THE ROLE OF PERSONALITY AND EMOTION REGULATION ON PSYCHOLOGICAL HEALTH AMONG TRAUMA SURVIVORS

by

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A thesis submitted in conformity with the requirements for the degree of Master of Arts
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Abstract

A growing body of literature is focusing on the influence of personality and emotion regulation on psychological health. Using archival data from an expressive writing project, the current study investigated the relationship between perfectionistic self-presentation and emotion regulation, and the influence of the interaction of these variables on psychological health among trauma survivors. The results indicate that both perfectionistic self-presentation and more difficulties in emotion regulation contribute to symptoms of distress. As well, higher levels of perfectionistic self-presentation were associated with more difficulties in emotion regulation. Further, emotion regulation mediated the relationship between perfectionistic self-presentation and psychological distress but not common physical complaints. More specifically, the non-acceptance subscale of emotion regulation was found to be significant in a test of multiple mediator model.
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Chapter 1:

Literature Review

“Achieving psychological health is one of the foremost goals of human existence” (Kashdan & Rottenberg, 2010). Despite the fact that modern psychology has been preoccupied with ameliorating and treatment of mental illness for the most of part of the last century, there has been a shift in its approach since 1960. It has been argued that absence of mental illness does not signify optimal psychological health and functioning, and that the science of well-being is worthy of study in its own right (Ryan & Deci, 2001; Ryff, 1995; Seligman, 2003). The challenging issue is that there are many different definitions and approaches to the concept of well-being with intense debates dating back over two millennia. This indicates the normative nature of the vision of a “good life” in guiding both the individual lifestyle as well as policy practices of the governments and societies (Ryan & Deci, 2001).

Ancient Greek philosophers envisioned the good life in two distinct ways: Hedonism versus Eudaimonism (Ryan & Deci, 2001; Waterman, 1993). These two schools of thought have contributed to the formation and development of two distinct, yet related lines of inquiry in the 20th century. According to Hedonic teachings of Aristippus (Greek philosopher, 400 BC), a good life is a life of maximal pleasure, and happiness. Furthermore, happiness equals the total sum of all hedonic moments (Ryan & Deci, 2001). This understanding of well-being has had many followers along the history, and has been the guiding principle behind psychological research concerned with “Subjective Well-Being (SWB)” (Diener, 1984). In contrast, Aristotle (384 BC) considered hedonism as reduction of good life down to satisfaction of desires, which ignores human virtue. In
Nichomachean Ethics, he introduced the Eudaimonic view. Accordingly, *Daimon* refers to the potentialities inherent in every human being due to shared human nature as well as individual unique characteristics. The realization of these potentialities will lead to self-actualization, and experience of Eudaimonia, an expression of authentic living (Waterman, 1993). In contemporary psychology, research on “Psychological Well-Being (PWB)” draws on this Aristotelian position (Ryan & Deci, 2001; Ryff & Singer, 1998). It is no surprise that just as the ancient schools disagreed on the vision of good life, scholars in modern times differ on the definition of and conditions conducive to well-being and optimal functioning (Ryan & Deci, 2001).

**Approaches to Well-Being**

**Hedonic View and Subjective Well-Being**

Ed Diener in his 1984 seminal article entitled subjective well-being argues that Aristotelian position of Eudaimonia and living a life of virtue is a normative and objective standard that humans are recommended to strive to. As such, it is not related to happiness in the modern sense. In contrast, he quotes Marcus Aurelius who wrote “no man is happy who does not think himself so” to bring attention to the subjective quality of happiness (Diener, 1984). He maintains that subjective well-being incorporates the presence of positive affect and includes a global assessment of various aspects of personal life. As well, absence of negative affect does not equal happiness. In other words, life satisfaction is conceptualized in terms of global life satisfaction (LS) as well as satisfaction in certain aspects of life, i.e. domain satisfaction (DS) (Diener, 1984; Diener, Suh, Lucas, & Smith, 1999). Current research on subjective well-being suggests that the structure of subjective well-being (SWB) has three main components: life satisfaction (LS), positive affect (PA),
and negative affect (NA). Since life satisfaction is understood as cognitive judgment of one’s life, it is also discussed as cognitive well-being and the affective component as affective well-being (Schimmack, 2008).

Cognitive well-being has been discussed in terms of the structural relationships between global life satisfaction and domain satisfaction (e.g. academic, romantic, partner and so on). Research has tested two different processes: 1. Top-down structure: that life satisfaction (LS) influences domain satisfaction, and 2. Bottom-up structure: that domain satisfaction (DS) causes the overall life satisfaction (LS). There are findings supporting both processes, and some have suggested that both LS and DS mutually influence each other via a dynamic process or a feedback loop (for a comprehensive review see Schimmack, 2008). As well, research shows that PA and NA are two distinct components of affective well-being (Diener, 1984; Diener et al., 1999; D. Watson, Clark, & Tellegen, 1988) and that they correlate significantly with the cognitive component of subjective well-being. However, the correlation between life satisfaction and domain satisfaction is stronger and the two components of cognitive and affective well-being remain structurally distinct (Diener et al., 1999; Schimmack, 2008).

**Eudaimonic View and Psychological Well-Being**

Research on subjective well-being has been criticized on the grounds of being atheoretical and data driven. As well, it is argued that research on affective balance and life satisfaction has been concerned with application of research findings rather than fostering any debate on what it means to be psychologically well. As such, it is claimed that research on subjective well-being ignores fundamental features of human wellness (Ryff, 1989; Ryff & Keyes, 1995; Ryff, 1995). Ryff and Keyes (1995) express surprise at the absence of
theory based research on well-being, when in fact modern psychology provides a number of theories on positive functioning including stages of psychosocial development (Erikson, 1959), basic life tendencies (Bühler, 1935), personality change across life cycle (Neugarten, 1973), self-actualization (Maslow, 1968), fully functioning person (Rogers, 1961) and the concept of individuation (Jung, 1933). Based on converging aspects of these theories, Ryff proposed a multidimensional model of psychological well-being (PWB) with six main dimensions of self-acceptance, environmental mastery, positive relationships with other people, autonomy, purpose in life, and personal growth (Ryff, 1995). It is shown that there are correlations of small to medium size between measures of subjective well-being (SWB) and the four dimensions of psychological well-being (PWB) including positive relationships with others, autonomy, purpose in life, and personal growth. These observations indicate that SWB and PWB tap into different constructs and provide evidence for the inadequacy of subjective well-being research in capturing positive human functioning (Ryff, 1989).

**Psychological Flexibility and Well-Being**

Kashdan and Rottenberg (2010) while acknowledging the contributions of the traditional approaches to well-being consider them as static concepts which do not pay sufficient attention to the dynamic processes and contextual demands of a variety of situations in life that can influence psychological health both in short and long term. They introduce the concept of *psychological flexibility* as dynamic processes that indicate how a person adapts to situational demands (context sensitivity), reconfigures mental resources, takes a variety of perspectives, and balances competing desires and needs. As such, instead of looking for traits or trait-like individual characteristics, psychological flexibility argues
for dynamic and transactional processes between person and environment (Kashdan & Rottenberg, 2010). Three major “building blocks” has been suggested for psychological flexibility: executive functioning, default mental state, and personality. The authors argue that any regulatory strategy (cognitive, emotional, or behavioral) is in the service of adaptive behavior and contributes to well-being only if it is context sensitive. Any behavior whether or not effective in a given context is to some extent influenced by personality and the individual differences in self-regulation, i.e. psychological flexibility (Kashdan & Rottenberg, 2010). As such, it might be suggested that ability to regulate emotions contributes to psychological flexibility. In what follows, this paper briefly reviews the influence of personality factors, emotion regulation ability and their interaction on psychological health.

### Personality, Well-Being, Ill-Being

The relationship between personality and health dates back to Hippocrates, the ancient Greek physician who hypothesized that a disease results from imbalance of the four bodily humors (black bile, phlegm, yellow bile, and blood) as consequence of life style habits as well as environmental factors (Friedman, 2007). According to this belief, black bile leads to health problems such as depression and cancer, phlegm to unemotional character and rheumatism, yellow bile is the underlying element for anger and hostile character, and finally blood (sanguine) gives rise to a happy person. However, the modern scientific study of the connection between personality and health is quite recent and has been underway since mid-20th century (Friedman, 2007).

### Personality and Subjective Well-Being

It is shown that demographics explain only a small amount, 10%-15% of variance in subjective well-being. This observation that has been one of the driving forces behind
research on correlates of happiness in general and the role of personality in particular (Andrews & Withey, 1976; Diener, 1984; Emmons & Diener, 1985). In this respect, research has revealed that subjective well-being is associated with individual characteristics such as self-esteem, satisfaction with self, locus of control, and sociality, but not impulsivity (Diener, 1984; Diener et al., 1999). With respect to the latter, a study showed that when affect is measured over extended periods of time, sociability and impulsivity relate strongly to positive and negative affect, respectively (Emmons & Diener, 1986). A large body of research indicates that a sense of well-being is temporally stable and is significantly related to personality. In this respect, extraversion and neuroticism are the main personality factors studied in relation to well-being (Diener et al., 1999).

One of the early studies on personality and well-being found that the affective components, i.e. positive and negative affect are influenced by different sets of traits. For example, temperamental traits such as general emotionality, fear, anger and poor inhibition of impulse are correlated negatively with happiness, personal security and life satisfaction. On the contrary, positive temperamental traits of sociability, tempo, and vigor had a significant positive correlation with the above named measures of well-being demonstrating differential influence of traits on happiness (Costa & McCrae, 1980). Further, based on the results of factor analysis, the authors claim that temperamental traits of general emotionality, fear, anger and poor inhibition of impulse contribute to neuroticism, while sociability, tempo, and vigor can be subsumed under extraversion. Subsequently, it was found that extraversion and neuroticism factors, derived from the above named temperamental traits, contribute significantly to positive, and negative affect, respectively (Costa & McCrae, 1980). Another important finding was that temporary mood states did not contaminate the relationship between personality and well-being. Personality
traits of neuroticism, and extraversion predicted affective well-being after a 10-year time period (Costa & McCrae, 1980). It is worth mentioning that all of these correlations were of small to medium magnitude.

The fact that certain sets of personality traits relate separately to positive and negative affects has been replicated by Emmons and Diener (1985). This observation, in addition to the finding that there was no correlation between positive and negative affects measured over a time period, is taken as an indication of the independence of these two affective components of well-being (Emmons & Diener, 1985). Further, in an effort to thoroughly examine the role of personality, these authors used a variety of temperament, personality, interpersonal and self-perception inventories. The results indicated that warmth, surgency, and social boldness which contribute to the second order extraversion factor correlated significantly with positive affect. Similarly, it was found that negative affect significantly related to traits of tenderminded, guilt proneness, and tense that can be subsumed under the second order factor of anxiety. In this study, life satisfaction showed significant correlation with extraversion cluster of traits but not with anxiety cluster. As well, neuroticism, emotionality, and external locus of control contributed to negative affect, and self-esteem showed positive correlation with life satisfaction (Emmons & Diener, 1985).

Costa and McCrae (1991) examined the relationship between well-being and all the major dimensions of personality as conceptualized in the five-factor model. This study replicated their 1980 findings that extraversion is positively related to measures of positive affect, and life satisfaction but not to negative affect. Further, neuroticism was significantly related to negative affect, and had inverse relationship with life satisfaction. With regards to openness to experience, it contributed to both positive and negative affect. In other
words, people with higher levels of openness tend to experience affect more strongly. Interestingly, agreeableness and conscientiousness showed similar patterns. They both had positive relationship to life satisfaction and positive affect, and inverse relationship with negative affect. Moreover, the three dimensions of extraversion, neuroticism, and openness to experience explained up to 18% of the variance in well-being scales. When all the five factors were considered, agreeableness and conscientiousness increased the proportion of the explained variance up to 25%. The authors conclude that although extraversion and neuroticism are well-established correlates of well-being, agreeableness and conscientiousness provide significant additional information about the relationship between personality and well-being. As well, probing possible interactions among the five factors did not reveal any substantial relationship with respect to well-being indicating independence of the influence of the five factors in the study (McCrae & Costa, 1991).

A comprehensive meta-analysis of 137 personality traits and subjective well-being across 197 independent samples revealed a small but significant overall correlation of $r = .19$. Subsequently, the authors classified these personality traits according to the five-factor model, and found that positive affect was significantly related to extraversion and agreeableness with $r = .20$, and $r = .17$, respectively. Neuroticism contributed to negative affect $r = .23$, and life satisfaction $r = - .24$. Happiness related to extraversion and neuroticism with a similar magnitude but in reverse directions, $r = .27$ and $r = - .25$, respectively. And finally, openness to experience showed similar relationship with both positive affect and life satisfaction with $r = .14$, but a small correlation with negative affect, $r = .05$ (DeNeve & Cooper, 1998). However, it has been argued that the findings of this comprehensive meta-analysis might be difficult to interpret. These results, although significant, are smaller and similar in magnitude to the relationship between demographics
and subjective well-being. Moreover, the possible inclusion of traits that do not tap into the relevant construct in the process of classifying 137 traits according to five-factor model might have diluted the true relationship between personality and well-being (Lucas, 2008).

From a theoretical perspective on determinants of subjective well-being (SWB), the role of personality is considered among the top-down processes. In other words, happy people experience higher levels of SWB because of their personality, and this global life satisfaction in turn influences domain satisfaction such as health, employment, relationships and so on (Schimmack, 2008). As mentioned earlier, there is evidence that both top-down and bottom-up processes influence each other in their contribution to SWB. In this respect, one study looked at the effect of personality (top-down process) and physical health (domain satisfaction; bottom-up process) on SWB. The surprising finding was that the influence of objective health status was mediated through interpretation of health, and did not have any direct effect on subjective well-being. With respect to personality, Neuroticism contributed both directly and also by mediation through interpretation of health to lower life satisfaction and negative affect. Neuroticism was not related to positive affect. The authors interpret these findings as supporting an integrative view in the sense that objective health, a bottom-up approach, and personality representing the top-down approach both influence subjective well-being. Further, both of these processes are mediated through interpretation of any given life situation (Brief, Butcher, George, & Link, 1993). A similar study confirmed the plausibility of the integrative approach to determinants of well-being. It was found that both personality and situational factors such as marital and job satisfaction directly predicted life satisfaction. Further, the influence of personality was partially mediated through the two domains of marital and job satisfaction (Heller, Watson, & Ilies, 2004).
Research on subjective well-being has been criticized on methodological and theoretical grounds. The concern over shared content between measures of personality and affect and the ensuing potential methodological confound when measuring trait versus state has been voiced (McCrae & Costa, 1991; Schmutte & Ryff, 1997). Further, research on the relationship between personality and affective well-being has been criticized for source overlap. In other words, the same participants respond to both measures making it difficult to interpret how much of the explained variance in the relationship among any two given variables is attributable to the constructs as opposed to the shared source. To mitigate this issue, cross-observer measurements have been recommended. As well, it has been discussed that the predominant conceptualization of well-being as happiness has brought about a theoretical limitation that implies shared content among well-being, affect and personality (Schmutte & Ryff, 1997).

**Personality and Psychological Well-Being**

As discussed earlier, Ryff has criticized the prevalent view of subjective well-being (SWB) as happiness for falling short of capturing the complexity of human wellness, and in turn has argued for a different conceptualization of positive human functioning known as psychological well-being (PWB) with six distinct dimensions of self-acceptance, environmental mastery, positive relationships with others, autonomy, purpose in life, and personal growth (Ryff, 1989; Ryff, 1995). Schmutte and Ryff (1997) acknowledge that there is still some communality between psychological well-being (PWB) on the one hand and personality and affect measures on the other; nevertheless, they maintain that dimensions such as self-acceptance and purpose in life are distinct. Subsequently, these
authors investigated the relationship between personality and well-being while controlling for content and source overlap.

Consistent with previous research, the study found relationships between well-being dimensions and the Big Five personality factors. After controlling for affect measures, there were significant correlations between self-acceptance dimension of PWB and traits of neuroticism (inverse relationship), extraversion, agreeableness, and conscientiousness but not with openness to experience. Environmental mastery showed negative relationship with neuroticism and positive correlation with conscientiousness. Purpose in life correlated with extraversion, openness to experience, and conscientiousness. Personal growth showed relationships with all five dimensions of personality. Positive relations with others correlated with extraversion, and agreeableness, whereas autonomy showed negative relationship with neuroticism and agreeableness, but positively associated with openness to experience. As well, after controlling for shared content between some of the Big Five personality factors and PSW dimensions, there were significant relationships between openness to experience and personal growth, between agreeableness and positive relations with others, and between conscientiousness and environmental mastery (Schmutte & Ryff, 1997).

A Study has looked at psychological well-being and its relationship to both personality and distress (Ruini et al., 2003). Participants completed three self-report measures: psychological well-being (Ryff, 1995), the assessment of symptomatology (Kellner, 1987), and personality traits using Cloninger’s tridimensional personality questionnaire (Cloninger, 1987). Subsequently, all the correlations between well-being on the one hand, and personality and distress symptoms on the other were explored. As well, all the responses were subjected to factor analysis to examine the structural relationships at
the level of these constructs. The experiment repeated the analysis pre and post-test within one month. Note that findings from the first administration are reported here as the observed trends were maintained in post-test with minor variations. Almost all of the psychological well-being dimensions showed negative correlations with eight dimensions of the symptom questionnaire (i.e. anxiety, depression, somatization, hostility, relaxation, contentment, physical well-being and friendliness). With respect to personality, trait Novelty Seeking negatively correlated with environmental mastery, but positively with personal growth and positive relations with others. All the six dimensions of well-being were negatively correlated with trait Harm Avoidance. Further, trait Reward Dependence had negative relationship with autonomy but showed a positive correlation with positive relationship with others (Ruini et al., 2003).

Results from factor analysis indicated a 4-factor solution (5-factor in post-test). Almost all of the six dimensions of psychological well-being loaded on factor 1 representing a general well-being construct (with personal growth and positive relations cross-loading on factor4). For personality, both novelty seeking and reward dependence loaded on factor 4 indicating a general personality construct (with the former cross-loading on factor 2); harm avoidance loaded on factor 3 representing another dimension of personality distinct from novelty seeking and reward dependence. As well, the eight dimensions of symptom questionnaire loaded on factors 2 and 3 showing an overlapping factor structure with two personality dimensions of reward dependence (cross loading on factors 2 and 4), and harm avoidance (factor 3) (Ruini et al., 2003). Despite the cross loadings on the factor structure, overall the constructs showed different patterns of clustering with well-being mainly loading on factor 1, personality on factor 4, and distress symptoms on factors 2 and 3. Taken together these results support the fact that well-being,
personality and distress are structurally distinct but related constructs with complex relationships among them. The authors point to the significant but small negative correlations among psychological well-being and symptoms of distress and highlight that these measures cannot be considered effective predictors of one another. As such, absence of one, e.g. distress does not signify presence of the other i.e. psychological well-being. Clinical observations support this point. It is known that clients who recover from affective disorders still show higher levels of distress symptoms and less well-being post-treatment compared to healthy controls (Fava et al., 2001; Fava et al., 2001; Ryff & Singer, 1996).

And finally, the study attempts to locate psychological well-being in the continuum of trait (personality) and state (symptoms of distress). The authors argue that the psychological well-being scale shows satisfactory test-retest stability but remains responsive to significant life events and therapeutic interventions. As such, while it has temporal stability, it is dynamic and does not show the short term fluctuations associated with state measures. Consequently, the authors locate Ryff’s psychological well-being construct at some point in between trait and state (Ruini et al., 2003).

One of the implications of the study discussed above could be that psychological well-being might be the middle ring in the causal chain from personality towards distress symptoms. In this respect, a study by Burn and Machin (2010) looked at the influence of personality and psychological well-being (PWB) on the affective component of subjective well-being (SWB). They replicated previous findings between the Big Five personality, positive and negative affect, and psychological well-being. Further, the study found that psychological well-being predicted positive and negative affect dimensions of subjective well-being controlling for demographics and five-factor personality. Further, the analysis revealed a counterintuitive result indicating that individuals with higher level of well-being
(PWB) who were high on neuroticism also showed higher levels of negative affect (a moderation effect by PWB). The authors conclude that higher psychological well-being is not necessarily protective of the affective component of subjective well-being (Burns & Machin, 2010). However, a study of the influence of early personality on midlife well-being suggested a different direction. The researchers measured personality at ages of 16 and 26 and psychological well-being (PWB) at age 52 (midlife) and found that extraversion was associated with higher well-being, while neuroticism had negative correlation. Further, the relationship between neuroticism and well-being was entirely mediated by emotional adjustment measured as symptoms of depression and anxiety. There was no mediation effect for extraversion (R. A. Abbott et al., 2008). These findings only point to the complexity of the relationships among personality, well-being, and distress and might highlight the importance of theory guided versus data driven research.

**Personality and Psychological Flexibility**

Kashdan and Rottenberg (2010) consider four personality dimensions of neuroticism, positive affectivity, openness to experience, and self-control as relevant to the construct of psychological flexibility. It is known that individuals high on neuroticism experience higher levels of negative affect, and tend to perseverate in their rigid outlook as opposed to remaining context sensitive and performing effective problem solving. Further, rumination on negative thoughts and emotions in the absence of ability to detach from these negative experiences is a sign of rigidity and contributes to lack of flexibility by using up the required psychological resources. This in turn prevents individual from remaining attentive to the contextual cures in the present moment (Watson, 1967; O’Brien & Delongis, 1996; Gunthert, Cohen & Armeli, 1999; Rusting, 1998 as cited in Kashdan &
Rottenberg, 2010). On the contrary, positive affectivity facilitates executive functioning and is associated with flexible thinking, broadening of attention, consideration of alternatives, and better problems solving skills (Kashdan & Rottenberg, 2010).

Similarly, Openness to experience refers to a “need for variety, novelty, and change”; conversely, lower openness indicates a preference for consistency and caution (McCrae & Costa, 2008). Research shows that individuals with higher openness to experience are more likely to remain creative when under threat and are better in tolerating distress. Thus openness to experience contributes to effective problem solving (Chamorro-Premuzic & Reichenbacher, 2008; McCrae, 1996; O’Brien & Delongis, 1996 as cited in Kashdan & Rottenberg, 2010). And finally, self-control defined as “the capacity to modify cognitive and behavioral tendencies” is another factor contributing to flexibility. It is argued that self-control can be considered both a stable trait (related to conscientiousness of the Big Five), and a state that can be deployed and depleted in the short-term. This concept draws upon the research on delay of gratification with children, which indicates that higher levels of self-control are associated with better social and educational outcomes later in life (Mischel, Shoda & Peak, 1988; Shoda, Mischel & Peake, 1990 as cited in Kashan & Rottenberg, 2010).

**Personality and Ill-Being**

Since personality is understood as one’s characteristic pattern of cognitions, affective experiences, behaviors and interpersonal relationships, then any mental disorder occurs within this context of natural tendencies afforded by personality. It is also known that mental disorders can involve any of the above named areas of one’s functioning. The relationship between personality and psychopathology is complex and literature has
discussed the issue in three different types: pathoplastic, spectrum, and causal (Widiger & Smith, 2008). This paper provides a very brief review of the literature focusing only on the influence of personality on psychopathology. For a comprehensive review see Widiger and Smith (2008).

Pathoplastic relationship refers to the fact that personality and psychopathology can influence the expression and presentation of each other. As well, premorbid personality can influence the course and treatment of a disorder. One of the difficulties in dealing with diagnostic categories in DSM-IV is the heterogeneity of the symptoms shown by different individuals within the same disorder. Personality is considered one of the main factors contributing to variability in clinical picture (Widiger & Smith, 2008). For example, in the case of eating disorders, whether a person will develop anorexia nervosa or bulimia nervosa is believed to be largely influenced by premorbid personality traits. Research has consistently found that perfectionism is a correlate of eating disorders (Cassin & von Ranson, 2005). From the perspective of the five-factor model, perfectionism can be considered an extreme form of conscientiousness. One of the differences between anorexia nervosa and bulimia nervosa is that individuals suffering from the former succeed in extreme weight loss, whereas in bulimic patients weight loss is not that severe. It is argued that pathological preoccupation with weight loss combined with extreme conscientiousness might contribute to the clinical picture of anorexia whereas lower levels of conscientiousness are associated with bulimia (Widiger & Smith, 2008). High neuroticism is another consistent correlate of eating disorders. As well, there is evidence for relationships between high openness to experience and low agreeableness to eating disorders (Cassin & von Ranson, 2005).
With respect to mood disorders, research indicates an association between perfectionism and symptoms of depression and anxiety. Depressed patients showed higher levels of self-oriented perfectionism and both groups of depressed and anxious patients reported higher levels of socially prescribed perfectionism compared to control subjects. It is believed that individuals with higher self-oriented perfectionism assess their self-worth and self-esteem with their performance, while setting very high standards that increases their chances of failure and disappointment (personality as a predisposing factor) (Hewitt & Flett, 1991). Another important correlate of mood disorders is neuroticism. A study which included both cross-sectional and longitudinal community samples found that neuroticism was a strong predictor of depression and anxiety over a period of 3-4 years (Jorm et al., 2000). A study looked at the influence of personality on depressive symptoms and self-esteem while adjusting to significant life transitions such as community relocation. It was found that high neuroticism and openness to experience contributed to increases in depressive symptoms over a 14-month period. On the other hand, high extraversion and openness to experience contributed to improvements in self-esteem. Further, baseline personality remained a significant predictor of the mood outcome at 14-month after controlling for baseline depressive symptoms. This observation is taken as evidence supporting long-term effect of personality and its distinction from fleeting mood states (Kling, Ryff, Love, & Essex, 2003). Cross-cultural research also shows a relationship between personality and mood symptoms. A study on Chinese grade three teachers reported that high neuroticism was related to higher total scores in symptom checklist – 90 (SCL – 90) (Huang, Yan, Chen, Zhang, & Li, 2006).

It is also shown that there is a relationship between NEO personality inventory (NEO-PI; Costa & McCrae, 1985, 1989) and clinical measures of personality such as
Personality Assessment Inventory (PAI; Morey, 1991). Neuroticism, defined as tendency to experience psychological distress, dysphoria, negative affect, hopelessness, and guilt (McCrae & Costa, 2008) correlates significantly with the following subscales of PAI: somatic complaints, anxiety, anxiety-related disorders, depression, paranoia, schizophrenia, borderline features, aggression, suicidal ideation, stress, and non-support (Costa & McCrae, 1992). On the other hand, Extraversion is known as a tendency for gregariousness or a “preference for companionship and social stimulation” (McCrae & Costa, 2008). People high in extraversion tend to be more energetic and outgoing, and those at the lower end tend to be more solitary and reserved. Extraversion has negative relationship with somatic complaints, anxiety-related disorders, depression, schizophrenia subscales, and a positive relationship with mania, antisocial features, alcohol problems, and aggression subscales of PAI (Costa & McCrae, 1992). These relationships highlight a strong connection between normal personality and psychopathology.

Kashdan and Rottenberg (2010) discuss the relationship between psychopathology and (in)flexibility as follows. In depression, lack of flexibility is evident in ruminative thinking style and emotion context insensitivity. In anxiety disorders, it is the avoidant response style that indicates psychological inflexibility and interferes with recovery. The concept of inflexibility manifests differently across variety of psychological disorders, and as such, it has been challenging to conceptualize a unifying construct to index and to measure it. Also since the available data is correlational, there is concern for the clarification of the causal link between inflexibility and psychopathology. Nonetheless, three building blocks have been suggested for psychological flexibility: executive functioning, default mental states, and personality configuration. With respect to the latter, it is argued that Neuroticism relates to “rigid, dogmatic responses”; on the contrary,
positive affect “widens the array of thoughts, behaviors, and executive functioning capacities” (Kashdan & Rottenberg, 2010).

Since extroversion and neuroticism are broad personality traits, some studies have looked at specific traits such as perfectionism (Hewitt & Flett, 1991), and autonomy (Beck, Epstein, & Harrison, 1983). Of note is a study that found higher perfectionistic self-presentation (a personality style indicating expression of perfection to others) is associated with lower self-esteem, higher symptoms of depression and anxiety, and elevated emotional distress (Hewitt et al., 2003). These individuals lack behavioural flexibility in so far as perfectionistic self-presentation is negatively related to the ability to modify self-presentation (Hewitt et al., 2003). As such, it is possible that individuals with high perfectionistic self-presentation might also experience difficulties in self-regulation and in their ability to regulate emotions.

**Emotion Regulation**

**Approaches to Emotion Regulation**

There is considerable lack of clarity and agreement on the definition of emotion regulation among scholars and there are at least eight definitions suggested in the literature (Bloch, Moran, & Kring, 2010). According to a widely accepted definition emotion regulation (automatic or controlled; conscious or unconscious) is defined as “the ways individuals influence which emotions they have, when they have them, and how they experience or express them” (Gross, 1998). Underlying the above definition is the Modal Model of Emotion. Accordingly, the model posits the sequences of (situation-attention-appraisal-response) for an emotional response. With evocative response, individuals elicit a variety of responses from a similar situation (e.g. depressed people elicit more stressful
interactions than non-depressed people). As individuals attend to situations, and experience the resulting emotional response they “modulate the attentional focus on potentially significant aspects of the environment” (Gross, 2008). Subsequently, a Process Model of Emotion Regulation is proposed with five main components: situation selection (individual’s deliberate choice of environment they are exposed to), situation modification (interacting with situation and changing it according to one’s desire), attentional deployment (ability to control attention; associated with neuroticism and conscientiousness), cognitive change (e.g. reappraisal which downgrades emotion), and response modulation (e.g. expressive suppression in an attempt to control expressive behavior; also avoidance of the emotional experience). The first four are antecedent-focused, and the last strategy is response-focused (Gross, 2008).

This process model of emotion regulation, also known as two-factor view of emotion regulation, has been criticized for two reasons: separation of emotion generating system from the regulatory one and the conceptualization of regulation as fundamentally based on cognitive processes. In contrast, a one-factor i.e. dynamic systems view of emotion regulation has been suggested (Campos, Frankel, & Camras, 2004; Greenberg & Vandekerckhove, 2008). Accordingly, despite the fact that it is possible to consider conceptual differences among the two processes, emotion regulation and emotion generation systems are ontologically one and the same (Campos et al., 2004). As such, emotion generation and regulation occur simultaneously within a unified complex system of processes. In other words, emotions are both regulated and regulatory (Greenberg & Vandekerckhove, 2008). In this view, cognitive processes contribute to emotion regulation after receiving information from the emotion system, and as such, the regulatory processes are ultimately driven and guided by emotion (Greenberg & Vandekerckhove, 2008). While
the two-factor model highlights the role of the cognitive system, the one-factor view promotes the primacy of affect. The two-factor view assumes that information processing is mainly cognitive and regulation is a form of self-control, whereas the one-factor view sees information processing as primarily affective and regulation as synthesizing adaptive context sensitive responses (Greenberg & Vandekerckhove, 2008).

**Emotion Regulation and Psychological Health**

Gross and John (2003) showed that individual differences in emotion regulation strategies have important implications for well-being such that using suppression as a strategy is associated with higher depression symptoms, lower self-esteem and less life satisfaction. Moreover, emotion regulation would influence behavioral manifestation of an emotional experience such as emotional expression and numerous studies have shown the positive effects of emotional disclosure on well-being and recovery from traumatic experience (Kahn & Hessling, 2001; Pennebaker, 1995). A study by Kahn and Garrison (2009) revealed that higher symptoms of depression and anxiety were associated with less emotional disclosure and more importantly, this relationship was moderated by avoidance (a regulation strategy) of emotional experience and expression. On the other hand, benefits of mere venting are questionable (Kennedy-Moore & Watson, 1999) and it is argued that emotional disclosure can be beneficial when it is done at an optimum level allowing for constructive processing of emotions such that it would result in some resolution and insight (Kennedy-Moore & Watson, 2001). It is shown that higher expressive flexibility (i.e. effective context dependent choice of suppressing or enhancing emotional expressions) is a protective factor, and moderates the relationship between cumulative life stress and
adjustment, which highlight the importance of emotion regulation ability (Bonanno, Papa, Lalande, Westphal, & Coifman, 2004; Westphal, Seivert, & Bonanno, 2010).

In the area of psychopathology, the biosocial theory of borderline personality conceptualizes this disorder as pervasive dysregulation of the emotion regulation system resulting in cognitive, emotional, and behavioral impairment (Linehan, 1993). From a clinical standpoint, Gratz and Roemer (2004) have conceptualized emotion regulation as a multifaceted construct including ability to be aware of, to understand, to accept one’s emotions, to remain goal oriented and to control impulsivity in the face of negative affect, and to use emotion regulation strategies flexibly to meet situational demands. A meta-analysis looked at the relationship between psychopathology (depression, anxiety, eating disorder, and substance use) and six emotion regulation strategies: reappraisal, problem solving, acceptance, suppression (expressive; thought), avoidance (experiential; behavioral) and rumination (Aldao et al., 2010). The first three strategies are considered protective against, and the last three are risk factors for psychopathology.

As it was hypothesized, protective strategies were negatively, and risk factor strategies were positively associated with psychopathology. The surprising finding was that acceptance while showing the expected trend and direction with $r = -.19$, and 95% CI ($-.40 – .05$) was non-significant across psychopathology. These relationships were also moderated by sample type, and age of participants. Clinical samples showed stronger relationships across psychopathology and four strategies of rumination, suppression, avoidance and problem solving. With regards to age groups, stronger relationships were found for problem solving and suppression for adults compared to adolescents and children (Aldao et al., 2010). Within specific disorders, acceptance showed a negative non-significant trend with anxiety and depression, and no relationship with substance use.
Avoidance was positively associated with anxiety, depression, eating disorders, and substance use. Problem solving showed negative relationship to anxiety, depression and eating disorders. Reappraisal had a significant negative relationship to depression as well as indicating a negative trend with anxiety, eating disorders, and substance use. Both rumination and suppression were positively associated with anxiety, depression, and eating disorders. As well, there was a significant relationship between rumination and substance use (Aldao et al., 2010).

*The Intersection of Emotion Regulation and Personality*

Studies looking at the relationship between personality and emotion regulation are scant. A recent study looked at the relationship between the Big-Five personality, emotional intelligence (a construct overlapping with emotion regulation) and psychological well-being (PWB). It was found that emotional intelligence showed significant interactions with both extraversion and neuroticism moderating the relationship between personality and well-being. A higher level of emotional intelligence was protective of well-being in the face of high neuroticism. Further, it potentiated the positive relationship between extraversion and psychological well-being (Salami, 2011). Although little work is done to explore the influence of personality on emotion regulation, the role of personality dispositions in guiding adaptive and expressive behavior is highlighted, and it has been argue that individual differences in emotion regulation strategies are influenced by personality traits (John & Gross, 2007). As mentioned earlier, neuroticism, perfectionism, and perfectionistic self-presentation favor rigid response patterns, interfere with self-regulation, and context sensitive behavior. As such, it might be the case that difficulties in
emotion regulation due to the aforesaid personality traits contribute to lack of flexibility, which in turn might contribute to elevated symptoms of distress.

**Purpose**

This research is guided by the theoretical framework discussed above and findings from two recent studies that probed a moderating role for emotion regulation and self-presentation on the effect of an Expressive Writing intervention (Pennebaker, 1995) among trauma survivors. An analysis of the baseline measures indicated that higher scores in depression, post traumatic stress, and frequency of physical symptoms, were associated with higher levels of perfectionistic self-presentation (Danson, Watson, Mattina & Amiri, 2011) and more difficulties in emotion regulation (Mattina, Watson, Danson & Amiri 2011). Using the data from these projects, this paper further examines these parallel observations by looking at the relationships between personality, emotion regulation, and their interaction on psychological health.

**Hypothesis**

It is hypothesized that higher levels of perfectionistic self-presentation will be associated with more difficulties in emotion regulation ability. In other words, this personality construct will interfere with the ability of the individual to modulate their emotional experience. Further, the relationship between psychological health outcomes and personality is mediated through emotion regulation ability.
Chapter 2:

Method

Participants

The data for this research is drawn from two projects completed at OISE, University of Toronto under supervision of Dr. J. Watson. These studies looked at the effects of an Expressive Writing (EW; Pennabaker, 1995) intervention on psychological health in trauma survivors. The sample consisted of 75 participants, 49 women and 26 men with age range between 18 and 62 years ($M = 31.54$, $SD = 11.11$). With respect to marital status participants reported: 61 (81.3%) single, 5 (6.7%) common law, 6 (8%) married, and 3 (4%) divorced. Regarding education, 55 (73.3%) were college/university graduate and 20 (26.7%) had high school diploma or less. Half of the participants were Caucasian 38 (50.7%), 9 (12%) African, 12 (16%) Asian, 6 (8%) Hispanic, 2 (2.7%) South Asian, 1 (1.3%) Aboriginal, and 7 (9.3%) mixed. Eligibility criteria was that participants identify as having experienced a past traumatic event (excluding bereavement), be currently experiencing distress as a result of this event, be fluent in English, report no use of diary for the past 12 months, and not currently involved in psychotherapy or on any psychotropic medication.

Measures

Personality Measure

Perfectionistic Self-Presentation Scale (PSPS; Hewitt et al., 2003). The PSPS is a self-report measure with 27 items probing the interpersonal display of perfection. Respondents are asked to read a statement and provide a rating ranging from 1 (strongly disagree) to 7 (agree strongly) with a neutral midpoint of 4. The PSPS is composed of three
subscales: perfectionistic self-promotion, nondisplay of imperfection, and nondisclosure of imperfection. The scale is shown to have good reliability with coefficient alpha of .75-.90 (Habke, Hewitt, & Flett, 1999).

**Emotion Regulation Measure**

*Difficulties in emotion regulation scale (DERS; Gratz & Roemer, 2004).* The DERS is a 36-item self-report questionnaire that probes various aspects of difficulties in regulation of an emotional experience. The scale consists of six subscales: non-acceptance of emotional response (NONACCEPTANCE), difficulties engaging in goal-directed behavior (GOALS), impulse control difficulties (IMPULSE), lack of emotional awareness (AWARENESS), limited access to emotion regulation strategies (STRATEGIES), lack of emotional clarity (CLARITY). Respondents are asked to read statements and provide a rating of the degree to which each statement applies to them ranging from almost never or 1 (0-10%) to almost always or 5 (91-100%). The DERS has shown excellent internal consistency with Cronbach’s alpha of .93 for the total, and .80-.89 for the subscales. Research also shows that DERS has test-retest reliability of .80 for the total score over a period of 4-8 weeks. This paper uses baseline measurements of the total score, and the respective subscale scores to test the hypothesized relationships.

**Psychological and Physical Outcome Measures**

*Posttraumatic stress diagnostic scale (PDS; Foa, 1995).* The PDS is a brief self-report questionnaire with 49 items with average completion time of 15 minutes. It uses DSM-IV diagnostic criteria to screen for the presence and to assess the symptom severity of post traumatic stress disorder in both men and women. As well, the PDS can be used in longitudinal designs to monitor changes in the trajectory of PTSD in patients. In addition
to its short administration time, it has been normed on diverse populations with age range of 18-65 that included women’s shelter, clinical population with PTSD diagnosis, Veterans’ hospitals, and emergency services staff such as firefighters and ambulance crew. The PDS can also be used for early detection and treatment planning. The symptoms severity scores on PDS can range of 0-51, with scores above 35 indicating severe PTSD. Scores 21-35 are interpreted as moderate to severe levels, 10-20 as moderate, and below 10 as mild. It is shown that PDS has excellent internal consistency with Cronbach’s alpha of .92, and high test-retest reliability of .83 over two weeks, and high convergent validity with measures of depression and anxiety with coefficients of .80, and .79, respectively. The original research projects used PDS at two time points of Pre and Post over four weeks. This paper uses measurements of the PDS symptom severity from time 1, i.e. baseline assessment.

Beck depression inventory, second version (BDI-II; Beck, Steer, & Brown, 1996).

The BDI-II is 21-item self-administered tool that uses DSM-IV diagnostic criteria to assess the symptom severity of depression over a two-week period in both clinical and normal population with age range of 13-80 yrs old. Each item presents a symptom with four statements of increasing intensity in severity of which a patient would choose one. Scores on BDI-II have a range of 0-63, with scores above 29 indicating severe depression. Scores ranging from 20-28 are considered as moderate, 14-19 are mild, and below 13 is interpreted as minimal symptom severity. It is shown that scale has excellent internal consistency and test-retest reliability with .92 and .93, respectively. Baseline measurement of the BDI-II is used in the current study.
Pennebaker inventory of limbic languidness (PILL; Pennebaker, 1982). The PILL is a self-report questionnaire with 54 items and is used to screen for the frequency of a number of common physical sensations and bodily complaints (e.g. eyes water, back pain, coughing and so forth). The client is asked to indicate the frequency with which each symptom is experienced ranging from never to more than once every week. Research indicates excellent internal consistency with Cronbach alpha of .88-.92, and good test-retest reliability of .79-.83 over a two-month period. The PILL can be scored by summing up the items rated at least once a month. Using this scoring procedure with a sample of college students ($N = 939$), the PILL had a mean of ($M = 17.9$, $SD = 4.5$) (Pennebaker, 2012). This research uses baseline measurement on the PILL.

Procedure

The procedure employed for recruitment, screening, consent, assessment, and assignment to writing groups is outlined in the previous two projects (Danson, 2010; Mattina, 2011). Participants were invited to complete four sessions. During the first testing session, participants filled out a battery of questionnaires including demographics and psychological measures. They also wrote their first essay for 20 minutes. Participants also came for two consecutive days to do their writing task completing three essays in total over three days. A follow up session was scheduled for approximately one month later, during which the participants filled out psychological outcome questionnaires and were debriefed about the study. As mentioned earlier, the current study uses the data from the first testing session i.e. baseline measurements before participants engaged in their first expressive writing task.
Chapter 3:

Results

Description of Sample

The descriptive statistics including minimum, maximum, mean, standard deviation, skewness, and kurtosis for measures of perfectionistic self-presentation, difficulties in emotion regulation and all the outcome measures at baseline are presented in Table 1. The descriptive information for BDI is based on sample size of 73 due to elimination of 2 univariate outliers. Univariate outliers are defined as a data point with standardized score of larger than 3.29 (absolute value). Moreover the scores for PILL were found to be in violation of univariate normality. Accordingly, natural logarithm transformation was applied. All the subsequent inferential statistics are estimated using these transformed values.

Table 1

Descriptive Statistics for Measures of Perfectionistic Self-Presentation, Difficulties in Emotion Regulation and Outcome Measures (N = 75)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness (SD)</th>
<th>Kurtosis (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSPS</td>
<td>38.00</td>
<td>167.00</td>
<td>109.55</td>
<td>30.56</td>
<td>-.099 (.277)</td>
<td>-.542 (.548)</td>
</tr>
<tr>
<td>Pre DERS</td>
<td>43.00</td>
<td>166.00</td>
<td>85.87</td>
<td>24.85</td>
<td>.625 (.277)</td>
<td>.741 (.548)</td>
</tr>
<tr>
<td>Pre BDI</td>
<td>1.00</td>
<td>31.00</td>
<td>13.68</td>
<td>8.18</td>
<td>.196 (.281)</td>
<td>-1.087 (.555)</td>
</tr>
<tr>
<td>Pre PDS</td>
<td>.00</td>
<td>43.00</td>
<td>19.88</td>
<td>9.97</td>
<td>.145 (.277)</td>
<td>-1.816 (.548)</td>
</tr>
<tr>
<td>Pre PILL</td>
<td>54.00</td>
<td>241.00</td>
<td>115.01</td>
<td>32.17</td>
<td>1.128 (.277)</td>
<td>2.875 (.548)</td>
</tr>
</tbody>
</table>

Note. *N = 73 due to elimination of two univariate outliers (Pre BDI = 50 and 52).
Relationship between Perfectionistic Self-Presentation and Emotion Regulation

Pearson product moment correlations were computed to examine the relationship between perfectionistic self-presentation Scale (PSPS) and Difficulties in emotion regulation scale (DERS). Table 2 presents Pearson correlation coefficients. PSPS and DERS significantly correlate at $r_{(75)} = .429, p < .01$. The positive direction of the correlation coefficient supports the hypothesis that higher levels of perfectionistic self-presentation are associated with more difficulties in emotion regulation ability. Using Cohen’s guidelines, the effect size is medium to large (Cohen, 1992; 1988). The $r^2$ indicates that approximately 18.4% of the variance in difficulties in emotion regulation can be predicted from perfectionistic self-presentation. Table 2 also shows relationships among PSPS, DERS and all the three outcome measures which are consistent with previous research findings (Danson, Watson, Mattina & Amiri, 2011; Mattina, Watson, Danson & Amiri, 2011).

Table 2

Intercorrelations between Perfectionistic Self-Presentation, Difficulties in Emotion Regulation and Outcome Measures (n =75)

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PSPS</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Pre DERS</td>
<td>.429**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Pre BDI(^a)</td>
<td>.412**</td>
<td>.617**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Pre PDS</td>
<td>.336**</td>
<td>.572**</td>
<td>.674**</td>
<td></td>
</tr>
<tr>
<td>5. Pre PILL(^b)</td>
<td>.404**</td>
<td>.451**</td>
<td>.428**</td>
<td>.495**</td>
</tr>
</tbody>
</table>

Note. ** $p < .01$; \(^a\) $N = 73$ for Pre BDI; \(^b\) values are derived from natural logarithm transformation due to violation of normality.
**Emotion Regulation as Mediator between Personality and Outcome**

To investigate the mediation hypothesis two approaches were employed: Baron and Kenny (1986) and Sobel test. First the procedure outlined by Baron and Kenny was followed (Baron & Kenny, 1986). A mediator variable accounts for some or all the relationship between the independent and outcome variable. Figure 1 illustrates a direct effect, and a simple mediation model (Preacher & Hayes, 2004; Preacher & Hayes, 2008).

A mediation hypothesis holds when three conditions are met:

1. The independent variable and the mediator are significantly correlated (path $a$)
2. Mediator and outcome variable have significant correlation (path $b$)
3. Controlling for paths $a$ and $b$, the previously significant relationship between independent variable and outcome (path $c$) is reduced in magnitude such that either it is not significant or ideally becomes zero (path $c'$) which indicates strong complete mediation effect (Baron & Kenny, 1986).

(A)

![Figure 1. A: Demonstration of a Direct effect; B: Simple Mediation Model.](image-url)
A series of regression analyses were conducted to explore the above outlined relationships. First, the outcome variables, BDI and PDS, were regressed on the independent variable, PSPS to make sure that the direct effect is significant (path c). Then the mediator, DERS, was regressed on the independent variable to confirm step 1 (path a). A third regression analysis was conducted to ensure that the mediator significantly predicts the outcome (path b) while controlling for the independent variable. And finally, the outcome was regressed simultaneously on both independent variables and the mediator. The difference in the last two procedures is in the order of entering variables. At the final step, the effect of the mediator should be significant while the effect of the independent variable becomes non-significant or is substantially reduced. Subsequently, the Sobel test was applied using SOBEL, an SPSS macro written by Andrew F. Hayes, which provides a direct test of significance for the indirect effect (mediated effect) as well as producing confidence interval using 5000 bootstrap samples (Preacher & Hayes, 2004). Further, there is much debate about a proper effect size index for mediation tests in the literature. This paper provides two different indices for the indirect effect: the ratio of the indirect effect to the direct effect also known as mediation ratio, $P_M$, and (completely standardized indirect effect, index of mediation, $ab_{cs}$ (Preacher & Kelley, 2011).

The results of the mediation analyses using Baron and Kenny (1986) model are summarized in Table 3. The results of Sobel test for the indirect effects are summarized in Table 4. As it can be seen from Tables 3 and 4, there was a significant initial relationship between perfectionistic self-presentation, PSPS, and symptoms of depression as measured with BDI ($B = .109, p < .01$) that was non-significant after controlling for the mediator ($B = .036, ns$), which indicates difficulties in emotion regulation (measured with DERS) mediates the relationship between personality and depression symptoms. As well, the
indirect effect was significant in Sobel test ($B = .0732, p < .01$). The 95% confidence interval with 5000 bootstrap samples runs (.0418 - .1128), which does not contain zero and confirms the observed significant results.

Table 3

**Summary of Mediation Analyses for the Effect of Perfectionistic Self-Presentation on Psychological Health through Emotion Regulation Using Baron & Kenny Model**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Path c</th>
<th>Path a</th>
<th>Path b</th>
<th>Path c'</th>
<th>Indirect Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI-II†</td>
<td>.109** (.029)</td>
<td>.361 **(.073)</td>
<td>.203** (.040)</td>
<td>.036 \textit{ns} (.028)</td>
<td>.073</td>
</tr>
<tr>
<td>PDS††</td>
<td>.110 **(.036)</td>
<td>.349 **(.086)</td>
<td>.210 **(.043)</td>
<td>.036 \textit{ns} (.035)</td>
<td>.073</td>
</tr>
<tr>
<td>PILL†††</td>
<td>.004** (.001)</td>
<td>.378 **(.073)</td>
<td>.002\textit{ns} (.001)</td>
<td>.003** (.001)</td>
<td>----</td>
</tr>
</tbody>
</table>

*Note.* † $N = 73$ for BDI due to elimination of two univariate outliers. †† $N = 75$ for PDS. ††† Scores for PILL were transformed using natural log due to violation of univariate normality and $N = 70$ due to deletion of multivariate outliers. **$p < .01$; \textit{ns}: nonsignificant.

With respect to effect size for the BDI analysis, the relative magnitude of the indirect effect to the total effect i.e. *mediation ratio*, $P_M = .7043$ with 95% CI (.3733 – 1.2460), which does not contain zero. This indicates that the indirect effect accounts for almost 70% of the total effect between PSPS and BDI. Note that the mediation ratio is a rough estimate and can be misleading as it is possible to get values larger than 1. As well, the second effect size index i.e. completely standardized indirect effect or *index of mediation*, $ab_{cs} = .2753$ with 95% CI (.1590 - .4145), which again does not contain zero. As
such, it might be suggested that an increase of one standard deviation in PSPS is associated with .27th of a standard deviation increase in BDI scores through mediation by DERS.

Table 4

Summary of Sobel Test for the Indirect Effects (a*b Paths) in Mediation Analyses of the Effect of Perfectionistic Self-Presentation on Psychological Health through Emotion Regulation

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Original Sample</th>
<th>Bootstrap with 5000 Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value (SD)</td>
<td>Mean (SE)</td>
</tr>
<tr>
<td></td>
<td>95% CI</td>
<td>95% CI</td>
</tr>
<tr>
<td>BDI</td>
<td>.0732 (.0209)</td>
<td>.0732 (.0181)</td>
</tr>
<tr>
<td></td>
<td>.0322 - .1141</td>
<td>.0418 - .1128</td>
</tr>
<tr>
<td></td>
<td>3.50 .0005</td>
<td></td>
</tr>
<tr>
<td>PDS</td>
<td>.0734 (.0237)</td>
<td>.0717 (.0174)</td>
</tr>
<tr>
<td></td>
<td>.0270 - .1199</td>
<td>.0389 - .1068</td>
</tr>
<tr>
<td></td>
<td>3.09 .0020</td>
<td></td>
</tr>
<tr>
<td>PILL</td>
<td>.0006 (.0005)</td>
<td>.0006 (.0004)</td>
</tr>
<tr>
<td></td>
<td>-.0004 -.0016</td>
<td>-.0002 -.0015</td>
</tr>
<tr>
<td></td>
<td>1.20 .22</td>
<td></td>
</tr>
</tbody>
</table>

Similarly, there was a significant initial relationship between perfectionistic self-presentation, PSPS, and post traumatic stress symptoms, PDS, with ($B = .110, p < .01$) that was non-significant after controlling for the mediator ($B = .036, ns$), which indicates difficulties in emotion regulation (DERS) mediates the relationship between personality and post traumatic stress. As well, the indirect effect was significant in Sobel test ($B = .0734, p < .01$). The 95% confidence interval with 5000 bootstrap samples runs (.0389 -.1068), which does not contain zero and confirms the observed significant result. The mediation ratio, $P_M = .7418$, 95% CI (.3002 – 1.5900), which does not contain zero. As such, it might be suggested that the indirect effect accounts for almost 74% of the total
effect of PSPS on PDS. As well, the index of mediation $ab_{cs} = .2194$, 95% CI (.1204 - .3328), which again does not contain zero, and signifies that an increase of one standard deviation in PSPS is associated with increase of .22 of a standard deviation in PDS scores. No mediation effect was detected for physical symptoms measured by PILL.

Exploring Alternative Mediation Models

Next, alternative mediation models were explored. More specifically, reverse mediation relationships were tested in which BDI and PILL were entered into the analysis as a mediator and emotion regulation as an outcome variable. A reverse mediation analysis is necessary in order to achieve a comprehensive understanding of the relationships among the variables and to confirm the causal hypothesis endorsed in this paper. The results indicate partial reverse mediation through both BDI and PDS mediating the effect of PSPS on DERS as detailed below.

There was a significant initial relationship between perfectionistic self-presentation (PSPS, independent variable) and difficulties in emotion regulation ability (as outcome) measured with DERS ($B = .3613, p < .01$) that remained significant with reduced magnitude after controlling for the mediator, BDI, ($B = .2157, p < .01$). As well, the indirect effect was significant in Sobel test ($B = .1456, p < .01$). The 95% confidence interval with 5000 bootstrap samples runs (.0685 - .2365), and does not contain zero, which indicates depressive symptoms might play a role in partially mediating the relationship between perfectionistic self-presentation and difficulties in emotion regulation. With respect to effect size, the relative magnitude of the indirect effect to the total effect i.e. mediation ratio, $P_M = .4115$ with 95% CI (.1911 – .6898), which does not contain zero. This indicates that the indirect effect accounts for almost 40% of the total effect between PSPS and DERS. Further, completely standardized indirect effect i.e. index of mediation,
\( abcs = .2015 \) with 95\% CI (.0957 - .3237), which again does not contain zero. As such, it might be suggested that an increase of one standard deviation in PSPS is associated with an increase of .20 of a standard deviation in DERS scores through mediation by BDI.

Similarly, there was a significant initial relationship between perfectionistic self-presentation (PSPS) and difficulties in emotion regulation (\( B = .3489, p < .01 \)) that remained significant with reduced magnitude after controlling for the mediator, PDS, (\( B = .2174, p < .01 \)), which indicates post traumatic stress symptoms might play a partial role in mediating the relationship between perfectionistic self-presentation and post traumatic stress. As well, the indirect effect was significant in Sobel test (\( B = .1316, p < .01 \)). The 95\% confidence interval with 5000 bootstrap samples runs (.0485 - .2374), which does not contain zero and confirms the observed significant result. The mediation ratio, \( P_M = .3876 \) with 95\% CI (.1375 – .7417), which does not contain zero. As such, it might be suggest that the indirect effect accounts for almost 37\% of the total effect of PSPS on DERS. As well, the index of mediation \( abcs = .1597 \) with 95\% CI (.0612 - .2720), which again does not contain zero, and signifies that an increase of one standard deviation in PSPS is associated with an increase of .16 of a standard deviation in DERS scores as mediated by PDS.

\textit{Comparing the Hypothesized and Reverse Mediation Models}

Table 5 summarizes the effect size indices of the two sets of mediation analyses with the average values and 95\% confidence intervals for 5000 bootstrap samples for both hypothesized mediation and reverse mediation models. The effect size indices for the hypothesized models are larger than that of the reverse models. Although there is no test available to test the significance of difference in these effect size indices, in light of the results from Sobel test, it might be suggested that the hypothesized mediation models hold.
However, this does not contradict the fact that reverse partial mediations might also exist.

Based upon the results from these preliminary analyses and in light of the fact that emotion regulation is a multifaceted construct, a multiple mediator model using the six subscales of DERS was explored to investigate the specific mechanisms involved in the mediation of the effect of perfectionistic self-presentation on symptoms of depression and post traumatic stress. The multiple mediator analysis was performed using INDIRECT, an SPSS macro written by Andrew F. Hayes (Preacher & Hayes, 2008). Figure 2 demonstrates a multiple mediation model.

**Table 5**

*Summary of Effect Size Indices: Mediation Ratio and Index of Mediation for Hypothesized Mediation Models versus Reverse Mediation Models*

<table>
<thead>
<tr>
<th>Mediator</th>
<th>Outcome</th>
<th>( P_M )</th>
<th>95% CI</th>
<th>( ab_{cs} )</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>DERS</td>
<td>BDI</td>
<td>.7043</td>
<td>.3733 – 1.2460</td>
<td>.2753</td>
<td>.1590 - .4145</td>
</tr>
<tr>
<td>DERS</td>
<td>PDS</td>
<td>.7418</td>
<td>.3002 – 1.5900</td>
<td>.2194</td>
<td>.1204 - .3328</td>
</tr>
</tbody>
</table>

**Reverse Mediation Models**

<table>
<thead>
<tr>
<th>Mediator</th>
<th>Outcome</th>
<th>( P_M )</th>
<th>95% CI</th>
<th>( ab_{cs} )</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI</td>
<td>DERS</td>
<td>.4115</td>
<td>.1911 – .6898</td>
<td>.2015</td>
<td>.0957 - .3237</td>
</tr>
<tr>
<td>PDS</td>
<td>DERS</td>
<td>.3876</td>
<td>.1375 - .7417</td>
<td>.1597</td>
<td>.0612 - .2720</td>
</tr>
</tbody>
</table>

**Multiple Mediator Model**

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) has six subscales: Non-Acceptance, Goals, Impulse Control, Awareness, Strategies and Clarity. The descriptive statistics including minimum, maximum, mean, standard deviation, skewness, and kurtosis for the six subscales of DERS are presented in Table 6.
Table 6

Descriptive Statistics for the Six Subscales of Difficulties in Emotion Regulation (N = 75)

<table>
<thead>
<tr>
<th>DERS Subscale</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness (SD)</th>
<th>Kurtosis (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non acceptance</td>
<td>6.00</td>
<td>28.00</td>
<td>13.8267</td>
<td>5.3911</td>
<td>.486 (.277)</td>
<td>-.611 (.548)</td>
</tr>
<tr>
<td>Goals</td>
<td>6.00</td>
<td>25.00</td>
<td>16.3733</td>
<td>5.0290</td>
<td>-.222 (.277)</td>
<td>-.714 (.548)</td>
</tr>
<tr>
<td>Impulse control</td>
<td>6.00</td>
<td>27.00</td>
<td>12.2267</td>
<td>5.4316</td>
<td>.958 (.277)</td>
<td>.115 (.548)</td>
</tr>
<tr>
<td>Awareness</td>
<td>6.00</td>
<td>24.00</td>
<td>13.8533</td>
<td>4.7297</td>
<td>.175 (.277)</td>
<td>-1.003 (.548)</td>
</tr>
<tr>
<td>Strategies</td>
<td>8.00</td>
<td>39.00</td>
<td>18.3467</td>
<td>6.9486</td>
<td>.926 (.277)</td>
<td>.444 (.548)</td>
</tr>
<tr>
<td>Clarity</td>
<td>5.00</td>
<td>25.00</td>
<td>11.2533</td>
<td>4.2715</td>
<td>.810 (.277)</td>
<td>.458 (.548)</td>
</tr>
</tbody>
</table>

As it can be seen from Table 6, it was found that subscales of impulse control, strategies, and clarity were positively skewed. Subsequently, natural logarithm
transformation for impulse control, and square root transformation for strategies and clarity were used to correct for the violation of univariate normality. All the subsequent inferential statistics are estimated using the transformed values. Table 7 summarizes the intercorrelations among perfectionistic self-presentation, difficulties in emotion regulation, the six subscales of DERS, and two of the outcome variables for which the simple mediation model was significant in the analyses outlined above.

Table 7

**Intercorrelations between Measures of Perfectionistic Self-Presentation, Difficulties in Emotion Regulation, Six Subscales of DERS and Outcome Measures (N = 75)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 PSPS</td>
<td>.429**</td>
<td>.227*</td>
<td>.423**</td>
<td>.326**</td>
<td>.322**</td>
<td>.433**</td>
<td>.312**</td>
<td>.412**</td>
<td>.336**</td>
<td></td>
</tr>
<tr>
<td>2 DERS</td>
<td>----</td>
<td>.752**</td>
<td>.774**</td>
<td>.786**</td>
<td>.691**</td>
<td>.866**</td>
<td>.768**</td>
<td>.617**</td>
<td>.572**</td>
<td></td>
</tr>
<tr>
<td>3 Non acceptance</td>
<td></td>
<td>.443**</td>
<td>.567**</td>
<td>.405**</td>
<td>.580**</td>
<td>.453**</td>
<td>.517**</td>
<td>.518**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Goals</td>
<td></td>
<td>.539**</td>
<td>.447**</td>
<td>.647**</td>
<td>.567**</td>
<td>.505**</td>
<td>.403**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Impulse control</td>
<td></td>
<td></td>
<td>.349**</td>
<td>.693**</td>
<td>.496**</td>
<td>.510**</td>
<td>.459**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Awareness</td>
<td></td>
<td></td>
<td></td>
<td>.460**</td>
<td>.674**</td>
<td>.362**</td>
<td>.375**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.535**</td>
<td>.504**</td>
<td>.523**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Clarity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.369**</td>
<td>.375**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 BDI†</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.674**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 PDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>----</td>
</tr>
</tbody>
</table>

*Note. †N = 73 for BDI after elimination of two univariate outliers. *p < .05, **p < .01.*

As it can be seen from Table 7, perfectionistic self-presentation and the two outcome variables have significant correlations with all the six subscales of DERS. These
relationships range from small to large according to Cohen (1988). More specifically, the subscale non-acceptance show large correlations with both BDI and PDS, \( r = .517 \), and \( r = .518, p < .01 \) respectively. The next large relationship is with subscale strategies \( r = .504, p < .01 \) for BDI, and \( r = .523, p < .01 \) for PDS.

**Multiple Mediator Analysis for BDI**

Table 8 provides the values for the indirect effects (a*b paths), Sobel test of significance for the effects as well as the values and confidence intervals for the indirect effect using 5000 bootstrap samples.

**Table 8**

*Summary of Sobel Test for the Indirect Effects (a*b Paths) in Multiple Mediator Model for Mediation of the Effect of PSPS on BDI through the Six Subscales of DERS*

<table>
<thead>
<tr>
<th>Mediator</th>
<th>Original Sample</th>
<th>Bootstrap with 5000 Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
<td>SD</td>
</tr>
<tr>
<td>Total</td>
<td>.0715</td>
<td>.0221</td>
</tr>
<tr>
<td>Non-Acceptance</td>
<td>.0192</td>
<td>.0112</td>
</tr>
<tr>
<td>Goals</td>
<td>.0254</td>
<td>.0156</td>
</tr>
<tr>
<td>Impulse Control</td>
<td>.0186</td>
<td>.0130</td>
</tr>
<tr>
<td>Awareness</td>
<td>.0120</td>
<td>.0118</td>
</tr>
<tr>
<td>Strategies</td>
<td>.0029</td>
<td>.0174</td>
</tr>
<tr>
<td>Clarity</td>
<td>-.0066</td>
<td>.0117</td>
</tr>
</tbody>
</table>

As it can be seen only the overall effect is significant. However, the tests are two-tailed and since the hypothesis is directional, a one-tailed test for non-acceptance subscale
is significant as well ($z = 1.72$ is larger than the critical value $z = 1.67$ for $n = 60$ at $p = .05$ considering a conservative $z$ value). Further, the bootstrap with 5000 re-sample 95% confidence interval runs (.0031 - .0493) which does not contain zero and supports a significant directional mediation effect for the non-acceptance subscale of the difficulties in emotion regulation scale (DERS). No significant effects were detected for the other five subscales. Note that an assumption of Sobel test is normality of the shape of the distribution of the indirect effect, which may not be realistic. As such, it is recommended to use the bootstrap confidence intervals for testing significance when the results from Sobel test does not agree with bootstrap confidence intervals (Preacher & Hayes, 2004; Preacher & Hayes, 2008) The results highlight the importance of non-acceptance of emotions as specific facet of emotion regulation in mediating the effect of perfectionistic self-presentation on depressive symptoms controlling for the other five subscales of DERS.

**Multiple Mediator Analysis for PDS**

Table 9 provides the values for the indirect effects ($a*b$ paths), Sobel test of significance for the indirect effects as well as the values and confidence intervals for the indirect effect using 5000 bootstrap samples. As it can be seen only the overall effect is significant. However, the 95% bootstrap confidence intervals for non-acceptance runs (.0023 - .0572), which does not contain zero. As such, it might be concluded that although a test of normal theory for non-acceptance subscales was not significant, there is a meaningful mediator effect for this facet of emotion regulation. No significant effects were detected for the other five subscales. The results highlight the importance of non-acceptance as a specific construct mediating the effect of perfectionistic self-presentation on post traumatic stress symptoms controlling for the other five subscales of DERS.
Table 9

Summary of Sobel Test for the Indirect Effects (a*b Paths) in Multiple Mediator Model
for Mediation of the Effect of PSPS on PDS through the Six Subscales of DERS

<table>
<thead>
<tr>
<th>Mediator</th>
<th>Original Sample</th>
<th>Bootstrap with 5000 Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
<td>SD</td>
</tr>
<tr>
<td>Total</td>
<td>.0692</td>
<td>.0256</td>
</tr>
<tr>
<td>Non acceptance</td>
<td>.0213</td>
<td>.0139</td>
</tr>
<tr>
<td>Goals</td>
<td>.0022</td>
<td>.0182</td>
</tr>
<tr>
<td>Impulse control</td>
<td>.0090</td>
<td>.0148</td>
</tr>
<tr>
<td>Awareness</td>
<td>.0110</td>
<td>.0141</td>
</tr>
<tr>
<td>Strategies</td>
<td>.0277</td>
<td>.0227</td>
</tr>
<tr>
<td>Clarity</td>
<td>-.0021</td>
<td>.0143</td>
</tr>
</tbody>
</table>

Validity of the Causal Direction in the Hypothesized Model

As mentioned earlier the current study used baseline measures, which implies a cross-sectional design in testing the mediation hypothesis. It is worth mentioning that during the previous studies, data was collected for the mediator and the outcome variables at a follow up session as well as approximately four weeks from the first testing date. In order to check for the validity of the hypothesized mediation models using a longitudinal design, the hypothesized models were tested using the PSPS from the first testing session as the independent variable, and DERS, the mediator, and BDI and PDS as outcome from the follow up session. The results are in agreement with findings reported above. The main reason for reporting the results of analyses using baseline measures was to have an estimate before participants received their first expressive writing intervention. As well, a probable
moderation effect, as an alternative for the mediation model, using the interaction term between PSPS and DERS predicting outcome was probed, which proved to be non-significant. This observation rules out any moderating role for emotion regulation in the current study.
Chapter 4: Discussion

The purpose of this study was to investigate the relationships among personality i.e. perfectionistic self-presentation, emotion regulation and psychological health (symptoms of distress) in a sample of trauma survivors. The results support the hypothesized relationships. As well, in line with previous research, our findings show that both perfectionistic self-presentation and more difficulties in emotion regulation are associated with higher psychological distress as measured with symptom severity in depression, posttraumatic stress, and common physical complaints (Danson, Watson, Mattina, & Amiri, 2011; Gratz & Gunderson, 2006; Hewitt et al., 2003; Mattina, Watson, Danson, & Amiri, 2011). These results lend support to the body of literature that identifies the general construct of perfectionism and difficulties in emotion regulation as determinants of psychological distress (Blatt, Zuroff, Bondi, Sanislow, & Pilkonis, 1998; Hewitt & Flett, 1991; Patterson, Wang & Slaney, 2012; Linehan, 1993). The observation of these two parallel relationships between symptoms of distress on the one hand and personality and emotion regulation on the other, was the basis for the first hypothesis of this paper, that higher levels of perfectionistic self-presentation (PSPS) is expected to be associated with more difficulties in emotion regulation (DERS). The significant positive Pearson product moment correlation with medium to strong magnitude between the two variables indicated that PSPS explained over 18% of the variance in DERS supporting the hypothesis. In other words, ability to regulate emotional experience co-varies with the desire to appear perfect (or to conceal imperfection) such that higher perfectionistic tendencies are associated with less effective emotion regulation. This observation is in agreement with previous research.
that showed perfectionistic self-presentation is associated with lack of behavioral flexibility (Hewitt et al., 2003).

The second hypothesis of this paper was conceptualized based on the first one. If perfectionistic self-presentation co-varies with difficulties in emotion regulation, and both are associated with impaired psychological and physical health, then how does the observed relationship between this personality construct and emotion regulation relate to outcome? Given the fact that emotion regulation is a complex multifaceted construct (Gratz & Gunderson, 2006), and in accordance with previous theorizing that highlights the role of personality in guiding adaptive behavior including emotion regulation strategies, it was hypothesized that emotion regulation mediates the relationship between personality and outcome. The results confirm that DERS mediates the relationship between PSPS and symptoms of depression and posttraumatic stress, but not physical complaints. These observations shed further light on the relationship between personality and psychopathology, and highlight the role of vulnerability traits such as perfectionism in general (Hewitt & Flett, 1991) and perfectionistic self-presentation in particular (Hewitt et al., 2003).

Although both perfectionistic self-presentation and more difficulties in emotion regulation were positively related to higher levels of physical complaints, DERS failed to mediate the relationship between PSPS and PILL. The fact that there was a mediation effect for psychological distress as measured with symptoms of depression and posttraumatic stress, but no mediation for physical distress might support the idea that the influence of personality on health outcomes might be exercised through both direct paths and intermediary mechanisms. As well, it might be suggest that emotion regulation ability plays a major role when considering the relationship between personality and emotional, but not
physical health. This point might be controversial since it is shown that perfectionistic self-presentation is associated with a tendency to self-concealment (Hewitt et al., 2003), and there is ample evidence that emotional disclosure improves physical health (Pennebaker, 1995). As such, further investigation is needed to clarify the issue, and the absence of mediation might be specific to the sample used in this project, and may not be generalizable.

It is worth mentioning that despite the strong statistical significance, the practical significance of the mediated effects might not be so great. According to the completely standardized indirect effect or index of mediation, a difference of one standard deviation on PSPS scores is associated with differences of .27th, and .22nd of a standard deviation on BDI and PDS, respectively. This translates to differences of 2.20, and 2.19 in actual scores on BDI and PDS, respectively, which does not seem too impressive.

In follow up to the results from the mediation hypothesis, and due to the multidimensionality of DERS, this study investigated multiple mediator models using the six subscales of DERS in order to identify specific mechanisms involved in mediation. An exploration of the relationships among PSPS, the six subscales of DERS, and the two outcome variables of BDI, and PDS indicated significant intercorrelations. However, in a multiple mediator test controlling for all the other five subscales, only the non-acceptance subscale of the DERS showed significant mediation effect for both BDI and PDS. One plausible way of interpreting these findings is through integration of the pieces of information: what is being measured by non-acceptance subscale of the DERS, the psychological dynamic specific to the sample in this study i.e. trauma survivors, and the particular personality construct.

The non-acceptance subscale checks for experience of secondary emotional reactions (Greenberg & Vandekerckhove, 2008) to the event of experiencing a primary
negative emotional state. A sample item reads “when I am upset, I feel ashamed with myself for feeling that way” (Gratz & Roemer, 2004). There are six items in non-acceptance subscale that check for feeling guilty, ashamed, embarrassed, angry, irritated with oneself, and being weak. Further, the dominant emotion profile in posttraumatic stress includes guilt, shame, depression as well as general anxiety, which are secondary emotional reactions to the unfortunate event of trauma and feeling hurt (Riggs, Cahill, & Foa, 2006). On the other hand, research has shown that some individuals with perfectionistic tendencies are motivated to display an image of “being flawless” and in this sense, perfectionism is intimately related with ideal self (Hewitt & Genest, 1990; Assor & Tzelgov, 1987). It is obvious that there is a considerable discrepancy between the two images of a trauma victim versus perfection. The higher the desire to appear perfect, the stronger the secondary emotional reaction to a traumatic experience might be expected to be. It might be suggested that the non-acceptance subscale of the DERS is tapping into the discrepancy between the actual self, and the ideal self by measuring the associated secondary emotional reaction.

It is worth mentioning that since previous research found a non-significant trend for acceptance as an emotion regulation strategy with respect to anxiety and depression (Aldao et al., 2010), the observed results with regards to non-acceptance might be specific to trauma population or even only to the sample in the current study. Moreover, in their meta-analysis Aldao et al. (2010) mention that when more than one measure of emotion regulation was used in a study, the values were averaged across measures for specific strategies. As such, in their study the numerical index for acceptance is calculated using DERS as well as other measures such as Acceptance and Action Questionnaire (Bond et al., 2011). A closer examination of the items reveals important differences between AAQ and DERS in the sense that unlike DERS, the AAQ does not check for secondary emotional reactions.
reactions (while it does for secondary worry) in response to an unpleasant emotional experience. It is also possible that the acceptance measures used in the previous research and the non-acceptance subscale of DERS assess different aspects of emotion regulation and as such, averaging across different measures for a meta-analysis has led to dilution of the effect size, and hence a non-significant trend for acceptance.

With respect to the observed mediation effects, one might argue that since the design is cross-sectional it is possible to consider alternative directions for the mediation effect. The current study checked for reverse mediation models, and the results indicated only partial mediations with considerably lower effect size indices. As such, it might be suggested that the hypothesized mediation models hold. In other word, perfectionistic self-presentation interferes with emotion regulation ability which in turn contributes to symptoms of distress. However, this does not eliminate the possibility of a feedback effect once psychopathology develops. As discussed earlier, literature reports pathoplastic relationships among personality and psychopathology (Widiger & Smith, 2008). Accordingly, it might be suggested that perfectionism and difficulties in emotion regulation have provided the vulnerability factors and once the participants developed the distress symptoms, this in turn, contributed back to further psychological inflexibility (rigid response patterns) resulting in further impairment in psychological functioning. Moreover, in the interest of a more thorough investigation an additional analysis was performed. The current study used PSPS from baseline and the Post DERS, Post BDI, and Post PDS scores that were collected four weeks apart from the baseline assessment to check for the repeatability of the hypothesized mediation models. This analysis provided a longitudinal design with almost one month between assessments of personality on the one hand, and the
mediator and outcome measures on the other. The results confirmed the hypothesized mediation models.

These findings might have important implications for clinical practice. Although some personality traits such as perfectionistic self-presentation are considered vulnerability factors but all is not lost. It is possible to design interventions and skills training program to modify client’s perfectionistic tendencies, and improve client’s emotion regulation ability (the mediating variable) and hence, reduce the adverse effects of personality dispositions such as perfectionistic self-presentation. The improved emotion regulation ability is expected, then, to facilitate recovery of a client with depressive and post traumatic stress symptoms. In other words, targeting mediating factors in addition to the main underlying vulnerability traits can serve an important therapeutic function. However, the extent of possible modifications and the size of the ensuing therapeutic effect remains to be quantified in future research.

**Limitations**

First limitation of the current study is its small sample size, which was one of the main reasons the current study looked at a limited set of relationships. For example, only the overall scores on perfectionistic self-presentation were used and the analysis of its three subscales of perfectionistic self-promotion, non-display of imperfection, and non-disclosure of imperfection were left out. To mitigate the limitations imposed by a small sample size, this paper used procedures that produced statistical results with 5000 bootstrap samples. The second limitation has to do with choice of measures for personality and health outcomes. Perfectionistic self-presentation is only a minor aspect of personality, and can hardly represent the true and complex relationships among personality constructs with
emotion regulation ability and well-being. As it was discussed above, despite the statistical significance of the results, their practical significance is hardly impressive, not to mention the fact that the observed relationships might be specific to current sample, hence lacking generalizability. The third limitation of the current study is its use of self-report measures. Researchers have discussed the problem of systematic bias in self-report assessments due to variety of factors such as social desirability and demand characteristics (R. D. Abbott, 1975; Holtgraves, 2004; Orne, 2002; Stone, 2000). These issues might be relevant to the current study since data collection involved face-to-face contact between experimenter and participant. Further, one of the measures was perfectionistic self-presentation which might have elicited a higher desire to appear flawless from the participants leading to either exaggerated responses or underreporting due to embarrassment. This possibility seems even more salient in light of the fact that participants of the current study were trauma survivors who might be suffering from a damaged self-image.

**Future Directions**

An important issue has to do with the two research traditions of subjective well-being (SWB) versus psychological well-being (PWB). Of note is a study that showed it is possible for people to score high on one but be lower on of the other (Keyes, Shmotkin, & Ryff, 2002). For example, individuals with higher level of education in their early adulthood might feel satisfied in terms of personal thriving and growth (high PWB), but who may not be happy about their material wealth and life circumstances (low SWB). On the opposite end, there are people in their mid to late adulthood with satisfactory and convenient life conditions (high SWB), but with less education who do not feel satisfied in terms of their personal growth (low PWB). As such, it might be suggested that neither
subjective well-being (SWB) nor psychological well-being (PWB) constructs capture the full array of positive human functioning. Further, the term ‘positive human functioning’ is used to distinguish it from ill-functioning and psychopathology, which again attests to the fact that psychological research has artificially divided human experience into two different opposing areas leaving out the full picture of what it means to be a functional person as a whole. In this respect, Kashdan and Rottenberg (2010) introduce the construct of psychological flexibility i.e. context sensitive functioning as more informative and encompassing alternative to both SWB and PWB (Kashdan & Rottenberg, 2010). However, the authors acknowledge the complexity of such a construct and difficulties associated with its operationalization. It is worth mentioning that although the term psychological flexibility might sound new, but it is not. In fact, the essence of this concept is already defined and captured in the theory of fully functioning person introduced by Carl Rogers (1959). Accordingly, the term fully functioning person “is synonymous with optimal psychological adjustment, optimal psychological maturity, complete congruence, complete openness to experience” (Rogers, 1959). Rogers also points out that the concept of fully functioning person is not a static destination that a person is expected to arrive at. On the contrary it is a “process characteristic” through which “the behaviors would be adequately adaptive to each new situation, and that the person would be continually in a process of further self-actualization” (Rogers, 1959; italics added). In this respect, Rogers approaches personality construct from a phenomenological stand and introduces the self-theory, which is operationalized in terms of self-concept, the congruence between the organism and its experience, the discrepancy between actual self and ideal self (Gregory, 2011; Rogers, 1959; J. C. Watson & Watson, 2010). It is worth mentioning that future research might be
advised to explore the concept of fully functioning person as opposed to attempting to reinvent the wheel using different terminology.
References


