) for study two. In addition, there are few prospective studies, and there are few studies that have used Comparison groups (Brewin et al., 2000). Accordingly, we used a longitudinal design and a Comparison group that has not experienced trauma of a sexual nature in order to discern the specific effects that sexual traumas have on these individuals.

The second need is clinical in nature: it is important to determine which individuals are more likely to experience difficulties adapting to traumatic events than others so we can efficiently identify them and provide treatment if needed (Lipschitz et al., 1999). While there are many individuals who clearly benefit from psychological treatments, surprisingly, there are some who actually become worse following treatment (Wessely & Bisson, 2002). The first step in preventing this unfortunate situation is to start to identify those who are vulnerable to psychological disorder.

The present studies expand on trends that are currently emerging in the area of vulnerability research (Hammen, 2001). First is the move away from cross-sectional studies to longitudinal designs. Accordingly, the second study presented herein followed participants over a discrete period, and they were screened at both times to see if there

were any differences between groups in the (de)evolution of symptoms or functioning. Another trend is moving away from single variables and towards an integrated diathesis-stress test which includes several predictive variables. The present studies created a predictive model which included a relatively novel vulnerability factor in this context (i.e., Dependency & Self-Criticism), combined with other variables that have already proven their usefulness. Also, there has been some criticism of the literature that has for many years remained tied to samples of patients seeking treatment for DSM diagnosable disorders. The present studies used a non-clinical sample of high functioning participants to determine if similar results are generated.

The Theoretical Model

Our model makes use of both proximal and distal vulnerability factors to determine how people function following trauma. As a pre-trauma distal vulnerability factor, we chose the personality factors Dependency and Self-Criticism, a way of thinking and behaving that is similar to depression (Bagby et al., 1994; Blatt & Zuroff, 1992). There is support for the relative stability of this construct, even following psychiatric illness (Santor et al., 1997). As post-trauma proximal *behaviors*, we chose social support and emotional expression. Emotional expression has been shown to help people process information (e.g., Pennebaker et al., 1997), increase health and grades (e.g., Pennebaker et al., 1987; Pennebaker, 1993; Petrie et al., 1995; Greenberg et al., 1996), bolster coping (Pennebaker et al., 1990), and assist in cultivating one's social sphere (Smyth et al., 1998).

Functioning and psychopathology were the outcome variables. In this study, outcome was measured by health, role functioning, maintaining relationships, levels of dysphoric mood, post traumatic stress, alcohol consumption, and several DSM-IV diagnostic categories. There is documentation for a decline in functioning following the development of PTSD symptoms: scholastic achievement (Davis & Siegal, 2000), and social functioning and health (Giaconia et al., 1995). However, there is still some disagreement over whether symptoms actually facilitate a decline in functioning (e.g., Svanum & Zody, 2001). As well, co-morbid symptomatic development has been documented in multiple studies (e.g., Giaconia et al., 1995).

As to how Dependency and Self-Criticism might contribute to symptom development/decline in functioning, it can be seen from either a mediating or moderating perspective (Baron & Kenny, 1986; Kraemer, Stice, Kazdin, Offord, Kupfer, 2001). In the first case, social context variables such as traumatic events, social support, and emotional expression can be seen as moderators of the vulnerability of Dependent and Self-Critical individuals. This indicates that there are certain *conditions* under which personality and distress (in whatever form) are linked. In the second case, individuals are limited by their vulnerability (i.e., Dependency and Self-Criticism), and in turn they influence traumatic events, social support, and emotional expression. Changes in these three variables would then alter the level of distress. Said another way, the mediation model specifies the *processes* through which personality affects distress (Priel & Shahar, 2000).

Priel and Shahar (2000) argued that, using the mediating model, one would predict that Self-Critical individuals would focus on personal achievement to the neglect

of social support, emotional expression, and adequate coping, which means that they would lack these protective buffers (Helgeson, 1994). Likewise, Dependent people would focus on relationships to the exclusion of personal achievement, and they may tax their support network and actually lead to a reduction in social support and increase interpersonal stress (Helgeson, 1994). However, Dependency has also been shown to increase social support in some studies (Mongrain, 1998), so this might prove to be an alternative hypothesis.

Priel and Shahar (2000) found that Dependency was better described by a moderating model; the individuals here experienced distress only after interpersonal events. Self-Criticism was better described by a mediating model, where these people had increased stress and support over time, which partially accounted for the increased distress. In a follow-up longitudinal study of undergraduates examining personality, interpersonal behavior, and specific life stressors, Shahar, Joiner, Zuroff, and Blatt (2004) found that family and friend related stress moderated the effect of Dependency, and a wide-range of stressful life events mediated the effect of Self-Criticism on depression. They suggest that the vulnerability of Dependency is *reactive*, while the vulnerability of Self-Criticism is *proactive*. Said another way, Dependency's potency is activated *under certain conditions*, while Self-Criticism *creates the conditions*. For example, Dependency might be triggered under the condition of the loss of an important interpersonal connection, leading to dysphoric symptoms. Conversely, Self-Criticism might prompt an individual to behave in a certain way (e.g., not self-disclose, compete excessively), which leads to a loss of status. This loss of status that they themselves have

begotten then gives rise to dysphoric symptoms. While the former is a passive manifestation, the latter is a self-fulfilling prophecy.

As well, Shahar and Priel (2003) found that negative events mediated the effect of Dependency and Self-Criticism on distress, positive events mediated the effect of Self-Criticism on distress, and positive events suppressed (rather than mediated) the effect of Dependency on distress. This latter finding indicated that there is a resilience component to Dependency, perhaps explained by the connectedness component of this individual difference factor.

The model here first attempted to link Dependency and Self-Criticism with PTSD symptoms (and other outcome measures) that are developed after traumatic life events. This connection seems likely given the preliminary research linking these vulnerability traits to PTSD (Southwick et al., 1991; Yehuda et al., 1994; McCrannie & Hyer, 1995), studies which have linked autonomy and sociotropy to trauma (Mendelson et al., 2002; Mazure et al., 2000), and the authors who posit that PTSD and depression are either the same disorder, or at least share the same vulnerability factors (O'Donnell et al., 2004; Davison et al., 1998). Taking the lead from Priel & Shahar (2000), similar moderation and mediation models to the ones used in their studies were used here. For each of the predictive factors, people high on Dependency and Self-Criticism were predicted to act in accordance with their schema.

For Dependency, it was proposed that traumatic events, emotional expression, and social support would *moderate* the effect on distress. As alluded to above, this would mean that there would be a statistical interaction expected between Dependency and each of emotional expression and social support which would then lead to symptoms or a loss

of functioning. That is, under certain conditions (e.g., low social support, low emotional expression), high scores on Dependency would beget higher scores on the outcome measures. For Self-Criticism, it was proposed that emotional expression and social support will *mediate* the relationship with distress. Self-Criticism would lead to specific behaviors which they themselves account for the association between Self-Criticism and the outcome measure. There is reason to believe that Self-Critics will, at worst, not engage in emotional disclosure since they are achievement oriented (Moskowitz & Zuroff, 1991), and will, at least, be ambivalent over it (Mongrain & Zuroff, 1994). Dependent people might also have this ambivalence and selectively disclose, leading to feelings of dissatisfaction (Zuroff et al., 1983). There is also evidence that attitude towards emotional expression (Nightingale & Williams, 2000) has been predictive as a vulnerability factor. Likewise, Self-Critics may perceive less satisfactory levels of support, while Dependent people may increase social support under certain circumstances (Priel & Besser, 2000), but they may exhaust their support network and thus be unsatisfied. This could depend on the level or type of trauma experienced. See Figure 2 for a diagrammatic representation of both general mediation and moderation.

Vulnerability research has shown that vulnerability and risk factors can have unique predictive power depending on the population being sampled (see Brewin et al., 2000). Thus, in addition to the fact that comparison groups have been rarely used in this type of research, using a matched group would permit us to say something specific about two groups of people: one group in which members endorsed having had a sexual assault, and one in which members would not have had such an event in their pasts. It is conceivable that Dependency and Self-Criticism might be effective as proposed above in

one group but not the other. In addition to that, it would then be possible to make conclusions about the specific effects of sexual assault, above and beyond that of other traumatic life events (i.e., which the Comparison group would be matched for).

The following research was divided into two parts. The overall goals of the studies were: (a) to identify the frequency of traumatic life events in a university sample, (b) to test Dependency and Self-Criticism in a model that predicts whether a young person experiences emotional or behavioral difficulties following a traumatic life event (i.e., the mediation and moderation models), and (c) to document symptoms and the functional status of people who have experienced sexual assault, over the course of one academic year.

Hypotheses and Objectives for the Present Studies

Study 1:

Main Objectives: (a) to survey the frequency of various traumatic experiences in a Canadian university sample (16 to 21 years of age), (b) to evaluate the extent to which these events are associated with psychopathology and functional difficulties, (c) document the impact of multiple traumas, (d) to determine the contribution of Dependency and Self-Criticism in the prediction of PTSD symptoms, and (d) to identify people who have been sexually assaulted as potential participants for study two.

Section 1: Frequency of Life Events

In this section, the objective was to identify how frequent each of the 21 types of traumatic events (as listed in the Traumatic Life Events Questionnaire; TLEQ) were in University students, as this data is lacking in a Canadian sample. This part of the study

was vital to the selection process that would take place in study two, which would allow us to test the model presented above more specifically.

1. **Question:** What is the frequency of various potentially traumatic life events (PTE) in a university sample of Canadian students?
 Hypothesis: The frequency of traumatic events in this university sample will be similar to that found in the TLEQ validation study by Kubany et al. (2000).
 Analysis: Frequencies
2. **Q:** What is the frequency of sexual assault in a Canadian university sample?
 H: The frequency will be lower than American estimates.
 A: In order to establish the frequency of sexual assault in this sample, simple frequencies will be used, as will conversion to percentage for direct comparison with the American data that exists.
3. **Q:** What is the average number of potentially traumatic events and traumatic events experienced by this sample? How common is it to reach this age without experiencing a traumatic event?
 H: Canadian students will be equivalent to their American counterparts in that approximately 80% of students will have had at least one traumatic event.
 A: Descriptives

Section 2: Association of Events and, Symptoms, and Vulnerability

In this next section, the association between Vulnerability factors and symptoms was tested. Specifically, the efficacy of Self-Criticism in predicting symptoms of PTSD was tested, and whether its ability to do so went beyond that which might be accounted for by its association with dysphoria. These findings guided the analyses for Study 2 below.

In this section, and Section 2 of the second study, both Dependency and Self-Criticism were used in single models to test their predictive power. Although this is not typically done, there is a substantive theoretical reason to include both of these vulnerability factors simultaneously. Dependency and Self-Criticism were originally conceptualized as orthogonal constructs, but this has been shown not to be the case (e.g.,

Coyne & Whiffen, 1995). Rather, researchers have now accepted that there are people who may be high on one trait, or high on both traits. With that in mind, it is conceivable, then, that there might be a “double” vulnerability whereby someone who scores highly on both of these traits would be more vulnerable to psychopathology than someone who is vulnerable on one trait alone. Accordingly, the present studies included models wherein the effects of both vulnerability factors were considered concurrently. Below, a three-way interaction term was tested that examined the effect of Dependency, Self-Criticism, and the number of TE experienced by the participants. This provides the best evidence to say whether or not Dependency and Self-Criticism are useful at the same time within the context of differing numbers of traumatic events; truly a test of a diathesis model.

4. **Q:** What is the association of multiple PTE/traumatic events on the presence of symptoms?
 H: There will be a direct correlation between the number of traumatic events, and PTE, and the symptoms of the participants (e.g., Daugherty, 1998).
 A: Correlations (i.e., conditions for testing mediation)

5. **Q:** Is there a relationship between Dependency and Self-Criticism and symptoms of post traumatic stress? On the other outcome measures (i.e., Role Functioning, Anxiety, Dysphoria)?
 H: Dependency and Self-Criticism will be correlated with measures of severity, frequency, and overall symptoms of post traumatic stress (as well as dysphoria).
 A: Correlations

6. **Q:** Are Dependency and Self-Criticism able to predict post traumatic stress symptoms above and beyond dysphoria?
 H: Self-Criticism will be a unique predictor of PTSD symptoms above and beyond dysphoria, while Dependency will not be.
 A: Hierarchical Regression

7. **Q:** Can Dependency and Self-Criticism predict symptoms of PTSD above and beyond that which is predicted by number of PTE or number of traumatic events?

Do Dependency and Self-Criticism interact with number of TE in the prediction of PTSD symptoms, that is, will there be a three-way interaction?

H: Self-Criticism will continue to contribute uniquely to the prediction of PTSD symptoms over and above the number of PTE and the number of traumatic events.

A: Hierarchical Regression

Study 2

Section 1: The contribution of sexual assault to symptoms and functioning as compared to a matched comparison group

Main Objectives: (a) to identify a group of individuals who have been sexually assaulted, (b) to determine if the individual difference factors *Dependency* and *Self-Criticism* in these participants make them particularly vulnerable to functional decline and symptom development, (c) to examine behavioral factors (e.g., emotional expression, social support) that may be related to pathology or behavioral disturbance, and (d) to test whether those participants who have been sexually assaulted might decompensate as compared to the Comparison group (i.e., will symptoms and functioning decline from Time 1 to Time 2), and (e) to determine if this decompensation can be predicted by Dependency/Self-Criticism, emotional expression, and social support.

1. **Q:** What is the frequency of various potentially traumatic life events (PTE) and traumatic events (TE) types in a sample of sexually assaulted women? A matched Comparison group?
H: The proportional frequency of traumatic events in these two groups will be greater than that found in the TLEQ validation study by Kubany et al. (2000).
A: Frequency Count
2. **Q:** Do victims of sexual assault tend to experience more traumatic life events than the rest of the sample, and the matched Comparison group? This is an important question for vulnerability models since negative life events have been shown to trigger depressive episodes. Although non-traumatic life events are not relevant for the diagnosis of PTSD, it would be hard to argue that they would not be a risk factor as they are for depression.

H: Victims of sexual assault will have experienced more potentially traumatic life events (PTE) and traumatic event types than the matched Comparison group, despite best efforts to match on number and type of other events?

A: One-Way ANOVA

3. **Q:** In a university sample, do victims of sexual assault have more symptoms than people without any traumatic life events? In comparison to a group matched for other life events but without sexual assault (i.e., does sexual assault contribute uniquely to the development of symptoms)?

H1: Sexual assault will be related to a decline in functioning above and beyond that associated with other traumatic events.

A1: ANOVA

H2: At time one, victims of sexual assault will function the least well, followed by their matched participants, followed by a selected sample of participants from study 1 without a history of any traumatic life events.

A2: ANOVA

4. **Q:** Is the number of sexual assaults as rated at time 1 related to the severity of symptoms at time 2?

H: More frequent sexual assaults will be related to more distress and poorer functioning.

A: Correlation

5. **Q:** Will victims of sexual assault experience a decline in functioning from Time 1 to Time 2 as compared to 1) baseline and 2) a non-sexual assault group?

H: The more trauma someone has experienced, the less likely they are to be doing well at time 2. Victims of sexual assault will function less well than their matched participants; there should be a decline in functioning from time 1 to time 2.

A: Repeated Measures ANOVA

6. **Q:** Will the number of non-sexually related traumas be predictive of PTSD symptoms above and beyond that which is predicted by sexual trauma?

H: Sexual assault victims with a history of trauma pre or post assault will be more likely develop PTSD or experience more symptoms of other types (Arata, 1999; Horowitz et al., 1995).

A: Hierarchical Regression

7. **Q:** What is the frequency of diagnosable psychiatric illness in a sexual assault and matched Comparison group? Do victims of sexual assault have more diagnosable psychiatric illness than a group matched for number and type of traumatic events but without sexual assault?

H: The sexual assault group will have a higher number of disorders overall and a greater number of anxiety disorders specifically than the Comparison group.

A: Frequency count; Chi Square

Section 2: Change, and Vulnerability to Symptoms and Functioning

There are several vital components to testing models that link vulnerability factors to outcome measures. The following group of analyses explicitly tested the model as presented above, both through the use of self-report measures and structured interviewing. In addition, since this was a longitudinal study, it was important to determine whether or not there was any differential change over time between the two groups. As well, regression analyses were conducted as preconditions for mediational analyses, and regressions were used to test the predictive power of Dependency and Self-Criticism along with emotional expression and social support.

8. **Q:** Will the frequency of diagnosable disorders change from time one to time 2 by group?
 H: The number of disorders will increase for the sexually assaulted group, but not for the Comparison Group.
 A: Cochran's Q
9. **Q:** Will Dependency and Self-Criticism at time 1 predict the presence or absence of the diagnoses PTSD, MDD, or any disorder by group at time 2?
 H: Dependency and Self-Criticism at Time 1 will predict PTSD, MDD, and "Any Disorder" diagnoses in both groups at Time 2.
 A: Logistic regression.
10. **Q:** Will Dependency and Self-Criticism at time 1 be associated with measures of psychopathology at time 2 in the two groups?
 H: Dependency and Self-Criticism will be correlated with measures of psychopathology at time 2.
 A: Correlations
11. **Q:** Will Dependency and Self-Criticism at Time 1 be able to predict symptoms of PTSD at time 2 above and beyond dysphoria and the number of Traumatic Events (TE) in the SA and CTR Groups?
 H: Self-Criticism at Time 1 will predict PTSD symptoms at Time 2 over and above dysphoria and number of TE, while Dependency will not.
 A: Hierarchical Regression

12. **Q:** What is the relationship between Dependency and Self-Criticism and emotional expression and social support in this sample?
H: Self-Criticism will be inversely correlated to level of satisfaction with social support and to levels of emotional expression.
A: Correlations.

13. **Q:** Are emotional expression (and attitude to emotional expression) and social support related to measures of psychopathology?
H: Those who have negative attitudes to emotional expression (Nightingale & Williams, 2000) will be correlated with lower levels of emotional expression.
Analysis: Correlation
H: People who are emotionally expressive and have social support will have less psychopathology and fewer physical symptoms.
A: Correlations

14. **Q:** Can Dependency and Self-Criticism at Time 1 continue to predict PTSD, dysphoria, and functioning once social support and emotional expression are included in the model? Which are more important in the prediction of PTSD symptoms? By group?
H: Self-Criticism will continue to be a unique predictor of PTSD and dysphoria symptoms above and beyond emotional expression and social support whereas Dependency will not.
A: Hierarchical Regression.

15. **Q:** Do Dependency and Self-Criticism have moderating effect on social support and emotional expression? Are emotional expression and social support part of the process of Dependency and Self-Criticism or are they independent predictors of PTSD symptoms, unrelated to the personality variables?
H: Dependency and Self-Criticism will have a moderating effect on emotional expression and social support; they are part of the behavioral sequelae of one's status on the DEQ.
A: Regression (Moderation)

16. **Q:** Do social support and emotional expression mediate the relationships between Dependency/Self-Criticism and PTSD symptoms?
H: Social support and emotional expression will mediate the relationship between Self-Criticism and PTSD symptoms, but they will not do so for Dependency.
A: Regression (Mediation)

Chapter 2: Research Methodology and Procedure

Study 1: The frequency of, and vulnerability to, traumatic life events in a sample of Canadian university students

Main Objectives: (a) to survey the frequency of various traumatic experiences in a Canadian university sample (17 to 21 years of age), (b) to evaluate the extent to which these events are associated with psychopathology and functional difficulties, (c) document the impact of multiple traumas, (d) to determine the contribution of Dependency and Self-Criticism in the prediction of PTSD symptoms, and (d) to identify people who have been sexually assaulted as potential participants for study two.

Methods

Participants

Participants were 444 university students with an average age of 18.8 years ($SD = 0.9$), with a range of 17 to 21. The sample was 80.2% female ($n=356$) and 19.8% male ($n=88$), 70.7% ($n=314$) were in their first year at university, and 20.7% were in their second year ($n=92$). The remaining 8.6% of the sample were in their third year or fourth year, and 65.8% ($n=292$) of the sample were in high school the previous year. Their participation was solicited via an introductory psychology course at Dalhousie University in Halifax, Nova Scotia, Canada. This sample was chosen because: 1) it is a largely homogenous sample, 2) it has been the source of choice for many previous studies, and 3) it is a non-clinical sample. See Table 1 for a presentation of this data.

The sample size chosen was based on the need for participants for Study Two. Five-hundred participants were required based on the base rate of sexual assault in North America. Assuming an estimate of 15% (Roth et al., 1990; Santello & Leitenberg, 1993), 500 participants would likely yield a group of approximately 75 people who have been sexually assaulted in some fashion. Of those 75, it was hoped that two-thirds would agree to participate in study two. There have been no studies examining the frequency of sexual assault in Nova Scotia, Canada.

Measures

See Table 25 for the coefficient alphas calculated for all questionnaires.

McGill Revision of The Depressive Experiences Questionnaire-Revised (DEQ-R; Santor, Zuroff & Fielding, 1997) The DEQ-R is a self-report measure assessing depressotypic experiences not associated with depressive symptomatology. Items for this form of the questionnaire were drawn from the original DEQ on the basis of psychometric analyses designed to retain key properties of the original scale using unit weighted composite scores versus factor derived scores. Dependency and Self-Criticism scores are calculated by summing the items from each scale. The measure has been shown to have adequate internal consistency (Cronbach's $\alpha > .78$) and test-retest stability over 6 months; concurrent and predictive validity have also been demonstrated (Klein, 1989). Lehman et al. (1997) found test-retest reliability for 5 and 13 weeks respectively were .89 and .81 for Dependency and .83 and .75 for Self-Criticism; alpha for Dependency .81, and .8 for Self-Criticism. This version of the scale has been well

validated with clinical and non-clinical samples (Santor, Zuroff, Mongrain & Fielding, 1997).

Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000). This is a new self-report measure that takes inventory of 21 potentially traumatic life events participants might have experienced in the past. An admission of experience prompts the participant to answer questions regarding its emotional impact and frequency. Its test-retest agreement over approximately 18 days averaged 84% over the events, and it had a kappa of .4 to .6 over one week. This questionnaire will allow for a survey of the frequency of the different traumatic events.

Emotional-Events Questionnaire (EEQ). This is a lab-made questionnaire that asks people to list their top three traumatic life events (if they have experienced any), describe them briefly, and then rate those events in terms of how often they think about them, and how strong their feelings are towards them at present. There are no reliability or validity data available for this measure. This measure will help us select participants for Study 2, by determining whether or not participants have experienced sexual assault, and if they consider it to be an important event that is affecting them in the present. Those who list it as a significant and powerful event for them in the present will be selected first.

Modified PTSD Symptom Scale: Self-Report Version (MPSS-SR; Falsetti, S. A., Resnick, H. S., Resick, P. A., & Kilpatrick, D., 1993). This scale is a 17-item questionnaire that was derived from the PTSD Symptom Scale (Foa et al., 1993). It asks patients to rate the frequency and intensity of their symptoms of post traumatic stress in the past two weeks. The frequency of symptoms is measured on a four point Likert scale

ranging from “Not at All” (0) to “Very Much” (3), and The intensity of symptoms is measured on a five-point Likert scale ranging from “Not at all distressing” (0) to “Extremely distressing” (4). This instrument has demonstrated good internal consistency (.98), test-retest reliability, and it correlates highly with concurrent structured clinical interview measures of PTSD symptomatology (Coffey, Dansky, Falsetti, Saladin & Brady, 1998; Falsetti et al., 1993).

Beck Depression Inventory II (BDI-II; Beck, Steer & Brown, 1996). This is a 21 item self-report measure that tests for the presence and severity of depressive/dysphoric symptoms. Cognitive, neurovegetative, and affective symptoms are measured on a scale of 0 to 3, where 3 represents the highest level of severity for that particular symptom, and where 0 represents the absence of the symptom. The test-retest reliability for non-psychiatric samples has been shown to range from .60 to .90, and split-half reliability coefficient of .93 (Beck & Steer, 1996). Internal consistency for the BDI ranges from .73 to .92 with a mean of .86. (Beck, Steer, & Garbin, 1988).

Behavior and Symptom Identification Scale (BASIS-32; Eisen, 1996). This is a 43 item self report outcome measure which was designed to measure clinically significant change over time in a number of areas, including functioning. Construct validity has been confirmed (Eisen et al., 1999), and reliability is acceptable for a measure that is expected to change (Eisen et al., 1994). Internal consistency for full scale is .89. Internal consistency for subscales range from .63 - .80 in one sample and .43 - .79 in a second sample. In both samples the psychosis scale has the lowest alpha. Average test-retest reliability across all items is .85.

Note: For a complete catalogue of the measures used in this study, see Appendix A.

Procedure

The study was advertised in two ways: 1) Fliers briefly describing the study were handed out during the first class of introductory psychology as part of the annual introductory psychology screening (see Appendix E), and 2) the study was placed on the introductory psychology website. The website described the study and provided a phone number and e-mail address for communication with the principal investigator. Those wishing to take part contacted the researcher and were provided instructions.

Participants were first instructed to come in to read and sign a consent form. Questionnaires were administered via the Internet (www.isurvey.ca) and took approximately one to one-and-a-half hours to complete. Research has demonstrated that using standardized measures on the internet is equivalent to using the paper and pencil versions of the same instrument (Pettit, 2002; Cronk & West, 2002; Buchanan, 1999). Participants were permitted to complete the survey from the location of their choice, but were encouraged to do so in a place that ensured privacy. Access to the Internet site where the surveys were located required a username and password, which they were assigned subsequent to the signing of the consent form. Access to the website was permissible only while the survey was in the process of being completed; as each questionnaire contained in the survey was completed, the data was saved, and that particular questionnaire became unavailable for further correction or review. Failure to complete a questionnaire during one login period resulted in lost data for that specific subset of questions. There were no multiple entries of any individuals, and participants had a one-week period to complete the measures. It was possible for the primary investigator to access who had and who had not completed the questionnaires. There was

no limit to the number of occasions a participant could log into the site to complete the measures. Also, because you could not move onto a subsequent question without completing the one prior to it, there was no missing data, and thus, no data cleaning required. Only data from participants who completed all the surveys was used. The server was located at the University in a secure location and was protected by state of the art firewalls and security protocols.

In order to protect anonymity, participants were asked to include their names only on the consent forms that they physically came in to fill out. Names were not requested on the internet protocol. The usernames were used to match the internet protocol to the consent forms for the purpose of contacting those who would be appropriate for further research (see Study Two below). Participants were made aware that they might be contacted for future research, and that this was dependent on the answers they provided on the questionnaires (see Consent Form, Appendix B). Access to these usernames and passwords was limited to the staff directly involved in the collection of the data. Hard copies of the questionnaires were available for people who preferred it, or for those who did not have Internet access, and Internet access was provided to those who did not have a private location in which to take the survey. None of the participants requested to do the survey on paper.

Upon completion of the survey, participants were debriefed in an online procedure in accordance with departmental policy (see Appendix D). They were then instructed to return to the lab where the researcher allocated two credit points towards their final grade in introductory psychology as compensation.

Study Two: A longitudinal study of Dependency, Self-Criticism, emotional expression, and social support in women who were sexually assaulted: Predictors of symptoms and functioning

Main Objectives: (a) to identify a group of individuals who have been sexually assaulted, (b) to determine if the individual difference factors *Dependency* and *Self-Criticism* in these participants make them particularly vulnerable to functional decline and symptom development, (c) to examine behavioral factors (e.g., emotional expression, social support) that may be related to pathology or behavioral disturbance, and (d) to test whether those participants who have been sexually assaulted might decompensate as compared to the Comparison group (i.e., will symptoms and functioning decline from Time 1 to Time 2), and (e) to determine if this decompensation can be predicted by Dependency/Self-Criticism, emotional expression, and social support.

Methods

Participants

There were two groups in this study, and all of the participants in this study had taken part in Study 1. The experimental group consisted of 59 women who were sexually assaulted with a mean age of 18.86 years ($SD=0.9$). The sample had 74.6% ($n=44$) in their first year at university, and 20.3% were in their second year ($n=12$). The remaining 5.1% of the sample were in their third year or fourth year, and 64.4% ($n=38$) of the sample were in high school the previous year. The Comparison group consisted of 50 women who denied any history of sexual trauma, and who had been matched to those in the sexual assault group (see matching procedure below); they had a mean age of 18.81

years (SD=0.8). The sample had 72% (n=36) in their first year at university, and 22% were in their second year (n=11). The remaining 6% of the sample were in their third year or higher, and 68% (n=3) of the sample were in high school the previous year. See Table 2 for a presentation of this data.

Measures

Note: See the Study 1 Methods section for descriptions of the following measures that are also used in Study 2: DEQ-R, BDI-2, TLEQ, EEQ, MPSS-SR, & BASIS-32. Also, See Tables 25 & 26 for the coefficient alphas calculated for all questionnaires at both times.

The Mini International Neuropsychiatric Interview (MINI; Sheehan, Lecrubier, Harnett-Sheehan, Amorim, Janavs, Weiller, Hergueta, Baker, & Dunbar; 1998). The MINI is an internationally developed short structured diagnostic interview intended for psychiatric evaluation, and outcome tracking in clinical psychopharmacology trials and epidemiological studies. The MINI has been validated against longer structured interviews such as the Structured Clinical Interview for the DSM (SCID – P) in English and French (Sheehan, Lecrubier, Harnett-Sheehan, Janavs, Weiller, Bonara, Keskiner, Schinka, Knapp, Sheehan, & Dunbar, 1997) and against the Composite International Diagnostic Interview for the ICD-10 (CIDI) (Lecrubier, Sheehan, Weiller, Amorim, Bonora, Sheehan, Janavs, & Dunbar, 1997) in English, French, and Arabic. It has been validated against expert opinion in four large European countries (France, United Kingdom, Italy and Spain) where it was found to have a concordance rate of 85%

(Lecrubier, 1997). It was structured to allow non-specialist interviewers to use the instrument. In comparison to the CIDI, kappa coefficients, specificity, and sensitivity were acceptable for all disorders except generalized anxiety disorder (kappa = 0.36), agoraphobia (sensitivity = 0.59) and bulimia nervosa (kappa = 0.53). Both inter-rater and test-retest reliability were good. Reliability and validity were also supported when compared to the SCID-P (only current drug dependence had a kappa < .50), but it took less than half the administration time of the corresponding sections (Sheehan, Lecrubier, Harnett-Sheehan, Janavs, Weiller, Bonara, Keskiner, Schinka, Knapp, Sheehan, & Dunbar, 1997).

Brief-Michigan Alcoholism Screening Test (B-MAST; Pokorny et al., 1972).

This is a brief 10-item inventory designed to assess drinking habits and the effects of alcohol usage of the participants. There is a frequent co-occurrence of PTSD and alcoholism, making the B-MAST's inclusion necessary. Reliability using internal consistency and retest methods for lifetime alcohol problems are well established and relatively high (alpha = 0.83–0.95) (Selzer et al., 1975; Zung, 1982). The validity has also been well documented in the literature (Selzer et al., 1975; Zung, 1982, 1984; Hedlund & Vieweg, 1984). The accuracy of the BMAST in identifying diagnosed alcoholics ranges from 79 to 100% (Hedlund and Vieweg, 1984).

The Pennebaker Inventory of Limbic Languidness (PILL). (Pennebaker, 1982).

The scale is a 54-item inventory of physical symptoms and complaints. Each complaint is rated on a 5-point Likert scale for frequency over the past year, ranging from “have never or almost never experienced the symptom” to “experienced more than once a week”. The validity of the PILL has been established by comparing scores to work

absences, physician and health center visits, and analgesic use (Pennebaker, 1982). Cronbach alphas range from .88 to .91; 2-month test-retest reliability range from .79 to .83. The PILL can be scored by summing up the total number of items on which individuals score C, D, or E (every month or so or higher). With this strategy, the mean score is 17.9 (SD=4.5) based on a sample of 939 college students. This measure will provide a way of assessing the physical functioning of participants in this study.

The Social Support Questionnaire-Short Record (SSQSR; Sarason, Levine, Basham, & Sarason, 1983). This is a 6-item self report measure which examines a persons social support system (by having them list their supports in different situations) as well as their perceived level of satisfaction with that system. Evidence suggests that people who score highly on this measure are able to persist in frustrating and painful situations better than those with less support (Sarason, Levine, Basham, & Sarason, 1983). Sarason and colleagues (1983) examined the reliability and validity of the SSQ and found excellent internal consistency ($\alpha = .97$) and stability over four weeks ($r = .90$). The test-retest correlation for support network size and support satisfaction were .90 and .83, respectively.

Attitudes Towards Emotional Expression Scale (AEE; Nightengale & Williams, 1994). This is a brief, 4-item scale that assesses belief in three cognitive and one behavioral component of emotional expression. Each item has a five point Likert Scale and scores range from 4 to 20 where higher scores indicate a more negative view of emotional expression. Internal consistency has been shown to be .74.

Self Disclosure Scale (SD; Miller, Berg, & Archer, 1983) - This is a 10-item questionnaire that is used to assess participants' willingness to disclose personal

information to others. Participants rate the degree to which they have disclosed information in various domains on a 5-point Likert Scale ranging from 1 (discuss not at all) to 5 (discuss fully and completely). The scale correlates highly with Jourard's Self Disclosure Scale (Jourard, 1961), and is unidimensional and internally consistent (.93 for men, and .93 for women when measuring disclosure to same-sex strangers and .87 for men and .96 for women when measuring disclosure to same-sex friends).

The Berkeley Expressivity Questionnaire (BEQ; Gross & John, 1995). This is a 16-item measure of emotional expressivity that is rated on a seven point Likert Scale from 1 (strongly disagree) to 7 (strongly agree). In addition to a total score that can be calculated, three subscale scores are available for computation; these include: negative expressivity, positive expressivity, and impulse strength. Alphas have been demonstrated to be .86 for the total score, and .70, .70, and .80 for the subscales, respectively.

Note: For a complete catalogue of the measures used in this study, see Appendix A.

Procedure

Selecting the Sexual Assault Group

Participants were selected from the following two sources: (a) a list of 10 life events (that are typically traumatic) was administered as part of the voluntary introductory psychology screening at Dalhousie University at the beginning of the academic year. Four of the 10 events were sexual assault-related, different only in when the sexual assault was experienced, if at all, and (b) participants from the Internet-based Study One were notified in the consent form that one of the objectives for the study was

to identify people who have experienced sexual assault in the past for use in future research (see consent form for Study One, Appendix C). Thus, the results of Study One served as the second source of participants. Fifty participants in this group was considered the goal. It is unknown how each participant came into the study (i.e., whether they were contacted as a result of completing the TLEQ in Study 1 or whether they were contacted after the screening); since all participants in Study 2 were also involved in Study 1, it makes this impossible to determine.

People from both of the above sources who had endorsed experiencing a sexual assault were contacted by phone or e-mail and asked to participate in this longitudinal research. In addition to having experienced a sexual assault, they had to indicate that they experienced intense fear, helplessness, or horror in relation to the event, thus qualifying it as a traumatic event. Since the details of the event were not known before the selection process began, this was seen as the best way to ensure that the event was of adequate severity. In addition, participants had to be women between the ages of 17 and 21. Men were excluded to increase generalizability of the results to women. Since men who have been sexually assaulted are a poorly understood group (e.g., Stermac, Del Bove, & Addison, 2004), and relatively few men indicated having had this experience, they were considered ineligible. Efforts were also made to select participants in their first year of university (i.e., so they would be younger), but not at the expense of the frequency and severity of the experiences. Thus, participants with more frequent sexual assaults (which they considered traumatic) were selected first. In order to maximize the number of people available, timing of the assaults was not considered essential in the selection process. However, the nature of childhood sexual assault is often chronic in

nature (Gladstone, Parker, Mitchell, et al., 2004), making this group more likely to be chosen.

Matching of the Comparison Group

In order to make conclusions concerning the specific effects of sexual assault, it was necessary to form and use a comparison group, something that has been infrequently done in the literature thus far. This second group was intended to be equivalent to the experimental group on several measurable variables, but different in terms of whether they had experienced a sexual assault or not. Accordingly, a comparison group consisting of 50 participants who had not been sexually assaulted at any time was recruited solely from the participants in study one, since a completed TLEQ was required in order to make the best match possible.

Each participant in the comparison group was matched to one of the participants in the sexual assault group. This match was based on the experiences endorsed by people in the sexual assault group *other than the sexual assault*, and was done in a two-step manner. To be considered a “match-worthy” event, each had to have been responded to with intense fear, helplessness, or horror (i.e., making the event *traumatic* by definition). Events not classified in this way were excluded from the matching process. The first step of the process was an attempt to equate the participants from both groups in terms of number and specific type of event. If that proved impossible (i.e., if the constellation of experienced traumatic events was too numerous and/or rare), the participants were matched for number of distinct traumatic event types, frequency of those events, and then on a classification of interpersonal versus non-interpersonal events. To our knowledge, a

match of this type has not been conducted thus far, and so this procedure had to be created.

Administration of Research Protocol

Participants were followed for one academic year. Accordingly, there were two assessment times: an initial assessment in September or October, and a second in April at the end of the academic year. As in study one, each participant was required to complete a series of questionnaires on the internet. People who had already participated in study one had to only complete the questionnaires not included in study one, while those who had not participate in study one were required to complete the entire set. Each was allocated, or re-allocated, a username and password as above.

The Interview Process

The first interview took place in September or October of the academic year. A structured clinical interview (i.e., the MINI) was the primary tool of the initial assessment session. As mentioned, the MINI is essentially a briefer version of the Structure Clinical Interview for the DSM-IV-Axis I Disorders (First, Gibbon, Spitzer, & Williams, 1996). Since we were interested in studying the presence of symptoms as well as diagnoses, we did not cease queries at specific termination points. In particular, we were interested in pursuing symptoms of dysphoria, generalized anxiety, and post-traumatic stress, even if it was clear that the specific diagnosis was not present. The MINI covers the majority of major Axis I disorders, including Major Depression (and the Melancholic subtype), Dysthymia, Generalized Anxiety Disorder, Panic Disorder (and Agoraphobia), Social

Phobia, Alcohol and Substance Disorders, Anorexia and Bulimia, Post-Traumatic Stress Disorder, a Psychotic disorders screening, and a screening for Antisocial Personality Disorder. Finally, questions were asked concerning previous diagnoses, hospitalizations, and treatment (i.e., psychological in nature).

During the interview, a series of standard questions were asked about the sexual assault (see Appendix F), and participants were encouraged to provide as much detail as they felt comfortable disclosing. The detail served to ensure that classification of the event was possible, and the questions were asked during the module examining Post-Traumatic Stress. Specifically, questions were asked about number of distinct events (i.e., number of different assailants, or occasions if the same assailant), whether the event was on one occasion or chronic in nature, when the events occurred, how long each of the events lasted at a time, whether there was physical violence involved (i.e., whether they were prevented from leaving by held physically held down, or hitting), whether they knew the alleged offender, what their relationship was to the alleged offender (if they indicated a prior relationship), and if they would personally have considered rape to have taken place. If asked, rape was simply described as sexual intercourse without consent. Numerous questions were posed if rape has not transpired, such as the nature of the physical contact (i.e., touching, manual versus oral, under or over the clothing, whether the contact was reciprocal), and whether the participant actively attempted to end the unwanted encounter, either via verbal or physical means. Questions were also asked about whether or not they told anyone about the event (i.e., friends, family, the police), and if they ever encountered this person in their lives subsequently. Finally, an open-ended question concerning how the event(s) had affected them in their every day lives

was posed. Specifically, each participant was asked to consider how the event affected their relationships with family, friends, romantic partners, school, work, and their feelings about themselves. Additional details about the event(s) was encouraged but not required. The majority of the above queries took the form of simple yes/no answers so as to minimize potential discomfort to the participant. Subsequently, participants were asked to select the sexual trauma that affected them the most and respond to questions concerning post traumatic stress in relation to that event.

The interview and the online questionnaires were completed once again in April. Interviews took between 40 minutes and an hour and a half, depending on diagnostic complexity, trauma history, and the willingness on the part of participant to speak about the sexual events. The interview in April was intended to be shorter, since a detailed history was not required. Focus on the months subsequent to the first interview was emphasized. Naturally, participants were not asked to describe the sexual assault again; however, they were asked if they experienced additional sexual assaults since the first interview. They were also asked to list other types of traumatic experiences they had over the course of the academic year.

Three interviewers interviewed the participants. The primary investigator (IV) interviewed all 63 people in the sexual assault group while two other interviewers completed the 50 participants in the comparison group. One of the interviewers was a senior level clinical psychology Ph.D. candidate, and the other was a senior level undergraduate psychology student. In order to ensure reliability across interviewers, each one sat in on five interviews with the primary investigator and then compared ratings. Reliability was found to be acceptable.

In order to guarantee that our group divisions remained valid, we assessed whether or not our Comparison group experienced sexual assaults over the course of the study. Thus, during the second interview, participants in the Comparison group were asked explicitly if they had ever experienced a sexual assault, and more specifically, since the first interview. In the event that the participant did experience a sexual trauma, they were excluded from the analyses. There were no individuals who endorsed experiencing a traumatic sexual event subsequent to Time 1.

Participants who completed this longitudinal study were given 35 dollars as compensation for their time. As well, upon completion of the study, participants were debriefed in an online procedure in accordance with departmental policy (see Appendix D).

Ethical Considerations

Because this study examined the effects of sexual assault, there were special ethical considerations. First, the issue of mandatory reporting was considered; in Nova Scotia, persons over the age of 16 are considered to be responsible for reporting any incidence of abuse that they may have experienced in the past. Since none of our participants were below the age of 17, this was not problematic. Second, participants who were upset by the process of discussing the sexual assault were encouraged to remain seated until their distress dissipated. However, in order to fully ensure that participants were safe, the primary investigator made certain that there was a registered Psychologist available to see anyone who was acutely distressed or suicidal during the time of the interviews. This happened on one occasion, and a Psychologist was brought

in immediately to speak with the participant. Treatment was arranged for this person subsequently. As a matter of course, all participants who were sexually assaulted were offered the opportunity to contact us if they wanted to be referred to a mental health professional to speak to about their traumatic event.

Other considerations included taking great care to protect the anonymity of the participants; the primary investigator did not disclose the nature of the research being carried out to the rest of the laboratory staff so anyone who was not directly involved with the study would not know why a participant for the present study was in the lab. In addition, each participant was offered the option of taking part in the interview in a secure room at the IWK Hospital. Finally, a female interviewer was available if any participant preferred. None chose that option.

Chapter 3: Results

Study 1: The frequency of, and vulnerability to, traumatic life events in a sample of Canadian university students

Main Objectives: (a) to survey the frequency of various traumatic experiences in a Canadian university sample (17 to 21 years of age), (b) to evaluate the extent to which these events are associated with psychopathology and functional difficulties, (c) document the impact of multiple traumas, (d) to determine the contribution of Dependency and Self-Criticism in the prediction of PTSD symptoms, and (d) to identify people who have been sexually assaulted as potential participants for study two.

A Brief Note on Data Analytic Techniques Contained Herein

The analyses that follow are part of an exploratory study. While it is acknowledged that there are times when the number of statistical tests being conducted may constitute a serious risk for committing a Type I error, Bonferroni corrections were nevertheless avoided. The intent of the analyses conducted was to uncover potential findings that would ideally be replicated at a later date. There are several authors who advocate the practice of avoiding Bonferroni corrections when conducting numerous analyses since the application of this technique can result in a loss of statistical precision. In fact, Perneger (1998) has advocated the viewpoint widely held by epidemiologists, that Bonferroni adjustments are, at best, unnecessary and, at worst, deleterious to sound statistical inference. The main thrust of the argument is as follows: 1) that the Bonferroni correction is concerned with the null hypothesis, which is the hypothesis that researchers are infrequently interested in, 2) the idea behind the adjustment defies common sense; for

example, if one test conducted by a physician comes back positive, and then, after she orders another, the first result is nullified. Whether something is important or not should be independent of how many other tests are conducted, 3) the reduction of Type I errors necessitates increasing the risk of committing Type II errors, which might facilitate the incorrect interpretation of data, and 4) Bonferroni calculations are infrequently used across papers (i.e., discussing the same data set) and are not applied to analyses which are conducted, but not reported. This might be considered a fallacious use of the data analytic method. Several other authors have agreed with this position (e.g., Feise, 2002; Bland & Altman, 1995; Rothman, 1990; Thomas, Siemiatycki, Dewar, Robins, Goldberg, & Armstrong, 1985).

Further, variables in multiple regressions that follow are often interpreted beyond the stage at which they were entered. Once again, since this is an exploratory study, the concern with the potential Type I error was not of primary importance. The main goal was to find any significant results that would then require replication at a later date to determine if the finding was spurious.

In addition, for all measures used in the below analyses, tests of kurtosis and skewness were conducted. Measures were found to be normally distributed. In addition, because of the fact that data were collected via the internet and participants were not permitted to skip questions (nor were they able to enter incorrect values), and there was no human error associated with data entry, there were no outliers that required removing. This was confirmed with scatter plots that were performed to verify this assumption.

Section 1: The Frequency of (Potentially) Traumatic Events (P/TE) in a Canadian University Sample

The Frequency of (Potentially) Traumatic Events (P/TE)

The purpose of this first analysis was to determine the frequencies of various Potentially Traumatic Events (PTE) in a university sample of Canadian students. It was hypothesized that the frequency of traumatic events in this university sample would be similar to that found in the TLEQ validation study by Kubany et al. (2000). For this analysis, frequencies were used to tally the number of each of the 21 types of events on the Traumatic Life Events Questionnaire (TLEQ). The results of this frequency count done in SPSS can be found in Table 3. This frequency count showed they were substantially different than with Kubany et al.'s (2000) validation study which examined the frequency of these potentially traumatic events (PTE) in a university sample. See the Discussion section below for further comment on these differences.

Of note, the PTE that was experienced by the most people was a motor vehicle accident (MVA), where 67% of the sample (N=298) endorsed the event at least one time; 150 people indicated that they had experienced an MVA once, 95 reported two incidents, 42 people endorsed three experiences, two people recalled five occasions, and two people had more than five MVAs. As reported above, the event that most often leads to PTSD is Sudden Death of someone close; in this sample, 63.7% of the participants (N=283) reported at least one event of this sort; 152 people reported one incident, 81 participants reported two events, 29 participants endorsed three occasions, 10 people recalled four instances, four people endorsed having experienced the event five times, and seven

people had seven unexpected deaths. The most chronic PTE in this sample was Family Violence which was experienced by 22.9% of the participants (N=102); 47 people experienced this on one occasion, 11 people on two occasions, seven participants on three occasions, one person on each of four and five instances, and 35 people reported more than five events. The least frequently experienced TLE in this sample was Abortion, where only 1.4% of the participants (N=6) reported ever having had this experience. Five people had experienced this one time, and one participant reported that they had had three such occasions. See below for a discussion of sexual assault specifically.

It was also important to document the number of people who endorsed experiencing each of the event types as *traumatic* (vs. potentially traumatic in the previous set of frequencies); that is, having experienced each of the specific events with intense fear, helplessness, or horror. See Table 4 for a list of the 21 types of traumatic events and the frequency of endorsement. Unlike with the PTE frequencies reported above, Sudden Death of someone close was the most commonly experienced TE, being experienced by 50% of this sample. Again, this has been reported to be the event that most commonly leads to symptoms of PTSD; this previous finding is supported in this sample as it is the most frequently traumatic of the PTE, making the likelihood of developing PTSD as a result of this TE the most likely one to be encountered. MVA, which was the most frequently reported PTE, was the second most reported TE, having been endorsed by 35.6% of the sample (N=158). Finally, Miscarriage and Abortion were the least frequently experienced TE, each being experienced by 1.1% of the sample (N=5).

The Frequency of Sexual P/TE

In continuing the first analysis, it was important to determine the frequency of sexual assault/unwanted sexual contact in a sample of Canadian university students. The hypothesis was that this rate would be lower than those found in the literature at present, which are largely based on American data (26%; Santello & Leitenberg, 1993). Of the 444 participants in the study, 104 (23.4%) endorsed experiencing an unwanted sexual life event of some sort (i.e., this number does not represent the total number of *traumatic* unwanted sexual contacts; see below for that). Seven of the 104 participants (6.7%) were men, which means that 8.0% of total men (N = 88) in this sample endorsed experiencing unwanted sexual contact, while 27.2% of the women in the sample endorsed the same. Of the specific types of unwanted sexual life events, 17 people endorsed experiencing sexual abuse before the age of 13 by someone who was more than five years older than they were, one time. Further, five people reported this happening twice, three reported three occasions, two reported four occurrences, and 12 people reported that it happened more than five times. In total, 8.8% (N=39) of the sample reported experiencing this particular type of unwanted sexual activity. In the category of sexual abuse before the age of 13 by someone who was roughly equal in age, 16 people reported one occurrence, one person endorsed two occasions, two people had three instances, and five people reported five or more occasions. A total of 5.4% (N=24) reported having this experience. 13.7% (N=61) of the sample experienced sexual assault as an adolescent; 40 people reported one instance, seven people reported that it occurred twice, eight people endorsed three occasions, one person reported that it happened five times, and five people endorsed more than five occurrences. Finally, 3.6% (N=16) of the sample reported having

unwanted sexual contact as an adult; 11 people reported one instance, one person recalled two occasions, two people endorsed having three events, and two people reported more than five times. The mean number of sexual PTE was 0.71 (SD=1.80).

Once again, sexual *trauma* was relatively common, occurring at least once in 19.6% of the sample (N=87). Thirty-four people (7.7%) endorsed experiencing a sexual trauma before the age of 13, as perpetrated by someone who was more than five years older than they were. Seventeen people (3.8%) reported that they experienced a sexual trauma as perpetrated by someone who was roughly equal in age to them at the time. Fifty-four (12.2%) people recalled experiencing a sexual trauma in adolescence. Finally, 10 people (2.3%) reported experiencing a sexual trauma as an adult. The average number of sexual TE was 0.26 (SD=0.58).

The results of this first analysis support the long-held finding that *potentially* traumatic life events are more common than are traumatic life events. It is this latter category that is of interest to most researchers who study PTSD. As mentioned above, the results here dissonant with the study done by Kubany and colleagues (2000), but there are several reasons for that which are discussed below. Interestingly, the majority of people who experienced an unwanted sexual contact found that it was traumatic. Also of interest was that almost one quarter of the participants experienced a sexual P/TE. This facilitated the process of selecting participants for the second study.

Descriptives for Potentially Traumatic Events

The purpose of the next set of analyses was to determine the average number of PTE that were experienced in this university sample, and further, to determine how

common is it to reach the age of a university student without experiencing any PTE. This is of importance because experiencing a P/TE is a key risk factor for PTSD, a potentially debilitating psychological disorder. Knowing more about this important variable will assist clinicians in their need to identify “at risk” individuals and intervene appropriately. The hypothesis for this question was that Canadian students would be equivalent to their American counterparts in that approximately 84% of students would have had at least one traumatic event (e.g., Vrana & Lauterbach, 1994).

To answer this question, the TLEQ was used again, and several aggregate variables were created. First, a raw total score on the TLEQ was calculated, the range of which is zero (i.e., no PTE) to 110 (i.e., the maximum number of times a person would have experienced an event across all categories of events). This total score is for PTE only; this total does not mean that the total score is representative of the number of actual *traumatic* life events, only that they experienced the endorsed events that many times. In this sample, the mean number of PTE was 7.5 (SD = 6.5). See Table 5 for a comparison of the overall sample to the two sub-groups selected for Study 2. In this university sample, 2.9% of people (N=13) reported that they had never experienced any of the life events that were listed on the TLEQ, which indicates that 97.1% of the participants in this sample endorsed experiencing a PTE. At the other extreme, there were two individuals (0.5%) who endorsed having experienced 42 PTE. This did not represent an outlier. The modal number of PTE was 1 (N=43; 9.7%).

Next, a traumatic events (TE) frequency count was calculated. Due to the nature of the questionnaire, it was not possible to calculate a total number of traumatic life events since participants are not asked whether each of the times a specific event was

experienced, it was done so with intense fear, helplessness, or horror. It allows a participant to rate at least one of these events as qualifying as a TE. Thus, the sum that was calculated represented a minimum number of traumatic life events that each particular person would have experienced, and thus, is perhaps closer to the number of *types* of traumatic events that one has experienced. For this sample, participants endorsed having experienced a mean of 2.8 (SD = 2.2) traumatic events. See Table 6 for a comparison to the two selected subgroups from Study 2. There were 62 people (14%) who indicated that they had never experienced any of these events as traumatic, which means that 86% of participants in this sample have experienced at least one life event that they would consider to be traumatic. This confirms the hypothesis as stated above. On the other end of the continuum, two people (0.5%) endorsed having experienced 11 types of traumatic events. The modal number of types of traumatic events experienced was 1 (N=91; 20.5%).

The data gathered here is very much consistent with the literature on the prevalence of P/TE. Eighty-four percent of patients experienced at least one TE, while 97% experienced at least one PTE. As discussed above, this signifies that these types of events, while being risk factors for pathology, are nevertheless “run-of-the-mill”. It is people’s reactions to these events that are paramount. This is where vulnerability comes in, and to which we turn to next.

Study 1, Section 1 Summary: The Frequency of P/TE

In the above section, it was found, not surprisingly, that the most commonly experienced events were motor vehicle accidents, both as PTE (67%) and TE (50%).

Importantly, it was found that in this university sample of 444 individuals, 23.4% had experienced a sexual assault of some sort in the past. This event was more common in women than men, and experiences in adolescence were the most frequently endorsed of the age groups. Potentially traumatic events were found to be more common than traumatic events; in fact, over 97% of people in this sample endorsed at least one PTE, while 86% of people experienced at least one of these events as traumatic. Thus, these events are extremely common, while the PTSD reaction is not.

Section 2: The Association between Events, Symptoms, and Vulnerability

The Impact of Life Events: Correlations between P/TE and Symptoms/Functioning

The purpose of the fourth analysis was to ascertain if there was an association between multiple P/TE and the various measures of symptoms and functioning (i.e., PTSD symptoms, dysphoria, role functioning). The hypothesis is that there would be a positive correlation with these measures of psychopathology and functioning and the number of P/TE that the participants have experienced. Bivariate correlational analyses were used to answer this question. For the first correlation, it was found that the BDI-2 (a measure of dysphoria) and the number of PTE were significantly correlated ($r=.205$, $p<.001$), as were the BDI-2 and number of TE ($r=.271$, $p<.001$), which means that the more events experienced, the more dysphoric someone is likely to be. The second outcome measure was the MPSS-SR (a measure of PTSD symptoms) was correlated with number of PTE ($r=.313$, $p<.001$), and the number of TE ($r=.357$, $p<.001$), which means that the greater the number of TE and PTE, the greater the symptoms of PTSD are likely to be. Thirdly, the BASIS-32 subscale, Daily Living/Role Functioning was also found to

be significantly associated with the number of PTE experienced ($r = .151$, $p < .01$), and the number of TE ($r = .220$, $p < .001$), meaning that the greater the number of PTE and TE, the less likely someone is likely to be able to fulfill role obligation and function in daily life. Finally, the BASIS-32 subscale, Relation to Self and Other (a measure of interpersonal functioning), was found to be related to the number of PTE ($r = .211$, $p < .001$) and the number of TE ($r = .267$, $p < .001$), which means that the greater the number of PTE and TE, the less likely they are to be able to relate well to others and feel good about themselves. Overall, these bivariate correlations support the hypothesis as stated above, that the number of PTE and TE are related to high number of symptoms and a poorer level of functioning.

The Association between PTSD Symptoms and Dependency & Self-Criticism

The purpose of the next analysis was to determine whether there was a relationship between the personality variables, Dependency and Self-Criticism, and symptoms of PTSD as measured by the MPSS-SR; overall symptoms, frequency of symptoms, and severity of symptoms were examined. The hypothesis was that there would be a significant correlation between the two personality factors and PTSD symptoms, as shown in the autonomy and sociotropy literature (e.g., Kolts et al., 2004), and suggested in the Dependency and Self-Criticism literature (e.g., Yehuda et al, 1994). Also examined were the relationships between Dependency and Self-Criticism and dysphoria (BDI-2), and functioning (BASIS-32). A series of bivariate correlational analyses were conducted to answer this question.

First, Dependency and Self-Criticism were correlated with the MPSS-SR's overall and frequency and severity scores. Dependency was found to be weakly but significantly related to frequency of PTSD symptoms ($r=.198$, $p<.001$), the severity of PTSD symptoms ($r=.208$, $p<.001$) and the MPSS-SR total PTSD symptom score ($r=.207$, $p<.001$). This indicates that the higher someone is on trait Dependency, the higher their PTSD symptom scores tend to be. Similarly, but more robustly, it was found that Self-Criticism was also significantly associated with the frequency of PTSD symptoms ($r=.479$, $p<.001$), the severity of PTSD symptoms ($r=.451$, $p<.001$), and the overall PTSD symptom score ($r=.469$, $p<.001$). This means that the higher someone is on trait Self-Criticism, the higher their PTSD symptom scores tend to be. This finding confirms the hypothesis as stated above that Dependency and Self-Criticism would be related to PTSD symptoms in a sample of University students. Dependency was also found to be correlated with the BDI-2 ($r=.286$, $p<.001$), weakly related to Self-Criticism ($r=.167$, $p<.001$), and with the BASIS-32 scales Daily Living/Role Functioning ($r=.269$, $p<.001$), and Relation to Self and Other ($r=.274$, $p<.001$). This indicates that as Dependency scores increase, so do symptoms of dysphoria, and difficulties related to role functioning and relating to others. Self-Criticism was significantly related to BDI-2 ($r=.630$, $p<.001$), and to the BASIS-32 scales Relation to Self and Other ($r=.610$, $p<.001$), and Daily Living/Role Functioning ($r=.559$, $p<.001$). As with Dependency, these findings indicate that as scores on Self-Criticism increase, so do symptoms and difficulties with functioning.

Secondly, BDI-2 scores were correlated with symptoms of PTSD. In this sample, dysphoria was significantly associated with the frequency of PTSD symptoms ($r=.570$,

$p < .001$), with the severity of PTSD symptoms ($r = .570$, $p < .001$), and the overall score on the MPSS-SR ($r = .578$, $p < .001$). This means that the higher PTSD symptoms, the higher the dysphoria symptoms tend to be. Likewise, the BASIS-32 subscale Relation to Self and Other (RSO) were correlated with symptoms of PTSD. It was found that the RSO scale was significantly correlated with the frequency of PTSD symptoms ($r = .485$, $p < .001$), the severity of PTSD symptoms ($r = .492$, $p < .001$), and the overall score on the MPSS-SR ($r = .496$, $p < .001$). This signifies that as symptoms of PTSD increase, so do difficulties relating to others and how one feels about the self. Finally, the BASIS-32 subscale Daily Living/Role Functioning was found to be significantly associated with the frequency of PTSD symptoms ($r = .423$, $p < .001$), the severity of PTSD symptoms ($r = .432$, $p < .001$), and the overall score on the MPSS-SR ($r = .435$, $p < .001$). This indicates that at higher levels of PTSD symptomatology, there are greater difficulties with role responsibilities and daily living.

Dependency, Self-Criticism, and PTSD

The purpose of the next analysis was to determine whether or not Dependency and Self-Criticism would be able to predict PTSD symptoms above and beyond symptoms of dysphoria. In the current model, dysphoria and PTSD symptoms may both be a product of vulnerability and trauma. Because these particular vulnerability measures may be contaminated by depression scores, it was thought important to remove the variance contributed by depression. The hypothesis for this analysis was that Self-Criticism would remain a unique predictor of PTSD symptoms while Dependency would not, after dysphoria was partialled out. In order to answer this question, three separate

hierarchical regressions were conducted (See Tables 7 & 8); one with Dependency, one with Self-Criticism, and one with Dependency and Self-Criticism together.

Note: Although it might be safer (from a Type I error perspective) to include a single model with both vulnerability factors included, Dependency and Self-Criticism have rarely been entered into regression models simultaneously. Thus, in an effort to replicate the methods within this area of research, three models were conducted instead, two with each of the personality factors individually, and one with both concurrently. Because this is typical, this method will therefore be used not only in this section, but throughout the course of the analyses that follow.

Predicting PTSD Symptoms using Dependency

In the first block of the first regression which included Dependency as a predictor, BDI-2 was included to predict scores on the MPSS-SR (PTSD symptoms). In the second block, BDI-2 was included again, as was Dependency. In the third step, an interaction term was included: BDI-2 by Dependency. In the first step with BDI-2 included, 33.4% of the variance in PTSD symptoms was accounted for, $F(1, 442) = 221.57, p < .001$. In step two, when BDI-2 and Dependency were added to the model, they contributed a non-significant 0.2% of the variance in PTSD symptoms above and beyond BDI-2 alone, $F_{inc}(1, 441) = 1.24, ns$. In step 3 of the model, the interaction term BDI-2 by Dependency was included in addition to BDI and Dependency. When the interaction term was added to the model, it contributed an additional and significant 1.8% of the variance in PTSD symptoms above and beyond dysphoria and Dependency, $F_{inc}(1, 440) = 12.03, p < .01$. The final model which included Dependency, BDI-2, and BDI-2 by Dependency

accounted for 35.3% of the variance in PTSD symptoms, $F(3, 440) = 80.18, p < .001$. In the final model, only the interaction term remained a significant and independent predictor of PTSD symptoms ($\beta = 1.08, p < .01$), while both BDI-2 ($\beta = -.451, ns$), and Dependency ($\beta = -.103, ns$) were no longer significant (see Table 7).

In order to break down the effects of this interaction (i.e., to show simple main effects), two additional regressions were conducted. A median split procedure was conducted with the BDI-2; 8 was found to be the median in this sample. In the first regression, the participants who scored below the median were selected ($N=202$), and then PTSD symptoms (MPSS) was regressed onto Dependency. This model was shown to predict a non-significant 0.00% of the variance in PTSD symptoms, $F(1, 200) = 0.04, ns$. In the second regression, the participants who scored above the median were selected ($N=242$), and then PTSD symptoms (MPSS) was regressed onto Dependency. This model was shown to predict a significant 2.30% of the variance in PTSD symptoms, $F(1, 240) = 5.64, p < .05$. In the prediction of PTSD symptoms, then, Dependency alone is unhelpful, while dysphoria is a unique and significant predictor. When they are considered together, however, their interaction becomes more important than dysphoria alone. Thus, for this analysis, a moderation model for Dependency was supported; under certain circumstances (i.e., high BDI-2 scores), Dependency was an important contributor to the prediction of PTSD symptoms even though it, in and of itself, did not contribute uniquely after accounting for dysphoria.

Predicting PTSD Symptoms using Self-Criticism

In the first block of the second regression which included Self-Criticism as a predictor, BDI-2 was included to predict scores on the MPPSS-SR (PTSD symptoms). In the second block, BDI-2 was included again, as was Self-Criticism. In the third step, an interaction term was included: BDI-2 by Self-Criticism. In the first step with BDI-2 included, 33.4% of the variance in PTSD symptoms was accounted for, $F(1, 442) = 221.57, p < .001$. In step two, when BDI-2 and Self-Criticism were added to the model, they contributed a significant 1.8% of the variance in PTSD symptoms above and beyond dysphoria alone, $F_{inc}(1, 441) = 12.45, p < .001$. In step 3 of the model, the interaction term BDI-2 by Self-Criticism was included in addition to BDI and Self-Criticism. When the interaction term was added to the model, it contributed a non-significant 0.0% of the variance in PTSD symptoms above and beyond dysphoria and Self-Criticism, $F_{inc}(1, 440) = 0.08, ns$. The final model accounts for 34.5% of the variance in PTSD symptoms, $F(3, 440) = 79.78, p < .001$. In the final model, both BDI-2 ($\beta = 0.538, p < .05$), and Self-Criticism ($\beta = 0.184, p < .005$) remained significant and independent predictors of PTSD symptoms, while the interaction term was not ($\beta = -0.287, ns$). In contrast to the analysis with Dependency, Self-Criticism was able to remain a unique contributor to the variance in PTSD symptoms after accounting for dysphoria. Also, unlike Dependency, there was no interaction, indicating that it did not matter whether dysphoria was high or low; Self-Criticism was still able to predict PTSD symptoms. Thus, as predicted, a moderation model was discarded for Self-Criticism while being supported for Dependency (see Table 8).

Predicting PTSD Symptoms using Dependency & Self-Criticism Concurrently

In the first block of the third regression which included Dependency and Self-Criticism as predictors, BDI-2 was included to predict scores on the MPPSS-SR (PTSD symptoms). In the second block, BDI-2 was included again, as was Dependency and Self-Criticism. In the third step, three interaction terms were included: BDI by Self-Criticism, BDI by Dependency, and BDI by Dependency by Self-Criticism. In the first step with BDI-2 included, 33.4% of the variance in PTSD symptoms was accounted for, $F(1, 442) = 221.57, p < .001$. In step two, when BDI-2, Dependency, and Self-Criticism were added to the model, they contributed a significant 2.0% of the variance in PTSD symptoms above and beyond dysphoria alone, $F_{inc}(1, 440) = 6.94, p < .005$. In step 3 of the model, the interaction terms BDI-2 by Self-Criticism BDI-2 by Dependency, and BDI-2 by Dependency by Self-Criticism were included in addition to BDI, Self-Criticism, and Dependency. When the interaction terms were added to the model, they contributed a significant 2.3% of the variance in PTSD symptoms above and beyond dysphoria, Self-Criticism, and Dependency, $F_{inc}(3, 437) = 5.26, p < .005$. The final model accounts for 37.7% of the variance in PTSD symptoms, $F(6, 437) = 44.04, p < .001$. In the final model, only Self-Criticism remained a significant and independent predictor of PTSD symptoms ($\beta = 0.223, p < .001$), while BDI-2 ($\beta = -0.061, ns$), Dependency ($\beta = -0.119, ns$), BDI by Dependency ($\beta = 0.754, ns$), BDI-2 by Self-Criticism ($\beta = -0.682, ns$), and BDI-2 by Dependency by Self-Criticism ($\beta = 0.475, ns$) were not (see Table 8B).

In the first analysis, Dependency was shown to interact with dysphoria to predict PTSD symptoms. In the second analysis, Self-Criticism was a unique and independent predictor of PTSD symptoms above and beyond dysphoria, and did not interact with

dysphoria as Dependency did. It appears that when Dependency and Self-Criticism are included together that the effect of Dependency is nullified, perhaps accounted for by the variance explained by Self-Criticism. Curiously, when the interaction terms were included, the predictive power of the BDI-2 was no longer significant.

Predicting PTSD Symptoms using Dependency, Self-Criticism, and TE

The purpose of the next set of analyses was to test whether Dependency and Self-Criticism would be able to predict PTSD symptoms as measured by the MPSS-SR over and above that predicted by the number of Traumatic events (TE). This represents the first attempt to test whether vulnerability factors are predictive of symptomatology above and beyond event count. It was hypothesized that Self-Criticism would continue to contribute uniquely to the prediction of PTSD symptoms over and above number of TE. To answer this question, three hierarchical regressions were conducted, one for Dependency, one for Self-Criticism and one for Dependency and Self-Criticism. In the first step of each of these two regressions predicting PTSD symptoms, the number of TE was entered. In the second step of the regression, Dependency or Self-Criticism or Dependency and Self-Criticism were entered together as a block. In the third block, the interaction terms were included.

In the first block of the first regression which included Dependency as a predictor (see Table 9), number of TE was included to predict scores on the MPPSS-SR (PTSD symptoms). In the second block, number of TE was included again, as was Dependency. In the third step, an interaction term was included: Number of TE by Dependency. In the first step with Number of TE included, 22.2% of the variance in PTSD symptoms was

accounted for, $F(1, 442) = 125.91, p < .001$. In step two, when TE and Dependency were added to the model, they contributed a significant 1.2% of the variance in PTSD symptoms above and beyond dysphoria alone, $F_{inc}(1, 441) = 6.68, p < .05$. In step 3 of the model, the interaction term TE by Dependency was included in addition to TE and Dependency. When the interaction term was added to the model, it contributed a non-significant 0.0% of the variance in PTSD symptoms above and beyond TE and Dependency, $F_{inc}(1, 440) = 0.21, ns$. The final model accounts for 23.4% of the variance in PTSD symptoms, $F(3, 440) = 44.73, p < .001$. In the final model, none of the predictors were significant, independent predictors of PTSD symptoms: TE ($\beta = 0.301, ns$), Dependency ($\beta = 0.09, ns$), and TE by Dependency ($\beta = 0.153, ns$). In this analysis, Dependency was found to be a unique and significant predictor of PTSD after accounting for the number of TE, which is a primary risk factor in the development of PTSD.

In the first block of the second regression which included Self-Criticism as a predictor, TE was included to predict scores on the MPPSS-SR (PTSD symptoms). In the second block, TE was included again, as was Self-Criticism. In the third step, an interaction term was included: TE by Self-Criticism. In the first step with TE included, 22.2% of the variance in PTSD symptoms was accounted for, $F(1, 442) = 125.91, p < .001$. In step two, when TE and Self-Criticism were added to the model, they contributed a significant 11.1% of the variance in PTSD symptoms above and beyond TE alone, $F_{inc}(1, 441) = 73.66, p < .001$. In step 3 of the model, the interaction term TE by Self-Criticism was included in addition to TE and Self-Criticism. When the interaction term was added to the model, it contributed a non-significant 0.0% of the variance in PTSD symptoms above and beyond TE and Self-Criticism, $F_{inc}(1, 440) = 0.01, ns$. The final

model accounted for 33.3% of the variance in PTSD symptoms, $F(3, 440) = 73.26$, $p < .001$. In the final model, only Self-Criticism ($\beta = 0.350$, $p < .001$) remained a significant and independent predictor of PTSD symptoms, while TE ($\beta = 0.339$, ns) and the interaction term were not ($\beta = 0.019$, ns). Once again, Self-Criticism contributes to the prediction of PTSD symptoms above and beyond number of TE, a vital risk factor. As with Dependency, Self-Criticism did not significantly interact with TE.

In the first block of the third regression which included Dependency and Self-Criticism as predictors, TE was included to predict scores on the MPPSS-SR (PTSD symptoms). In the second block, TE was included again, as was Dependency and Self-Criticism. In the third step, three interaction terms were included: TE by Self-Criticism, TE by Dependency, and TE by Dependency by Self-Criticism. In the first step with TE included, 22.2% of the variance in PTSD symptoms was accounted for, $F(1, 442) = 125.91$, $p < .001$. In step two, when TE, Dependency, and Self-Criticism were added to the model, they contributed a significant 11.7% of the variance in PTSD symptoms above and beyond TE alone, $F_{inc}(2, 440) = 38.83$, $p < .005$. In step 3 of the model, the interaction terms TE by Self-Criticism, TE by Dependency, and TE by Dependency by Self-Criticism were included in addition to TE, Self-Criticism, and Dependency. When the interaction terms were added to the model, they contributed a non-significant 0.0% of the variance in PTSD symptoms above and beyond TE, Self-Criticism, and Dependency, $F_{inc}(3, 437) = 5.26$, ns. The final model accounts for 34.5% of the variance in PTSD symptoms, $F(6, 437) = 38.39$, $p < .001$. In the final model, Self-Criticism remained a significant and independent predictor of PTSD symptoms ($\beta = 0.363$, $p < .001$), as did TE ($\beta = 2.886$, $p < .05$), and the three way interaction ($\beta = 2.896$, $p < .05$). The two-way

interaction TE by Self-Criticism was borderline significant in this context ($\beta = -2.809$, $P = .050$), and the two-way interaction TE by Dependency was not significant ($\beta = -2.626$, ns).

In an effort to explore the simple main effects of the three-way interaction that was found above, a series of four additional regressions were conducted (See Figure 1). Median splits were used to define groups; for the total Number of TE variable, the median value was 2, and for Dependency, the median value was 128. In the first regression, PTSD symptoms were regressed onto Self-Criticism in a group which contained people with a high number of TE and high Dependency scores ($N = 161$). This model explained a significant 21.9% of the variance in PTSD symptoms, $F(1, 159) = 44.59$, $p < .001$. In the second regression, PTSD symptoms were regressed onto Self-Criticism in a group which contained people with a low number of TE and high Dependency scores ($N = 64$). This model explained a significant 14.0% of the variance in PTSD symptoms, $F(1, 62) = 10.05$, $p < .005$. In the third regression, PTSD symptoms were regressed onto Self-Criticism in a group which contained people with a high number of TE and low Dependency scores ($N = 130$). This model explained a significant 10.8% of the variance in PTSD symptoms, $F(1, 128) = 15.49$, $p < .001$. In the fourth regression, PTSD symptoms were regressed onto Self-Criticism in a group which contained people with a low number of TE and low Dependency scores ($N = 89$). This model explained a significant 21.9% of the variance in PTSD symptoms, $F(1, 87) = 24.41$, $p < .001$.

In replication of the second analysis, Self-Criticism and TE are unique predictors of PTSD symptoms; in this context, however, the effect that was found for Dependency

was nullified. Interestingly, the three way interaction signifies that within the context of TE, levels on each of these predictive variables are dependent on each other. It is clear that Self-Criticism is more important than Dependency in the prediction of PTSD symptoms, but the above shows that Dependency also plays a role, especially in the context of a model with Self-Criticism and number of TE. This provides solid evidence that the number of TE and vulnerability factors interact in the prediction of PTSD symptoms, which provides support for a stress-diathesis model.

Study 1, Section 2 Summary: Events, Symptoms, and Vulnerability

Correlations between outcome measures and the number of P/TE uniformly found that as the severity of the pathology increased, so did the number of P/TE. Scores on Dependency and Self-Criticism were found to correlate with symptoms of PTSD, although there were stronger associations between PTSD and Self-Criticism. Using a regression to determine if PTSD could be predicted using Dependency over and above dysphoria, it was found that the interaction term was significant, indicating that Dependency was unhelpful alone in the prediction of PTSD symptoms, but when combined with high levels of dysphoria (i.e., a stress to the diathesis), it then has predictive power. Self-Criticism, on the other hand, contributed significantly to the prediction of PTSD scores over and above dysphoria. When using them both concurrently in regression, only Self-Criticism emerges as a unique predictor of PTSD scores, eliminating even the role of dysphoria. In a separate set of regressions, Dependency was also shown to be effective in predicting PTSD scores over and above number of TE, but its predictive power was eliminated when the non-significant

interaction term was included in the model. Self-Criticism remained significant after including TE in the prediction of PTSD. Curiously, when the two vulnerability factors were included in a model predicting PTSD over and above TE, Self-Criticism, TE, and the three way interaction term (Dependency, by Self-Criticism, by TE) was shown to be predictive. This shows that the two vulnerability factors interact with the risk factor TE to argue for the stress-diathesis model.

Study 2: A longitudinal study of Dependency, Self-Criticism, emotional expression, and social support in women who were sexually assaulted: Predictors of symptoms and functioning

Main Objectives: (a) to identify a group of individuals who have been sexually assaulted, (b) to determine if the individual difference factors *Dependency* and *Self-Criticism* in these participants make them particularly vulnerable to functional decline and symptom development, (c) to examine behavioral factors (e.g., emotional expression, social support) that may be related to pathology or behavioral disturbance, and (d) to test whether those participants who have been sexually assaulted might decompensate as compared to the Comparison group (i.e., will symptoms and functioning decline from Time 1 to Time 2), and (e) to determine if this decompensation can be predicted by Dependency/Self-Criticism, emotional expression, and social support.

In the two sections that follow, two sources of data were utilized. The first was the self-report data collected via the internet, which were used as continuous variables. The second source was the interview data, which were used as categorical variables. The interview data, provides the literature with seldom present diagnostic information (a

limitation of many previous studies), and also allows for direct comparisons with the continuous self-report measures.

Section 1: The contribution of sexual assault to symptoms, functioning, and frequency of events, as compared to group without sexual assault

The Frequency of (Potentially) Traumatic Events (P/TE)

The purpose of the first set of analyses in Study 2 is to document the frequency of various Potentially Traumatic Events (PTE) in a university sample of students who had been sexually assaulted and a Comparison group that was matched for type and number of events. This is of interest for two reasons: 1) to determine if our match has been successful, and 2) to determine if there are differences in the frequencies of P/TE between people who have and have not been sexually assaulted. It was hypothesized that the frequency of traumatic events in sample of women who were sexually assaulted would be proportionally greater than that found in the TLEQ validation study by Kubany et al. (2000). For this analysis, simple frequencies were used to tally the number of each of the 21 types of events on the Traumatic Life Events Questionnaire (TLEQ) for the sexually assaulted group. The results of this frequency count done in SPSS can be found in Table 10. This frequency count showed the figures found here are lower than the comparable sample in Kubany et al.'s (2000) validation studies which examined the frequency of these potentially traumatic events (PTEs) in a group of battered women (i.e., the closest comparison group).

For the Sexual Assault Group, the most commonly reported event once again was the motor vehicle accident (MVA), which was experienced by 69.5% (N=41) of the sample. Seventeen people reported once instance of MVA, 15 participants recalled two occasions when this happened, eight people reported three occurrences, and one participant reported that they had four MVAs in the past. Also of note, 67.8% of the sample (N=40) reported that they had experienced a Sudden Death of someone close, which, as mentioned above, has been shown to be the event that most commonly leads to PTSD (Breslau, Kessler, Chilcoat, Schultz, Davis, & Andreski, 1998). In this sample, 19 people reported one occasion where they had a sudden death of someone close; 12 people recalled two occasions, three people reported three times, two people endorsed the event four times, two participants recalled five times, and two people endorsed more than five times. As above, the most chronically experienced event was Family Violence, which was endorsed by 32.2% of the participants (N=19). Here, three people endorsed the experience on one occasion, four people recalled two episodes of family violence, one person said it occurred three times, and 11 people endorsed having experienced this event more than five times, which might mean that this was a regular/semi-regular occurrence in their home life. Coincidentally, five out of the six people who experienced Abortion from Study 1 were sexually assaulted and included here. In this group, four women reported one incident, and one person reported three occurrences; overall, Abortion was experienced by 8.5% of the group, and it was not the least commonly experienced event as it was in the sample as a whole. In this group, Robbery with a Weapon was the least commonly experienced event, being reported by 1.7% of the participants (N=1), and that

one person experienced this event on one occasion. See below for a discussion of sexual assault specifically.

Additionally, a tally of the number of PTE was done for the Comparison Group, and a full presentation of this data can be found in Table 11. This frequency count showed that this group was again at odds with Kubany et al.'s (2000) validation study that examined the frequency of these potentially traumatic events (PTEs) in a university sample. For this group, the most commonly reported PTE was Sudden Death of someone close, which was endorsed by 66.0% of the sample (N=42). Thirteen people stated that this happened once, eleven people twice, four people three times, three people four times, one participant five times, and one individual reported that this happened to them more than five times. Once again, this event represents the event that is most commonly traumatic for people, and thus, the event that is most likely the cause of the largest number of PTSD cases. The most chronically experienced event in this selection of participants, as above, was Family Violence, which was experienced by 32.0% of the sample (N=25). Seven people reported one occurrence of the event, while one person endorsed having had two instances, one person recalled three events of this sort, and seven participants stated that the event took place more than five times. There were several events that were not reported by this sample, and thus tied for the least endorsed events. They were: war, robbery with a weapon, Assault to Self, any of the sexual abuse categories (by definition of the group), miscarriage, and abortion.

In a separate frequency count, the number of people who endorsed experiencing each of the event types specifically as *traumatic* was examined. That is, these specific events were experienced with intense fear, helplessness, or horror. See Table 12 for a list

of the 21 types of traumatic events and the frequency of endorsement by the Sexual Assault Group. Here, the most frequently experienced type of TE was Sexual Abuse as an adolescent, which was reported by 34 of the 59 participants in this group (57.6%). The second most frequently experienced TE was Sudden Death of someone close which was endorsed by 32 participants (54.2%). The most infrequent experienced TE was a life-threatening Illness, which was only endorsed by 5.1% of the sample (N=3). The most chronically experienced PTE of this sample, Family Violence, was experienced as a TE by 28.8% of the sample (N=17).

Similarly, see Table 13 for a presentation of the data that documents the frequencies of TE in the matched Comparison group without sexual assault. In this selection of participants, the most commonly experienced TE was Sudden Death of someone close, which was endorsed by 60% of the sample (N=30). This represents additional evidence that this is the event that could most frequently trigger PTSD. The most frequently reported chronic PTE was Family Violence, and this was reported to be experienced as traumatic by 32% of this sample (N=16). As above with the PTE, there were several of the 21 event types that this group did not endorse having ever experienced as traumatic. These events were: war, robbery with a weapon, assault to self, any of the sexual assault categories (by definition of the group), marriage, and abortion.

The Frequency of Sexual P/TE

The purpose here is to document the frequencies of the various sexual assault/unwanted sexual contacts in the Sexual Assault Group. Of the 59 participants in this group, by definition, all of the women had experienced a sexual *trauma* of some sort

(see below for discussion of type and the number of trauma specifically). Of the specific types of unwanted sexual life events, 11 people endorsed experiencing sexual abuse before the age of 13 by someone who was more than five years older than they were, one time. Further, four people reported this happening twice, two reported three occasions, two reported four occurrences, and seven people reported that it happened more than five times. In total, 44.1% (N=26) of the sample reported experiencing this particular type of unwanted sexual activity. In the category of sexual abuse before the age of 13 by someone who was roughly equal in age, 10 people reported one occurrence, one person endorsed two occasions, and one participant had three instances. A total of 20.3% (N=12) of participants reported having this experience. Sixty-one percent (N=36) of the sample experienced sexual assault at least once as an adolescent; 18 people reported one instance, five people reported that it occurred twice, eight people endorsed three occasions, one person reported that it happened five times, and four people endorsed more than five occurrences. Finally, 15.3% (N=9) of the sample reported having unwanted sexual contact as an adult; five people reported one instance, two people endorsed having three events, and two people reported more than five times.

As mentioned in the previous paragraph, sexual *trauma* was, by definition, present (in at least one instance) in the Sexual Assault Group. Twenty-three people (39%) endorsed experiencing a sexual trauma before the age of 13, as perpetrated by someone who was more than five years older than they were. Ten people (16.9%) reported that they experienced a sexual trauma as perpetrated by someone who was roughly equal in age to them at the time. Thirty-four (57.6%) people recalled experiencing a sexual trauma in adolescence. Finally, eight people (2.3%) reported

experiencing a sexual trauma as an adult. The mean number of sex-related PTE experienced by this group was 3.29 (SD=2.80), while the mean number of different types of sexual *trauma* was 1.27 (SD=0.64).

Differences between Groups in the Number of Non-Sexual PTE and TE

The purpose of the following analysis was to determine if the sexually assaulted group has a higher number of non-sexual-related PTE and TE than the matched Comparison Group. The goal of this analysis was to confirm that the Sexual Assault group and the Comparison group would have experienced the same number of traumatic events (TE) other than sexual assault, as this was the purpose of the matching procedure. Since we were interested in making conclusions about the specific effects of sexual assault, it was considered essential to eliminate the sources of variance that might be attributable to non-sexual traumatic life events. It was also hypothesized that the Sexual Assault Group would have a higher number of PTE than the Comparison Group, but this was not a matching criterion since the main outcome variable, PTSD symptomatology, is not diagnostically linked to non-traumatic life events. That is, in order to make a diagnosis of PTSD, there must be a specific *traumatic* event that precedes it, not just a powerful or negative life event.

In order to make this match, a new variable was created to sum the total number of non-sexual related events experienced by the Sexual Assault Group. It is this new variable that was compared. Independent Samples t-tests were used to test this hypothesis. Firstly, in regards to non-sexual PTE, the Sexual Assault Group had a mean of 10.71 events (SD=8.0), while the Comparison Group had a mean of 7.6 (SD=5.6)

events. The result of the Independent Samples t-test showed that the Sexual Assault Group did indeed have a statistically higher number of non-sexual related PTE than did the Comparison Group, $t=-2.38$, $df=107$, $p<.05$. This supports the hypothesis, as stated above, that the Sexual Assault Group would have a greater number of non-sexual PTE than the Comparison Group. As mentioned, since this was not a matching criterion, this does not represent a problem. PTSD is not diagnosed on the basis of non-traumatic life events.

The following analysis examined the differences in numbers of non-sexual related TE between groups, which was a matching criterion. The Sexual Assault Group had a mean of 3.61 ($SD=2.17$) non-sexual TE, while the Comparison Group had a mean of 2.96 ($SD=1.80$) non-sexual TE. When an Independent Samples t-test was conducted, it was found that the null hypothesis was supported; the means were equivalent, $t=-1.68$, $df=107$, ns. This indicates that the people who had been sexually assaulted experienced the same number of non-sexual related TE as did the participants in the Comparison Group. It also means that efforts to match the Comparison Group on the number of non-sexual related TE group experienced of the Sexual Assault were successful. This confirms that the goal of matching was achieved.

Types of Sexual Assault Endorsed by the Sexual Assault Group

To be selected for inclusion in the Sexual Assault Group, participants had to endorse one of the four sexually based PTE on the TLEQ. Further, they had to indicate that at least one of these sexual PTE was actually a TE. Because these were criteria used for inclusion in the study, the participants had varying types of events that they

experienced, and varied in terms of number of sexual TE that they have experienced. While the frequency of events at different developmental periods was described above, the specifics of the events will be described here, and a full presentation can be found in Table 14. The data in the Table was taken from the interviews that were done with all the participants in the Sexual Assault Group at Time 1 at the beginning of the academic year. During the interview, the modal number of sexual events described verbally was 1 (N=44). Fourteen people reported having two sexual TE and one person described three sexual TE. As potentially the most serious TE, rape (defined as forced sex without consent) was reported a total of 18 times by 18 different participants, and thus, was experienced by 30.5% of our sample. In addition, attempted rape was reported on two occasions by two different participants and was experience by 3.4% of the sample. The most frequently reported sexual TE was one-way forced touching, which is where they were either forced to touch someone or they were forcibly touched in a sexual manner. This event was reported 19 times by 17 participants, and experienced by a total of 28.8% of the sample.

Differences between Groups on Symptoms and Functioning

The purpose of the following analysis is to test whether the victims of sexual assault have more symptoms and poorer functioning than people without any sexual TE at Time 1. Further, it was also the goal to determine whether the Comparison Group, which was matched for TE except for sexual assault, differed from the Sexual Assault Group. If it is possible to find a difference between the two Study 2 groups, and if they have been properly matched, then we can say that the difference in psychopathology and

functioning is due, at least in part, to the effects of the sexual assault. The hypotheses for this question are that sexual assault would be related to a decline (and / or diminishment) in functioning above and beyond that associated with other traumatic events. In addition, at time one, victims of sexual assault will function the least well, followed by their matched participants, followed by a selected sample of participants from study 1 without a history of any traumatic life events. See Table 15 for descriptive statistics comparing the means on dependent measures of the two groups and a third ex post facto selected “No Trauma” group. This latter group was created from Study 1 data to compare with the two traumatized groups from the second study. While this group was permitted to have had PTE, if they indicated that any of these events was experienced with intense fear, helplessness, or horror, then they were not considered for inclusion in this group.

For these analyses, One Way ANOVAs were conducted between the three groups, and Tukey post hoc measures were used to correct for the large number of tests that would be run in this subset of analyses. First, scores on the BDI-2 were compared across the three groups, and the omnibus test was found to be significant ($F=6.47$, $df=2, 165$, $p<.005$) permitting the use of post hoc testing. Comparing the Comparison and Sexual Assault groups revealed that there was not a significant difference in BDI-2 scores ($t=-2.36$, ns). Likewise, comparing the Comparison Group to the No Trauma Group revealed no significant differences ($t=3.69$, ns). However, a significant difference was found between the Sexual Assault Group and the No Trauma groups ($t=6.05$, $p<.005$), with the Assault group scoring higher in terms of dysphoria. Secondly, on the omnibus ANOVA for PTSD scores as measures by the total score on the MPSS-SR, it was found that there was a significant difference between the three groups, $F=16.30$, $df=2, 165$, $p<.001$. A

post hoc test comparing the Comparison and Sexual Assault groups revealed no significant differences between groups ($t=-7.54$, ns), although there was a trend for the Assault group to be higher. However, the Comparison Group did differ significantly from the No Trauma Group ($t=12.58$, $p<.005$) with the Comparisons experiencing more PTSD symptoms. Finally, the Assault Group was found to score significantly higher on PTSD symptoms than did the No Trauma Group ($t=20.12$, $p<.001$). This means that the effect of sexual assault was not enough to raise dysphoria and PTSD scores significantly higher than those found in a matched Comparison Group, although there is clearly a trend in that direction.

Three measures on the BASIS-32 were used to compare the three groups. The first was the Relation to Self/Other subscale. There was a significant finding for the omnibus test indicating that there were differences between groups, $F=4.37$, $df=2$, 165 , $p<.05$. Tukey tests supported the null hypothesis in comparisons between the Comparison Group and the Sexual Assault Group ($t=-.17$, ns), and the Comparison and No Trauma Group ($t=.19$, ns). However, there was a significant difference between the Assault Group and the No Trauma Group ($t=.36$, $p<.01$) indicating more difficulties in this area of functioning in the Assault group than in the group without any TE. The omnibus test of differences between groups on the Daily Living/Role Functioning subscale of the BASIS revealed that there were no differences ($F=2.93$, $df=2$, 165 , ns) between groups. Post hoc analyses were not examined. The omnibus test comparing scores on the Impulsive/Addictive subscale of the BASIS was significant, $F=5.44$, $df=2$, 165 , $p<.01$. Tukey post hoc tests supported the null hypothesis in comparisons of the Comparison Group to the Sexual Assault Group ($t=-.02$, ns), and between the

Comparison Group and the No Trauma Groups ($t=.07$, ns). However, there was a significant difference between the Sexual Assault Group and the No Trauma group ($t=.27$, $p<.005$), indicating that the Assault Group had more difficulties in this domain of functioning.

One-Way ANOVAs were used for the final two measures since the No Trauma Group did not fill out the measures being compared here. On the BMAST, a measure of alcohol Dependency, it was found that the Sexual Assault Group scored significantly higher than did the Comparison Group $F=4.35$, $df=1, 101$, $p<.05$. This means that people in the Sexual Assault Group have more difficulties with alcohol than do the people in the Comparison Group. Finally, means on the PILL, a measure of physical health symptoms, were compared between groups. Once again, the Sexual Assault Group was found to score significantly higher than the Comparison Group ($F=4.53$, $df=1, 100$, $p<.05$) which means that the Sexual Assault group is experiencing more physical health symptoms than are the Comparison Group.

Taken as a whole, the hypothesis of “Assault>Comparison>No Trauma” in this study was not supported. If there were differences, they were mostly between the “Sexual Assault” and “No Trauma” groups; only in the last two One-Way ANOVAs were there differences between the two study groups.

The Association between Sexual Assault and Symptoms over Time

The purpose of the next analysis was to determine if the number of traumatic sexual assault types experienced as rated by the participants at Time 1 on the TLEQ was related to the severity of symptoms and functioning at Time 2. The hypothesis is that the

number of traumatic sexual assault types will be positively associated with symptom severity at Time 2. Only the Sexual Assault Group was used for these analyses as they are the only ones who would have experienced the relevant events. A set of correlations were conducted to answer this question. The average number of sexual TE endorsed on the TLEQ for the group was 1.27 (SD=0.64). The number of sexual TE at Time 1 was correlated with several of the symptom measures at Time 2. It was correlated with the Total Score on the MPSS-SR at Time 2 ($r=.381$, $p<.005$), and its subscales, the total Frequency score ($r=.407$, $p<.005$), and the total Severity score ($r=.343$, $p<.01$). This demonstrates that there is a significant and positive association between the number of sexual TE and PTSD symptoms over time.

These correlations were conducted again (i.e., number of sexual TE and Time 2 PTSD symptoms), but this time controlling for Time 1 symptoms. When *Time 1* symptoms were controlled for with partial correlations, none of frequency ($r=.139$, ns), severity ($r=.001$, ns) or total score ($r=.074$, ns) on the MPSS were significantly associated with number of TE. Number of Sexual TE was significantly correlated with total BDI-2 scores at Time 2 ($r=.253$, $p<.05$), which indicates that as the number of sexual TE increases, so does the total BDI score. When controlling for BDI-2 score at Time 1 with the use of partial correlation, the effect drops below the level of significance ($r=.196$, ns). The number of Sexual TE was also correlated to the Time 2 BASIS subscales Relation to Self and Other ($r=.287$, $p<.05$), and Daily Living/Role Functioning ($r=.325$, $p<.05$) which demonstrates that as the number of sexual trauma increases, participants report more behavioral problems at Time 2. When Time 1 functioning was partialled out for each of these associations, however, Relation to Self and Other ($r=.267$, ns) was no longer

significant, while Daily Living/Role Functioning ($r=.305$, $p<.05$) was significant. Finally, there was a significant relationship between total number of sexual TE and the PILL at Time 2 ($r=.446$, $p<.005$), indicating that as the number of sexual TE increases, so do the reports of physical health symptoms. This association remained significant after partialing out Time 1 Physical Functioning ($r=.290$, $p<.05$).

Thus, with the exception of Physical Functioning and Daily Living/Role Functioning, the correlations between the number of sexual traumas and the outcome measures were eliminated when partialing out the variance associated with Time 1 symptoms. This is consistent with findings elsewhere in the present study that there is no significant difference between Time 1 and Time 2 scores.

Predicting PTSD Symptoms using Non-Sexual TE: Is there Value Added?

The purpose of the next analysis was to determine whether the addition of various other TE are predictive of PTSD symptoms above and beyond that which is accounted for by the number of sexual TE alone. The hypothesis here is that the number of TE in addition to the sexual TE will contribute uniquely to the prediction of PTSD symptoms, in accordance with the literature on the effects of multiple TE. To answer this question, a hierarchical regression was used. In the first block of the regression the variable Sexual TE was included to predict scores on the MPPSS-SR (PTSD symptoms). In the second block, Number of Sexual TE was included again, as was Number of Non-Sexual TE. In the third step, an interaction term was included: Number of Sexual TE by Number of Non-Sexual TE.

In the first step with Number of Sexual TE included, 14.5% of the variance in PTSD symptoms was accounted for, $F(1, 49) = 8.30, p < .01$. In step two, when Number of Sexual TE and Number of Non-Sexual TE were added to the model, they contributed a significant 7.0% of the variance in PTSD symptoms above and beyond Number of Sexual TE alone, $F_{inc}(1, 48) = 4.25, p < .05$. In step 3 of the model, the interaction term Number of Sexual TE by Number of Non-Sexual TE was included in addition to Number of Sexual TE and Number of Non-Sexual TE. When the interaction term was added to the model, it contributed a significant 6.9% of the variance in PTSD symptoms above and beyond Number of Sexual TE and Number of Non-Sexual TE, $F_{inc}(1, 47) = 4.55, p < .05$. The final model accounts for 28.4% of the variance in PTSD symptoms, $F(3, 47) = 6.21, p < .005$. In the final model, Number of Sexual TE remained a significant and independent predictor of PTSD symptoms ($\beta = 0.761, p < .01$), as did both the Number of Non Sexual TE ($\beta = .829, p < .01$), and the interaction term ($\beta = -.887, p < .05$). This analysis confirms the hypothesis that trauma that is non-sexual in nature is able to contribute significantly to the prediction of PTSD symptoms over and above the Number of sex-related traumas. It also demonstrates that the combination of sexual and non-sexual TE has additional predictive power.

The Frequency of Psychiatric Disorders as Measured by Structured Interview: Using Categorical Data

The purpose of this set of analyses is 1) to determine the frequency of the various psychiatric disorders, as measured by a structured clinical interview in the Sexual Assault and the Comparison Groups, and 2) to determine if there are differences in the number of

disorders that are present in each of the two groups. This section was included because diagnostic categories have seldom been used in this type of research, and it the primary way in which Psychologists succinctly communicate the difficulties experienced by patients. Additionally, there is some divergence between the self-report and diagnoses. Although the self-report measure is often used in clinical work, they are used as screening measures, and as ways to monitor change. The interview data provides “external validity” while permitting us to compare this data to the commonly used self-report measure. The hypothesis for this question was that participants in the Sexual Assault Group would more frequently be diagnosed with disorders than the Comparison Group overall, and anxiety disorders in particular, at both time points. The first part of the analysis requires basic descriptive statistics, including a frequency count. The second part of the analysis will be a comparison of frequencies via Chi Square analysis.

The frequency count of the number of psychiatric disorders in the sexual assault group by time can be found in Table 16. Of note in particular, at Time 1, the Sexual Assault Group had four people with Major Depressive Disorder, and 33 who had a past episode; one person had a threshold condition that might have qualified for a Minor Depressive Disorder according to DSM-IV-TR Disorders for Future Consideration. At Time 2, the number of diagnosable MDD increased to five, despite the loss of six participants to attrition. In terms of PTSD, there were five reported cases at the time of the first interview, and 20 cases of remitted PTSD which they experienced at some time in the past. At time 1 there was one case of subthreshold PTSD. At time 2, the number of current diagnosable PTSD dropped to one case, and there was no development of the condition in the sample throughout the course of the six months between interview

sessions. The most frequently diagnosed disorder was Agoraphobia; at Time 1, there were 12 cases who qualified for a full diagnosis, while at Time 2, that number dropped to 10. At Time 1, there was one subthreshold case. Of note was also Generalized Anxiety Disorder (GAD), which was present in nine of the participants at Time 1, accompanied by 12 subthreshold cases. At Time 2, the number of diagnosable cases of GAD increased by two to 11, while the subthreshold cases also increased to 14. Also relatively common was Alcohol Abuse; there were four reported cases at Time 1, with two of them reporting having abused alcohol at some point in the past, while at Time 2, that number increased to eight participants. Three participants were at risk for suicidal behavior at both Time 1 and Time 2. The least frequently encountered disorders in this group were Dysthymia and Psychosis. There were no diagnosable cases of either of these disorders at either time point, although there was one questionable subthreshold case of Psychosis at Time 1.

The frequency count of the number of psychiatric disorders in the Comparison Group by time can be found in Table 17. Of particular note, there were two diagnosable cases of MDD at Time 1, and 11 reported past episodes with one subthreshold case. At Time 2, there was only one case of MDD, with one case that had developed and remitted during in the interval between interviews. Also of note, there were no cases of PTSD at Time 1, but there was one case of a past episode, and two cases that were subthreshold. At Time 2, there was one case of PTSD, but there were neither any that developed in the interval between interviews nor were there any subthreshold cases. In this group, Bulimia was the most frequently diagnosed disorder, with four cases present at Time 1, and three cases present at Time 2. As in the Sexual Assault Group, there were three people who were at risk for suicidal behavior at both time points. There were several

disorders that were never diagnosed, past or present, in this group, including: Mania, OCD, Alcohol Dependence, Psychosis, Anorexia, and Antisocial Personality Disorder. The rest of the disorders had at least one case, past or present.

A summary of descriptive statistics on different categories of diagnosable disorders can be found in Table 18. When comparing the raw number of disorders present in both the Sexual Assault and the Comparison Groups, it is clear that the Sexual Assault Group has more current disorders, and has a history of more disorder as compared to the Comparison group. Looking at the “Any Anxiety Disorder” category reveals that at Time 1, 26 participants (44.1%) have one or more anxiety disorders, as compared to the Comparison group, where 4 participants (8.0%) have an anxiety disorder. Thirty-four (57.6%) of the 59 participants in the Assault Group had a diagnosable disorder of some sort, as compared with the 12 participants (24.0%) in the Comparison Group. Also of note are the 43 participants (72.9%) who qualified as having a past disorder of some type, as compared to the 13 participants (26.0%) in the Comparison Group. The mean number of disorders in the Sexual Assault Group over the course of their lives was 2.37 (SD=1.75) versus the Comparison Group who had a mean of 0.64 (SD=0.92) lifetime disorders.

Similar frequencies were seen in the Time 2 diagnostics for the Sexual Assault Group, although the number of “mood disorders” went up. For the Comparison group, the frequency counts went down in the “anxiety” and “any current” categories, while remaining the same in the “mood disorders” category. See below for tests of change.

Differences between Groups in the Frequency of Diagnoses using Categorical Data

In terms of testing the differences between the frequency counts of these diagnoses, a series of Chi-Square analyses were conducted. In order to maximize the likelihood of finding an effect, rather than looking at individual disorders (which were present relatively infrequently, and thus, Chi Square analysis would be inappropriate), three indices were tested: “Any Mood Disorder”, “Any Anxiety Disorder”, and “Any Disorder” to increase the number of positive instances (e.g., there are only four positive cases of MDD in the Sexual Assault Group and only two cases of MDD in the Comparison Group). In addition, since the hypothesis being tested is specific, the tests were specified so that only the differences in the frequency of positive cases were examined; thus participants were included in the analyses only if the disorder in question was *present*.

This first set of analyses was conducted between groups at Time 1. In the first Chi-Square analysis, the difference in “positive” frequency between groups at Time 1 in the “Any Mood Disorder” category was tested. In this analysis, it was found that there were no significant differences between the two cell means, $\chi^2 = .67$, $df = 1$, ns. This means that there are no significant differences in frequencies between cells between the two groups in terms of mood disorders. The Sexual Assault Group had six positive cases, and the Comparison Group had two positive cases. In the second Chi Square analysis, the difference in frequency between groups at Time 1 in the “Any Anxiety Disorder” category was tested. In this analysis, it was found that there were significant differences between the two cell means, $\chi^2 = 16.13$, $df = 1$, $p < .001$. This means that there is a significant difference in the frequency of anxiety disorders between the two groups.

Looking at the number of anxiety disorders in each group reveals, then, that the Sexual Assault group has a proportionately greater number of anxiety disorders than does the Comparison group. The Sexual Assault group has 26 positive cases (i.e., 26 participants out of the 59 qualified for the diagnosis on an anxiety disorder), while the Comparison Group only has four. Finally, in the third Chi-Square analysis, the difference in frequency between groups at Time 1 in the “Any Disorder” category was tested. In this analysis, it was found that there were significant differences between the two cell means, $\chi^2 = 10.52$, $df = 1$, $p < .001$. Looking at the frequency of the presence of any disorder in each group reveals, then, that the Sexual Assault group has a proportionately greater number of disorders than does the Comparison group. In this case, at Time 1, the Sexual Assault Group has 34 positive cases (i.e., 34 participants with at least one disorder) and the Comparison Group has 12 positive cases.

The second set of Chi-Square analyses were conducted between groups at Time 2. In the first Chi Square analysis, the difference in frequency between groups at Time 2 in the “Any Mood Disorder” category was tested. In this analysis, it was found that there were no significant differences between the two cell means, $\chi^2 = 2.00$, $df = 1$, ns. This means that there are no significant differences in frequencies between cells in between the two groups in terms of mood disorders. The Sexual Assault Group had six positive cases, and the Comparison Group had two positive cases. In the second Chi Square analysis, the difference in frequency between groups at Time 2 in the “Any Anxiety Disorder” category was tested. In this analysis, it was found that there were significant differences between the two cell means, $\chi^2 = 17.64$, $df = 1$, $p < .001$. This means that there is a significant difference in the frequency of anxiety disorders between the two groups.

Looking at the number of anxiety disorders in each group reveals, then, that the Sexual Assault group has a proportionately greater number of anxiety disorders than does the Comparison group. The Sexual Assault group has 23 positive cases (i.e., 23 participants out of the 53 qualified for the diagnosis on an anxiety disorder), while the Comparison Group has only two. Finally, in the third Chi-Square analysis, the difference in frequency between groups at Time 2 in the “Any Disorder” category was tested. In this analysis, it was found that there were significant differences between the two cell means, $\chi^2 = 14.30$, $df = 1$, $p < .001$. Looking at the frequency of the presence of any disorder in each group reveals, then, that the Sexual Assault group had a proportionately greater number of disorders than did the Comparison group. In this case, at Time 2, the Sexual Assault Group had 30 positive cases (i.e., 30 participants with at least one disorder) and the Comparison Group had seven positive cases.

Overall, these Chi-Square analyses support the above stated hypothesis that the Sexual Assault Group would be more frequently diagnosed with a disorder in general, and an anxiety disorder in particular, at both time points. The implication for the vulnerability analyses is that there will likely be an interaction between the vulnerability factors and group status, with sexual assault victims being more likely to have psychopathology and the Comparison Group less likely.

Study 2, Section 1 Summary: Sexual assault, symptoms, functioning, & number of PTE

In terms of frequencies, once again, MVA was the most commonly experienced PTE for the Sexual Assault Group, but Sudden Death of a Loved One was the most common event for the Comparison group. In contrast, sexual assault as an adolescent

was the most frequently experienced TE for the Sexual Assault group, and again, Sudden Death of a Loved One for the Comparison group. Amongst the Sexual Assault Group, a sexual assault as an adolescent was the most commonly endorsed time period. In taking stock of the types of sexual assault experienced by participants, it was found that rape was experienced by over 30% of the sample, while the most frequently encountered sexual event was one-way forced touching (29%; some more than once).

In comparing the Sexual Assault Group, the Comparison Group, and the No Trauma groups together across the various symptom measures, it was found that while there was a trend in the direction of the assault group being higher than the comparison group, which in turn was higher than the no trauma group, the majority of significant differences existed between the Assault group and the No Trauma groups with the Comparison group falling in the middle. For functioning, the same pattern emerged, save for the Daily Living score, which did not differ significantly between groups. In contrast, the Assault and Comparison groups did differ on a measure of alcohol dependency and on a measure of physical health functioning. In relating the number of TE to scores of symptoms and functioning at Time 2, the associations were significant, but lost their significance if the Time 1 symptom scores were partialled out. However, both Daily Living and Physical Health Functioning were still correlated with number of TE after partialing out Time 1 scores. In an attempt to quantify the utility of non-sexual TE in predicting PTSD symptoms above and beyond sexual TE, a regression showed that both remained unique predictors when in the model together, and that they interacted for additional predictive power.

Frequency counts of the number of Psychiatric diagnoses made by structured interview showed that Agoraphobia was the most frequent diagnosed condition at Time 1 in the Sexual Assault Group, and Bulimia was the most frequently diagnosed condition in the Comparison Group at Time 1. The Sexual Assault group was more frequently diagnosed with a DSM-IV-TR disorder. Chi Square analyses showed that the Sexual Assault Group were more frequently diagnosed with Any Anxiety Disorder, and Any Disorder in general at both Time 1 and Time 2.

Section 2: Change, and Vulnerability to Symptoms and Functioning

Change Over Time in Symptoms and Functioning Between Groups: Continuous Data

The purpose of the present set of analyses is to test whether or not several measures of symptoms and functioning will change over time, and whether this effect will be different depending on which group the participants are in. The hypothesis for this set of analyses is that scores on the symptom measures and functioning will increase for the Sexual Assault Group, but will not change for the Comparison Group. The alternative hypothesis would be that the Sexual Assault Group might simply improve less than the Comparison group over time. Four repeated measures ANOVAs were conducted to test this hypothesis for the four main criterion variables. A presentation of means at both times can be found in Table 19.

The dependent variable for the first ANOVA was total BDI-2 score (dysphoria). A main effect was found for the within subjects variable ($F=5.05$, $df=1, 99$, $p<.05$) comparing BDI scores across the two time points. An examination of the means, however, shows that the participants are reporting fewer symptoms in at Time 2 in both

groups. The main effect for the between subjects factor which compared the two groups across BDI-2 scores was found to be non significant ($F=1.21$, $df=1$, 99, ns). The interaction term, BDI-2 (within subjects) by Group (between subjects) was also found to be non significant ($F=.21$, $df=1$, 99, ns).

The dependent variable for the second repeated measures ANOVA was total MPSS-SR score (PTSD Symptoms). A main effect was found for the within subjects variable ($F=18.92$, $df=1$, 99, $p<.001$) comparing PTSD scores across the two time points. An examination of the means, however, shows that the participants are reporting fewer symptoms in at Time 2 in both groups. The main effect for the between subjects factor which compared the two groups across PTSD scores was borderline significant ($F=3.88$, $df=1$, 99, $p=.052$) which means there was a trend towards significant differences between groups across PTSD scores. The interaction term, MPSS-SR (within subjects) by Group (between subjects) was found to be non significant ($F=.001$, $df=1$, 99, ns).

The criterion variable for the third repeated measures ANOVA was the Daily Life/Role Functioning score from the BASIS-32. A main effect was found for the within subjects variable ($F=5.64$, $df=1$, 99, $p<.05$) comparing role functioning scores across the two time points. An examination of the means, however, shows that the participants are reporting fewer difficulties with functioning at Time 2 in both groups. The main effect for the between subjects factor, which compared the two groups across PTSD scores, was found to be non significant ($F=0.697$, $df=1$, 99, ns), which means that there were no significant differences between groups. The interaction term, Role Functioning (within subjects) by Group (between subjects) was also found to be non significant ($F=.486$, $df=1$, 99, ns).

The dependent variable for the fourth repeated measures ANOVA was the Physical Health Functioning score. A main effect for the between subjects factor which compared the two groups across PTSD scores was found to be significant ($F=5.77$, $df=1$, 99 , $p<.05$) which means that there were significant differences between groups. The main effect for the within subjects variable comparing role functioning scores across the two time points was found to be non-significant ($F=.475$, $df=1$, 99 , ns). The interaction term, Physical Health Functioning (within subjects) by Group (between subjects) was also found to be non-significant ($F=.552$, $df=1$, 99 , ns).

Overall, these repeated measures ANOVAs did not support the hypothesis that the Sexual Assault Group would worsen over time, and that they would have more symptoms and function worse than the Comparison Group. Indeed, symptoms tended to reduce over time for both groups, and they remained equivalent between groups at both time points.

Change Over Time in Frequency of Diagnosis by Structured Interview: Categorical Data

The purpose of the following analysis is to determine if the number of diagnoses made by structured interview increases from Time 1 to Time 2 for both groups. The hypothesis for this question was that the number of disorders would increase for the Sexual Assault Group, but that the Comparison Group would remain constant. In order to answer this question, Cochran's test (roughly, a non-parametric analogue of the repeated measure ANOVA; simplified to the McNemar Chi Square) was chosen to compare within the categories of frequency of disorders. Once again, combined dependent variables were utilized, including "Any Mood Disorder", "Any Anxiety

Disorder”, and “Any Disorder”. In the Comparison Group, for the first category (“Any Mood Disorder”), the Cochran’s test was found to be non-significant (Cochran's $Q = 0.00$, $df = 1$, $N = 49$, ns). This means that the frequency of diagnosed mood disorders did not change from Time 1 to Time 2. For “Any Anxiety Disorder”, once again, the Cochran’s test did not permit us to reject the null hypothesis of equal proportions across measures (Cochran's $Q = 0.67$, $df = 1$, $N = 49$, ns). Finally, for the category “Any Disorder”, the Cochran’s test was non-significant (Cochran's $Q = 2.78$, $df = 1$, $N = 49$, ns), indicating that there were no differences in frequency in this category from Time 1 to Time 2 in the Comparison Group.

In the Sexual Assault Group, for the first category (“Any Mood Disorder”), the Cochran’s test was found to be non-significant (Cochran's $Q = 1.00$, $df = 1$, $N = 53$, ns). This means that the frequency of diagnosed mood disorders did not change from Time 1 to Time 2. For “Any Anxiety Disorder”, once again, the Cochran’s test did not permit us to reject the null hypothesis of equal proportions across measures (Cochran's $Q = 0.07$, $df = 1$, $N = 53$, ns). Finally, for the category “Any Disorder”, Cochran’s test was non-significant (Cochran's $Q = 0.00$, $df = 1$, $N = 53$, ns), indicating that there were no differences in frequency in this category from Time 1 to Time 2 in the Comparison Group.

Overall, then, the hypothesis for the Comparison Group was supported, since there were no differences in the frequencies of disorders as compared between Time 1 and Time 2. The hypothesis was unsupported for the Sexual Assault Group, however, since, like the Comparison Group, there were no differences in frequencies between time points.

Predicting Diagnostic Status with Dependency and Self-Criticism: Categorical Data

The purpose of this analysis was to determine if Dependency and Self-Criticism at Time 1 could predict the presence or absence of “Any Anxiety Disorder”, or “Any Disorder” by group at Time 2 (note: the category “Any Mood Disorder” was dropped due to the relatively low frequency and lack of differences between groups). The hypothesis of this question was that Dependency and Self-Criticism at Time 1 would both be able to uniquely contribute to the prediction of “Any Anxiety Disorder”, or the presence of “Any Disorder” at Time 2, above and beyond that which is predicted by group membership. Both of these dependent variables are dichotomous, indicating either the presence (1) or absence (0) of a disorder at that particular point in time. In order to test this hypothesis, two logistic regressions were run with the Sexual Assault and Comparison Groups included in the equation as a class (categorical) variable at Step 1, and Dependency and Self-Criticism entered subsequently into the equation as continuous measures at Step 2. Interactions were not included in the equations since interactions are of debatable value in logistic regression. Each of the two regressions had a different dependent variable: 1) Any Anxiety Disorder, and 2) Any Disorder.

In the first logistic regression, “Any Anxiety Disorder” was regressed on to group, Dependency, and Self-Criticism hierarchically. At step 1, when group is included in the equation, the overall model is significant according to the model chi-square statistic, $\chi^2 = 24.35$, $df=1$, $p<.001$. The model predicts 75.5% of the responses correctly. The variable “group” is a significant predictor of diagnostic status, $W=13.98$, $df=1$, $p<.001$. The addition of Dependency and Self-Criticism at Step 2 contributed significantly to the prediction of the dependent variable, Block $\chi^2 = 6.67$, $df=2$, $p<.05$. The overall

percentage of correct predictions in this model is 79.4% which represents an increase from the previous model. The overall final model remains significant, $\chi^2 = 31.00$, $df=1$, $p<.001$. In the final model, both Self-Criticism ($W=4.96$, $df=1$, $p<.05$) and Group ($W=13.08$, $df=1$, $p<.001$) are significant predictors of “Any Anxiety Disorder”, while Dependency is not ($W=0.01$, $df=1$, ns).

In the second logistic regression, “Any Disorder” was regressed on to group, Dependency, and Self-Criticism hierarchically. At step 1, when group is included in the equation, the overall model is significant according to the model chi-square statistic, $\chi^2 = 20.88$, $df=1$, $p<.001$. The model predicts 70.6% of the responses correctly. The variable group is a significant predictor of diagnostic status, $W=17.38$, $df=1$, $p<.001$. The addition of Dependency and Self-Criticism at Step 2 contributed significantly to the prediction of the dependent variable, Block $\chi^2 = 7.77$, $df=2$, $p<.05$. The overall percentage of correct predictions in this model is 73.5% which represents an increase from the previous model. The overall final model remains significant, $\chi^2 = 28.64$, $df=3$, $p<.001$. In the final model, only Group ($W=16.27$, $df=1$, $p<.001$) was a significant predictor of “Any Anxiety Disorder”, while Dependency was not ($W=1.13$, $df=1$, ns). Self-Criticism ($W=3.80$, $df=1$, $p=.051$) was close to significance, but did not have the same predictive power in this catch-all category as it did in the anxiety category.

These two logistic regressions have partially supported the hypothesis as stated above. While Self-Criticism was able to uniquely contribute to the prediction of “Any Anxiety Disorder” above what was contributed by Group status, it was not able to do so when predicting “Any Disorder”. Conversely, Dependency did not contribute uniquely

to the prediction of either of the categories with Self-Criticism and Group status already in the equation.

Predicting Symptoms and Functioning with Dependency & Self-Criticism: Condition 1 for Mediation

The purpose of this set of analyses is to examine the strength of the association between Dependency and Self-Criticism at Time 1 with measures of functioning and symptoms at Time 2 in the Sexual Assault and Comparison Groups. The hypothesis is that Dependency and Self-Criticism at Time 1 will be associated with measures of symptoms and functioning at Time 2 in both the Sexual Assault Group and the Comparison Group. In order to test this hypothesis, a series of regressions were conducted to measure the strength of the relationships. These tests are intended to establish the preconditions for the mediational analyses that follow as set out by Baron and Kenny (1986). The steps to conducting mediation are: 1) establish that the IV can significantly predict the DV, 2) establish that the proposed mediator can significantly predict the DV, 3) establish that the IV can significantly predict the proposed mediator, and 4) establish that when the IV and mediator are entered into a regression predicting the DV, the effects of the IV are substantially reduced or zero (i.e., as compared to condition 1). If these four conditions are present, then mediation is said to have occurred (see Figure 2).

In the first regression predicting PTSD symptoms (MPSS), group and Dependency were entered. The regression predicted a significant 9.2% of the variance in PTSD symptoms, $F(2, 98) = 4.97, p < .01$. Both Dependency ($\beta = .23, p < .05$) and the

Group variable ($\beta = -2.28$, $p < .01$) explained a significant proportion of the variance in Time 2 PTSD symptoms. In the second regression predicting PTSD symptoms, group and Self-Criticism were entered. The regression predicted a significant 18.7% of the variance in PTSD symptoms, $F(2, 98) = 11.25$, $p < .001$. This time, only Self-Criticism ($\beta = .39$, $p < .001$) explained a unique proportions of the variance in Time 2 PTSD symptoms, while the Group variable ($\beta = .14$, ns) did not.

In the first regression predicting dysphoria symptoms (BDI-2), group and Dependency were entered. The regression predicted a significant 7.6% of the variance in PTSD symptoms, $F(2, 98) = 4.05$, $p < .05$. Only Dependency ($\beta = .25$, $p < .05$) explained a unique proportions of the variance in Time 2 dysphoria symptoms, while the Group variable ($\beta = .15$, ns) did not. In the second regression predicting dysphoria symptoms (BDI-2), group and Self-Criticism were entered. The regression predicted a significant 23.2% of the variance in PTSD symptoms, $F(2, 98) = 14.79$, $p < .001$. Only Self-Criticism ($\beta = .47$, $p < .001$) explained a unique proportions of the variance in Time 2 dysphoria symptoms, while the Group variable ($\beta = .05$, ns) did not.

In the first regression predicting Relation to Self and Other (i.e., social functioning on the BASIS), group and Dependency were entered. The regression predicted a significant 6.0% of the variance in RSO functioning, $F(2, 98) = 3.12$, $p < .05$. Only Dependency ($\beta = .22$, $p < .05$) explained a unique proportions of the variance in Time 2 RSO Functioning, while the Group variable ($\beta = .14$, ns) did not. In the second regression predicting RSO Functioning, group and Self-Criticism were entered. The regression predicted a significant 24.2% of the variance in RSO Functioning, $F(2, 98) =$

15.64, $p < .001$. Only Self-Criticism ($\beta = .49$, $p < .001$) explained a unique proportions of the variance in Time 2 RSO Functioning, while the Group variable ($\beta = .04$, ns) did not.

In the first regression predicting Daily Living/Role Functioning (BASIS-32), group and Dependency were entered. The regression predicted a significant 6.5% of the variance in DL/RF, $F(2, 98) = 3.43$, $p < .05$. Only Dependency ($\beta = .23$, $p < .05$) explained a unique proportions of the variance in Time 2 RSO Functioning, while the Group variable ($\beta = .15$, ns) did not. In the second regression predicting DL/RF, group and Self-Criticism were entered. The regression predicted a significant 19.6% of the variance in DL/RF, $F(2, 98) = 11.97$, $p < .001$. Only Self-Criticism ($\beta = .43$, $p < .001$) explained a unique proportions of the variance in Time 2 DL/RF, while the Group variable ($\beta = .05$, ns) did not.

In sum, Dependency and Self-Criticism were able to predict all of the dependent variables in question, above and beyond that which was accounted for by group. Group only remained significant in the model predicting PTSD symptoms with Dependency. This serves as the first of the three required preconditions (see above) for the use of the mediational models to follow. The second test will be the examination of the predictive ability of personality on emotional expression and social support (see below).

Predicting Symptoms and Functioning: The Utility of Dependency & Self-Criticism beyond Group

The purpose of this set of analyses was to determine if Dependency and Self-Criticism at Time 1 would be able to predict symptoms and functioning at Time 2 over and above that predicted by group status. This is a similar analysis to the one conducted

in Study 1 (see above), but with a specific subset of participants, a second time point, and the inclusion of “Group” in the equation. The hypothesis for this question was that Self-Criticism would continue to contribute uniquely to the prediction of symptoms and functioning over and above the Group status. To answer this question, four hierarchical regressions were conducted, one for each dependent variable. In the first step of the regression predicting PTSD symptoms, Group status was entered. In the second step of the regression, Dependency and Self-Criticism were entered together as a block. In the third step, the three interaction terms were included: group by Dependency, Group by Self-Criticism, and Dependency by Self-Criticism. The four dependent measures were: PTSD symptoms (MPSS-SR), dysphoria (BDI-2), Physical Health Functioning (PILL), and Daily Living/Role Functioning (BASIS-32). **Note:** For the following analyses, Time 1 symptoms were also originally included in the models, but the effects of the predictors were no longer significant. We thus have presented the models without the Time 1 symptoms included as they normally would be.

In this first regression predicting PTSD symptoms, the first step was Group status, which predicted 4.1% of the variance in PTSD symptoms, $F(1, 99) = 4.24, p < .05$. In the second step, Dependency and Self-Criticism were added to the model, and they contributed a significant 15.2% additional variance in PTSD symptoms above and beyond number Group status, $F_{inc}(2, 97) = 9.13, p < .001$. In the third step, the three interactions were added into the model, and they contributed an extra 2.2% of explained variance in PTSD symptoms above the other variables, but this contribution was not significant, $F_{inc}(3, 94) = 0.87, ns$. In the final model, none of the variables explained a

unique amount of variance in Time 2 PTSD symptoms when the interactions were included.

In this second regression predicting dysphoria symptoms at Time 2, the first step was Group status, which predicted a non-significant 1.5% of the variance in PTSD symptoms, $F(1, 99) = 1.55$, ns. In the second step, Dependency and Self-Criticism were added to the model, and they contributed a significant 22.1% additional variance in dysphoria symptoms above and beyond Group status, $F_{inc}(2, 97) = 14.02$, $p < .001$. In the third step, the three interactions were added into the model, and they contributed an extra 2.5% of explained variance in dysphoria symptoms above the other variables, but this contribution was not significant, $F_{inc}(3, 94) = 1.08$, ns. The final model with all variables included was significant, $F = 5.55$, $df=6, 94$, $p < .001$. In the final model, none of the variables explained a unique amount of variance in Time 2 dysphoria symptoms when the interactions were included.

In this third regression predicting Daily Living/Role Functioning (DL/RF) at Time 2, the first step was Group status, which predicted a non-significant 1.4% of the variance in DL/RF, $F(1, 99) = 1.36$, ns. In the second step, Dependency and Self-Criticism were added to the model, and they contributed a significant 18.7% additional variance in DL/RF above and beyond Group status, $F_{inc}(2, 97) = 11.31$, $p < .001$. In the third step, the three interactions were added into the model, and they contributed an extra 6.1% of explained variance in DL/RF above the other variables, but this contribution was not significant, $F_{inc}(3, 94) = 2.60$, ns. The final model with all variables included was significant, $F = 5.54$, $df=6, 94$, $p < .001$. In the final model, only Self-Criticism ($\beta = 2.12$,

$p < .05$) and the interaction term Group by Self-Criticism ($\beta = -2.28$, $p < .01$) explained a unique amount of variance in Time 2 DL/RF in the third step.

In the fourth regression predicting Physical Health Functioning (PHF) as measured by the PILL at Time 2, the first step was Group status, which predicted a significant 6.3% of the variance in PHF, $F(1, 99) = 6.35$, $p < .05$. In the second step, Dependency and Self-Criticism were added to the model, and they contributed a significant 16.8% additional variance in PHF above and beyond Group status, $F_{\text{inc}}(2, 97) = 10.13$, $p < .001$. In the third step, the three interactions were added into the model, and they contributed an extra 1.9% of explained variance in PHF above the other variables, but this contribution was not significant, $F_{\text{inc}}(3, 94) = 0.76$, ns. The final model with all variables included was significant, $F = 4.98$, $df = 6, 90$, $p < .001$. In the final model, however, none of the variables remained significant and independent predictors of PHF.

Predicting Symptoms and Functioning with Social Support and Emotional Expression:

Condition 2 for Mediation

The purpose of the following analyses was to determine the nature of the associations between emotional expression and social support at Time 1, and symptoms and functioning at Time 2. The hypothesis for these analyses was that people low in social support and low in emotional expression will score higher on measures of symptoms and functioning. In order to test these hypotheses, a series of regressions were conducted. This would serve as the second precondition for the use of the mediational models predicting PTSD that are to follow.

In the first regression predicting PTSD symptoms (MPSS) at Time 2, group and Total BEQ were entered. The regression predicted a significant 18.0% of the variance in PTSD symptoms, $F(2, 98) = 10.79, p < .001$. Both BEQ ($\beta = .38, p < .001$) and the Group variable ($\beta = .24, p < .05$) explained a unique proportion of the variance in Time 2 PTSD symptoms. In the second regression predicting PTSD symptoms at Time 2, group and Self-Disclosure were entered. The regression predicted a non-significant 3.3% of the variance in PTSD symptoms, $F(2, 96) = 1.62, ns$. Neither Self-Disclosure ($\beta = -.04, ns$) nor Group ($\beta = .17, ns$) explained a unique proportion of the variance in Time 2 PTSD symptoms. In the third regression predicting PTSD symptoms at Time 2, group and Social Support Network Size (SSQSR) were entered. The regression predicted a significant 11.3% of the variance in PTSD symptoms, $F(2, 98) = 6.24, p < .005$. While Network size ($\beta = -.27, p < .01$) explained a unique proportion of the variance in Time 2 PTSD symptoms, Group ($\beta = .17, ns$) did not. In the fourth regression predicting PTSD symptoms at Time 2, group and Social Support Satisfaction (SSQSR) were entered. The regression predicted a significant 6.2% of the variance in PTSD symptoms, $F(2, 98) = 3.25, p < .05$. While Group ($\beta = .20, p < .05$) explained a unique proportion of the variance in Time 2 PTSD symptoms, Satisfaction ($\beta = -.15, ns$) did not. Thus, BEQ, and SSQ Network Size were eligible to be used in mediational models, while both of Self Disclosure and Social Support Satisfaction were not, as they were unable to predict a unique and significant proportion of the variance in PTSD symptoms at Time 2.

In the first regression predicting dysphoria symptoms (BDI-2) at Time 2, group and Total BEQ were entered. The regression predicted a non-significant 5.4% of the variance in dysphoria symptoms, $F(2, 98) = 2.82, ns$. However, BEQ explained a unique

proportion of the variance in Time 2 PTSD symptoms ($\beta = .20, p < .05$), while the Group variable ($\beta = .15, ns$) did not. In the second regression predicting dysphoria symptoms at Time 2, group and Self-Disclosure were entered. The regression predicted a significant 7.3% of the variance in dysphoria symptoms, $F(2, 96) = 3.80, p < .05$. Self-Disclosure ($\beta = -.25, p < .05$) explained a unique proportion of the variance in Time 2 dysphoria symptoms, while Group ($\beta = .06, ns$) did not. In the third regression predicting dysphoria symptoms at Time 2, group and Social Support Network Size (SSQSR) were entered. The regression predicted a significant 14.1% of the variance in PTSD symptoms, $F(2, 98) = 8.05, p < .005$. While Network size ($\beta = -.36, p < .001$) explained a unique proportion of the variance in Time 2 dysphoria symptoms, Group ($\beta = .08, ns$) did not. In the fourth regression predicting dysphoria symptoms at Time 2, group and Social Support Satisfaction (SSQSR) were entered. The regression predicted a significant 7.5% of the variance in dysphoria symptoms, $F(2, 98) = 3.99, p < .05$. While Satisfaction ($\beta = -.25, p < .05$) explained a unique proportion of the variance in Time 2 dysphoria symptoms, Group ($\beta = .12, ns$) did not.

In the first regression predicting Relation to Self and Other Functioning (BASIS-32; RSO) at Time 2, group and Total BEQ were entered. The regression predicted a non-significant 5.0% of the variance in RSO Functioning, $F(2, 98) = 2.57, ns$. Neither BEQ ($\beta = .19, ns$) nor Group ($\beta = .14, ns$) explained a unique proportion of the variance in Time 2 RSO Functioning. In the second regression predicting RSO Functioning at Time 2, group and Self-Disclosure were entered. The regression predicted a non-significant 4.0% of the variance in RSO functioning, $F(2, 96) = 1.99, ns$. Neither Self-Disclosure ($\beta = -.18, ns$) nor Group ($\beta = .06, ns$) explained a unique proportion of the variance in Time 2

RSO Functioning. In the third regression predicting RSO Functioning at Time 2, group and Social Support Network Size (SSQSR) were entered. The regression predicted a non-significant 4.0% of the variance in RSO Functioning, $F(2, 98) = 3.08$, ns. However, Network size ($\beta = -.22$, $p < .05$) explained a unique proportion of the variance in Time 2 RSO Functioning, while Group ($\beta = .09$, ns) did not. In the fourth regression predicting RSO Functioning at Time 2, group and Social Support Satisfaction (SSQSR) were entered. The regression predicted a significant 12.2% of the variance in RSO Functioning, $F(2, 98) = 6.83$, $p < .005$. While Satisfaction ($\beta = -.33$, $p < .005$) explained a unique proportion of the variance in Time 2 RSO Functioning, Group ($\beta = .11$, ns) did not.

In the first regression predicting Daily Life/Role Functioning (BASIS-32; DL/RF) at Time 2, group and Total BEQ were entered. The regression predicted a non-significant 3.3% of the variance in DL/RF, $F(2, 98) = 1.66$, ns. Neither BEQ ($\beta = .14$, ns) nor Group ($\beta = .13$, ns) explained a unique proportion of the variance in Time 2 DL/RF. In the second regression predicting DL/RF at Time 2, group and Self-Disclosure were entered. The regression predicted a non-significant 4.1% of the variance in DL/RF, $F(2, 96) = 2.07$, ns. Neither Self-Disclosure ($\beta = -.19$, ns) nor Group ($\beta = .05$, ns) explained a unique proportion of the variance in Time 2 DL/RF. In the third regression predicting DL/RF at Time 2, group and Social Support Network Size (SSQSR) were entered. The regression predicted a significant 11.5% of the variance in DL/RF, $F(2, 98) = 6.38$, $p < .005$. Network size ($\beta = -.32$, $p < .005$) explained a unique proportion of the variance in Time 2 DL/RF, while Group ($\beta = .07$, ns) did not. In the fourth regression predicting DL/RF at Time 2, group and Social Support Satisfaction (SSQSR) were entered. The

regression predicted a significant 12.1% of the variance in DL/RF, $F(2, 98) = 6.74$, $p < .005$. Although Satisfaction ($\beta = -.33$, $p < .005$) explained a unique proportion of the variance in Time 2 DL/RF, Group ($\beta = .11$, ns) did not.

Predicting Social Support and Emotional Expression using Dependency & Self-Criticism: Condition 3 for Mediation

The purpose of the following analyses was to determine the nature of the association between Dependency, Self-Criticism, emotional expression, and social support as the third precondition for the mediational analyses to follow. The hypothesis for this question was that Self-Criticism and Dependency would be able to predict measures of social support and emotional expression. In order to test this hypothesis, a series of regressions were conducted to assess the strength of association. Since there were only two variables which were significant predictors of PTSD symptoms in condition 2 above (i.e., Social Support Network Size, and total BEQ score), only they would be used in the regressions.

In the first regression predicting Expressivity (BEQ) at Time 1, group and Dependency were entered. The regression predicted a significant 6.7% of the variance in BEQ, $F(2, 106) = 3.82$, $p < .05$. In the model, only Dependency ($\beta = .23$, $p < .05$) explained a unique proportion of the variance in Time 1 Expressivity, while Group ($\beta = -.11$, ns) did not. In the second regression predicting Expressivity (BEQ) at Time 1, group and Self-Criticism were entered. The regression predicted a significant 14.3% of the variance in BEQ, $F(2, 106) = 8.83$, $p < .001$. In the model, both Self-Criticism ($\beta = .37$, $p < .001$) and

Group ($\beta = -.19, p < .05$) explained a unique proportion of the variance in Time 1 Expressivity.

In the first regression predicting Social Support Network Size (SSQ-SR) at Time 1, group and Dependency were entered. The regression predicted a significant 6.1% of the variance in Social Support Network Size, $F(2, 106) = 3.43, p < .05$. In the model, only Dependency ($\beta = -.19, p < .05$) explained a unique proportion of the variance in Time 1 Social Support, while Group ($\beta = -.16, ns$) did not. In the second regression predicting Social Support Network Size (SSQSR) at Time 1, group and Self-Criticism were entered. The regression predicted a significant 14.8% of the variance in Social Support Network Size, $F(2, 106) = 9.19, p < .001$. In the model, only Self-Criticism ($\beta = -.36, p < .001$) explained a unique proportion of the variance in Time 1 Social Support, while Group ($\beta = -.09, ns$) did not.

Predicting Symptoms and Functioning with Dependency & Self-Criticism, Emotional Expression, and Social Support

The purpose of these analyses was find out whether Dependency and Self-Criticism at Time 1 would be able to predict symptoms of PTSD and dysphoria, and functioning at Time 2 above that predicted by emotional expression, social support, and group status at Time 1. The other question asked was whether Dependency and Self-Criticism have a moderating effect on emotional expression and social support. The hypothesis for this question was that Self-Criticism would continue to contribute uniquely to the prediction of PTSD, dysphoria, and functioning, over and above social support and emotional expression. Further, Dependency was expected to have a

moderating effect on both emotional expression and social support. To answer this question, four hierarchical regressions were conducted, one for each of the four dependent variables. In the first step of each of these four regressions predicting symptoms and functioning the group status variable was entered. In the second step Dependency and Self-Criticism were included together as a block. In the third step of the regression, emotional expression and social support were entered together as a block. In the fourth and final block, a series of interactions was also entered as a block.

In the first regression which predicted PTSD symptoms at Time 2 as measured by the MPSS-SR, the first step introduced the group variable (i.e., Sexual Assault vs. the Comparison Group), and this predicted a non-significant 3.1% of the variance in PTSD symptoms, $F(1, 97) = 3.14$, ns. At the second step, Dependency and Self-Criticism were added to the model, and they predicted an additional 14.5% of the variance in PTSD symptoms above group, $F_{inc}(2, 95) = 8.38$, $p < .001$. When emotional expression (i.e., total BEQ score, Self Disclosure scale) and social support (i.e., SSQ-SR's Total Social Support Network Size and Total Social Support Satisfaction Score) were added to the model, they contributed a significant 8.7% additional variance in PTSD symptoms above and beyond group and personality, $F_{inc}(4, 91) = 2.68$, $p < .05$. In the fourth step, the four interaction terms were added to the model and they were shown to predict a non-significant additional 6.2% of the variance, $F_{inc}(4, 87) = 1.99$, ns. In the final model, group, personality factors, contextual factors, and interactions together explained a significant 32.5% of the variance in PTSD symptoms at Time 2, $F(11, 87) = 3.81$, $p < .001$. In the final model, only total BEQ score ($\beta = -1.29$, $p < 0.5$), and the interaction term Self-Criticism by BEQ ($\beta = 3.58$, $p < .01$) were significant and independent predictors

of PTSD symptoms at Time 2. Although Dependency was never a significant predictor in these models, Self-Criticism remained significant until the Social Support and Expressivity were included.

Thus, the hypothesis as stated above was not supported: Self-Criticism was not able to retain unique independent predictive power when social support and expressivity were entered into the equation. Furthermore, only the interaction with Total Expressivity was shown to be predictive of PTSD scores, which demonstrates that Self-Criticism does play a role in how someone expresses their emotion, and that in turn, is a predictor of PTSD symptoms at a later date. See Table 20 for a full presentation of this data.

In the second regression which predicted dysphoria symptoms at Time 2 as measured by the BDI-2, the first step introduced the group variable (i.e., Sexual Assault vs. the Comparison Group), and this predicted a non-significant 1.1% of the variance in Dysphoria symptoms, $F(1, 97) = 1.04$, ns. At the second step, Dependency and Self-Criticism were added to the model, and they predicted an additional 21.3% of the variance in Dysphoria symptoms above group, $F_{inc}(2, 95) = 13.06$, $p < .001$. When emotional expression (i.e., total BEQ score, Self Disclosure scale) and social support (i.e., SSQ-SR's Total Social Support Network Size and Total Social Support Satisfaction Score) were added to the model, they contributed a non-significant 6.5% additional variance in Dysphoria symptoms above and beyond group and personality, $F_{inc}(4, 91) = 2.08$, ns. In the fourth step, the four interaction terms were added to the model and they were shown to predict a non-significant additional 6.9% of the variance, $F_{inc}(4, 87) = 2.34$, ns. In the final model, group, personality factors, contextual factors, and interactions together explained a significant 35.8% of the variance in Dysphoria

symptoms at Time 2, $F(11, 87) = 4.41, p < .001$. In the final model, only the Self Disclosure Scale ($\beta = 1.42, p < 0.5$), and the interaction term Self-Criticism by Self-Disclosure ($\beta = -2.80, p < .01$) were significant and independent predictors of Dysphoria symptoms at Time 2. While Dependency was never a significant predictor in these models, Self-Criticism remained significant until the interaction terms were included in the model; that is, even when Social Support and Expressivity were included, Self-Criticism remained a significant and independent predictor of Dysphoria in block 3 ($\beta = .347, p < .005$). Thus, the hypothesis as stated above was partially supported: Self-Criticism was able to retain unique independent predictive power when social support and expressivity were entered into the equation. Furthermore, only the interaction with Self-Disclosure was shown to be predictive of Dysphoria scores, which demonstrates that Self-Criticism does play a role in how someone expresses their emotion, and that in turn, is a predictor of Dysphoria symptoms at a later date.

In the third regression which predicted Physical Health Functioning at Time 2 as measured by the PILL, the first step introduced the group variable (i.e., Sexual Assault vs. the Comparison Group), and this predicted a significant 6.3% of the variance in Physical Health Functioning (PHF), $F(1, 95) = 1.04, ns$. At the second step, Dependency and Self-Criticism were added to the model, and they predicted an additional 16.8% of the variance in PHF above group, $F_{inc}(2, 93) = 10.13, p < .001$. When emotional expression (i.e., total BEQ score, Self Disclosure scale) and social support (i.e., SSQ-SR's Total Social Support Network Size and Total Social Support Satisfaction Score) were added to the model, they contributed a non-significant 0.3% additional variance in PHF above and beyond group and personality, $F_{inc}(4, 89) = 0.10, ns$. In the fourth step,

the four interaction terms were added to the model and they were shown to predict a non-significant additional 3.4% of the variance, $F_{inc}(4, 85) = 0.98$, ns. In the final model, group, personality factors, contextual factors, and interactions together explained a significant 26.7% of the variance in PHF at Time 2, $F(11, 85) = 2.82$, $p < .005$. In the final model, only Dependency ($\beta = .270$, $p < .05$), and the Group status variable ($\beta = .299$, $p < .01$) were significant and independent predictors of PHF at Time 2. While Self-Criticism remained significant until block 2 ($\beta = .226$, $p < .05$), when social support and expressivity were added to the model, it lost its significance ($\beta = .203$, ns). Thus, the hypothesis as stated above was not supported: Self-Criticism was unable to retain unique independent predictive power when social support and expressivity were entered into the equation. Furthermore, none of the interaction terms were significant, indicating that Self-Criticism does not play a role in moderating the effect of social support and expressivity on PHF.

In the fourth regression which predicted Daily Living/Role Functioning (DL/RF) at Time 2 as measured by the BASIS-32, the first step introduced the group variable (i.e., Sexual Assault vs. the Comparison Group), and this predicted a non-significant 0.7% of the variance in DL/RF, $F(1, 97) = 0.70$, ns. At the second step, Dependency and Self-Criticism were added to the model, and they predicted an additional 18.6% of the variance in DL/RF above group, $F_{inc}(2, 95) = 10.94$, $p < .001$. When emotional expression (i.e., total BEQ score, Self Disclosure scale) and social support (i.e., SSQ-SR's Total Social Support Network Size and Total Social Support Satisfaction Score) were added to the model, they contributed a non-significant 5.1% additional variance in DL/RF above and beyond group and personality, $F_{inc}(4, 91) = 1.53$, ns. In the fourth

step, the four interaction terms were added to the model and they were shown to predict a non-significant additional 4.8% of the variance, $F_{inc}(4, 87) = 1.48$, ns. In the final model, group, personality factors, contextual factors, and interactions together explained a significant 29.2% of the variance in DL/RF at Time 2, $F(11, 87) = 3.26$, $p < .005$. In the final model, none of the variables were significant independent predictors of DL/RF. Only the interaction term, Self-Criticism by Social Support Satisfaction was marginally significant ($\beta = -1.86$, $p = .058$). Self-Criticism remained significant until block 3 ($\beta = .297$, $p < .05$) when social support and expressivity were added to the model, indicating that it has predictive power above and beyond the introduction of social support and expressivity. It lost its significance when the interaction terms were introduced ($\beta = 2.11$, ns). Thus, the hypothesis as stated above was partially supported: Self-Criticism was able to retain unique independent predictive power when social support and expressivity were entered into the equation, but none of the interaction terms were significant, indicating that Self-Criticism does not play a role in moderating the effect of social support and expressivity on DL/RF.

Testing a Mediational Model (Condition 4): Predicting PTSD Symptoms with Dependency & Self-Criticism, Emotional Expression, and Social Support

The next set of analyses is meant to test the mediational model as set forth above, namely that Expressivity and Social Support will mediate the relationship between Self-Criticism and PTSD symptoms, but will not do so for Dependency (though this will also be tested). In order to test this hypothesis, a series of regressions were used, where appropriate. The above regressions testing for valid associations between variables

determined whether or not a model would be tested. As mediators in a model predicting PTSD, only total score on the Berkeley Expressivity Questionnaire (BEQ), and the Social Support Network Size were significant predictors, whereas scores on the Self Disclosure Scale and Social Support Satisfaction were not (see above).

In the first regression predicting PTSD symptoms (MPSS), BEQ (expressivity) and Dependency were used as predictors as they were both previously shown to be significantly associated with this outcome variable. Group was entered as the first block, and in the second block, both Dependency and total BEQ score were entered together. The regression predicted a significant 19.7% of the variance in PTSD symptoms, $F(3, 97) = 7.95$, ns. In the final model both BEQ ($\beta = .34$, $p < .005$) and Group ($\beta = .26$, $p < .01$) explained a unique proportion of the variance in Time 2 PTSD, while Dependency did not ($\beta = .14$, ns). In comparing the Beta from this equation (i.e., $\beta = .14$, ns) to that of the one set in Condition 1 above ($\beta = .23$, $p < .05$), we can see that it is reduced and no longer significant, and thus, Expressivity partly mediated the relationship between PTSD and Dependency (see Figure 3). This only partially so because it was not reduced to “0” (see Table 21). In the Second regression predicting PTSD symptoms (MPSS), BEQ (expressivity) and Self-Criticism were used as predictors as they were both previously shown to be significantly associated with this outcome variable. Group was entered as the first block, and in the second block, both Self-Criticism and total BEQ score were entered together. The regression predicted a significant 24.9% of the variance in PTSD symptoms, $F(3, 97) = 10.70$, $p < .001$. In the final model, BEQ ($\beta = .27$, $p < .001$), Group ($\beta = .19$, $p < .05$), and Self-Criticism ($\beta = .29$, $p < .005$) all explained a unique proportion of the variance in Time 2 PTSD symptoms. When examining the Beta set in Condition 1

above ($\beta = .39, p < .001$), we can see that this is higher than that found in the equation here (i.e., $\beta = .29, p < .005$), but it is still highly significant (see Table 22). This means that Expressivity only partially mediates the relationship between PTSD and Self-Criticism (see Figure 4), although this effect is slight and open to interpretation.

In the third regression predicting PTSD symptoms (MPSS), Social Support Network Size (SSQSR) and Dependency were used as predictors as they were both previously shown to be significantly associated with this outcome variable. Group was entered as the first block, and in the second block, both Dependency and Network Size were entered together. The regression predicted a significant 14.6% of the variance in PTSD symptoms, $F(3, 97) = 5.54, p < .005$. In the final model both Network Size ($\beta = -.24, p < .05$) and Group ($\beta = .20, p < .05$) explained a unique proportion of the variance in Time 2 PTSD, while Dependency did not ($\beta = .19, ns$). In comparing the Beta from this equation (i.e., $\beta = .19, ns$) to that of the one set in Condition 1 above ($\beta = .23, p < .05$), we can see that it is reduced and no longer significant, and thus, Network Size partially mediated the relationship between PTSD and Dependency (see Figure 5). This only partially so because it was not reduced to “0” (see Table 23). In the Second regression predicting PTSD symptoms (MPSS), Social Support Network Size (SSQSR) and Self-Criticism were used as predictors as they were both previously shown to be significantly associated with this outcome variable. Group was entered as the first block, and in the second block, both Self-Criticism and Network Size were entered together. The regression predicted a significant 20.7% of the variance in PTSD symptoms, $F(3, 97) = 8.44, p < .001$. In the final model, only Self-Criticism ($\beta = .33, p < .005$) explained a unique proportion of the variance in Time 2 PTSD, while Network Size ($\beta = -.15, ns$) and Group

($\beta = .13$, ns) did not. When examining the Beta set in Condition 1 above ($\beta = .39$, $p < .001$), we can see that this is higher than that found in the equation here (i.e., $\beta = .33$, $p < .005$), but it is still highly significant (see Table 24). This means that Network Size, *at most*, partially mediated the relationship between PTSD and Self-Criticism (see Figure 6). Also, looking at the degree of mediation, it appears as though expressivity is a more effective mediator than is social support.

Thus, contrary to previous findings, the relationship between Dependency and PTSD was partially mediated by the variables in question here. There was a minor decline in the association between Self-Criticism and PTSD, but the relationships remained highly significant. Thus, there was a very minor mediation effect for Self-Criticism.

Study 2, Section 2 Summary: Change and Vulnerability

An examination of the continuous data showed that if scores on measures of symptoms and functioning changed over time, they actually reduced (significantly) rather than worsened. Likewise, an examination of the categorical interview-based data revealed that there were no significant differences in the frequencies of diagnostic categories between time points for either group. In predicting the presence of diagnostic status (i.e., with categorical data) using Dependency and Self-Criticism, it was found that only Self-Criticism was a significant and unique predictor of (only) “Any Anxiety Disorder”, while Dependency was not.

As preconditions for the mediational analyses, 1) both Dependency and Self-Criticism at Time 1 were found to predict all measures of symptoms and functioning at

Time 2, 2) PTSD symptoms at Time 2 were predicted by emotional expressivity (as measured by the Berkeley Expressivity Questionnaire, but not Self Disclosure), and Social Support Network Size (as measured by the Social Support Satisfaction Questionnaire-Short Record, but not Social Support Satisfaction) at Time 1, and 3) both Expressivity (BEQ) and Social Support Network Size (SSQ-SR) at Time 1 were predicted by both Dependency and Self-Criticism at Time 1. In the mediational models that were conducted, it was found that the relationship between Dependency and PTSD was partially mediated by expressivity and social support, while the association between Self-Criticism and PTSD was not (or *at most* partially so).

In regressions predicting PTSD symptoms at Time 2, neither Self-Criticism nor Dependency were able to remain significant predictors over and above social support and expressivity. However, in the final model, Self-Criticism was shown to significantly interact with expressivity in the prediction of PTSD symptoms as measured by continuous variables. In predicting dysphoria, Self-Criticism was able to remain a significant predictor even after expressivity and social support were entered, and further, Self-Criticism was shown to interact with Self-Disclosure. Neither of the vulnerability factors remained significant once expressivity and social support were entered in the model predicting physical health functioning; no interactions were significant. Finally, Self-Criticism retains significance in predicting Role Functioning at Time 2 once expressivity and social support were entered, but no interactions were significant. The moderation model was largely rejected.

Chapter 4: Discussion

The two main goals of the present studies were to survey a university sample to determine the frequency of single and multiple life events, and to test Dependency and Self-Criticism as novel vulnerability factors in the prediction of PTSD symptoms. As discussed below, the studies found evidence for Self-Criticism as a useful predictive variable for PTSD.

The Frequency of Life Events in a General University Sample

The most immediately comparable bit of data from the frequency counts of the P/TE is the finding that 97.3% of the sample endorsed having experienced at least one *Potentially* Traumatic Life Event (PTE), while 86% of participants reported that they had experienced at least one Traumatic Life Event (TE), which is comparable to several of the figures that exist in the literature. For example, Vrana and Lauterbach's (1994) study which demonstrated that 84% of their university sample had experienced a TE. In their community study, Kilpatrick and colleagues (1991) found that 93% of their sample endorsed a prior TE. To our knowledge, this estimate of the frequency of P/TE is the first done in a Canadian sample of university students using the TLEQ as the instrument of measurement. Thus, the figures found here are very much in line with previous estimates, suggesting the proportion of Canadian university students experiencing a TE is similar to the proportion of American university students. This figure does not compare the number of P/TE, however, only the number of participants having had at least one TE.

When examining the specific events that were endorsed by this university sample, not surprisingly, it was found that Motor Vehicle Accidents (MVA) were the most common PTE, while Sudden Death of someone close was the most commonly reported TE. When compared to the study done by Kubany and colleagues (2000) which used a University sample (Study 4), our frequencies were quite different. In particular, the proportion of people having had an MVA (PTE) was only 27% compared to 67% in our sample. In comparison, 35.6% of our sample reported that they had an MVA that was a TE for them, so approximately half of the people who had been in an MVA reported that it was traumatic. The difficulty comparing our data to that of Kubany and colleagues' is that their sample size was small (N=60), and it is thus unlikely to be generalizable to university students in general in the way the present study would be. The other event of interest was Sudden Death of a close friend or loved one, which was present in 63.7% of our sample and 55% of the Kubany and colleagues (2000) sample. In a recent study, Breslau, Kessler, Chilcoat, and colleagues (1998) found that PTSD was most often the result of this TE, not because it was the most severe TE, but because it was a common TE. In their sample, 60% of participants experienced this type of event. For their sample, assaultive violence was the event with the largest proportion of people going on to develop PTSD; in the present study, this type of P/TE was present in 11.5% of the sample as a PTE and 9.5% as a TE. It was present in 18% of Kubany and colleagues sample. Unfortunately, Kubany and colleagues (2000) did not present data on both PTE and TE, so comparisons of this kind cannot be made.

Sexual Assault was a relatively common PTE. In this particular context, sexual assault was given a particularly broad definition (see below in limitations section for a

discussion of this) to basically include any sort of unwanted sexual contact. In its context as a PTE, it was found that in our sample of Canadian university students that 23.4% of the participants reported an unwanted sexual contact of some sort. The categories from the TLEQ that this encompassed included: childhood sexual abuse by someone at least five years older, childhood sexual abuse by someone close in age, adolescent sexual abuse, and adult sexual abuse or assault. Of this 23.4%, almost seven percent were men. Thus, the gender difference in proportion reporting sexual assault was 27.2% for women and 8% for men. The most commonly reported developmental phase where participants endorsed experiencing a sexual assault was adolescence, where 13% of the sample reported that they had this PTE. In terms of sexual-related TE, 19.6% of the sample reported that they had had this experience. Once again, adolescence was the most frequently endorsed period of time where the sexual TE was experienced (12.2%).

In comparison to the literature, Kubany and colleagues (2000) found that childhood sexual assault by someone five years older was present in 19% of their sample, as compared to 8.8% in ours as a PTE, and 7.7% as a TE. Further, they had a frequency of 5% for in the category of childhood sexual abuse by someone close in age, while the present study had 5.4% endorsed of this event as a PTE and 3.8% as a TE. Kubany and colleagues did not report a figure for adolescence sexual abuse since it was not a category on their measure at the time of the data collection with the university sample, but they did indicate that 19% of their university sample had experienced a sexual assault/abuse as an adult, as compared to our sample, which had rates of 3.6% as a PTE and 2.3% as a TE, which is considerably lower than the Kubany and colleagues sample. Estimates on the incidence rate of rape vary from 1.6% (Breslau et al., 1991) to 9.2% (Kessler et al.,

1995). Estimates on the frequency of sexual assault in general (i.e., a broader definition such as in our study) are considerably higher, but the estimates have considerable variability. Roth and colleagues (1990) found that 13% of participants over the age of 18 had a sexual assault in their past, while Santello and Leintenberg (1993) reported that 26% of a university sample experienced sexual assault since the age of 16. Thus, this figure suggests a higher rate of sexual assault since our figure of 23.4% includes sexual offenses that extend back into childhood whereas the Santello and Leintenberg estimate is only from the age of 16 on. As well, to the best of our knowledge, this figure represents the first estimate of the frequency of sexual assault in a Nova Scotia sample.

Trauma and Symptoms

We also ran analyses to confirm several associations between the number of PTE and the number of separate types of TE that the participants have experienced and the outcome measures. The goal was to add some clarity to literature on the impact of multiple traumatic life events. The relationships that we found were logical and they were generally supported by the literature. There was a more robust effect for the association between number of different TE and symptoms/functioning than there was for the number of PTE, which is what should be expected since it is the traumatic event specifically that has been linked to psychopathology in previous studies. It would be expected that the PTE would contribute to a sense of “stress” that someone would experience, but it would not have the impact that a TE would have. Multiple PTE might work in kindling model where more frequent, and potentially less severe events, may trigger information processing methods that are characteristic of pathological states

(Clark, Beck, & Alford, 1999; Ingram, Miranda, & Segal, 1998). Accordingly, since any association between PTE and a criterion measure that is significant would also be significant with a TE, and as the TE have the stronger associations, only they will be recounted here. Multiple traumatic events have previously been shown to adversely impact personality (e.g., Dyl, 2002; Wonderlich et al., 2001), increase symptoms of PTSD specifically (Horowitz, Weine, & Jekel, 1995), and symptoms and social functioning in general (Cardozo et al., 2000). Lauterbach (2001) found that more TE was related to the development of personality disorders.

As expected, there was a significant association between the number of TE and dysphoria. This has been shown before in the literature (Brown & Harris, 1989; Compas, Grant, Ey, 1994); in fact, the connection extends to stressful life events in general (Williamson, Birmaher, Anderson, Al-Shabbout, & Ryan, 1995). The relationship was a direct one, which suggests as the number of TE increases, so does the dysphoria. Although less established with the trauma literature, it has been shown that a greater number of negative life events lead to dysphoria, and this even so after controlling for prior depressive symptoms (Leadbeater, Kuperminc, Blatt, & Hertzog, 1999). More specifically, in the case of Dependency and Self-Criticism, the congruency hypothesis (Beck, 1983; Blatt, Quinlan, Chevron, McDonald, & Zuroff, 1982) specifically predicts which events should lead to the development of symptoms in certain people. Also, this connection would be expected on the basis of emerging ideas in the field which suggest that PTSD and MDD might be either the same disorder or disorders of homologous etiology (e.g., Davidson et al., 1998). Secondly, a direct and significant relationship was found between the number of TE and PTSD symptoms. Again, since TE are the primary

impetus for the development of the disorder, this is an expected and fundamental result. The literature agrees specifically with this connection as well, and shows that multiple TE are more likely to lead to symptoms of PTSD than single events alone (Dyl, 2002; Wonderlich et al., 2001). Even more specifically, the TLEQ has been used to discriminate between PTSD vs. non-PTSD participants. In Kubany and colleagues' (2000) series of validation studies, they found that a sample from a support group for battered women with PTSD had a significantly higher number of TE than those from the group without PTSD.

In the present study, it was also found that the number of TE was connected to functioning, both in daily living and in relation to others. Once again, there was a direct relationship, which indicated that as the number of TE increases, so does difficulty in the spheres of functioning. It is possible that this reduction in functioning might be due to an increase in symptoms which then disrupts the level of functioning, but this pathway was not tested. The connection between the number of TE and functioning has been suggested in the literature as well (e.g., Cardozo et al., 2000).

Dependency & Self-Criticism in Predicting Symptoms/Functioning

It was also a goal of this first study to learn the strength of association between the vulnerability factors, Dependency and Self-Criticism, and the symptom/functioning measures, and in particular PTSD symptoms. It was found that Dependency was associated with frequency and severity of PTSD symptoms, as well as the overall PTSD symptom score. This was a relationship that has not previously been demonstrated using the DEQ-R. It has been shown that this relationship exists between the Personality Styles

Inventory's (PSI) Sociotropy scale and the MPSS-SR's Total Score where they found a more robust effect than here (Kolts et al., 2004). This relationship suggests that the more dependent someone is, the more likely they are to experience PTSD symptoms.

Similarly, Self-Criticism was found to be associated with PTSD symptoms, as predicted, suggesting that as one becomes more self-critical, the more symptoms of PTSD are experienced. Southwick and colleagues (1991) found that patients with PTSD had scores on the Self-Criticism scale that were equivalent to those people with MDD, and Yehuda and colleagues (1994) found that people with PTSD had higher scores on Self-Criticism than those without PTSD. Dependency was also found to be related to dysphoria, Self-Criticism, Daily Living/Role Functioning, and Relation to Self and Other.

In determining whether or not it was possible to use Dependency and Self-Criticism to predict PTSD symptoms over and above dysphoria, a series of hierarchical regressions were conducted, one which included Dependency, one which included Self-Criticism, and one that included both of these factors together as a block. In the first regression which examined the contribution of Dependency, after accounting for dysphoria in this model, Dependency was shown to not contribute anything unique to the prediction of PTSD symptoms, which is what was hypothesized. However, the interaction term Dependency by Dysphoria was found to add significantly to the prediction of PTSD symptoms. In fact, in the final model, it was the only variable to remain significant, even trumping the contribution of Dysphoria, which had originally claimed over 35% of the variance explained. This means that, in predicting PTSD symptoms, Dysphoria and Dependency are explaining much of the same variance, but importantly, it appears that the intermingling of personality and dysphoria might be the

ultimate source of the predictive power. In the regression that used Self-Criticism as a predictor, Self-Criticism, unlike Dependency, was found to contribute uniquely and significantly to symptoms of PTSD above dysphoria. Unlike with Dependency, the interaction term of the model did not add to the variance predicted in PTSD scores. In the final model, both dysphoria and Self-Criticism remained independent predictors. This result has been found before with Vietnam war veterans; McCranie and Hyer (1995) showed that Self-Criticism scores predicted greater PTSD severity, independently of symptomatic depression.

When combining both Dependency and Self-Criticism into a single hierarchical regression, which this time included the interaction term Dependency by Self-Criticism in addition to the previously included interaction terms, only Self-Criticism was significant and independent in the prediction of PTSD symptoms. These models demonstrate that Self-Criticism is an important predictive factor when considering PTSD symptoms, and that the variance that Self-Criticism helps explain, goes well beyond that explained by dysphoria. Dependency was found useful insofar as it moderated the relationship between dysphoria and PTSD. To the best of our knowledge, this effect has not been shown previously. In a recent study (Kolts et al., 2004), however, a very similar effect was found when both personality factors were entered into a regression equation along with negative posttraumatic beliefs about self and world. After controlling for dysphoria, they showed that autonomy and negative posttraumatic beliefs were able to explain PTSD symptoms, whereas sociotropy was not.

A similar set of hierarchical regressions were conducted to test whether Dependency and Self-Criticism would be useful in predicting PTSD symptoms over and

above the number of TE that the participants had experienced. In the first regression examining the role of Dependency, it was found that Dependency contributed significantly to the prediction of PTSD symptoms above and beyond that accounted for by TE. When the interaction term was included in the model however, it did not contribute significantly to the prediction of PTSD symptoms, and it rendered the other two variables inert. That is, none were unique predictors once the interaction term was included in the model. In the regression that included Self-Criticism, the personality factor was found to contribute to the prediction of PTSD symptoms over and above number of TE. The interaction term was non-significant, and only Self-Criticism remained a significant and independent predictor of PTSD symptoms in the final model with the interaction term included. The third regression included both personality factors in addition to the number of TE. As a block, Dependency and Self-Criticism contributed a unique amount of explained variance. As the interaction terms were included, they failed to reach significance, although the three way interaction term, Dependency by Self-Criticism by TE did reach significance in the model. In the final model with the interaction terms, both Self-Criticism and number of TE remained significant predictors of PTSD symptoms. Once again, this demonstrates the ability of Self-Criticism to contribute uniquely to the prediction of PTSD symptoms, above and beyond that accounted for by TE. As before, Dependency only contributed to the prediction of PTSD symptoms when entered alone with number of TE; when Self-Criticism was added, its predictive power was eliminated. An examination of the literature does not reveal any studies which contain an analysis of this type to contrast our finding with.

When looking at the slopes of the various conditions in the three way interaction, it is clear that Self-Criticism is most potent when in the company of high levels of Dependency and a high number of TE. This data allows us to make a strong argument for an interaction between two vulnerability factors and the number of TE, and thus, a stress diathesis model. That is, in the presence of a high number of events, more “depressive” vulnerability makes it more likely that someone will experience more PTSD symptoms. This is a unique finding in that many vulnerability studies use one type of vulnerability; the present study used two.

Traumatic Events in Sexual Assault and Comparison Groups

The frequency of P/TE was examined in the second study as well. The second study’s two groups were selected from the Study 1 sample, and they were: a group composed of 59 participants who had experienced some form of unwanted sexual contact, and 50 participants in a Comparison group who had never experienced any unwanted sexual contact. These participants were matched in terms of age, the number of Traumatic Events (TE) and type of traumatic events, where possible. These two groups were used for comparison purposes in the analyses that were conducted.

First, a frequency count of all P/TE was done once again for each of the two groups. As in the general sample, the most commonly endorsed PTE in the Sexual Assault Group was an MVA, while it was Sudden Death of someone close for the Comparison Group. However, the frequencies of Sudden death were very close between the two groups (67.8 vs. 66%, respectively). Again, this is an important event to take note of since it is the event that has in some studies been reported to be the one that most

commonly leads to the development of PTSD. In both samples, the most chronically experienced event was Family Violence, which was reported by 32.2% of the Sexual Assault Group and 32% of the Comparison Group. Robbery with a weapon was the least commonly reported event for the Sexual Assault Group, and for the Comparison Group, there were several events that were never experienced including: war, robbery with a weapon, Assault to Self, any of the sexual abuse categories (by definition of the group), miscarriage, and abortion. The closest study that Kubany and colleagues (2000) conducted using the TLEQ was with a sample of battered women who were in a support group. This group reported rates of PTE that were either equal to, or higher than, the groups of the present study. Again, though, their sample was small.

Similar to the first study, frequency counts were also tabulated for the number of specifically experienced TE. For the Sexual Assault Group, the most commonly experienced TE was Sexual Abuse as an adolescent, while it was Sudden Death for the Comparison Group. As mentioned, by definition, the Comparison Group did not have any history of Sexual Assault. For the Sexual Assault Group, 54.2% of the sample experienced Sudden Death of someone close, while 60% of the Comparison Group endorsed the event. The least common TE for the Sexual Assault Group was Life-Threatening Illness, and for the Comparison Group they were: war, robbery with a weapon, assault to self, any of the sexual assault categories, marriage, and abortion, which were not experienced at all.

The frequency of Sexual Assault (P/TE) in the Sexual Assault Group was also specifically examined, as was the type that was discussed during the interview component of the study. As measured by the TLEQ, the most common sexual event was

Sexual Abuse as an adolescent, which was experienced by 61% of the sample, and this was followed by Sexual Abuse before the age of 13 by someone more than five years older (44%). The least common sexual offense in this sample was during their adult years (15.3%), which is to be expected since the majority of the participants in this study were in their first year of adulthood. However, there were two people who reported that they had experienced this latter event more than five times. The sexual TE were experienced with similar rates, although slightly lower, as there were some sexual events experienced in this group that were not traumatic in their estimation. On the whole, most of the figures were close, save for the adult events, which were experienced by 15.3% as a PTE and only 2.3% as a TE. For some reason, these events as an adult were less commonly traumatic than were earlier events, as a proportionately greater percentage of the events experienced in early life were rated as a TE.

The types of sexual assault that were reported on interview at Time 1 were also grouped and tallied. Most of the participants in the group only disclosed one sexual TE that they offered to discuss, and in this study, their discussion of all their events was not insisted upon. In fact, the participants were given the option of simply acknowledging that a sexual event exists and passing over the details. None of the participants chose to avoid all detail, but many participants disclosed fewer events of a sexual nature in the interview than they did in the questionnaires, possibly due to distress. Thus, the data that was presented above on this topic is what the participants chose to disclose for the purposes of inclusion, and is likely quite unrepresentative of the number and qualitative range of events experienced by the group. A full 30.5% of the sexual assault sample reported rape as at least one of the events in their past, and no one reported more than one

incident of this type. Rape represented the most commonly reported sexual event in this sample. The second most frequently reported sexual TE was one-way forced touching, where either the victim was forced to touch the perpetrator in a sexual way, or vice versa.

In addition to comparing the types and frequencies of the specific events between the two groups of study two, an analysis was done to make certain that the matching procedure had been successful, as far as the number of non-sexual TE was concerned. It was also of interest whether or not the Sexual Assault Group had more non-sexual PTE than the Comparison Group, which was not one of the matching criteria. The analyses showed that, as was intended, the Sexual Assault and Comparison Groups were equivalent in terms of the number of TE that each experienced, thus demonstrating that the matching procedure was successful. As can be seen in the Methods section above, it was also successful in terms of matching the groups for age; matching for gender was unnecessary since all participants in Study 2 were women. In the second place, it was found that the Sexual Assault Group had more non-sexual PTE than did the Comparison Group, suggesting that, despite a successful match in TE, that the Sexual Assault Group still experiences a greater number of negative life events than do other people. In accordance with the depression literature on the effects of multiple negative life events (e.g., Brown & Harris, 1989; Compas, Grant, Ey, 1994), this might be seen to contribute to an increase in symptoms or a decline in functioning that is experienced specifically by people who have been sexually assaulted. It is impossible to comment on the directionality of the causation with this data, but it would be interesting to determine which came first, the multiple PTE or the Sexual Assaults. It is, however, consonant with

the finding by Nishith, Mechanic, and Resick (2000) that women who were sexually assaulted were more likely to have additional P/TE.

Differences between Groups on Symptoms, Functioning, and Events

Another goal of the study was to determine whether the Sexual Assault Group, the Comparison Group, and an ex post facto selected “No Trauma Group” would differ in terms of symptom measures. The “No Trauma” group was only used to determine if there was an effect of trauma on outcome measure in the event that there were no differences between the two experimental groups. This group was compiled after the data was fully collected and they were neither interviewed nor carried through to Time 2, due, in large part, to lack of resources. It was expected that the Sexual Assault Group would have more symptoms and poorer functioning than the matched Comparison Group, and they in turn would be worse than the No Trauma Group.

Results on the analyses for the outcome measures were largely homogenous. While the omnibus tests indicated that there were significant differences between groups, the post hoc measures demonstrated (almost uniformly) that these differences were between the Sexual Assault Group and the No Trauma groups, but that there were few differences between outcome measures in the two experimental groups, nor were there differences between the matched Comparison Group and the No Trauma Group. This was true for dysphoria, and the BASIS-32’s subscales “Relation to Self and Other”, and “Impulsive/Addictive”. The omnibus test for the BASIS-32 subscale “Daily Life/Role Functioning” was not significant and so post hoc measures were not utilized. For PTSD symptoms, the post hoc test was borderline significant for the comparison between the

Comparison and Sexual Assault Groups, and, given that a conservative test was used, a more liberal test might have yielded a significant difference, as was expected.

Additionally, the post hoc measure indicated that the Comparison Group had more symptoms of PTSD than did the No Trauma Group. Curiously, the Sexual Assault Group did score significantly higher on both a measure of drinking behavior (higher score indicated alcohol Dependency) and a measure of Physical Health Functioning.

Thus, while there were some differences between groups, the hypothesis was rejected. This is an unexpected finding since the Sexual Assault Group does have significantly more TE than the Comparison Group does when the sexual events are included in the statistical tests, even though they were matched successfully for the number of non-sexual TE. This suggests that there is may be some effect of Sexual Assault, although it is difficult to say because the number of PTE is significantly higher for this group than the Comparison Group. Also surprising is the fact that the Comparison Group did not differ from the No Trauma Group on the outcome measures. Correlations have shown that there is a direct association between the number of TE and symptoms and functioning. Although there is a trend for the means to be arranged in the way we predicted, the trends only become significant between the two extreme groups. It is possible that the TE experienced by the Comparison Group, while traumatic, were not as severe the sexual assaults, but even then, the sexual assaults did not generally raise the means of the Sexual Assault Group high enough to distinguish them statistically from the Comparison Group.

We also attempted to determine whether the number of sexual TE as reported at Time 1 was associated with the symptoms at Time 2. As expected, it was found that as

the number of sexual TE increase, so do the dependent measures at Time 2. This was true for PTSD symptoms (i.e., frequency, severity, and total scores), dysphoria, physical health functioning, Relation to Self and Other, and Daily Living/Role Functioning. Said another way, the more sexual TE someone experiences, the more distress they will experience, and the greater difficulty they will have functioning in daily life, in terms of health, relating to others, and role functioning. This is consistent with the literature. For example, Messman-Moore and colleagues (2000) found that women who had been re-victimized and who had multiple adult assaults were found to have more difficulties (e.g., more PTSD symptoms) than those women who only reported one form of abuse or no victimization. It has also been suggested that experiencing sexual TE are risk factors for experiencing subsequent sexual TE, which in turn leads to the number of PTSD symptoms (Nishith, Mechanic, & Resick, 2000).

Since sexual assault is generally considered to be the most powerful traumatic life event (e.g., McNally, 2001; Yule et al., 2000), we wanted to know if non-sexual TE contributed to the prediction of our PTSD symptoms above and beyond what was predicted by the number of sexual TE. Several studies (e.g., Messman-Moore et al., 2000; Nishith, Mechanic, & Resick, 2000) suggest that experiencing additional trauma other than sexual trauma is likely to lead to a worsening of PTSD symptoms, which is very much in accordance with a cumulative effects model of multiple trauma. Using regression, it was found that the addition of non-sexual trauma to a predictive model that includes sexual TE adds a significant amount of variance explained in PTSD symptoms. Further, it was found that the interaction between the sexual and non-sexual TE was significant, indicating that the presence of one moderates the effect of the other. In other

words, the experience of trauma subsequent to the first one is experienced in a unique way. Once again, the result of this regression is in agreement with the literature on the cumulative effect of trauma and the effect of nonsexual trauma above and beyond sexual TE (Nishith, Mechanic, & Resick, 2000).

Diagnosed Psychological Disorders

One of the unique aspects of the present study was that there was an interview component. Actual diagnoses could be made, rather than relying exclusively on paper and pencil screening measures of distress. Although questionnaires are generally the standard instrument of choice for research of this sort, they do not provide researchers with type of data that is often used in a clinical setting by Psychologists. The first part of the analysis examined the frequencies of all the diagnostic groups that are measured by the MINI, a structured clinical interview for the DSM-IV. Comparing the Sexual Assault and Comparison Groups was also of interest here, in order to determine whether or not the Sexual Assault group was actually more affected than was the group without sexual TE.

Four people in the Sexual Assault Group had MDD, while there were two cases found in the Comparison Group at Time 1. At Time 2, this remained relatively static for both groups; the Sexual Assault Group gained one case of MDD, while the Comparison Group lost one case. In terms of PTSD at Time 1, there were five cases diagnosed in the Sexual Assault Group, while there were none in the Comparison Group at present; this dropped to 1 case in the Sexual Assault Group and one case at Time 2 in the Comparison Group. Also of note was the fact that there were 20 cases of remitted PTSD in the Sexual

Assault Group and only one case of remitted PTSD in the Comparison Group.

Interestingly, the most frequently diagnosed disorder in the Sexual Assault Group was Agoraphobia, while Bulimia Nervosa was the most frequently present disorder in the Comparison Group; and both of these numbers dropped at Time 2, but they were relatively small drops. Childhood sexual abuse, for example, has been shown to be associated with an increase in several disorders (MacMillan et al., 2001) in women; also, somatoform and dissociative disorders, agoraphobia, specific phobia, alcohol abuse, depression and gender identity disorder (Darves-Bornoz et al., 1998).

It was also important to examine some larger categories to see if there were differences between groups in terms of diagnostic frequencies. Three categories were used: Any Mood Disorder (i.e., any positive present diagnosis of MDD, Dysthymia, mania, or hypomania), and Anxiety Disorder (i.e., any positive present diagnosis of PTSD, GAD, Agoraphobia, Social Phobia, or OCD), and finally, Any Disorder (i.e., any positive present diagnosis as measured by the MINI). It was evident that the Sexual Assault Group qualified as having more diagnoses than did the Comparison Group (e.g., 58% vs. 24% for Any Disorder, Sexual Assault vs. Comparison, respectively). When statistical tests were conducted comparing the differences between groups on the frequencies of these meta-categories, it was found that there were no differences in frequencies of any Mood Disorder, either at Time 1 or at Time 2. This was somewhat unexpected, given the link between PTSD and MDD that is so often found (Breslau et al., 2000; Davidson et al., 1998; Breslau et al., 1997). Even so, given that the Comparison Group is also a highly traumatized Group, it is not surprising that they did not differ from the Sexual Assault Group. However, it was found that there were significantly more

Anxiety Disorder and Any Disorder at both Times 1 and 2 for the Sexual Assault Group as compared to the Comparison Group. This stands in direct contrast to majority of the paper and pencil measures administered in the present study, which, when compared between groups, were found to have equivalent means. It is feasible that the combination of the conservative post-hoc measures (Tukey's tests) and increased sensitivity in the interview component could account for this schism in findings. It is also conceivable that if it were possible to compare an omnibus index of distress between groups that would be roughly equivalent to the diagnostic groupings as used here, that we might have found a difference. While the first set of analyses with the questionnaires suggest that the Sexual Assault Group is generally no worse off than the Comparison Group (i.e., save for the PILL and the B-MAST, for which we did not use conservative post hoc measures), it was shown here that the Sexual Assault Group has experienced more disorders at present than the Comparison Group.

Another goal of the present study was to determine whether or not symptoms and functioning would change differentially over time, depending on Group status. The overall finding for this set of Repeated measures analyses was that there was either no change, or change in the direction that was opposite to that hypothesized. Specifically, it was found that dysphoria decreased over time, and that there was no effect for group or the interaction term that was introduced. PTSD symptoms were shown to decrease over time, but this time, there was a borderline non-significant finding for the main effect of group, with the means for the Sexual Assault Group being higher. Similarly to dysphoria, Daily Life/Role Functioning was found to decrease over time, but there was no effect for group, nor was there an interaction. Finally, Physical Health functioning

was somewhat different than the other tests. Dissonant with the previous ANOVAs, a main effect for Group was found, and an examination of the means showed that the Sexual Assault Group scored higher. However, unlike the others, there was no change in scores in either direction over time, nor was there an effect for the interaction term. These findings mean that the stated hypotheses were not supported. See below for a discussion of these change scores as compared to the tests of change used for the interview data.

The analogue to the repeated measures ANOVAs that were conducted to test for change over time within each group for the paper and pencil questionnaires, non-parametric tests were utilized to determine if there were changes in the frequency of diagnoses from Time 1 to Time 2. Once again, the omnibus indices Any Mood Disorder, Any Anxiety Disorder, and Any Disorder were used to compare within Groups. Very simply, it was found that there were no significant differences in the frequencies of any of these categories in either group. This means that the diagnostic frequencies remain relatively constant over the course of the six month interval that transpired between Time 1 and 2 in the present study. Unlike the above contrast between the diagnostic groups and paper and pencil questionnaires (i.e., when comparing criterion measures between groups), the finding that there was no change between times in terms of diagnostic status is in partial agreement with the paper and pencil measures. With the questionnaires, it was found that the scores tended to, if anything, reduce with time. This might be explained as a regression towards the mean.

Predicting Symptoms, Functioning, and Disorders with Vulnerability

Using the interview data again, we attempted to predict the presence of diagnostic status using the group variable and Dependency and Self-Criticism, this time using logistic regression. In the first regression, which predicted “Any Anxiety Disorder” status, the final model showed that personality contributed to the prediction of the criterion variable above and beyond group status. This is important since there were differences between the frequencies of Anxiety Disorders between the two groups, and personality can help to explain some of this variability. In the final model, however, only Self-Criticism and Group status were found to be unique contributors, while Dependency was not. This is consistent with our previous linear regressions which showed the lack of predictive power of Dependency, while simultaneously lauding the utility of Self-Criticism. In the logistic regression predicting the catch-all Any Disorder category, although personality was shown to contribute significantly to the prediction of disorder status above and beyond group status, neither Dependency nor Self-Criticism were shown to be significant contributors alone. Even still, Self-Criticism was borderline significant. This finding is not surprising given that the predictive power of Self-Criticism has mainly been established within the mood disorders literature (e.g., Zuroff & Mongrain, 1987), and the present study, along with some preliminary evidence, has posited that there should be a connection between Self-Criticism and anxiety disorders, and specifically PTSD, due in part to the similarity in cognitive errors that are present in the anxiety disorders (Silverman & Ginsburg, 1995). The related constructs sociotropy and autonomy have been used previously, in conjunction with the need for control, to predict diagnostic status, and did so robustly (Mazure, Bruce, Maciejewski, & Jacobs, 2000).

Four hierarchical regressions were conducted to predict the dependent measures at Time 2 from Group status and Dependency and Self-Criticism. In the first regression predicting PTSD symptoms, it was found that personality was able to contribute uniquely to the prediction of PTSD symptoms over and over Group status. When the interactions were added to the model, none of the variables were found to be significant predictors of PTSD at Time 2. Similarly, for dysphoria, personality contributed uniquely, but none of the individuals variables were able to explain a unique amount of variance once the interaction terms were introduced into the equation. With the criterion Daily Living/Role Functioning (DLRF), it was found that personality was a unique predictor above and beyond group, but in the final model, Self-Criticism and the interaction term Group by Self-Criticism was significant. This indicates that Self-Criticism might be higher in one of the groups which then helps to predict DLRF scores. Finally, in the regression predicting Physical Health Functioning (PHF), once again, personality contributed significantly to the model, but none of the variables were significant once the interactions were added to the equations. Overall, while personality was a significant and independent predictor of all the criterion measures above group status, they were unable to retain their unique contributions once the interaction terms were introduced.

Testing the Moderation Model

The next set of analyses conducted in this study was using Dependency, Self-Criticism, emotional expression, and social support as predictors of the dependent measures in a series of four hierarchical regressions. The intent was to determine whether Dependency and Self-Criticism have unique roles in predicting the dependent

measures once social support, emotional expression, and group status are taken into account, and also, does Self-Criticism have a moderating role on emotional expression and social support. In predicting PTSD symptoms, it was found that personality contributed above group, and social support and emotional expression predicted additional variance beyond personality and group. The interactions were not significant. However, in the final model, only Total BEQ score and the interaction term Self-Criticism by Expressivity were significant, which suggests that Self-Criticism does indeed moderate the effect of Emotional expression in the context of PTSD symptoms. It did not interact with the Self Disclosure scale, nor did it interact with the social support measures. When the context variables were added into the equation, it was found that Self-Criticism was no longer a significant predictor of PTSD symptoms. Thus, it does not appear to have predictive power above and beyond emotional expression and social support when entered into a regression in this fashion, while it does interact with emotional expression to influence PTSD symptoms.

In predicting dysphoria with the same regression equation, personality contributed significantly above and beyond group, but social support and emotional expression did not contribute significantly to the prediction of dysphoria once personality was in the model. Again, the interactions were also non-significant. Interestingly, in the final model, only Self Disclosure and the interaction term Self-Criticism by Self Disclosure continued to be significant and independent predictors of dysphoria. With this criterion, Self-Criticism was able to remain significant above and beyond social support and emotional expression. Further, Self-Criticism appears to moderate how someone self-discloses to others in the prediction of dysphoria. In the third regression that predicted

Physical Health Functioning (PHF) scores, again, personality contributed above and beyond that accounted for by group status. Like with dysphoria, when social support and emotional expression were added, they did not contribute uniquely, and neither did the interaction terms. Interestingly, in the final model, only Dependency and Group were found to be unique predictors of PHF. Self-Criticism lost its predictive power when social support and emotional expression were added to the model, disproving the hypothesis for this criterion measure. Also, Self-Criticism does not appear to play a moderating role with emotional expression or social support in this context. Finally, in the fourth regression which predicted Daily Living/Role Functioning (DLRF), it was found that personality contributed uniquely above and beyond that accounted for by group status, but that the context variables did not contribute significantly after personality was entered into the model. Also, the interaction terms were likewise unable to contribute significantly. In the final model, none of the predictors were significant. Self-Criticism was found to remain significant until the interaction terms were added, thus supporting the hypothesis that it contributes above and beyond emotional expression and social support, but the moderation hypothesis was not supported with the DLRF criterion. The most directly comparable study was that of Priel and Shahar (2000), and they showed that for Self-Critical individuals, increased stress and decreased social support mediated the relationship between Self-Criticism and distress.

Testing the Mediational Model

The final set of analyses conducted were the explicit tests of the mediational models as proposed by Priel and Shahar (2000). The specific goal was to determine

whether social support and emotional expression could mediate the relationship between Dependency on the one hand, and Self Criticism on the other, and PTSD symptoms. In order to conduct this analysis, several conditions needed to be met as described by Baron and Kenny (1986). These were: 1) establish that the IV can significantly predict the DV, 2) establish that the proposed mediator can significantly predict the DV, 3) establish that the IV can significantly predict the proposed mediator, and 4) establish that when the IV and mediator are entered into a regression predicting the DV, the effects of the IV are substantially reduced or zero (i.e., as compared to condition 1). If these four conditions are present, then mediation is said to have occurred (see Figure 2).

Accordingly, regressions were conducted to test Condition 1. Both Dependency and Self-Criticism were found to predict PTSD symptoms at time two over and above the group variable. In testing Condition 2, it was found that both Social Support Network Size (but not Social Support Satisfaction), and Emotional Expressivity (but not Self-Disclosure) were able to predict PTSD symptoms over and above group status. Thus, Satisfaction and Self-Disclosure were both discarded as potential mediators, while the other two were carried forward to be tested. In testing Condition 3, it was found that both Emotional Expressivity and Network Size were predictive of Dependency and Self-Criticism over and above group status.

The literature has shown that Self-Criticism is linked to negative relationships and ambivalence over emotional disclosure for women which predicted depression (Mongrain & Zuroff, 1994), and peers have rated people high on Self-Criticism as less emotionally expressive (Mongrain, 1998). Also, these analyses are consistent with the literature insofar as the subjective accounts of social support are concerned, and there is some

evidence to suggest that people high on Self-Criticism do not actually have a lower number of social supports, but rate it this way nonetheless (Mongrain, 1998). It has also been shown that social support can mediate the relationship between Self-Criticism and distress (Priel & Shahar, 2000). Victims of rape have been shown to self-disclose less (Miller, Williams, & Bernstein, 1982; Resick, 1983), and have poorer social adjustment than controls (Cohen & Roth, 1987; Wyatt & Notgrass, 1990). While there are some data that suggests that Dependency is positively related to emotional expression and social support (which would make this personality trait a resiliency factor in some ways; Priel & Besser, 2000), there are also data to suggest the inverse relationships, thus speaking to Dependency's role as a vulnerability factor (Mongrain & Zuroff, 1994). People high on Dependency have been shown in previous studies to be less likely to express feelings of hostility (Zuroff, et al., 1983), for example.

While both Dependency and Self-Criticism were shown to be related to PTSD symptoms in regression analyses that accounted for group membership, only Social Support Network Size and the total score on the Berkeley Expressivity Questionnaire were related to PTSD symptoms. Neither the Self-Disclosure scale nor the Social Support Satisfaction score on the SSQSR were related to PTSD symptoms, and thus were not used in these analyses. Contrary to what Priel and Shahar (2000) found, the results of the regressions in the present test of a mediational model showed that both Expressivity and Network Size partially mediated the relationship between Dependency and PTSD symptoms; this went against the hypothesis for the present analysis. The results are more inconclusive for Self-Criticism. Although the Betas were reduced with the introduction of the potential mediators, these reductions were quite small, and the Betas remained high

significant. Thus, we might say there was partial mediation *at most*. This difference in findings with other studies might be explained partially by the fact that the measures used in the two studies were different. Also, we used two time points, whereas Priel and Shahar only used one.

Theoretical Implications

One of the interesting implications of the research is the re-inclusion of Self-Criticism into the diagnostic criteria for PTSD. It was originally included in the criteria in the DSM-III, but was removed for the Revision of that edition. One of the consequences of the inclusion of this cognitive dimension is providing clinicians with a therapeutic “heads up” in terms of another possible focus in psychotherapy for PTSD. It would be a simple matter to include a component where clinicians could monitor, challenge, and replace either automatic thoughts or core beliefs pertaining to Self-Critical cognitions.

Perhaps one of the most interesting findings is that Dependency and Self-Criticism were able to contribute to the prediction of PTSD over and above number of TE, and in fact, in the model with Self-Criticism, TE was no longer significant in the final model. This suggests that there might be some shared variance between these two variables. However, since TE are essential for the diagnosis of PTSD in our present conceptualization of the disorder (i.e., there cannot be PTSD in the absence of a traumatic life event), this suggests just how important Dependency and Self-Criticism are. Clearly, this warrants further research into the utility of these personality factors.

The results of the present studies provide additional evidence that PTSD and MDD are linked in important ways. Researchers have begun to question just how different MDD and PTSD are, and here we have data to suggest once again that they are sharing personality factors in common. However, since Self-Criticism was useful in predicting “Any Anxiety Disorder”, it might say more about the connections between mood and anxiety disorders in general, rather than saying something specific about the connection between MDD and PTSD. It is interesting to note, however, that Self-Criticism was unable to predict the omnibus category “Any Disorder” in logistic regression, although it was borderline significant. No doubt, however, that if mood and anxiety disorders were removed, Self-Criticism would lose its potency as a predictor in that model. Of theoretical interest is whether Dependency and Self-Criticism would be able to predict anxiety disorders other than PTSD to the same degree.

The utility of Social Support and Emotional Expression was not as robust as was expected. The literature is generally clear on the links between these contextual variables and Dependency and Self-Criticism on the one hand, and PTSD on the other. The fact that Social Support Satisfaction and the Self-Disclosure Scale failed to meet the standards for inclusion in the mediational analysis was a surprising finding. There were differences in the two Emotional Expression measures, however. The BEQ is a measure of *emotional expressivity*, that is, expressing positive and negative affect (and also the strength of the impulse to do so). This is in contrast to the Self Disclosure Scale, which measures what one would disclose *with words*, signifying a potential difference in terms of process versus content. In this study, then, it was the expression of affect that help to explain the connection between Dependency and PTSD, but not the content. It was also

shown to interact with Self-Criticism. Likewise, the SSQSR is composed of Satisfaction and Network Size Scales. Although it is curious that one's satisfaction with social support is not predictive of PTSD, it is still important that the number of people that one believes will help them in times of need that is paramount in the prediction of PTSD in this sample.

Limitations and Suggestions for Future Avenues of Investigation

One of the limitations of the research is the sample selected. This university sample did represent a sample of convenience. However, it was necessary to determine the frequency of various traumatic events in a Canadian sample since this data did not previously exist. Although several authors have advocated for the use of homogenous samples in research (e.g., Brewin et al., 2000), this group of individuals likely does not represent the population as a whole, since many of the risk factors that are predictive of the development of PTSD are less likely to be of a concern here, such as lower intelligence, low socio-economic status, and low levels of education (e.g., Breslau et al., 1991). Thus, generalizability is compromised in this study, although, as mentioned, this concern is somewhat assuaged by the need for studies to examine homogeneous samples since it has been demonstrated elsewhere that different predictive variables are successful depending on the group they are applied to (Brewin et al., 2000). Future research might attempt to incorporate participants from outside the university, such as from hospital settings, crisis centers, or through advertisement (although certainly difficult given the sensitivity of the content). This would not only represent the population more effectively, but if sufficient numbers were gathered, it would allow for direct

comparisons between subgroups. As a direct benefit, the power of the study would be increased.

An additional sample limitation is that Study 2 was limited to women, and so we cannot generalize our finding to men. This decision was made based on the desire for a more homogeneous sample, and the knowledge that the number of men who would admit to sexual assault of some sort, and then agree to participate in our study would be small. Thus, the inclusion of men in our study would only function to increase the heterogeneity of the sample without the benefit of being able to make meaningful comparisons between the genders since the number in the males only group would likely be quite low. Conversely, because we had a large enough sample of men in Study 1, it was decided to keep their data rather than reduce our overall numbers to make the sample homogeneous with respect to gender. It was not the intent of the present studies to comment specifically on gender. Follow up studies might include such considerations, however.

Since the participants in this study were successful in their applications to university, and at very least the vast majority all of the participants in the sexual assault group remained in classes until the end of the year, it is logical to conclude that these are relatively high functioning individuals. These people might have less Dependency and Self-Criticism or various other vulnerability traits that might make others more likely to decompensate following a traumatic insult. Alternatively, if vulnerability factors are equivalent with others in society, perhaps it is the resilience factors that are present in greater abundance in these participants (e.g., intelligence, education, SES). Of need for consideration are those people who might have otherwise chosen to enter university, but were unable to do so because they might be functioning too poorly. As a direct result,

they would not be represented in this sample. Their absence in the data would artificially inflate the measures of functioning and reduce the degree of psychopathology that we might alternatively see if they were included. As mentioned with the previous limitation, soliciting participants from outside of the university might yield a sample with lower functioning people, and increase the generalizability of the study.

Another of the limitations of the results in determining change from Time 1 to Time 2 was that there was an attrition rate of 10%, or six participants, so many of the comparisons were done with unequal N. Also, because of the way that the questionnaires were assigned to participants, there were a number of participants who did not complete the questionnaires as assigned, again, resulting in possible bias. It is conceivable that the participants who dropped out of the study were more severe than were those who remained in, possibly even belying their level of functioning.

The definition of sexual assault in the present study was very inclusive. This was done intentionally since we anticipated needing approximately 50 participants to have the power to detect group differences. In fact, data on 63 participants were collected (four of which were subsequently deemed ineligible for inclusion) and only time limitations prevented us from collecting data on additional people who had been sexually assaulted. According to the information from Study 1 and our screening, however, the people who might have yet been contacted did not endorse an assault that was as traumatic or which affected them to the same degree at present as those who were included in the study. Measures were taken to assure that all the participants found the sexual assault traumatic, that is, they reported that they experienced intense fear, helplessness, or horror in relation to the event. Also, we made certain in our interviews that these events were still affecting

them to some degree. The issue remains, however, that out of the 59 participants included in the study, there was a great deal of variability in terms of the *types* of events that were experienced, the *number* of sexual events that each participant experienced, and severity of the events, as determined subjectively and objectively. In accordance with emerging trends in PTSD literature that suggest that individual interpretation of the event should determine its severity, this was the goal of the present study. Thus, even though a sexual event might not appear as objectively severe (e.g., verbal sexual harassment) as others (e.g., rape), if the participant stated that the event was of importance to them, that it affected them, and that it was traumatic, then their data was kept for analysis. Future research should aim to homogenize the type and timing of the sexual assault in order to make more precise statements about the specific effects of sexual assault. Alternatively, future studies might attempt to collect sufficient numbers of sexual assault, broadly defined, so as to compare across types.

Once again, due to the need to be inclusive to acquire an adequate sample size, timing of the events could not be controlled for. Thus, we have several participants who experienced the sexual assault when they were young children, and others, relatively recently as young adults. However, there are some data to suggest that people who have been assaulted in this way are affected in specific ways regardless of the passage of time (McLeer, Deblinger, Hendry, & Orvaschel, 1992). These two extreme examples might represent different processes entirely, especially since the abuse suffered early in one's life has a greater tendency to become a chronic occurrence rather than the one time event. Since we know that multiple traumas have cumulative and predictive power, this might represent a significant problem for the study. This is important since there is research

suggesting that trauma experienced as a child might adversely affect personality development (Wonderlich et al., 2001) as compared to trauma experienced in adulthood which has relatively little impact on personality. This might represent a confound in the present study.

Another limitation of this study was the nature of the longitudinal design. Since several researchers have suggested that it is important for studies to have a longitudinal component, it was decided to incorporate this feature into the design. Even though that was accomplished, the time frame was short (approximately six months), which was likely an insufficient amount of time to capture a significant decline in functioning, over and above a regression to the mean. It might have been valuable to have additional time points to measure functioning, such as at the conclusion of the end of term exams in both December and April (a significant stressor) since participants would have been taxed at these times from a coping standpoint. Further, for completeness, a measurement at the beginning of the next academic year would be advantageous to see how many of the participants chose to return to university after their experience with their first year. It would also have meant that we would have followed them for nearly one calendar year. At the time of the design, however, there were concerns surrounding potential participant fatigue and, as a result, adherence to the protocol might have been problematic. Further, compensation for participants' time would have been prohibitively high. As a direct result of this limitation, the present study does not represent a fair test of the model in question. Future research should aim to follow participants over a greater amount of time, and include smaller, but more frequent measurements of functioning and

psychopathology. Both of these inclusions would increase the probability that events that occur during the course of the study would be captured and represented.

Another possible limitation of the present study might have been that the history of P/TE was done by questionnaire, when an interview format might have been more reliable and complete. Since our study had an interview component in place, it would have been possible to incorporate a trauma interview into the battery, although time and resources limitations were present. However, the TLEQ has convergent validity when compared to a structured interview format (Kubany et al., 2000). In fact, there are several studies that have shown that there is little-to-no advantage in employing an interview format over a questionnaire format (e.g., O'Leary et al., 1992; Stinson & Hendrick, 1992).

An argument could be made for the limitation of our data since there may be a problem with our participants being able to recall the sexual traumas in the first place. Proponents of this view have hypothesized that traumas are remembered in an impaired fashion as compared to other types of memories. However, there is growing evidence for the trauma superiority/equivalency hypothesis, which is that memories for these events are either recalled equally well, or better than, other experiences (Porter & Birt, 2001). As well, these memories have been shown to be recalled with greater consistency over time, and with greater detail, than are positive emotional memories (Peace & Porter, 2004).

The results of the present study did not support the utility of Dependency in the prediction of PTSD symptoms, and it did not interact with the number of TE. This finding is essentially a replication of similar analyses in both the depression (e.g., Coyne

& Whiffen, 1995) and PTSD (e.g., Southwick, Yehuda, & Giller, 1991) literatures. However, the analyses presented here did not include Dependency as broken down into its two component parts, connectedness and neediness. It could be that the utility of Dependency would increase if the neediness component was used in the above regression analyses.

As well, the analyses conducted here were not done in accordance with the *congruency hypothesis* (Blatt et al, 1982), which suggests that events congruent with one's schema will affect someone more than events that are incongruent with one's schema. Accordingly, one might argue that the tests conducted above are not a fair test of the model; a fairer test might integrate the congruency hypothesis. This would be particularly relevant when looking for an interaction between Dependency and the number of TE. We elected to omit this method for two reasons: 1) there is far from universal support for the congruency hypothesis (e.g., Santor, 2003; Bagby, Segal, & Schuller, 1995; Smith, O'Keefe, & Jenkins, 1988), and 2) there was no a priori classification of the events on the TLEQ into interpersonal and status events.

Despite the limitations of this theory, there is intriguing data suggesting that it might be the idiosyncratic classification into interpersonal versus status events by the affected individual that is the key to understanding the congruency hypothesis (Voyer & Cappeliez, 2002). Participants in the present study were not asked to categorize events they may have experienced, and thus, we do not know if this might enhance the predictive power of Dependency. Dependency has predictive power when considered in isolation, and Self-Criticism has predictive power that is robust and able to withstand the inclusion of other established predictors. Rather than supporting the congruency

hypothesis (which was not tested), we therefore have found some support for a stress-diathesis model. Future research might attempt to select the neediness component of Dependency, solicit the idiosyncratic categorizations of participants (i.e., into interpersonal and status events), and then use the congruent events to determine the predictive power of neediness.

A potential problem with the analyses conducted was that we had a relatively small number of participants in Study 2, and a proportionally large number of analyses. With so many tests, the possibility of a Type I error becomes increasingly probable. These tests were conducted nonetheless due to the novelty of the approach, and thus, the risk of committing a Type I error was outweighed by the potential to learn as much as possible from this data. Although a Bonferroni correction could have been attempted, the risk of committing a Type II would have increased. There is no doubt that these findings need to be replicated.

Conclusion

The two main purposes of the present studies were to document the frequency of P/TE in a general university sample, as well as in two subgroups, and to determine the predictive power of Dependency and Self-Criticism when used in regression analyses to predict PTSD symptoms. To those ends, these studies were successful. We now have the first Canadian data on the frequency of life events that are potentially traumatic, and, at least in this Nova Scotia sample, 86% of participants endorsed having had any traumatic life event. The frequency of various types of sexual assault in this sample are also now known.

From these two studies, it has been shown that Self-Criticism is a useful personality factor that can help predict who is more likely to develop symptoms (specifically PTSD symptoms) and experience a decline in functioning following trauma. This was shown through the paper and pencil questionnaires; it explained a unique proportion of variance above and beyond group membership, number of traumatic events, and even beyond dysphoria. Other models showed that Self-Criticism remained unique in the prediction of selected criterion variables above and beyond emotional expression and social support (predicting dysphoria), and there was some evidence for the moderation effect with these context variables. In predicting PTSD, an important three-way interaction between Dependency, Self-Criticism, and number of TE was uncovered. This allows us to argue strongly for the stress-diathesis model with this data. Examination indicates that at high levels of all three of these variables, the highest degree of PTSD symptomatology can be expected.

The predictive power of Self-Criticism was also evident when using logistic regression models that used the interview data. It would be of interest to see what other anxiety disorders/symptoms these personality factors might be able to predict. Indeed, it was found that Self-Criticism was useful in predicting “Any Anxiety Disorder”, but was less helpful in predicting “Any Disorder” which suggests that perhaps the predictive power of Self-Criticism is limited to the mood and anxiety disorders realm. Perhaps the added variability of the Eating Disorders and the addictions reduced the strength of Self-Criticism in those models. Contrary to the findings of Priel & Shahar (2000), mediation was found with Dependency but not for Self-Criticism when using Expressivity and Social Support.

Since there is evidence to suggest that interventions for trauma survivors immediately subsequent to the trauma might be harmful to some people, it would be helpful to know who might be differentially affected in this way. Self-Criticism might be one pathway to follow in predicting treatment response. Further, incorporating some cognitive techniques that would help to alleviate some Self-Criticism into standardized treatment for PTSD might prove useful for selected individuals. It is becoming clearer that being Self-Critical does contribute to the constitution of PTSD.

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Appendix A: Measures used in the Studies

General Information

Sex: M or F (circle one)

Birth Date (Mo/day/yr): _____

What year of your university program are you in (if relevant)? (if in greater than 4th year, put 4)

1st	2nd	3rd	4th
(1)	(2)	(3)	(4)

For the questions in the next section that refer to last term, please answer even if you were in high school.

1. Were you in high school last year? Yes _____ No _____
2. What is your GPA or average this term? _____ Last Term? _____
3. How many times have you visited the health clinic over the past 12 months? _____
4. How many colds/flu's have you had over the past 12 months? _____
5. How many days of school or work have you missed due to illness?
(a) last term? _____ (b) over the summer? _____
6. How many days of school or work have you missed due to other reasons _____
(a) last term? _____ (b) over the summer? _____
(c) What were those reasons? _____

The Traumatic Life Events Questionnaire (TLEQ)

Many more people experience the following events than is often thought. Please read the following situations and check off if you have experienced them or not. If you have, please indicate the number of times each was experienced by choosing one of the options provided. In addition, to all events present in your past, please indicate if you felt: *intense fear, helplessness, or horror* in response to that event.

Have you experienced:

Natural disasters (a flood, hurricane, earthquake, etc.) Yes ____ No ____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Motor vehicle accidents Yes ____ No ____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Other accidents Yes ____ No ____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Warfare or combat Yes ____ No ____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Sudden death of a close friend or loved one Yes ____ No ____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Robbery involving a weapon Yes ____ No ____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Severe assault by an acquaintance or stranger Yes ____ No ____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Witness to severe assault by an acquaintance or stranger Yes ____ No ____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Threat of death or serious bodily harm Yes ____ No ____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Childhood physical abuse Yes ____ No ____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Witness to family violence Yes ____ No ____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Physical abuse by an intimate partner Yes ____ No ____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Sexual abuse or assault before age 13 by someone at least 5 years older Yes _____ No _____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Sexual abuse or assault before age 13 by someone close in age Yes _____ No _____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Sexual abuse or assault during adolescence Yes _____ No _____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Sexual abuse or assault as an adult Yes _____ No _____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Stalking Yes _____ No _____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Life-threatening illness Yes _____ No _____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Life-threatening or permanently disabling event for loved one Yes____ No____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Miscarriage Yes____ No____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Abortion Yes____ No____

If "yes", did it occur:

(a) *Once* (b) *twice* (c) *three times* (d) *4 times* (e) *5 times* (f) *more than five times*

Did you feel *intense fear, helplessness, or horror* in response to that event?

(a) Yes (b) No

When did this happen? _____

How long did it last? _____

If yes, how much did you confide in others about this traumatic experience at the time? (1 = not at all, 7 = a great deal) _____

Beck Depression Inventory-II (BDI-2)

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today**. Place a check (✓) beside the statement you have picked. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. **Sadness**
___ I do not feel sad.
___ I feel sad much of the time.
___ I am sad all the time.
___ I am so sad or unhappy that I can't stand it.
2. **Pessimism**
___ I am not discouraged about my future.
___ I feel more discouraged about my future than I used to be.
___ I do not expect things to work out for me.
___ I feel my future is hopeless and will only get worse.
3. **Past Failure**
___ I do not feel like a failure.
___ I have failed more than I should have.
___ As I look back, I see a lot of failures.
___ I feel I am a total failure as a person.
4. **Loss of Pleasure**
___ I get as much pleasure as I ever did from the things I enjoy.
___ I don't enjoy things as much as I used to.
___ I get very little pleasure from the things I used to enjoy.
___ I can't get any pleasure from the things I used to enjoy.
5. **Guilty Feelings**
___ I don't feel particularly guilty.
___ I feel guilty over many things I have done or should have done.
___ I feel quite guilty most of the time.
___ I feel guilty all of the time.
6. **Punishment Feelings**
___ I don't feel I am being punished.
___ I feel I may be punished.
___ I expect to be punished.
___ I feel I am being punished.
7. **Self-Dislike**
___ I feel the same about myself as ever.
___ I have lost confidence in myself.
___ I am disappointed in myself.
___ I dislike myself.
8. **Self-Criticalness**
___ I don't criticize or blame myself more than usual.
___ I am more critical of myself than I used to be.
___ I criticize myself for all of my faults.
___ I blame myself for everything bad that happens.
9. **Suicidal Thoughts or Wishes**

- ___ I don't have any thoughts of killing myself.
 - ___ I have thoughts of killing myself, but I would not carry them out.
 - ___ I would like to kill myself.
 - ___ I would kill myself if I had the chance.
10. **Crying**
- ___ I don't cry anymore than I used to.
 - ___ I cry more than I used to.
 - ___ I cry over every little thing.
 - ___ I feel like crying, but I can't.
11. **Agitation**
- ___ I am no more restless or wound up than usual.
 - ___ I feel more restless or wound up than usual.
 - ___ I am so restless or agitated that it's hard to stay still.
 - ___ I am so restless or agitated that I have to keep moving or doing something.
12. **Loss of Interest**
- ___ I have not lost interest in other people or activities.
 - ___ I am less interested in other people or things than before.
 - ___ I have lost most of my interest in other people or things.
 - ___ It's hard to get interested in anything.
13. **Indecisiveness**
- ___ I make decisions about as well as ever.
 - ___ I find it more difficult to make decisions than usual.
 - ___ I have much greater difficulty in making decisions than I used to.
 - ___ I have trouble making any decisions.
14. **Worthlessness**
- ___ I do not feel I am worthless.
 - ___ I don't consider myself as worthwhile and useful as I used to.
 - ___ I feel more worthless as compared to other people.
 - ___ I feel utterly worthless.
15. **Loss of Energy**
- ___ I have as much energy as ever.
 - ___ I have less energy than I used to have.
 - ___ I don't have enough energy to do very much.
 - ___ I don't have enough energy to do anything.
16. **Changes in Sleeping Pattern**
- ___ I have not experienced any change in my sleeping pattern.
 - ___ I sleep somewhat more than usual.
 - ___ I sleep somewhat less than usual.
 - ___ I sleep a lot more than usual.
 - ___ I sleep a lot less than usual.
 - ___ I sleep most of the day.
 - ___ I wake up 1-2 hours early and can't get back to sleep.
17. **Irritability**
- ___ I am no more irritable than usual.
 - ___ I am more irritable than usual.
 - ___ I am much more irritable than usual.
 - ___ I am irritable all the time.

18. Changes in Appetite

- ☐ I have not experienced any change in my appetite.
- ☐ My appetite is somewhat less than usual.
- ☐ My appetite is somewhat greater than usual.
- ☐ My appetite is much less than before.
- ☐ My appetite is much greater than usual.
- ☐ I have no appetite at all.
- ☐ I crave food all the time.

19. Concentration Difficulty

- ☐ I can concentrate as well as ever.
- ☐ I can't concentrate as well as usual.
- ☐ It's hard to keep my mind on anything for very long.
- ☐ I find I can't concentrate on anything.

20. Tiredness or Fatigue

- ☐ I am no more tired or fatigued than usual.
- ☐ I get more tired or fatigued more easily than usual.
- ☐ I am too tired or fatigued to do a lot of the things I used to do.
- ☐ I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex

- ☐ I have not noticed any recent change in my interest in sex.
- ☐ I am less interested in sex than I used to be.
- ☐ I am much less interested in sex now.
- ☐ I have lost interest in sex completely.

DEQ-R

Listed below are a number of statements concerning personal characteristics and traits. Read each item and decide whether you agree or disagree, in general, and to what extent. If you **strongly agree**, circle "7". If you **strongly disagree**, circle "1". If you feel you are somewhere in between, circle any one of the numbers between 1 and 7. If you are **not certain or don't know**, circle "4".

1 2 3 4 5 6 7

Strongly Disagree	Disagree	Not certain Don't know	Agree	Strongly Agree
----------------------	----------	---------------------------	-------	-------------------

- | | |
|---|---------------|
| 1. Without support from others who are close to me, I would be helpless. | |
| 2. I tend to be satisfied with my current plans and goals, rather than striving for higher goals. | 1 2 3 4 5 6 7 |
| 3. When I am closely involved with someone, I never feel jealous. | 1 2 3 4 5 6 7 |
| 4. I often find that I don't live up to my own standards or ideals. | 1 2 3 4 5 6 7 |
| 5. The lack of permanence in human relationships doesn't bother me. | 1 2 3 4 5 6 7 |
| 6. If I fail to live up to expectations, I feel unworthy. | 1 2 3 4 5 6 7 |
| 7. Many times I feel helpless. | 1 2 3 4 5 6 7 |
| 8. I seldom worry about being criticized for things I have said or done. | 1 2 3 4 5 6 7 |
| 9. There is a considerable difference between how I am now and how I would like to be. | 1 2 3 4 5 6 7 |
| 10. I enjoy sharp competition with others. | 1 2 3 4 5 6 7 |
| 11. There are times when I feel "empty" inside. | 1 2 3 4 5 6 7 |
| 12. I tend not to be satisfied with what I have. | 1 2 3 4 5 6 7 |
| 13. I don't care whether or not I live up to what other people expect of me. | 1 2 3 4 5 6 7 |
| 14. I become frightened when I feel alone. | 1 2 3 4 5 6 7 |
| 15. I would feel like I'd be losing an important part of myself if I lost a very close friend. | 1 2 3 4 5 6 7 |

1 2 3 4 5 6 7

Strongly
Disagree

Disagree

Not certain
Don't know

Agree

Strongly
Agree

16. People will accept me no matter how many mistakes I have made.
17. I have difficulty breaking off a relationship that is making me unhappy.
18. I often think about the danger of losing someone who is close to me.
19. I am not very concerned with how other people respond to me.
20. No matter how close a relationship is between two people is, there is always a large amount of uncertainty and conflict.
21. I am very sensitive to others for signs of rejection.
22. Often, I feel I have disappointed others.
23. If someone makes me angry, I let him (her) know how I feel.
24. I constantly try, and very often go out of my way, to please or help people I am close to.
25. I find it very difficult to say "No" to the requests of friends.
26. I never really feel secure in a close relationship.
27. The way I feel about myself frequently varies: there are times when I feel extremely good about myself and other times when I see only the bad in me and feel like a total failure.
28. Even if the person who is closest to me were to leave, I could still "go it alone."
29. One must continually work to gain love from another person: that is, love has to be earned.
30. I am very sensitive to the effects my words or actions have on the feelings of other people.
31. I am a very independent person.

	1	2	3	4	5	6	7
	Strongly Disagree	Disagree	Not certain Don't know	Agree	Strongly Agree		
32. I often feel guilty.						1 2 3 4 5 6 7	
33. I think of myself as a very complex person, one who has "many sides."						1 2 3 4 5 6 7	
34. I worry a lot about offending or hurting someone who is close to me.						1 2 3 4 5 6 7	
35. Anger frightens me.						1 2 3 4 5 6 7	
36. I can easily put my own feelings and problems aside, and devote my complete attention to the feelings and problems of someone else.						1 2 3 4 5 6 7	
37. If someone I cared about became angry with me, I would feel threatened that he (she) might leave me.						1 2 3 4 5 6 7	
38. After a fight with a friend, I must make amends as soon as possible.						1 2 3 4 5 6 7	
39. I have a difficult time accepting weaknesses in myself.						1 2 3 4 5 6 7	
40. After an argument, I feel very lonely.						1 2 3 4 5 6 7	
41. In my relationships with others, I am very concerned about what they can give to me.						1 2 3 4 5 6 7	
42. I rarely think about my family.						1 2 3 4 5 6 7	
43. Very frequently, my feelings toward someone close to me vary: there are times when I feel completely angry and other times when I feel all-loving towards that person.						1 2 3 4 5 6 7	
44. I grew up in an extremely close family.						1 2 3 4 5 6 7	
45. I am very satisfied with myself and my accomplishments.						1 2 3 4 5 6 7	
46. I tend to be very critical of myself.						1 2 3 4 5 6 7	
47. Being alone doesn't bother me at all.						1 2 3 4 5 6 7	
48. I very frequently compare myself to standards or goals.						1 2 3 4 5 6 7	

SD

Now we would like to ask you about the extent to which you discuss different aspects of yourself with your other people. Below is a list of things which you may or may not have told others about. Read each statement and indicate the extent to which you have discussed this aspect of yourself with others. Use the scale provided below. If you have not discussed the topic at all, circle "0"; if you have discussed the topic fully and completely, circle "4". Circle whatever number is appropriate for the extent to which you have discussed the topic with your mother.

- 0 not at all discussed
- 1 hardly discussed
- 2 somewhat discussed
- 3 well discussed
- 4 fully and completely discussed

- 1. My personal habits.
- 2. Things that I have done which I feel guilty about.
- 3. Things I wouldn't do in public.
- 4. My deepest feelings.
- 5. What I like and dislike about myself.
- 6. What is important to me in my life.
- 7. What makes me the person I am.
- 8. My worst fears.
- 9. Things I have done which I am proud of.
- 10. My close relationships with other people.

SSQ-SR

The following questions ask about the people who provide you with help or support. Each question has two parts. In the first part of the question list all the people you know, excluding yourself, who you can count on for help or support in the manner described in each of the questions. For each person you list, give both the person's initials and tell us how they are related to you (your spouse, brother, friend, etc.). In the second part of the question you will be asked how satisfied or dissatisfied you are, in general, with the support you receive from the people you listed.

You may find that for some of the questions that no one is providing you with any help or support. If you have had no support, then place a check (✓) in the box ☐ beside the words "No one", and then complete the second part of the question and tell us how satisfied or dissatisfied you are.

1. (a) Who do you know who you can trust with information that could get you in trouble? Write the initials of these people in the spaces provided below and tell us how these people are related to you.

"No one" ☐

- | | | |
|----------|----------|----------|
| 1) _____ | 4) _____ | 7) _____ |
| 2) _____ | 5) _____ | 8) _____ |
| 3) _____ | 6) _____ | 9) _____ |

(b) How satisfied are you with this manner of support? Circle one of the following.

- | | |
|----------------------|-------------------------|
| 6 very satisfied | 3 a little dissatisfied |
| 5 fairly satisfied | 2 fairly dissatisfied |
| 4 a little satisfied | 1 very dissatisfied |

2. (a) Who can you really count on to help you feel more relaxed when you are under pressure? Write the initials of these people in the spaces provided below and tell us how these people are related to you.

"No one" ☐

- | | | |
|----------|----------|----------|
| 1) _____ | 4) _____ | 7) _____ |
| 2) _____ | 5) _____ | 8) _____ |
| 3) _____ | 6) _____ | 9) _____ |

(b) How satisfied are you with this manner of support? Circle one of the following.

- | | |
|----------------------|-------------------------|
| 6 very satisfied | 3 a little dissatisfied |
| 5 fairly satisfied | 2 fairly dissatisfied |
| 4 a little satisfied | 1 very dissatisfied |

3. (a) Who accepts you totally, including both your worst and your best points? Write the initials of these people in the spaces provided below and tell us how these people are related to you.

Dependency, Self-Criticism, & Trauma

"No one" []

- | | | |
|----------|----------|----------|
| 1) _____ | 4) _____ | 7) _____ |
| 2) _____ | 5) _____ | 8) _____ |
| 3) _____ | 6) _____ | 9) _____ |

(b) How satisfied are you with this manner of support? Circle one of the following.

- | | |
|----------------------|-------------------------|
| 6 very satisfied | 3 a little dissatisfied |
| 5 fairly satisfied | 2 fairly dissatisfied |
| 4 a little satisfied | 1 very dissatisfied |

4. (a) Who can you really count on to care about you, regardless of what is happening to you? Write the initials of these people in the spaces provided below and tell us how these people are related to you.

"No one" []

- | | | |
|----------|----------|----------|
| 1) _____ | 4) _____ | 7) _____ |
| 2) _____ | 5) _____ | 8) _____ |
| 3) _____ | 6) _____ | 9) _____ |

(b) How satisfied are you with this manner of support? Circle one of the following.

- | | |
|----------------------|-------------------------|
| 6 very satisfied | 3 a little dissatisfied |
| 5 fairly satisfied | 2 fairly dissatisfied |
| 4 a little satisfied | 1 very dissatisfied |

5. (a) Who can you really count on to help you feel better when you are feeling generally down-in-the-dumps? Write the initials of these people in the spaces provided below and tell us how these people are related to you.

"No one" []

- | | | |
|----------|----------|----------|
| 1) _____ | 4) _____ | 7) _____ |
| 2) _____ | 5) _____ | 8) _____ |
| 3) _____ | 6) _____ | 9) _____ |

(b) How satisfied are you with this manner of support? Circle one of the following.

Dependency, Self-Criticism, & Trauma

- | | |
|----------------------|-------------------------|
| 6 very satisfied | 3 a little dissatisfied |
| 5 fairly satisfied | 2 fairly dissatisfied |
| 4 a little satisfied | 1 very dissatisfied |

6. (a) Who can you count to console you when you are very upset? Write the initials of these people in the spaces provided below and tell us how these people are related to you.

"No one" []

- | | | |
|----------|----------|----------|
| 1) _____ | 4) _____ | 7) _____ |
| 2) _____ | 5) _____ | 8) _____ |
| 3) _____ | 6) _____ | 9) _____ |

(b) How satisfied are you with this manner of support? Circle one of the following.

- | | |
|----------------------|-------------------------|
| 6 very satisfied | 3 a little dissatisfied |
| 5 fairly satisfied | 2 fairly dissatisfied |
| 4 a little satisfied | 1 very dissatisfied |

Berkeley Expressivity Questionnaire

For each statement below, please indicate your agreement or disagreement. Do so by filling in the blank in front of each item with the appropriate number from the following rating scale:

1	2	3	4	5	6	7
strongly			neutral			strongly
disagree						agree

- ____ 1. Whenever I feel positive emotions, people can easily see exactly what I am feeling.
 - ____ 2. I sometimes cry during sad movies.
 - ____ 3. People often do not know what I am feeling.
 - ____ 4. I laugh out loud when someone tells me a joke that I think is funny.
 - ____ 5. It is difficult for me to hide my fear.
 - ____ 6. When I'm happy, my feelings show.
 - ____ 7. My body reacts very strongly to emotional situations.
 - ____ 8. I've learned it is better to suppress my anger than to show it.
 - ____ 9. No matter how nervous or upset I am, I tend to keep a calm exterior.
 - ____ 10. I am an emotionally expressive person.
 - ____ 11. I have strong emotions.
 - ____ 12. I am sometimes unable to hide my feelings, even though I would like to.
 - ____ 13. Whenever I feel negative emotions, people can easily see exactly what I am feeling.
 - ____ 14. There have been times when I have not been able to stop crying even though I tried to stop.
 - ____ 15. I experience my emotions very strongly.
 - ____ 16. What I'm feeling is written all over my face.
-

The PILL

Several common symptoms or bodily sensations are listed below. Most people have experienced most of them at one time or another. We are currently interested in finding out how prevalent each symptom is among various groups of people. On the page below, write how frequently you experience each symptom. For all items, use the following scale:

- A: Have never or almost never experienced the symptom
B: Less than 3 or 4 times per year
C: Every month or so
D: Every week or so
E: More than once every week

For example, if your eyes tend to water once every week or two, you would answer "D" next to question #1.

- | | |
|--|--|
| ___ 1. Eyes water | ___ 28. Swollen joints |
| ___ 2. Itchy eyes or skin | ___ 29. Stiff or sore muscles |
| ___ 3. Ringing in ears | ___ 30. Back pains |
| ___ 4. Temporary deafness or hard of hearing | ___ 31. Sensitive or tender skin |
| ___ 5. Lump in throat | ___ 32. Face flushes |
| ___ 6. Choking sensations | ___ 33. Tightness in chest |
| ___ 7. Sneezing spells | ___ 34. Skin breaks out in rash |
| ___ 8. Running nose | ___ 35. Acne or pimples on face |
| ___ 9. Congested nose | ___ 36. Acne/pimples other than face |
| ___ 10. Bleeding nose | ___ 37. Boils |
| ___ 11. Asthma or wheezing | ___ 38. Sweat even in cold weather |
| ___ 12. Coughing | ___ 39. Strong reactions to insect bites |
| ___ 13. Out of breath | ___ 40. Headaches |
| ___ 14. Swollen ankles | ___ 41. Feeling pressure in head |
| ___ 15. Chest pains | ___ 42. Hot flashes |
| ___ 16. Racing heart | ___ 43. Chills |
| ___ 17. Cold hands or feet even in hot weather | ___ 44. Dizziness |
| ___ 18. Leg cramps | ___ 45. Feel faint |
| ___ 19. Insomnia or difficulty sleeping | ___ 46. Numbness or tingling in the body |
| ___ 20. Toothaches | ___ 47. Twitching of eyelid |
| ___ 21. Upset stomach | ___ 48. Twitching other than eyelid |
| ___ 22. Indigestion | ___ 49. Hands tremble or shake |
| ___ 23. Heartburn or gas | ___ 50. Stiff joints |
| ___ 24. Abdominal pain | ___ 51. Sore muscles |
| ___ 25. Diarrhea | ___ 52. Sore throat |
| ___ 26. Constipation | ___ 53. Sunburn |
| ___ 27. Hemorrhoids | ___ 54. Nausea |
-

Since the beginning of the semester, how many:

- _____ Visits have you made to the student health center or private physician for illness
_____ Days have you been sick
_____ Days your activity has been restricted due to illness

Attitudes to Emotional Expression Scale (AEE)

Please indicate the degree to which you agree or disagree with the following statements:

- 1=Disagree very much
- 2=Disagree somewhat
- 3=Neutral
- 4=Agree somewhat
- 5=Agree very much

- 1. I think you should always keep your feelings under control
- 2. I think you should not burden other people with your problems
- 3. I think getting emotional is a sign of weakness
- 4. I think other people don't understand your feelings

EEQ

Instructions: We would like to know what kinds of *traumatic* experiences people have had which made them feel sad or upset. They may include events, things you have done that you regret, or things that others may have said or done to you. In the space provided, please list and describe (in as much detail as possible) the **three most upsetting traumatic events** or memories you have experienced personally. If you prefer not to describe the event in detail, please provide enough information so that we can understand what happened. Also please make sure to circle how often you think about the event and how upsetting the event is for you right now.

Event 1:

Describe the traumatic event or experience:

How old were you when it happened? _____ years.

How long did it last? _____

Did you tell someone about it? _____

How often do you think about this event now?

(a) not at all (b) less than once a month (c) more than once a month (d) almost all the time

How upsetting is this event for you right now?

(a) not at all upsetting (b) somewhat upsetting (c) very upsetting (d) extremely upsetting

Event 2:

Describe the event or experience:

How old were you when it happened? _____ years.

How long did it last? _____

Did you tell someone about it? _____

How often do you think about this event now?

(a) not at all (b) less than once a month (c) more than once a month (d) almost all the time

How upsetting is this event for you right now?

(a) not at all upsetting (b) somewhat upsetting (c) very upsetting (d) extremely upsetting

Event 3:

Describe the event or experience:

How old were you when it happened? _____ years.

How long did it last? _____

Did you tell someone about it? _____

How often do you think about this event now?

(a) not at all (b) less than once a month (c) more than once a month (d) almost
all the time

How upsetting is this event for you right now?

(a) not at all upsetting (b) somewhat upsetting (c) very upsetting (d) extremely
upsetting

Brief MAST

1. Do you feel you are a normal drinker?
Yes No
2. Do friends or relatives think you are a normal drinker?
Yes No
3. Have you ever attended a meeting of Alcoholics Anonymous (AA)?
Yes No
4. Have you ever lost friends or girlfriends/boyfriends because of drinking?
Yes No
5. Have you ever gotten into trouble at work because of drinking?
Yes No
6. Have you ever neglected your obligations, you family, or your work for two or more days in a row because you were drinking?
Yes No
7. Have you ever had delirium tremens (DT's), severe shaking, heard voices, or seen things that were not there after heavy drinking?
Yes No
8. Have you ever gone to anyone for help about your drinking?
Yes No
9. Have you ever been hospitalized because of drinking?
Yes No
10. Have you ever been arrested for drunk driving after drinking?
Yes No

MPSS

The purpose of this scale is to measure the frequency and severity of symptoms in the past two weeks with regard to the events. Using the scale listed below, please indicate the frequency of the symptoms to the left of each item. Then indicate the severity beside each item to the right by circling the letter that fits you best.

FREQUENCY

- 0 Not at all
 1 Once a week or less/
 A little bit/once in a while
 2 2 to 4 times per week/
 somewhat/half the time
 3 5 or more times per week/
 very much/almost always

SEVERITY

- A Not at all distressing
 B A little bit distressing
 C Moderately distressing
 D Quite a bit distressing
 E Extremely distressing

FREQUENCY

SEVERITY

- | | | |
|-----------|---|-----------|
| _____ 1. | Have you had recurrent or intrusive distressing thoughts or recollections about the event? | A B C D E |
| _____ 2. | Have you been having recurrent bad dreams or nightmares about the event? | A B C D E |
| _____ 3. | Have you had the experience of suddenly reliving the event(s), flashbacks of it, acting as if it were recurring? | A B C D E |
| _____ 4. | Have you been intensely EMOTIONALLY upset when reminded of the event(s)? | A B C D E |
| _____ 5. | Have you persistently been making efforts to avoid thoughts or feelings associated with the event(s)? | A B C D E |
| _____ 6. | Have you persistently been making efforts to avoid activities, situations, or places that remind you of the event(s)? | A B C D E |
| _____ 7. | Are there important aspects about the event(s) that you still cannot recall? | A B C D E |
| _____ 8. | Have you markedly lost interest in free time activities since the event(s)? | A B C D E |
| _____ 9. | Have you felt detached or cut off from others around you since the event(s)? | A B C D E |
| _____ 10. | Have you felt that your ability to experience emotions is less, (e.g., unable to have loving feelings, do you feel numb, can't cry when sad, etc.)? | A B C D E |
| _____ 11. | Have you felt that any future plans or hopes | A B C D E |

Dependency, Self-Criticism, & Trauma

- _____ have changed because of the event(s) (e.g., no career, marriage, children, or long life)?
- _____ 12. Have you been having persistent difficulty falling or staying asleep? A B C D E
- _____ 13. Have you been continuously irritable or having outbursts of anger? A B C D E
- _____ 14. Have you been having persistent difficulty concentrating? A B C D E
- _____ 15. Are you overly alert (e.g., check to see who is around you, etc.) since the event(s)? A B C D E
- _____ 16. Have you been jumpier, more easily startled, since the event(s)? A B C D E
- _____ 17. Have you been having intense PHYSICAL reactions (e.g., sweaty, heart palpitations, etc.) when reminded of the event(s)? A B C D E

BASIS-32 (Behavior and Symptom Identification Scale)

Instructions to Respondent: Below is a list of problems and areas of life functioning in which some people experience difficulties. Using the scale below, fill in the box with the answer that best describes how much difficulty you have been having in each area DURING THE PAST WEEK.

- 0=No Difficulty
- 1=A Little Difficulty
- 2=Moderate Difficulty
- 3=Quite a Bit of Difficulty
- 4=Extreme Difficulty

Please answer each item. Do not leave any blank. If there is an area that you consider to be inapplicable, indicate that it is a 0 = No difficulty.

IN THE PAST WEEK, how much difficulty have you been having in the area of:

1. Managing day-to-day life. (For example, getting places on time, handling money, making everyday decisions)
2. Household responsibilities. (For example, shopping, cooking, laundry, cleaning, other chores)
3. Work. (For example, completing tasks, performance level, finding/keeping a job)
4. School. (For example, academic performance, completing assignments, attendance)
5. Leisure time or recreational activities.
6. Adjusting to major life stress. (For example, separation, divorce, moving, new job, new school, a death)
7. Relationship with family members.
8. Getting along with people outside the family.
9. Isolation or feelings of loneliness.
10. Being able to feel close to others.
11. Being realistic about yourself.
12. Recognizing and expressing emotions appropriately.
13. Developing independence, autonomy.
14. Goals or directions in life.
15. Lack of self-confidence, feeling bad about yourself.
16. Apathy, lack of interest in things.
17. Depression, hopelessness.
18. Suicidal feelings or behaviors.
19. Physical symptoms. (For example, headaches, aches and pains, sleep disturbance, stomach aches, dizziness)
20. Fear, anxiety, or panic.
21. Confusion, concentration, memory.
22. Disturbing or unreal thoughts or beliefs.
23. Hearing voices, seeing things.
24. Manic, bizarre behavior.
25. Mood swings, unstable mood.
26. Uncontrollable, compulsive behavior. (For example, eating disorder, hand-washing, hurting yourself)
27. Sexual activity or preoccupation.
28. Drinking alcoholic beverages.
29. Taking illegal drugs, misusing drugs.
30. Controlling temper, outbursts of anger, violence.
31. Impulsive, illegal, or reckless behavior.
32. Feeling satisfaction with your life.

Appendix B: Consent form for Study One



Dalhousie University

Department of Psychology
Halifax, Nova Scotia
Canada B3H 4J1

(902) 494-6962

(902) 494-6585

Title: The frequency and impact of traumatic events in a university sample
Consent Form

Principal Researcher

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Psychology Department
Halifax, Nova Scotia B3H 4J1
Telephone number: 494-6962
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Supervisor

Darcy Santor, PhD. (Researcher and supervisor)
Dalhousie University
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Psychology Department
Halifax, Nova Scotia B3H 4J1
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Contact Person:

Ivan Valdivia, B.A. (Hon). (Researcher; PhD Graduate Student, Clinical Psychology)
Dalhousie University
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Halifax, Nova Scotia B3H 4J1
Telephone number: 494-6962
Email: valdivia@is2.dal.ca

Participants should feel free to contact Ivan Valdivia in the event of any unusual occurrences or difficulties related to the research, or to receive more information or clarification about the study procedure at any time.

Introduction:

We invite you to take part in a research study at Dalhousie University. Taking part in this study is completely voluntary and you may withdraw from the study at any time. If you are a student at Dalhousie, your evaluation in any course you are taking will not be affected by your desire not to participate. The study is described below. This description tells you about the risks, inconveniences, or discomforts that you might experience. Participating in the study might not benefit you, but we might learn things that will benefit others. Please feel free to discuss any questions you have about this study with the people who are administering it to you.

Purpose of the Study:

The goals of the study are threefold: (1) to assess the frequency of various traumatic life experiences in the community, (2) to evaluate the extent to which these events are associated with emotions, thoughts, and behaviour, and (3) to help us find participants who have been sexually assaulted for future studies.

Study Design:

Everyone who participates in this study will be asked to fill out a number of questionnaires asking about traumatic life experiences, emotions, thoughts, and behaviours.

Who Can Participate in the Study?

Anyone between the ages of 16 and 21 can participate in the study.

Who will be Conducting the Study?

Ivan Valdivia and Dr. Darcy Santor (a clinical psychologist) are conducting the study. You should feel free to contact Mr. Valdivia or Dr. Santor about any aspect of the study, or to receive more information or clarification about the study procedure at any time. They can be contacted at (902) 494-6962 or by email: valdivia@is2.dal.ca.

What you will be asked to do?

You will be asked to fill out a series of questionnaires which ask a number of questions about traumatic events you may or may not have experienced in the past. Questions will also be asked about how you feel, think, and behave in the present. Filling out these questionnaires should take about an hour and can be done either over the internet, or on paper. If you choose to use the internet, you can access the internet from the location of your choice. You can access the internet site with your username and password only once, so please make sure to leave an adequate amount of time to get it done in one sitting. If you have any concerns about this, please feel to contact us at 494-6962. Finally, if you use the internet, please make sure that you have adequate privacy when you're filling out the questionnaires. See specific instructions at the end of this form.

Possible Risks and Discomforts:

If have had emotional events in your past that are asked about on the questionnaires, you may experience some emotional discomfort. However, you may choose to discontinue at any time for any reason and still receive course credit; you also can determine the amount of disclosure that you will partake in. In the unlikely event that you become very emotionally upset, Dr. Santor (a clinical psychologist) will be available to talk with you.

Possible Benefits:

Although answering some questions about past events may not necessarily change much in your life, you will be contributing to the knowledge we have about emotional events, and how they affect you

Compensation:

You will be given 2 credit points (towards introductory psychology) in total for completion of the questionnaires.

Confidentiality:

Information gathered in this study will be confidential. Data will be available only to those involved in the study, including myself (Ivan Valdivia), Dr. Santor, and one research assistant. The information you provide will be assigned a participant number to insure anonymity, and signed consent forms will be kept in a filing cabinet away from the questionnaires. The information from the questionnaires will be transferred to an electronic database, and will be stored in a locked laboratory. You will not be identified in any reports or publications. In accordance with university policy, the questionnaires will be kept for five years following publication of the present study.

Information gathered via the internet is protected by state of the art firewalls and security protocols. Even so, in the unlikely event that someone accesses our computers, the information you provide cannot be linked to your name since your name appears only on the consent form (i.e., on paper), never on the internet protocol.

Questions:

Please feel free to contact Ivan Valdivia in the event of any unusual occurrences or difficulties related to the research, or to receive more information or clarification about the study procedure at any time. Mr. Valdivia may be contacted by telephone ((902) 494-6962) or email (valdivia@is2.dal.ca). You may leave a message on voice mail 24-hours a day and we will return your call promptly.

Termination:

You may discontinue your participation in this study at anytime. Your performance in introductory psychology or any other course will not be affected in any way by your desire to not participate.

Problems or Concerns:

In the event that you have any difficulties with, or wish to voice concern about, any aspect of your participation in this study, you may contact Human Research Ethics / Integrity Coordinator at Dalhousie University's Office of Human Research Ethics and Integrity for assistance: (902) 494-1462.

Important Note: If you would like to take part in the study, but would not like the information you provide to be analysed, you may choose to be an observer in this study. Being an observer means that you will participate in the study as normal, but your data will be kept separately and not used. You will receive compensation no matter which option you choose. Remember: choosing to have your data analysed still means that you will be afforded FULL confidentiality. Below you will find

sections numbered one and two. Please fill in **only** the section that corresponds to your choice to be either a full participant or an observer.

Thank-you for your participation.

I have read the explanation of this study. I have been given the opportunity to discuss it and my questions have been answered to my satisfaction. I hereby consent to take part in this study. However, I realize that my participation is voluntary and that I am free to withdraw from the study at anytime.

1-I would like my data to be used in the study:

Date: _____

Name (print): _____

Signature of Participant: _____

Signature of Researcher: _____

Phone Number and/or e-mail address: _____

2-I would like to be an observer in the study and not have my information analyzed:

Date: _____

Name (print): _____

Signature of Participant: _____

Signature of Researcher: _____

Phone Number and/or e-mail address: _____

Instructions:

1-Go to www.dalsurvey.com

2-Using the card you have been given, enter your username and password that was selected for you

3-Answer all relevant questions

4-When you're done, come to room 3378 or 3379 and you will be given your credit points. If you don't know where this is, either ask the secretaries in the main psychology office or contact us: 494-6962 or valdivia@is2.dal.ca. Please direct any questions to the same phone number and e-mail address. We'll get back to you as soon as possible.

Thanks for your help!

Appendix C: Consent Form for Study Two



Dalhousie University

Department of Psychology

Halifax, Nova Scotia

Canada B3H 4J1

(902) 494-6962

(902) 494-6585

Title: A longitudinal study of sexual assault and factors that mediate symptom development and functional decline

Consent Form

Principal Researcher

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Dalhousie University

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Supervisor

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Contact Person:

Ivan Valdivia, B.A. (Hon). (Researcher; PhD Graduate Student, Clinical Psychology)

Dalhousie University

Psychology Department

Halifax, Nova Scotia B3H 4J1

Telephone number: 494-6962

Email: valdivia@is2.dal.ca

Participants should feel free to contact Ivan Valdivia in the event of any unusual occurrences or difficulties related to the research, or to receive more information or clarification about the study procedure at any time.

Introduction:

We invite you to take part in a research study at Dalhousie University. Taking part in this study is completely voluntary and you may withdraw from the study at any time. If you are a student at Dalhousie, your evaluation in any course you are taking will not be affected by your desire not to participate. The study is described below. This description tells you about the risks, inconveniences, or discomforts that you might experience. Participating in the study might not benefit you, but we might learn things that will benefit others. Please feel free to discuss any questions you have about this study with the people who are administering it to you.

Purpose of the Study:

This study's objectives are to determine how people who have experienced sexual assault in the past, function in the present and over time. This means that we would like to know if experiencing sexual assault affects how you feel, how you act, how your relationships with friends and family are, and how your health is. We would also like to know if there are certain personality traits and things that people do that help them to deal with sexual assault differently than others.

Study Design:

In order to accurately identify how sexual assault affects people, there are two groups in this study. One of the groups will have experienced sexual assault in their past and the other group will not. This will allow us to directly compare how people in these two groups differ in terms of how they manage and live with this type of traumatic experience. Full participation in this study means attending three sessions; in addition to the one you may choose to participate in today, the second interview would be in eight months (i.e., at the end of the present academic year), and then the third in 12 months (i.e., at the beginning of the next academic year). If at any time you decide that you do not wish to participate in the second and/or third sessions, you can let us know. There will be no consequences to you if you choose to discontinue your participation.

Who Can Participate in the Study?

Anyone between the ages of 16 and 21 is eligible to participate in the study. However, the study will be limited to just 50 individuals in each of two groups, namely those who have been sexually assaulted in the past and those who have not.

Who will be Conducting the Study?

Ivan Valdivia (graduate student) and a research volunteer will be conducting the data collection. You should feel free to contact Mr. Valdivia in the event of any unusual occurrences or difficulties related to the research, or to receive more information or clarification about the study procedure at any time. He can be contacted at (902) 494-6962 or by email: valdivia@is2.dal.ca. Dr. Darcy Santor is supervising this research.

What you will be asked to do?

You will first be asked to read and sign the consent form and you will be given a copy of this for your records. After this, you will be interviewed for about two hours, and then given some questionnaires to fill out. Approximately six-to-eight months later, you will be asked to come back and answer some questions in the same way. Again, questionnaires will also be given to you. The session today will take about two hours. Session two will take about 1.5 hours.

Dependency, Self-Criticism, & Trauma

The questionnaires can be done either over the internet, or on paper. If you choose to use the internet, you can access the internet from the location of your choice, including the lab you're in right now. You can access the internet site with your username and password only once, so please make sure to leave an adequate amount of time to get it done in one sitting. If you have any concerns about this, please feel to contact us at 494-6962. Finally, if you use the internet, please make sure that you have adequate privacy when you're filling out the questionnaires.

Possible Risks and Discomforts:

If you have had emotional events in your past, you will likely experience some emotional discomfort when you are asked about them. However, you may choose to discontinue at any time for any reason and still receive compensation for your time, and you can determine the amount of disclosure that you will partake in. In the unlikely event that you become very emotionally upset, Dr. Santor (a clinical psychologist) will be available to talk with you.

If you are someone who had experienced a traumatic event in your past, there is always the **remote** possibility that your anonymity may inadvertently be breeched in Dr. Santor's lab, as there are many people working closely together. This is a small group of people who know each other and understand how essential it is to maintain anonymity. To maintain your anonymity, we are taking the following steps: other people we work with in Dr. Santor's lab will only know that we are conducting clinical interviews with individuals who have and have not experienced trauma. They will not know who has experienced trauma nor what kind of trauma people have experienced. Although we have access to a limited amount of space, we will offer participants the option of being interviewed at the IWK Hospital to further ensure anonymity. **However:** Our priority is that your anonymity is maintained. It is extremely unlikely that your anonymity will be broken.

Possible Benefits:

There may not be any direct benefits of participating in this study. The information you provide us will help us to better understand how individuals deal with sexual assault, and the impact such experiences have on their lives.

Compensation:

You will be given 35 dollars in total for participation in the study. It will be allocated following the second interview, 6 months after the first, should you choose to complete both sessions. The second will occur approximately eight months after the first. If you choose not to participate in the second and third sessions, you can simply let us know and we will compensate you at that time.

Confidentiality:

Information gathered in this study will be confidential. Data will be available only to those involved in the study, including myself (Ivan Valdivia), Dr. Santor, and one research assistant (yet to be determined). The information you provide will be assigned a participant number to insure anonymity, and signed consent forms will be kept in a separate filing cabinet from the questionnaires. The information from the questionnaires will be transferred to an electronic database, and will be stored in a locked laboratory. You will not be identified in any reports or publications. In accordance with university policy, the questionnaires will be kept for five years following publication of the present study.

Information gathered via the internet is protected by state of the art firewalls and security protocols. Even so, in the unlikely event that someone accesses our computers, the information you provide cannot be linked to your name since your name appears only on the consent form (i.e., on paper), never on the internet protocol.

Questions:

Please feel free to contact Ivan Valdivia in the event of any unusual occurrences or difficulties related to the research, or to receive more information or clarification about the study procedure at any time. Mr. Valdivia may be contacted by telephone ((902) 494-6962) or email (valdivia@is2.dal.ca). You may leave a message on voice mail 24-hours a day and we will return your call promptly.

Termination:

You may discontinue your participation in this study at anytime. Your performance in introductory psychology or any other course will not be affected in any way by your desire to not participate.

Problems or Concerns:

In the event that you have any difficulties with, or wish to voice concern about, any aspect of your participation in this study, you may contact Human Research Ethics / Integrity Coordinator at Dalhousie University's Office of Human Research Ethics and Integrity for assistance: (902) 494-1462.

Thank-you for your participation.

I have read the explanation of this study. I have been given the opportunity to discuss it and my questions have been answered to my satisfaction. I hereby consent to take part in this study. However, I realize that my participation is voluntary and that I am free to withdraw from the study at anytime.

Date: _____

Name: _____

Signature of Participant: _____

Signature of Researcher: _____

I agree to be contacted (by phone or e-mail) for the second session in eight months, and the third session in 12 months. However, I realize that my participation is voluntary and that I am free to withdraw from the study at anytime without consequence.

Signature of Participant: _____

Phone Number and/or e-mail address: _____

Best time to be reached: _____

Appendix D: Debriefing Form

Debriefing Form

Before your participation in this study concludes, please take time to read the following information about why this study was conducted. In order to receive your compensation, you will need to answer the question near the bottom of the page.

Rationale for the study you have been involved in:

Data on the prevalence and the effects of traumatic life events in young adults and adolescents is scarce. Specifically, *vulnerability* to psychological disorders and functioning is one of the most important topics in the area of traumatology (i.e., the study of trauma).

Previously, it was thought that merely experiencing a traumatic event was enough to lead to a decline in everyday functioning and to the development of psychological symptoms. Recent studies have shown, however, that the experience of traumatic events far exceeds the prevalence of symptoms and functional decline. Since the majority of people who experience traumatic events do not experience serious problems, the question becomes: what is it that transforms a traumatic event into psychological distress?

The Theoretical Model:

While many psychiatric models identify a decline in functioning as a natural outcome of psychological disorders (e.g., post traumatic stress disorder), we think that there are factors that explain this relationship. For example, personality traits are often useful in explaining who will and who will not become depressed. An example of one such variable is dependency and self-criticism, a way of thinking and behaving that is similar to depression. Another factor we think will be useful is emotional expression; people who are emotionally expressive have been shown, for example, to be healthier and cope better with stress. We think that people who are high on dependency and self-criticism will not benefit from emotional expression; self-critical people because they will not emotionally disclose, and dependent people because they will not be satisfied with the level of support provided. People who are able to be emotionally expressive about their traumatic experience will do better in terms of symptoms and functioning. People who are self-disclosers will seek more social support and experience fewer symptoms.

In order to test these hypotheses, we are using questionnaires to measure the traits outlined above. Once these traits are measured, we will see if there is a relationship between experiencing a traumatic event, possessing the traits, and declines in functioning/development of symptoms.

Dependency, Self-Criticism, & Trauma

Please answer the following question to receive your compensation:

Please name one of the factors that the experimenters believe can explain the relationship between the experience of traumatic events and a decline in functioning/development of symptoms.

For further information on the study you have just participated in, please see the following sources:

Book:

Bowman, M. (1997). Individual Differences in Posttraumatic Response. Mahwah, New Jersey: Lawrence Erlbaum Associates.

Journal Article:

Brewin, C. R.; Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. Journal of Consulting & Clinical Psychology, 68, 748-766.

Appendix E: Sign Up Sheet for the Introductory Psychology Subject Pool



Dalhousie University

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(902) 494-6962
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Sign Up Sheet for the Introductory Psychology Subject Pool

Research on Traumatic Events:

If you are between the ages of 16 and 21, we would like to know about the kinds of traumatic and negative life events that have happened to you in your life, and how they have affected you. All you would need to do is fill in some questionnaires for about an hour for which you would get one (1) credit point towards introductory psychology. If you are interested in participating, please sign up for a time that would be possible for you to come in. If you would feel more comfortable coming in by yourself instead of answering questions in a group setting, feel free to contact us by phone (494-6962) or by e-mail (valdivia@is2.dal.ca) and we'll get back to you quickly.

Appendix F: Sexual Assault Questions

Sexual Assault Check:

You endorsed having experienced a sexual assault or abuse. Is this correct? How many times?

Was it a long time ago or more recent? How old?

Was it one event or was it ongoing?

Was there physical violence involved?

Was it someone that you knew?

Would you consider rape to have taken place?

Did you discuss this with anyone in the past?

Appendix G: Tables

Table 1
Demographics of participants in study 1

	Variable	N	Percent
Gender	Males	88	19.8
	Females	356	80.2
Year at school	Year 1	314	70.7
	Year 2	92	20.7
	Year 3	27	6.1
	Year 4	11	2.5
In High School Last Year?	Yes	292	65.8
	No	152	34.2
In a Romantic Relationship?	Yes	240	54.1
	No	204	45.9
	Mean	SD	
Age	18.82	0.94	

Note: N = 444

Table 2
Demographics of participants in study 2 by group

		Control		Experimental	
	Variable	N	Percent	N	Percent
Group	Total N	50	45.9	59	54.1
Year at school	Year 1	36	72.0	44	74.6
	Year 2	11	22.0	12	20.3
	Year 3	2	4.0	2	3.4
	Year 4	1	2.0	1	1.7
In High School Last Year?	Yes	34	68.0	38	64.4
	No	16	32.0	21	35.6
In a Romantic Relationship?	Yes	29	58.0	22	37.3
	No	21	42.0	37	62.7
		Mean	SD	N	
Age	Control	18.86	0.90	50	
	Experimental	18.81	0.84	59	

Note: All participants in Study 2 are women

Table 3
The frequency of potentially traumatic life events (PTE) in a university sample (Study 1)

Event	Number of Times Events were Experienced							% Positive
	Never	One	Two	Three	Four	Five	>Five	
Natural Disasters	319	72	35	10	3	0	5	28.2
MVA	146	150	95	42	7	2	2	67.1
Other Accidents	327	68	30	9	2	0	8	26.4
War	425	9	4	0	1	1	4	4.3
Sudden Death	161	152	81	29	10	4	7	63.7
Robbery w/ Weapon	429	14	1	0	0	0	0	3.4
Assault to Self	393	34	11	1	1	0	4	11.5
Witness Assault	358	62	8	7	1	0	8	19.4
Threat of Death-Self	333	77	15	8	1	0	10	25.0
Child. Physical Abuse	392	18	5	5	4	1	19	11.7
Family Violence	342	47	11	7	1	1	35	22.9
Physical Abuse-Intimate	404	27	5	5	0	1	2	9.0
Sex. Abuse, <13, >5yo	405	17	5	3	2	0	12	8.8
Sex. Abuse, <13, =age	420	16	1	2	0	0	5	5.4
Sex. Abuse, Adolescence	383	40	7	8	0	1	5	13.7
Sex. Abuse, Adult	428	11	1	2	0	0	2	3.6
Stalking	326	98	15	2	1	0	2	26.6
Illness	393	39	8	3	0	1	0	11.5
Event for Loved One	253	120	46	15	8	0	2	43.0
Miscarriage	436	8	0	0	0	0	0	1.8
Abortion	438	5	0	1	0	0	0	1.4

Note: N = 444

Table 4
Frequency of traumatic events (TE) in a university sample (Study 1)

Event	Yes	No	% Participants Positive for Event
Natural Disasters	33	411	7.4
MVA	158	286	35.6
Other Accidents	69	375	15.5
War	13	431	2.9
Sudden Death	222	222	50.0
Robbery w/ Weapon	11	433	2.5
Assault-To Self	42	402	9.5
Witness Assault	61	383	13.7
Threat of Death-Self	78	366	17.6
Child. Physical Abuse	40	404	9.0
Family Violence	88	356	19.8
Physical Abuse-Intimate	28	416	6.3
Sex. Abuse, <13, >5yo	34	410	7.7
Sex. Abuse, <13, =age	17	427	3.8
Sex. Abuse, Adolescence	54	390	12.2
Sex. Abuse, Adult	10	434	2.3
Stalking	72	372	16.2
Illness	32	412	7.2
Event for Loved One	153	291	34.5
Miscarriage	5	439	1.1
Abortion	5	439	1.1

Note: N = 444

Table 5
Potentially traumatic events (PTE) compared across three groups (Studies 1 & 2)

Group	Life Events (PTE)				ANOVA (2 vs. 3)		
	N	Mean	SD	Range	F	df	p
1. Whole Sample	444	7.5	6.5	42			
2. Sexual Assault	59	14.0	9.4	39			
3. Control Group	50	7.6	5.6	24	17.8	1,107	.000

Table 6
Traumatic life events (TE) compared across three groups (Studies 1 & 2)

Group	Traumatic Events (TE)				ANOVA (2 vs. 3)		
	N	Mean	SD	Range	F	df	p
1. Whole Sample	444	2.8	2.2	11			
2. Sexual Assault	59	4.9	2.5	10			
3. Control Group	50	3.0	1.8	8	20.9	1,108	.000

Table 7
Hierarchical Multiple Regression Analysis Predicting PTSD Symptoms with
Dependency and Dysphoria (Study 1)

Predictor	B	SEB	β	R ²	ΔR^2	F Change
Step 1				.334	.334	221.57***
BDI-2	1.29	.09	.58***			
Step 2				.336	.002	1.58
BDI-2	1.26	.09	.57***			
Dependency	0.05	.05	.05			
Step 3				.353	.018	12.03**
BDI-2	-1.01	.66	-.45			
Dependency	-0.12	.07	-.10			
Dep BY BDI-2	0.01	.01	1.08**			

Note: *p<.05. **p<.01. ***p<.001

Table 8
Hierarchical Multiple Regression Analysis Predicting PTSD Symptoms with
Self-Criticism and Dysphoria (Study 1)

Predictor	B	SEB	β	R ²	ΔR^2	F Change
Step 1				.334	.334	221.57***
BDI-2	1.29	.09	.58***			
Step 2				.352	.019	12.45***
BDI-2	1.04	.11	.47***			
Self-Criticism	0.17	.05	.17***			
Step 3				.352	.000	0.08
BDI-2	1.20	.56	.54*			
Self-Criticism	0.18	.06	.18**			
SC BY BDI-2	0.00	.00	-.08			

Note: *p<.05. **p<.01. ***p<.001

Table 8B
Hierarchical Multiple Regression Analysis Predicting PTSD with Dependency & Self-Criticism and Dysphoria (Study 1)

Predictor	B	SEB	β	R^2	ΔR^2	F Change
Step 1				.334	.334	221.57***
BDI-2	1.29	.09	.58***			
Step 2				.354	.020	6.94**
BDI-2	1.01	.11	.45***			
Self-Criticism	0.17	.05	.18***			
Dependency	0.05	.05	.05			
Step 3				.377	.023	5.26**
BDI-2	-0.14	3.89	-.06			
Self-Criticism	0.22	.06	.22***			
Dependency	-0.14	.08	-.12			
SC BY BDI-2	-0.01	.03	-.68			
DEP BY BDI-2	0.01	.03	.75			
DEP by BDI by SC	0.00	.00	.48			

Note: * $p < .05$. ** $p < .01$. *** $p < .001$

Table 9
Hierarchical Multiple Regression Analysis Predicting PTSD with Dependency & Self-Criticism and TE (Study 1)

Predictor	B	SEB	β	R ²	ΔR^2	F Change
Step 1				.222	.222	125.91***
TE	4.12	.37	.47***			
Step 2				.338	.117	38.83***
TE	2.99	.36	.34***			
Dependency	0.08	.05	.08			
Self-Criticism	0.33	.04	.35***			
Step 3				.345	.007	1.49
TE	25.23	12.40	2.89*			
Dependency	0.08	.07	.07			
Self-Criticism	0.35	.06	.36***			
SC BY TE	-0.19	.10	-2.81*			
Dep BY TE	-0.17	.09	-2.63			
Dep by SC by TE	0.01	.00	2.90*			

Note: *p<.05. **p<.01. ***p<.001

Table 10
Frequency of potentially traumatic life events (PTE) in a university sample of women who have been sexually assaulted (Study 2)

Event	Number of Times Events were Experienced							% Positive
	Never	One	Two	Three	Four	Five	>Five	
Natural Disasters	36	8	8	3	2	0	2	38.9
MVA	18	17	15	8	1	0	0	69.5
Other Accidents	41	10	2	3	1	0	2	30.5
War	56	1	1	0	0	0	1	5.1
Sudden Death	19	19	12	3	2	2	2	67.8
Robbery w/ Weapon	58	1	0	0	0	0	0	1.7
Assault to Self	37	12	6	1	1	0	2	37.3
Witness Assault	47	6	2	1	0	0	3	20.3
Threat of Death-Self	45	9	1	2	0	0	2	23.7
Child. Physical Abuse	42	5	0	4	2	1	5	11.8
Family Violence	40	3	4	1	0	0	11	32.2
Physical Abuse-Intimate	47	7	2	2	0	0	1	20.3
Sex. Abuse, <13, >5yo	33	11	4	2	2	0	7	44.1
Sex. Abuse,<13, =age	47	10	1	1	0	0	0	20.3
Sex. Abuse, Adolescence	23	18	5	8	0	1	4	61.0
Sex. Abuse, Adult	50	5	0	2	0	0	2	15.3
Stalking	39	15	4	0	0	0	1	33.9
Illness	55	2	2	0	0	0	0	6.8
Event for Loved One	25	22	5	3	3	0	1	57.6
Miscarriage	53	6	0	0	0	0	0	10.2
Abortion	54	4	0	1	0	0	0	8.5

Note: N = 59

Table 11
Frequency of potentially traumatic life (PTE) events in a university sample of participants who have not been sexually assaulted (Study 2)

Event	Number of Times Events were Experienced							% Positive
	Never	One	Two	Three	Four	Five	>Five	
Natural Disasters	37	6	7	0	0	0	0	26.0
MVA	19	15	7	8	1	0	0	52.0
Other Accidents	35	5	7	2	1	0	0	30.0
War	50	0	0	0	0	0	0	0.0
Sudden Death	17	13	11	4	3	1	1	66.0
Robbery w/ Weapon	50	0	0	0	0	0	0	0.0
Assault- To Self	50	0	0	0	0	0	0	0.0
Witness Assault	43	7	0	0	0	0	0	14.0
Threat of Death-Self	37	7	1	1	1	0	3	26.0
Child. Physical Abuse	45	1	1	0	0	0	6	10.0
Family Violence	34	7	1	1	0	0	7	32.0
Physical Abuse-Intimate	45	2	0	1	0	1	1	10.0
Sex. Abuse, <13, >5yo	50	0	0	0	0	0	0	0.0
Sex. Abuse,<13, =age	50	0	0	0	0	0	0	0.0
Sex. Abuse, Adolescence	50	0	0	0	0	0	0	0.0
Sex. Abuse, Adult	50	0	0	0	0	0	0	0.0
Stalking	37	10	1	0	1	0	1	26.0
Illness	42	7	0	1	0	0	0	16.0
Event for Loved One	25	15	6	3	1	0	0	50.0
Miscarriage	50	0	0	0	0	0	0	0.0
Abortion	50	0	0	0	0	0	0	0.0

Note: N = 50

Table 12
Frequency of traumatic events (TE) in a university sample of women who were sexually assaulted (Study 2)

Event	Yes	No	% Participants Positive for Event
Natural Disasters	7	52	11.9
MVA	28	31	47.5
Other Accidents	11	48	18.6
War	3	56	5.1
Sudden Death	32	27	54.2
Robbery w/ Weapon	1	58	1.7
Assault-To Self	20	39	33.9
Witness Assault	7	52	11.9
Threat of Death-Self	11	48	18.6
Child. Physical Abuse	13	46	22.0
Family Violence	17	42	28.8
Physical Abuse-Intimate	7	52	11.9
Sex. Abuse, <13, >5yo	23	36	39.0
Sex. Abuse, <13, =age	10	49	16.9
Sex. Abuse, Adolescence	34	25	57.6
Sex. Abuse, Adult	8	51	13.6
Stalking	17	42	28.8
Illness	3	56	5.1
Event for Loved One	28	31	47.5
Miscarriage	4	55	6.8
Abortion	4	55	6.8

Note: N = 59

Table 13
Frequency of life events that qualify as traumatic in a university sample of participants who have not been sexually assaulted (Study 2)

Event	Yes	No	% Participants Positive for Event
Natural Disasters	6	44	12
MVA	23	27	46
Other Accidents	9	41	18
War	0	50	0
Sudden Death	30	20	60
Robbery w/ Weapon	0	50	0
Assault To Self	0	50	0
Witness Assault	7	43	14
Threat of Death-Self	12	38	24
Child. Physical Abuse	5	45	10
Family Violence	16	34	32
Physical Abuse-Intimate	5	45	10
Sex. Abuse, <13, >5yo	0	50	0
Sex. Abuse,<13, =age	0	50	0
Sex. Abuse, Adolescence	0	50	0
Sex. Abuse, Adult	0	50	0
Stalking	8	42	16
Illness	6	44	12
Event for Loved One	21	29	42
Miscarriage	0	50	0
Abortion	0	50	0

Note: N = 50

Table 14
Types of Sexual Trauma Experienced by the Experimental Group from the Interview (Study 2)

Type Participants Experienced	N Cases	% of Cases Reported	N Participants	% of
Rape	18	24.0	18	30.5
Attempted Rape	2	2.8	2	3.4
Forced Oral Sex	11	14.7	10	16.9
2-Way Forced Touching	8	10.7	8	13.5
1-Way Forced Touching	19	25.3	17	28.8
Forced Touching, Unspecified	10	13.3	10	16.9
Exposure	3	4.0	2	3.4
Sexual Harassment at Work	1	1.3	1	1.7
Other	3	4.0	3	5.1
<hr/>				
Number of Sexual Events Reported at Interview	N of Participants			
One	44			
Two	14			
Three	1			
Total Number of Events Reported:	75			

Notes: N = 59

Table 15
Standardized measures for participants at time 1 by group (Study 2)

Measure	Mean	SD	df	F (2 vs. 3)	p
BDI					
No Trauma	7.37	6.95			
Control	11.06	10.54			
Assault	13.42	9.94	1, 107	1.45	0.232
MPSS					
No Trauma (Overall)	9.54	13.56			
Control	22.12	23.13			
Assault	29.66	20.63	1, 107	3.24	0.075
BASIS (RSO)					
No Trauma	0.525	0.666			
Control	0.720	0.637			
Assault	0.893	0.719	1, 107	1.75	0.189
BASIS (DLRF)					
No Trauma	0.605	0.591			
Control	0.806	0.722			
Assault	0.920	0.812	1, 107	0.59	0.442
BASIS (Imp/Add)					
No Trauma	0.203	0.347			
Control	0.273	0.455			
Assault	0.477	0.569	1, 107	4.17	0.044
BMAST					
No Trauma	-	-			
Control	0.51	0.84			
Assault	0.96	1.29	1, 101	4.35	0.039
PILL					
No Trauma	-	-			
Control	15.90	9.52			
Assault	20.13	10.49	1, 100	4.53	0.036

Notes: All participants are women

Control N = 50; Assault N = 59; No Trauma N = 59

Table 16
Diagnostics for the sexual assault group at times 1 & 2 (Study 2)

Disorder	Time	Yes	No	Past Episode	Subthreshold
Major Depression	1	4	21	33	1
	2	5	38	7	3
Melancholia	1	2	43	14	0
	2	2	46	5	0
Dysthymia	1	0	53	0	0
	2	0	57	0	0
Suicidality	1	3	52	2	2
	2	3	48	1	1
Mania	1	0	54	5	0
	2	2	51	0	0
Hypomania	1	0	54	4	1
	2	0	49	2	2
Panic Disorder	1	1	40	5	13
	2	1	45	1	6
Agoraphobia	1	12	46	0	1
	2	10	43	0	0
Social Phobia	1	4	52	0	3
	2	5	45	0	3
OCD	1	2	49	1	7
	2	3	47	1	2
PTSD	1	5	30	20	4
	2	1	52	0	0
Alcohol Dep.	1	2	57	0	0
	2	1	52	0	0
Alcohol Abuse	1	4	53	2	0
	2	8	45	0	0

Dependency, Self-Criticism, & Trauma

Substance Dep.	1	3	51	5	0
	2	1	52	0	0
Substance Abuse	1	4	54	1	0
	2	5	48	0	0
Psychosis	1	0	58	0	1
	2	0	53	0	0
Anorexia	1	0	54	5	0
	2	0	53	0	0
Bulimia	1	5	50	3	1
	2	3	47	0	3
GAD	1	9	38	0	12
	2	11	28	0	14
ASPD	1	0	58	0	1
	2	0	53	0	0

Notes: OCD = Obsessive Compulsive Disorder; PTSD = Post Traumatic Stress Disorder; Alcohol Dep. = Alcohol Dependence; Substance Dep. = Substance Dependence; GAD = Generalized Anxiety Disorder; ASPD = Antisocial Personality Disorder

Table 17
Diagnostics for the control group at times 1 & 2 (Study 2)

Disorder	Time	Yes	No	Past Episode	Subthreshold
Major Depression	1	2	35	11	1
	2	1	46	1	1
Melancholia	1	1	46	3	0
	2	0	49	0	0
Dysthymia	1	1	49	0	0
	2	0	49	0	0
Suicidality	1	3	47	0	0
	2	3	46	0	0
Mania	1	0	50	0	0
	2	0	49	0	0
Hypomania	1	0	47	3	0
	2	1	48	0	0
Panic Disorder	1	0	44	1	5
	2	1	43	1	4
Agoraphobia	1	0	50	0	0
	2	1	49	0	0
Social Phobia	1	1	47	0	2
	2	0	46	0	3
OCD	1	0	50	0	0
	2	0	48	0	1
PTSD	1	0	47	1	2
	2	1	48	0	0
Alcohol Dep.	1	0	50	0	0
	2	0	49	0	0

Dependency, Self-Criticism, & Trauma

Alcohol Abuse	1	2	48	0	0
	2	1	48	0	0
Substance Dep.	1	1	49	0	0
	2	0	49	0	0
Substance Abuse	1	2	48	0	0
	2	0	49	0	0
Psychosis	1	0	50	0	0
	2	0	49	0	0
Anorexia	1	0	50	0	0
	2	0	49	0	0
Bulimia	1	4	46	0	0
	2	3	46	0	0
GAD	1	3	42	0	5
	2	0	44	0	5
ASPD	1	0	49	0	1
	2	0	48	0	1

Notes: OCD = Obsessive Compulsive Disorder; PTSD = Post Traumatic Stress Disorder; Alcohol Dep. = Alcohol Dependence; Substance Dep. = Substance Dependence; GAD = Generalized Anxiety Disorder; ASPD = Antisocial Personality Disorder

Table 18
Descriptives for diagnostics in both groups (Study 2)

Group	Number of Cases			
	Any Mood Disorder	Any Anxiety Disorder	Any Current Disorder	Any Past Disorders
Sexual Assault				
Time 1 (N = 59)	4 (7%)	26 (44.1%)	34 (57.6%)	43 (72.9%)
Time 2 (N = 53)	6 (11.3%)	23 (43.4%)	30 (56.6%)	10 (18.9%)
Control				
Time 1 (N=50)	2 (4.0%)	4 (8.0%)	12 (24.0%)	13 (26.0%)
Time 2 (N = 49)	2 (4.1%)	2 (4.1%)	7 (14.3%)	2 (4.1%)
	Mean Current Disorders	Mean Past Disorders	Mean Threshold Disorders	Mean Lifetime Disorders
Sexual Assault				
Time 1 (N = 59)	0.95 (sd=1.17)	1.42 (sd=1.18)	0.76 (sd=0.88)	2.37 (sd=1.75)
Time 2 (N = 53)	1.06 (sd=1.47)	0.21 (sd=0.45)	0.62 (sd=0.74)	1.26 (sd=1.62)
Control				
Time 1 (N=50)	0.30 (sd=0.58)	0.34 (sd=0.66)	0.32 (sd=0.62)	0.64 (sd=0.92)
Time 2 (N = 49)	0.18 (sd=0.49)	0.04 (sd=0.20)	0.31 (sd=0.62)	0.22 (sd=0.51)

Table 19
Standardized measures for participants comparing time 1 to time 2 in the comparison and sexual assault groups (Study 2)

Measure	Mean	Time 1 SD	N	Mean	Time 2 SD	N
BDI-2						
Control	11.06	10.54	50	8.78	9.41	50
Assault	13.42	9.94	59	11.14	9.63	51
MPSS-SR						
Control (Total)	22.12	23.13	50	13.94	16.92	50
Assault	29.66	20.63	59	20.27	13.86	51
BASIS-32						
Control (RSO)	0.720	0.637	50	0.548	0.635	50
Assault	0.893	0.719	59	0.695	0.645	51
Control (DLRF)	0.806	0.722	50	0.580	0.699	50
Assault	0.920	0.812	59	0.734	0.627	51
BMAST						
Control	0.51	0.84	49	0.48	0.760	49
Assault	0.96	1.29	54	0.63	1.090	52
PILL						
Control	15.90	9.52	49	14.80	9.630	49
Assault	20.93	10.49	53	19.92	10.370	48

Table 20
Hierarchical multiple regression predicting PTSD scores (Study 2) with
Dependency, Self-Criticism, group, social support, and emotional expression
(Moderation)

Predictor	B	SEB	β	R ²	ΔR^2	F Change
Step 1				.031	.031	3.14
Group	4.91	2.75	.18			
Step 2				.176	.145	8.38***
Group	4.09	2.61	.15			
Dependency	.09	.10	.09			
Self-Criticism	.25	.07	.34**			
Step 3				.262	.087	2.68*
Group	4.08	2.55	.15			
Dependency	.03	.10	.03			
Self-Criticism	.18	.08	.25*			
BEQ	9.01	3.13	.28			
SD	.02	.22	.01			
SSQN	-1.03	.70	-.15			
SSQS	1.32	2.06	.06			
Step 4				.325	.062	1.99
Group	3.72	2.55	.13			
Dependency	.03	.10	.03			
Self-Criticism	-1.77	1.04	-2.42			
BEQ	-41.86	19.32	-1.29*			
SD	1.34	1.31	.60			
SSQN	.96	3.97	.14			
SSQS	-6.13	15.54	-.30			
SC by SSQS	.06	.13	.48			
SC by SSQN	-.02	.03	-.23			
SC by SD	-.01	.01	-.69			
SC by BEQ	.42	.16	3.58**			

Note: *p<.05. **p<.01. ***p<.001

Table 21
Hierarchical multiple regression predicting PTSD scores (Study 2) with
Dependency, group, and emotional expressivity (Mediation)

Predictor	B	SEB	β	R ²	ΔR^2	F Change
Step 1						
Group	6.34	3.08	.20*	.041	.041	4.24*
Step 2						
Group	8.00	2.88	.26**	.200	.156	9.43***
Dependency	.14	.10	.14			
Expressivity	11.57	3.24	.34**			

Note: *p<.05. **p<.01. ***p<.001

Table 22
Hierarchical multiple regression predicting PTSD scores (Study 2) with Self-Criticism, group, and emotional expressivity (Mediation)

Predictor	B	SEB	β	R ²	ΔR^2	F Change
Step 1				.041	.041	4.24*
Group	6.34	3.08	.20*			
Step 2				.249	.208	13.40***
Group	5.80	2.83	.19*			
Self-Criticism	.22	.07	.29**			
Expressivity	9.22	3.26	.27**			

Note: *p<.05. **p<.01. ***p<.001

Table 23
Hierarchical multiple regression predicting PTSD scores (Study 2) with
Dependency, group, and Social Support Network Size (Mediation)

Predictor	B	SEB	β	R ²	ΔR^2	F Change
Step 1						
Group	6.34	3.08	.20*	.041	.041	4.24*
Step 2						
Group	6.12	2.99	.20*	.146	.105	5.97**
Dependency	.20	.10	.19			
Network Size	-1.72	.70	-.24*			

Note: *p<.05. **p<.01. ***p<.001

Table 24
Hierarchical multiple regression predicting PTSD scores (Study 2) with Self-Criticism, group, and Social Support Network Size (Mediation)

Predictor	B	SEB	β	R^2	ΔR^2	F Change
Step 1				.041	.041	4.24*
Group	6.34	3.08	.20*			
Step 2				.201	.166	10.15***
Group	4.05	2.87	.13			
Self-Criticism	.25	.07	.33**			
Network Size	-1.12	.71	-.15			

Note: * $p < .05$. ** $p < .01$. *** $p < .001$

Table 25
Alphas (internal consistency) for questionnaires at time 1 (Study 1 & 2)

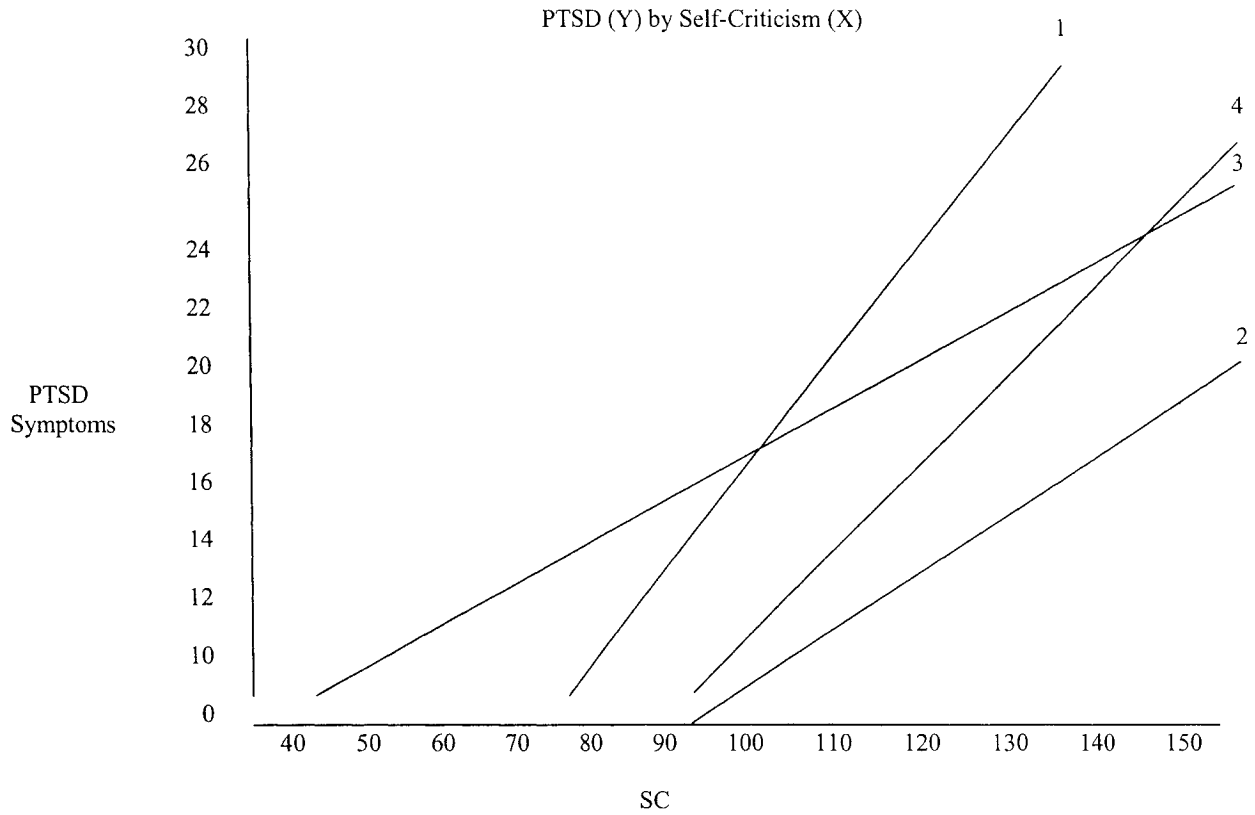
Questionnaire	N	No. Items	Alpha	Standardized Alpha
BDI-2	444	21	.914	.917
DEQ-R	444	48	.796	.785
MPSS	444	34	.953	.953
BASIS-32	444	32	.938	.936
AEE	106	4	.721	.718
BEQ	438	16	.688	.703
BMAST	105	8	.571	.588
PILL	104	54	.935	.932
SD	104	10	.857	.857
SSQSR	439	6	.889	.891

Table 26
Alphas (internal consistency) for questionnaires at time 2 (Study 2)

Questionnaire	N	No. Items	Alpha	Standardized Alpha
BDI-2	104	21	.934	.935
DEQ-R	104	48	.812	.798
MPSS	104	34	.940	.939
BASIS-32	104	32	.941	.938
AEE	106	4	.738	.742
BEQ	103	16	.709	.715
BMAST	106	8	.476	.472
PILL	105	54	.938	.937
SD	106	10	.895	.896
SSQSR	103	6	.931	.934

Figure 1

Breaking down a three way interaction between dependency, self-criticism, and TE

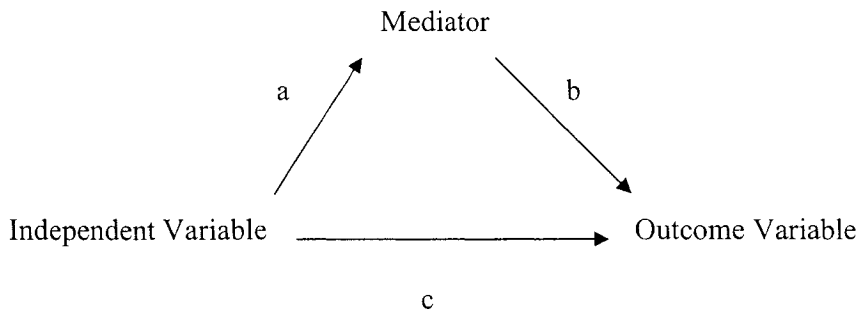


1=High TE, High Dependency (slope = .585)
2=Low TE, High Dependency (slope = .217)
3=High TE, Low dependency (slope = .329)
4=Low TE, Low Dependency (slope = .468)

Figure 2

Diagrammatic representations of general mediation and moderation models

General Mediation



General Moderation

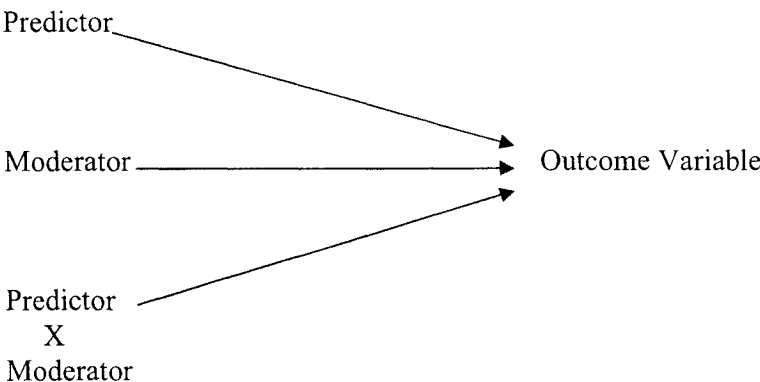


Figure 3

Using Expressivity as a mediator between Dependency and PTSD

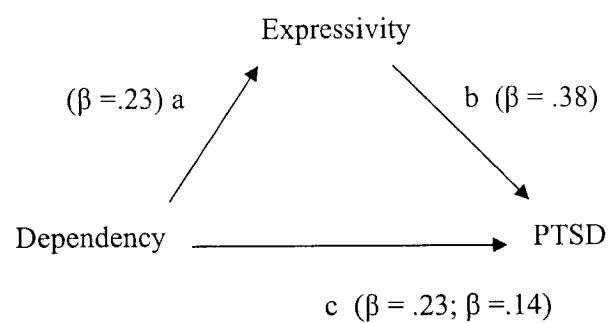


Figure 4

Using Expressivity as a mediator between Self-Criticism and PTSD

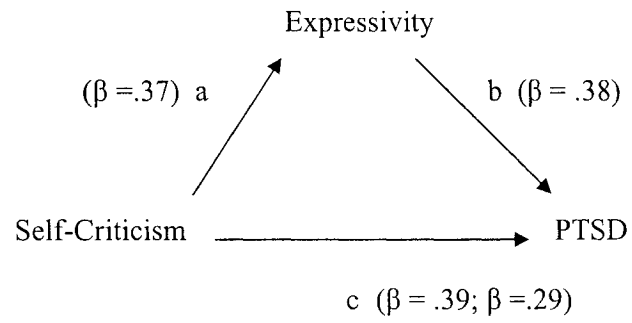


Figure 5

Using Social Support as a mediator between Dependency and PTSD

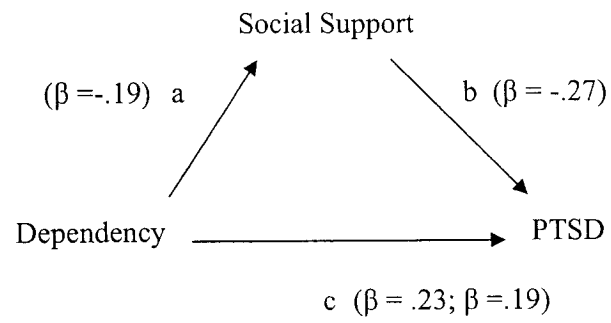


Figure 6

Using Social Support as a mediator between Self-Criticism and PTSD

