Emotions as Important Aspect of Resilience When Coping With Traumatic Injury.

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Dedication

To Maya, so that she may have the courage to question her assumptions.
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# Table of Contents

Dedication ............................................. ii  
Acknowledgements ................................. iii  
Table of Contents ................................. iv  
List of Tables ...................................... vi  

Abstract ........................................... 2  

CHAPTER I: Introduction ......................... 3  
  Statement of Problem ............................ 6  
  Statement of Purpose ............................ 7  

CHAPTER II: Literature Review ................. 10  
  Construct of Resilience ......................... 10  
  When Less is More – Optimizing Cognitive Resources ..................... 11  
  Role of Emotions ................................ 13  
  The Dynamic Self ................................ 20  
  Resilience Revisited ............................. 26  

CHAPTER III: Methodology ..................... 29  
  Participants ..................................... 29
CHAPTER IV: Results  34

CHAPTER V: Discussion  39

References  48

Tables  58
List of Tables

1. Demographic Data for the Sample at the Initial Assessment

2. Demographic Data for the Sample at the Final Assessment

3. Correlations of Variables at the Initial Assessment (N=104)

4. Correlations of Variables at the Initial (N=104) and Final (N=38) Assessments

5. Correlations of Variables at the Initial and Final Assessments for N=38

6. Comparison of Coping Means for the Initial and Final Assessments

7. Hierarchical Regression Analysis for Predicting Emotional Coping at the Initial Assessment

8. Hierarchical Regression Analysis for Predicting Physical Coping at the Initial Assessment

9. Hierarchical Regression Analysis for Predicting Cognitive Coping at the Initial Assessment
Abstract

The current study investigated the impact of positive and negative emotions on one’s coping abilities following either a motor vehicle accident (MVA) or work-related injury. Fredrickson’s (e.g., 1998, 2000) broaden-and-built theory was used to generate hypotheses regarding improved coping outcomes with the use of positive emotions, as related to the construct resilience. A total of 104 participants were initially assessed using two measures: one designed to assess emotional, physical and cognitive coping; one assessing resources, including the use of emotions. The final assessment, approximately six months later, included 38 cases and involved re-administration of the coping instrument.

The analysis of the results confirmed the significance of emotions as an important resource influencing coping in the examined sample. The use of positive emotions predicted better coping as expected. The use of negative emotions did not have significant predictive power, but was positively correlated with deficiencies in coping abilities. Coping at the initial time was comparable to coping at the final assessment. In conclusion, the results of the current study indicated that further exploration of the construct resilience needs to take emotions into consideration as an important predictor of the coping process. The interplay between positive and negative emotions at different times in individual’s life and their impact on recovery from a traumatic event are explored in the context of self psychology focusing on integration and compartmentalization.
CHAPTER I: INTRODUCTION

Loss is a part of life and all humans learn how to cope with it. Some people are better at it than others and it is important to study the resources they use and factors that foster their resilience. This study aimed to contribute to the understanding of the construct of resilience by focusing on the use of emotions in the process of coping. More specifically, the role of positive and negative emotions was explored in the process of coping with the consequences of a traumatic event (in this case, either a car or work-related accident).

Most people are exposed to at least one violent or life-threatening situation during the course of their lives (Ozer, Best, Lipsey, & Weiss, 2003). Both, motor vehicle accidents (MVA) and work-related injuries are common. Norris (1992) found that 23.4% of a sample of 1,000 participants from four North American cities had experienced an MVA at sometime during their lives. The author concluded that if both the frequency and the severity of traumatic events were considered, MVA may represent perhaps the single most significant event causing posttraumatic stress disorder (PTSD) in Western societies.

The psychological sequelae of potentially traumatic events such as MVA or injury at work have received a lot attention over the years, with most studies using correlational rather than prospective designs and focusing on trauma severity, pre-accident psychological and social variables, emotional response during the trauma, and litigation (Ehlers, Mayou & Bryant, 1998). The work of Celinski (e.g. 2005, 2008) on recovery from a traumatic event and specifically his contributions with regards to resourcefulness and resilience influenced the reasoning behind this study.
The study focused on the coping process rather than the intensity of the problems reported. Coping is defined here as functioning in spite of experienced symptoms, leading to improvements in functional activity and restoration of life-roles, as the ultimate goal of therapeutic interventions. Coping is especially important for those for whom the acute stage of symptom amelioration is over and who have established chronic conditions, such as chronic pain (Salmon & Celinski, 2002).

In a recent review, Celinski & Pilowsky (2008) concluded that the top three models currently used to discuss coping were: Antonovsky’s sense of coherence theory (1993), Bandura’s self-efficacy model (1977) and Lazarus’ appraisal model of coping (1993). One could argue that emotions play an important role in all of these theories, as they signal relevance to the individual, promote habituation to the stressor, regulate the social environment and engender cognitive reappraisal. Numerous studies link the use of emotions to resilience (for a review, see Fredrickson, 2000). Individual’s conscious accessibility to emotional experience is viewed here as an asset as contrasted with alexithymia, or a cluster of deficits in the capacity to process emotions from the cognitive perspective (Taylor, Bugby and Parker, 2000). There are most likely multiple routes through which successful adaptation to stress might occur (Ong, et.al. 2006) and the nature of affective experience under stress deserves more attention as one potential road to resilience.

Coping is viewed as a complex process and effective coping over time is assumed to build resilience. Time aspect is of importance in this study and it is assumed that, over time, one’s own coping efforts will deplete cognitive resources available and therefore reduce coping. Baumeister, Faber and Wallace (1999) distinguished active coping from
passive coping. Active coping refers to attaining the objective outcomes, whereas, passive coping refers to subjective adaptation when one cannot alter the outcome itself. Even though passive coping may be passive with the respect of the stressor, it often requires active exertion of control over oneself, and so it may draw on the person’s volitional resources just as much as active coping. Similarly, the distinction between emotion-focused coping and problem-focused coping is central to coping theory (Endler & Parker, 1990). Although both involve efforts to manage demands appraised as taxing one’s resources, emotion-focused coping is aimed at regulating emotion surrounding the stressful encounter, whereas problem-focused coping involves direct efforts to modify the problem at hand (Lazarus & Folkman, 1984).

Since this study attempts to strengthen theory related to the concept resilience, the idea suggested by Baumeister and his colleagues is very applicable. The authors postulated that the self’s volitional resources are expanded in the process of coping with stress (1999). The resources are least drained in the situations that allow simple, direct, and unambiguous exertion of control over the stress. Unfortunately, for the population studied here, such control is difficult to exert. Frequently, following MVA or work-related injury, the circumstances are characterized by lack of control over anything from physical activity to financial resources. It is therefore assumed that for many subjects assessed in this study, the self must expend a considerable amount of volition. One way of restoring the resources used up and resting from one’s coping efforts is to utilize emotions.
Statement of the Problem

This study investigated coping with the aftermath of injury at work or in a car accident with the emphasis on how people utilize their emotions when they need a break from their own coping efforts. Favourable coping was operationally defined as the possibility of normal functioning in spite of existing symptoms. This formulation suggested using one’s resources such as knowledge, skills, awareness and emotions to minimize the impact of symptoms on a person’s life in order to maximize desirable outcomes (Salmon & Celinski, 2002).

In the aftermath of a MVA or work related injury, when people find themselves in circumstances that make strong, novel demands for self-control and they have only a limited capacity to control and alter their behaviour, their coping depends to a great extent on their capacity for self-control. It is assumed here, following the work of Muraven and Baumeister (2000) that this self-control appears to be vulnerable to depletion in the aftermath of strenuous use. It is hypothesized that accessing and cultivating both positive and negative emotions is one way of fostering better coping, because it allows the self to more effectively manage the apparently limited self-control strength.

Fredrickson’s broaden-and-built model was used to generate hypotheses regarding the use of emotions to foster resilience. Self-psychology research was used to deepen our understanding of coping with adversity. Based on the above mentioned theories, positive emotions were considered to be uniquely linked to the construct resilience in two ways. The use of positive emotions by individuals who were exposed to prolonged stress was considered an important asset, leading to direct experience of well-being. Secondly,
positive emotions were viewed as a buffer and their interplay with negative emotions strengthened coping efforts by allowing the rest to optimize cognitive functioning and to restore physiological equilibrium.

Statement of Purposes

The study investigated factors related to coping with a significant stressor over prolonged periods of time. The most relevant resources were identified using Resourcefulness for Recovery Inventory (RRI), assuming that executive functions may be limited due to prolonged coping efforts. The following non-ego resources were considered: access to positive and negative emotions, ability to utilize social support, healthy attention to the body as evident in health-promoting habits and present-oriented focus with minimal preoccupation with the past. Coping was broken down into coping with emotional difficulties, coping with physical difficulties and coping with cognitive difficulties. No specific predictions were made, however such analysis was believed to have contributed to better understanding of the coping process.

Cultivating positive emotions has been researched by Fredrickson (2000). She proposed a broaden-and-build theory, in which the negative emotions were thought to narrow the thought-action repertoire, while the positive emotions to broaden it. She reported specifically on emotions of joy, interest and contentment, which had broadening effect on attention, action and cognition. The first hypothesis (prediction 1a) of this study was that the ability to access positive emotions would be associated with better coping in all three domains: emotional, cognitive and physical. The positive emotions were considered to be a superior resource, because they provided an instant break in coping efforts, as well as, served to further broaden the context to allow more effective coping.
It was further hypothesized (prediction 1b) that measuring the ability to use positive emotions at one time would predict better coping at a later time, based on Fredrickson’s (2000) conclusions that the impact of positive emotions is especially evident in a long run and contributes to resilience.

The impact of negative emotions was taken into consideration in light of the fact that the presence and acknowledgment of emotions, whether positive or negative was itself seen as an asset, helping to guide one’s behaviour. Further, the dynamic model of affect (DMA) proposed by Zautra, Smith, Affleck, and Tennen (2001) opened up a possibility that negative emotions were not necessarily related to positive emotions in a clear, bipolar fashion. Instead, the definition of resilience embraced in this study implied that negative emotions were equally important in the continuous navigation between expanding one’s resources and conserving energy. It was hypothesized (prediction 2a) that access to negative emotions is going to be associated with improved ability to cope (emotionally, cognitively and physically), however it was expected that the correlation would not be as high as that between positive emotions and more optimal coping. The acknowledgment of negative emotions at the time of the initial assessment was hypothesized to be related to better coping when assessed at a later time (prediction 2b).

A number of demographic variables were used to explore coping at the time of the initial assessment. Most importantly, the time since the injury was identified as significant, especially for those who coped effectively and used resources wisely. Marital status, age, education and gender were explored for their contributions with regards to coping.
Finally, based on assumptions of the theory of Strack and Deutsch (2004), a pattern of behaviour observed at one time was expected to be repeated at another time, based on the association between similar behaviours. It was expected that coping with specific problems (emotional, physical and cognitive) as measured at the time of the initial assessment would be positively correlated with the same type of coping at the time of the final assessment (prediction 3).

The motivation to understand the impact of emotions on the process of coping and their contribution to resilience is to inform clinical interventions. The failure of loss and trauma literature to adequately conceptualize different pathways to resilience leads to cases in which clinical interventions with exposed individuals are ineffective and at times harmful (Bonnano, 2004). Traditionally, excess “emotion” has been associated with pathology, but for some individuals, the state of “overexcitability” is in fact the source of strength. This study does not shy away from the complexity of human behaviour, assuming that there is a natural tendency to organize it at different levels depending on the demands of the environment. As Polish psychiatrist, Dabrowski (1972) pointed out, “by higher level of psychic development, we mean a behaviour that is more complex, more conscious and having greater freedom of choice, hence greater opportunity for self-determination” (p. 70).
CHAPTER II: LITERATURE REVIEW

The construct of Resilience

Bonanno (2004) clearly distinguishes between recovery and resilience. According to him, recovery connotes a process in which normal functioning is temporarily compromised and then gradually returns to pre-event levels. Resilience reflects the ability to maintain a stable equilibrium: “resilience to loss and trauma pertains to the ability of adults who are exposed to an isolated and potentially highly disruptive event to maintain relatively stable, healthy levels of psychological and physical functioning” (p. 20). Further, resilience is more than the simple absence of psychopathology. Resilient individuals generally exhibit a stable trajectory of healthy functioning across time, as well as, the capacity for generative experiences and positive emotions (Bonnano, Papa, & O’Neill, 2001).

Celinski has written extensively on the topic of resourcefulness and resilience and has studied the population of interest here for years (e.g. Celinski 2005). He asserts that individuals who were forced to face a traumatic event in the form of motor vehicle accident (MVA) or work-related injury, frequently display the psychological sequelae of trauma. Their recovery, according to him, can take one of two forms. One outcome is some sort of integration of the traumatic experience, which typically results in a more complex view of the self. The other outcome implies dismissal of the disturbing new awareness associated with the traumatic injury by strengthening the defenses that have developed to protect from threatening and conflicting affects/cognitions.

These two outcomes, according to Celinski (2008), form the basis of the distinction between two important concepts: resourcefulness and resilience. He suggests one
possible meaning for resilience to be “a shield deflecting various types of negative or even positive impacts that potentially may change the organism’s routine behaviour” (p.4). If, indeed, resilience is about consistency, then its purpose is to ensure stability and preserve the integrity of the organism, fostering survival. It’s important to note that resilience, according to Celinski, can only be fully appreciated when the individual’s limits are tested. Resourcefulness, on the other hand, refers to the process of growth. At its foundation is the recognition by the individual of his or her ego and non-ego based resources and their use for the betterment of the situation.

Block and Block (1980) refer to the two modes of functioning described above (consistency vs. change) as different styles of ego-control. The authors claim that individuals have a characteristic mode of ego-control in which they function: some are “undercontrollers,” i.e. they have little difficulty adjusting to changes in their environment and some are “overcontrollers,” who do very well by using self-discipline and keeping things as stable as possible for themselves. Most people are likely to be a combination of both styles. The key characteristic of ego-resiliency as opposed to ego-control, according to Block (1980) is the ability to situationally reduce or increase behavioural control. Effective adaptation means that individual has available a versatile set of cognitive and social procedures and this adaptive flexibility is the foundation of resilience.

When less is more – optimizing cognitive functioning

Ultimately, successful coping results in establishment of a new equilibrium. Celinski (e.g. 2005) has frequently commented on the need for an individual recovering from a traumatic event to reconstruct and broaden his or her worldview to integrate the
possibility of previously unimaginable circumstances. The world needs to make sense again and the individual needs to re-establish a sense of self-efficacy. How it is done can be explored in the context of Strack and Deutsch’s model (2004) of reflective and impulsive determinants of social behaviour. It is believed to be a good working model for understanding the behaviour of people who cope with adverse life events over prolonged periods of time.

This dual-processing model assumes that human behaviour is governed by two separate systems of information processing: a reflective and an impulsive system (Strack & Deutsch, 2004). Human social behaviour is a result of several determinants that may operate in accord or in conflict with each other. The basic assumption is that the two systems are governed by different principles of representation and information processing. In the reflective system, behaviour is elicited as a consequence of a decision process. Specifically, knowledge about the value and the probability of potential consequences is weighed and integrated to reach a preference for one behavioural option. In contrast, the impulsive system activates behavioural schemata through spreading activation, which may originate from perceptual input or from reflective processes. The behaviour may be elicited without the person’s intention or goal.

The two systems operate in parallel, however, the reflective system sometimes disengages due to the fact that there are not enough cognitive resources to support it (Strack & Deutsch, 2004). The reflective system works best in optimal conditions and the role of arousal is very important for a proper functioning of reflective system. Similar to the Yerkes-Dodson law (Yerkes & Dodson, 1908), the reflective system operates more efficiently at intermediate levels of arousal. Low levels of arousal, as in a state of
drowsiness, are associated with poor reflective processing and poor self-control (e.g., Baumeister & Heatherton, 1996). High levels of arousal facilitate well-practiced, dominant responses (Zajonc, 1965). The current study attempts to explore the role of emotions in creating an optimum level of arousal for the reflective system to continue to be engaged (as evidenced by more effective coping).

Baumeister, Faber & Wallace have argued very convincingly (1999) that coping with stress and trauma consumes the self’s volitional resources. The after-effects of stress may persist for a while for a person is recovering from the coping effort. The resources get expanded in the trauma and need to be replenished. They compared volition to the physical exertion of one’s limbs. Rest appears central to the recovery of strength (Baumeister et al., 1999). Resources such as sleep or the skill of self-regulation (e.g. impulse control) tend to fail when the executive function of the self is compromised. Recovery from coping is likely to be facilitated by absence of demands on self-control. Baumeister and colleagues ask whether the self’s volitional resource can be replenished by anything other than rest and they propose positive emotions as one likely candidate.

The role of emotions

For the purpose of this study, the following definition of emotions is used:

Emotions are short-lived psychological-physiological phenomena that represent modes of adaptation to changing environmental demands. Psychologically, emotions alter attention, shift certain behaviours upward in response hierarchies and activate relevant associative networks in memory. Physiologically, emotions rapidly organize the responses of different biological systems including facial expression, muscular tonus, voice, autonomic nervous system activity, and endocrine activity to produce a bodily milieu that is optimal for effective response. Emotions serve to establish our position vis-à-vis our environment, pulling us toward certain people, objects, actions, and ideas, and pushing us away from others. Emotions also function as a repository for innate and learned influences, possessing
certain invariant features along with others that show considerable variation across individuals, groups and cultures. (Levenson, 1994, p. 123)

The above, broad definition of emotions opens up numerous possibilities with regards to coping. One way of simplifying and organizing our thinking of emotions is to follow the lead of Stanton et al., who conducted the initial Emotional Approach Coping Scale construction study (1998). Their factor analyses revealed two distinct factors: coping through emotional processing and coping through emotional expression. These were different from other coping factors, such as problem-focused coping, avoidance or seeking social support.

Stanton and colleagues found that women who used more emotional processing to cope with stressful experience became less distressed over time, whereas men became more distressed. When sex, the emotional approach scales, and their interaction were entered as predictors of distress, however, only the interaction of emotional processing and expression was significant. Participants who were low on both, processing of emotion and expression had the largest increase in distress over time. In the context of low processing, low expression was detrimental and high expression was useful. In the context of high processing, high expression was detrimental and low expression was useful. It looks as if emotional expression is effective only when one has processed one’s feelings fully (and hence reports low processing). Resilience may somehow be linked to the ability to control how much processing of emotion is going on and to inhibit emotional expression as needed. Research in other areas also speaks to this concept of increasing or diminishing behavioural control.
One example is the study done by Pennebaker & Beall (1986), who have investigated writing about traumatic events and its influence on long-term measures of health, as well as, short-term indicators of physiological arousal and reports of negative moods. Their findings indicate that writing about both emotions and facts surrounding traumatic events was associated with relatively higher blood pressure and negative mood following the essays, but fewer health centre visits in the six months following the experiment. The authors emphasize the role of behavioural inhibition in creation of psychosomatic difficulties. They assume that to inhibit one’s behaviour requires physiological work and actively inhibiting one’s behaviour, thoughts and/or feelings over time places cumulative stress on the body, increasing the probability of stress-related diseases (cf. Selye, 1976).

Inhibitive behaviour may have both positive and negative consequences depending on other factors. For example, resilience to trauma has been found among repressive copers (Weinberger, Schwartz, & Davidson, 1979). Individuals identified by either a questionnaire or behavioural measures as repressors tend to avoid unpleasant thoughts, emotions, and memories (Weinberger, 1990). They typically report relatively little distress in stressful situations but exhibit elevated distress on indirect measures such as autonomic arousal. Emotional dissociation is generally viewed as maladaptive and may be associated with long-term health costs (Bonnano & Singer, 1990), however the same tendencies also appear to foster adaptation to extreme adversity. Among a sample of young women with documented histories of childhood sexual abuse, repressors were less likely to voluntarily disclose their abuse, when provided the opportunity to do so, but
they also showed better adjustment than other survivors (Bonanno, Noll, Putnam, O’Neill, & Trickett, 2003).

Little is known at this time about the contexts under which inhibition of emotion would be recommended rather than their expression. The picture gets further complicated when one looks at the difference between positive and negative emotions being expressed or processed and the utility of focusing on emotion. Clearly, individual differences need to be taken into consideration together with contextual attributes, but resilience seems to be tied to the ability to utilize both, behavioural control and ability to let go of it as needed: “physical and mental health come from neither emotional inhibition nor exhibition per se, but from flexibility” (cf. Ekman & Davidson, 1994, pg. 102).

One useful framework for understanding how emotions may influence the coping process is the broaden-and-build theory of positive emotions (Fredrickson, 1998, 2001, Fredrickson & Branigan, 2005). The theory postulates that positive and negative emotions have distinct and complementary adaptive functions together with cognitive and physiological effects. According to Fredrickson’s theory, negative emotions narrow one’s momentary thought-action repertoire, and positive emotions broaden it, expanding the range of cognitions and behaviours that come to mind. Her assumptions are supported by laboratory experiments (Fredrickson & Branigan, 2005). The theory holds that unlike negative emotions, which narrow people’s behavioural urges toward specific actions that were life-preserving for human ancestors (e.g., fight, flight), positive emotions widen the array of thoughts and actions called forth (e.g., play, explore), facilitating generativity and behavioural flexibility.
Of special interest for this study is the assumption that the benefits of broadened thought-action repertoires emerge over time, therefore leading to predictions that coping at a later time may be predicted by the initial assessment of one’s ability to access and utilize positive emotions. According to Fredrickson (2005) the reason why these broadened mindsets carry indirect and long-term adaptive value is because they build personal resources, such as social connections and more accurate knowledge of the environment. Since negativity promotes avoidance, opportunities to correct false impressions are passed by (Fazio, Eiser, & Shook, 2004) and therefore positive emotion – by broadening exploratory behaviour in the moment – builds more accurate cognitive maps of the environment over time.

Experiments have shown that positive affect widens the scope of attention (Frederickson & Branigan, 2005), increases intuition (Bolte, Goschke, & Kuhl, 2003) and creativity (Isen, Daubman, & Nowicki, 1987). Isen’s work (Isen, 1987) attests to the fact that positive mood has distinct and salutary effects on cognitive processes, such as creativity, problem solving, and decision making. He has attributed some of these gains to the impact of positive mood on the retrieval of information from memory. Specifically, to the extent that positive valence serves as a large organizational category in memory, positive mood primes diverse and unusual associations and more flexible categorization of stimuli that may facilitate creative decisions and effective problem solving.

Positive mood also seems to facilitate some forms of complex decision making and problem solving. Isen et al. (1991) found that medical students in whom positive affect had been induced reached a correct decision about which of six hypothetical patients with solitary pulmonary nodules were most likely to have lung cancer more quickly than their
counterparts in the neutral condition. Analyses of the decision protocols by independent raters indicated less evidence of confusion and greater evidence of integration and complexity in thinking, in the positive affect condition. These well-controlled experiments, which have compared several different subtle inductions of positive mood to neutral conditions, link positive affect to greater elaboration of information, more efficient decision making, improved problem solving and a richer view of the task context.

The implications of the broaden-and-build theory for negative emotion regulation have been demonstrated in research that explores the physiological consequences of positive emotions. Since the narrowing of thought –action repertoires associated with the negative emotions is accompanied by cardiovascular reactivity that prepares the body for specific action, positive emotions “undo” the lingering cardiovascular after-effects of negative emotions. Thus, in line with the broaden-and-built theory, positive emotions appear to have a unique ability to physiologically down-regulate lingering negative emotions.

Positive emotions alter people’s bodily systems. Experiments have shown that induced positive affect speeds recovery from the cardiovascular aftereffects of negative affect (Fredrickson, Mancuso, Branigan, & Tugade, 2000), alters frontal brain asymmetry (Davidson et al., 2003) and increases immune function (Davidson et al., 2003). Other benefits found in research include positive affect lowering levels of cortisol (Steptoe, Wardle, & Marmot, 2005), reducing inflammatory responses to stress (Steptoe et al., 2005) and reducing subsequent-day physical pain (Gil et al., 2004). Finally, and most importantly for the population studied here, good feelings predict salubrious mental and
physical health outcomes. Prospective studies have shown that frequent positive affect predicts resilience to adversity (Fredrickson, Tugade, Waugh, & Larkin, 2003), increased happiness (Fredrickson & Joiner, 2002) and psychological growth (Fredrickson et al., 2003).

Positive emotions can co-occur with negative emotions with relatively high frequency, even in the midst of personally significant stress (Ong, Bergeman, & Bisconti, 2004). One way by which positive emotions may play a pivotal role in adaptation has been proposed by Zautra, Smith, Affleck, and Tennen (2001) in their dynamic model of affect (DMA). The model predicts that under ordinary circumstances, positive and negative emotions are relatively independent, whereas during stressful encounters an inverse correlation between positive and negative emotions increases sharply. One implication of the DMA is that positive emotions are more likely to diminish negative emotions on days of elevated stress. The model also predicts that a relative deficit in positive emotional experience should leave individuals more vulnerable to the effects of stress. These investigations suggest that the experience of positive emotions amid adversity may contribute to stress resistance, and hence adaptation, by interrupting the ongoing experience of negative emotions during times of stress.

Not only is positive mood considered an actual psychological resource, but more importantly for this study, it may influence person’s appraisal of the strength and adequacy of their resources, allowing them to access negative events and information needed to further their development. There is always a cost to processing negative information, but leaving it unprocessed is considered to be a greater liability. Positive mood may indicate to the individual that one can at this particular time afford it. One can
appreciate the role of emotions when we look more closely at the concept of the self and the ways in which individuals organize information related to the self. Indeed, the two processes mentioned earlier, the integration of information versus its dismissal in the context with coping can be further understood by looking at research offered by the field of self psychology.

**The dynamic self**

Recent approaches to the self-concept have emphasized both the content of self-knowledge and its organizational structure (Kihlstrom, Beer & Klein, 2003). A multifaceted view of the self (e.g., Linville, 1987) draws attention to two types of features: self-concept **content** and self-concept **structure**. Features of content include the total amount of information that a person associates with the self, and its informational value on dimensions such as valence (positive or negative) or domain (e.g., interpersonal, achievement).

Self-structure refers to the categories that organize a person’s store of relevant knowledge (Showers, Abramson, & Hogan, 1998). Of special interest here are two features of self-structure: integration and compartmentalization. Compartmentalization refers to the tendency to organize one’s self-aspects so that the information associated with any given aspect is either uniformly positive or uniformly negative. In contrast, a more integrative type of self-organization includes both positive and negative attributes within each self-aspect.

Studies have shown that abovementioned features of the self-structure are stable moderators of an individual’s reactions to negative self-knowledge and events (Sedikides, 1992). This is clearly one way of looking at the process of coping by either dismissing
new information associated with aversive event or attempt to integrate it. Self-structure can change to accommodate different types of knowledge and events (Margolin & Niedenthal, 1998). One would expect that the changes in the self-concept reflect changes in mood or experience, but some forms of self-change may represent attempts to resist the impact of the aversive life events. In this way, flexibility of the self-structure may actually stabilize more tangible indicators of a person’s well-being, such as global self-esteem or current mood (Showers, et al. 1998).

On the one hand, the self may be viewed as multifaceted and flexible (Markus & Wurf, 1987). On the other hand, the predictive power of unidimensional constructs such as self-esteem imply that the self is well equipped to resist change. The idea that some individuals may have clearer and more stable sense of self is supported by the work of Kernis (Kernis, 1993). It is possible that more elaborate processing of any experience that results in making it more concrete builds a stronger sense of self in the long run. For example, becoming consciously aware of one’s experience, expressing it verbally and/or sharing it with others may allow the kind of integration that fosters creation of meaning. This way of assimilating and organizing new knowledge may lead to a clearer and more stable sense of sense. Jourard (1971) conceived of the idea that self-disclosure allows for one’s feelings and thoughts to become more concrete and to foster self-knowledge. According to Jourard, disease resulted when the motive towards self-understanding was blocked.

One should ask whether there is a cost to integration and what are the benefits of integration, as compared to compartmentalization. Resource-based approaches to coping and self-regulation in general and to preventive behaviours in particular note that people
must have a surplus of resources, such as time, money, energy, and attention, to engage in proactive or preventive behaviour, because such behaviours exact short-term costs in the service of long-term gains (Tice, Muraven & Baumeister, 1998, Aspinwall & Taylor, 1997). It is also possible that the presence of positive mood may change the weight of immediate costs relative to long term gains (Trope & Pomerantz, 1998).

Resource-based approaches to self-regulation (Aspinwall & Taylor, 1997) predict that integrative structure is costly. If one enjoys a level of self-regard, positive affect, or subjective well-being above some threshold, one will be able to pursue goals other than self-enhancement or mood –repair. Specifically, one will be able to devote resources to the pursuit of self-evaluative and self-improvement goals and the consideration of goal-relevant information that might involve costs to positive affect and self-worth (in other words, one will consider both positive and negative aspects, favouring integration over compartmentalization). In contrast, if one’s subjective well-being or self-worth has been decreased below threshold, one are likely to lack the motivation to improve one’s life. Further, when one’s resources are depleted in this way, one may be unwilling to risk further decrements in positive mood or self-regard by considering negative information.

Trope and Pomerantz (1998) present evidence that positive mood, induced through prior success on an unrelated task, reduces tendencies to favour information about one’s assets over information about one’s liabilities for self-relevant life goals. On the other hand, failure sharply increases interest in one’s assets relative to interest in one’s liabilities as a function of increasing self-relevance of the goals. Similarly, Reed and Aspinwall (1998) found that an immediate prior experience hypothesized to increase resources (in this case, an opportunity to self-affirm on a personality dimension unrelated
to health) reduced defensive processing of self-relevant health risk information, compared to a neutral condition, among women whose average daily caffeine consumption may place them at risk for developing breast disease.

Research on self-evaluation maintenance and related intrapsychic and social processes (Aspinwall & Taylor, 1993) suggests that people in a positive mood, or whose esteem has been bolstered in some way, behave quite differently from people whose subjective well-being has been threatened. Under conditions of threat to self-esteem or induced negative mood, needs for self-enhancement and mood repair seem to drive social comparison activity, as people seek and profit from downward comparison information about others worse off than themselves and avoid upward comparisons to others better off than themselves. In contrast, under conditions of relative calm and good feeling, self-improvement motives seem to drive comparison activity: people seek and profit from potentially useful upward comparison information and seem neither to seek nor profit from exposure to downward comparison information (Aspinwall and Taylor, 1997).

Consistent with the idea that one’s current level of self-esteem or well-being determines whether one will pursue self-enhancing or defensive goals, Tesser and his colleagues present convincing evidence (Tesser, Crepaz, Collins & Beach, 2000) that many ostensibly different kinds of esteem-restoring behaviours (self-affirmation, dissonance reduction, favourable social comparisons) function interchangeably to bolster self-esteem, in that engaging in one such behaviour reduces or eliminates the tendency to engage in the others on subsequent tasks. Such results led Tesser et al. (2000) to the conclusion that these different processes serve a single need – the restoration of self-worth or self esteem. In further speculating about why these different self-evaluation
maintenance processes might be interchangeable, Tesser and Cornell (1991) suggest that the “common coin” of the realm might not be the self-concept or related conceptions, but positive affect.

The basic model of evaluative organization predicts that when positive self aspect attributes are salient, compartmentalization will be associated with more positive mood and higher self-esteem than will evaluative integration (called being positively compartmentalized). It is supported by empirical studies that correlate individual’s self-structure with current mood or self-esteem (e.g. Showers, 1992; Showers & Kling, 1996).

Therefore individuals who have many important salient negative attributes may benefit from an integrative structure which tends to link positive and negative attributes. The basic model predicts that if self-concept is primarily positive, compartmentalization is associated with psychological adjustment (e.g. high self-esteem or positive mood) but integration is expected to correlate with better psychological adjustment if self-concept is primarily negative.

Recent research, however, suggests a slightly different perspective on long-term consequences of integrative thinking for individuals with strong negative beliefs. Although integrative thinking may help to maintain positive feelings about the self in the short term, the effort and resources that integration requires may make it difficult to sustain this self-structure over the long term (McMahon, Showers, Rieder, Abramson & Hogan, 2003). Moreover, although integration should be preferable to compartmentalization when negative attributes are salient, integration should still be associated with more negative feelings than successful positive compartmentalization (in
which negative attributes are adroitly ignored). Hence, integration may often be a short-term strategy that requires high effort and cognitive resources and is used when a person is actively struggling with negative attributes.

According to Linville, increasing self-complexity during the time of increased stress is protective, because it limits the impact of negative affect on mood and self-esteem. Interestingly, at times of minimal stress, self-complexity works against an individual, in a sense that the negative content may spill over and reduce the ability to enjoy life. It has been suggested that individuals may actually develop high self-complexity as a means of coping with traumatic events (Morgan & Janoff-Bulman, 1994). People who are evaluatively integrative tend to have higher self-complexity (e.g. Showers et al. 1998) possibly because they perceive a wider range of attributes as relevant to each self-aspect. An important clinical implication follows: if people are likely to have negative self-concepts and negative life experiences, the optimal approach may not be to simply enhance the self by increasing positive self-beliefs as is frequently done in therapy.

In summary, integrative thinking has both benefits (work through negative experiences) and costs (residual distress associated with continued attention to negative attributes and experience). Compartmentalization works better as a short-term strategy, in times of extreme stress. For those, who tend to integrate, persisting in this mode in light of significant stressor may not be as adaptive and compartmentalization becomes a necessity. Showers et al. (1998) suggest that long term integrators may maintain especially realistic perspectives and develop strength and resilience – even though conventional indicators of adjustment may show some deficits. Individuals who can
successfully compartmentalize either by virtue of the nature of their experiences in life or their coping style – will experience the benefits of a more positive outlook and less ongoing struggle. Showers et al. (1998) assume that causality is bidirectional when it comes to the association between self-structure and psychological adjustment. For instance, if one feels good, it is easier to compartmentalize and compartments allow one to feel good. On the other hand, for those who are dedicated realists and therefore, are more likely to integrate, accessibility to negative self-beliefs is fostered and leads to more realistic view of self.

**Resilience revisited.**

Grief counsellors often talk about a process of adaptation to loss that follows three stages: avoidance, confrontation and restructuring (Webster, 2008). Avoidance may be the most profound and challenging of stages. Frequently lasting for years, for some it is the only mode of living available, they may indeed so dread the confrontation with their painful emotions. One often meets these individuals in clinical practice. They face all kinds of obstacles and keep on utilizing a broad range of resources, yet one can never think of them as resilient. It is assumed here that they are not resilient enough to allow themselves getting to the stage of confrontation, which would open the door to further integration of cognition and emotion. In the avoidance stage, it may seem that they cope, but coping is not enough, because all it leads to is a lifetime of coping. The reflective function is never allowed enough time and space to process fully what has happened to them and to integrate the emotional impact of their losses.

Resilience is ultimately understood here as change, but change that is within one’s control and by one’s design. Traumatic event forces resilient individual to stop,
acknowledge what has happened and accept the losses that will inevitably follow. This is what confrontation is all about, and it may not happen for a while after the accident, in fact it may require one to get stronger first. It is assumed that while acquiring insight and acceptance, ultimately resulting in permanent change, one has to have autonomy. Gradually building a new, stronger self is precisely the process of regaining control over one’s life, but it has to be done at one’s own pace. It is a very costly process and one has to have the resources for such integration to keep on taking place, but this seems the most reliable path to a restoration of a sense of security.

Whether one preserves a sense of cohesiveness by ignoring aspects of reality or integrates the new information and associated with it affective load, there is a cost to the individual. The important question seems to be not whether to change or not, because one may argue that everything eventually changes, but how and when to change, taking into consideration individual differences and situational context. In the aftermath of a tragic event, when one feels a significant threat to one’s sense of control over one’s life, resisting further changes may seem the only reasonable option. However, if one continues in that state for a period of time, important resources may be lost. For example, the medical professionals assessing an individual may start to point out “non-compliance” or “resistance” with regards to their suggestions and the individual may feel betrayed by a social group designated to protect him or her after an accident.

Resilience is the ability to trust one’s choices, resisting the desire to prematurely commit to one outcome, therefore stifling the very process that is taking place. One could argue that all depressive symptomatology that occurs in the context of some sort of situational change signals to an individual that higher level processing is needed and
Restructuring of one’s life and assumptions about life is in order. Ultimately, what is the value of freedom and self-efficacy if not to explore that which was previously unexplored. Questioning one’s assumption is by far more difficult and courageous than adhering to them. It seems natural that when people are forced to question and change their assumptions with no preparation and at a time when they feel their life is out of control, they wisely resist it.
CHAPTER III: METHODOLOGY

Participants

Clinical records of Dr. Celinski’s private practice at Toronto, Ontario were reviewed for this study. Reviews were limited to the charts that contained the results of psychological assessments that included one or more of the following instruments: Rehabilitation Survey of Problems and Coping (R-SOPAC) and Resourcefulness for Recovery Inventory (RRI). The total of 104 charts were reviewed.

The initial sample (N=104) consisted of 54% females. The mean age is 41 years (SD=12.5), the mean education is 13.7 years (SD=3). More detailed demographic data is presented in Table 1. The participants met one or more of the following diagnoses at the time of assessment: Posttraumatic Stress Disorder, Chronic Pain Disorder, Major Depressive Episode, Adjustment Disorder with Both Mixed Anxiety and Depressed Mood, Specific Phobia (driving), brain injury, whiplash, post-concussion disorder.

Test Materials

Rehabilitation Survey of Problems and Coping (R-SOPAC) (Salmon & Celinski, 2002). R-SOPAC is a 25-item, 7-point Likert, self-report scale that takes approximately 5-10 minutes to complete. It was designed to identify and measure client perceived intensity of symptoms among multisymptomatic rehabilitation clients, as well as the status of their coping. The reading level of the R-SOPAC has been determined to be commensurate with a grade 4-5 level, as calculated by Chall-Dale formula (Chall & Dale, 1995). Two global scales (Total Intensity and Total Coping) and six subscales reflecting the Physical, Emotional and Cognitive domains are obtained. In this study, Emotional Coping, Physical Coping and Cognitive Coping scales were examined.
Test-retest reliability and internal consistency statistics were demonstrated on 13 rehabilitation patients, who had been administered the instrument twice within a 2 to 6 day period. The Pearson correlations ranged from .91 to .93 for test-retest correlations on the Total Intensity, Total Coping and Overall Total scale score.

A sample of 296 individuals from Downsview Rehabilitation Centre was used to examine the factor structure of the items from section A of the R-SOPAC. All individuals in this sample had experienced some types of debilitating injuries including injuries to the head, back, arms, legs, etc. The first factor (labelled “Emotional” domain) accounted for between 19.5%-23.4% of the total variance. The second factor accounted for between 15.6% - 18.1% of variance and was labelled “Physical.” The third factor accounted for between 19.2%-21.1% of the variance (Cognitive Domain). Internal consistency was measured by Cronbach’s alpha on a sample size of 296 subjects. All three Emotional subscales and all three Cognitive subscales evidenced internal consistency of .90 to .92 range. The three Physical Subscales were in the range of .77 to .80. The Overall scale internal consistency was found to be .87.

A variety of forms of validity have been established to substantiate the use of the R-SOPAC as a screening measure for psychopathology. The Emotional Intensity scale was highly correlated with all four of the targeted MCMI Axis I scales (Anxiety, Dysthymia, Major Depression and Somatoform). Relative to the Beck Depression Inventory (BDI; Beck, 1987), the R-SOPAC demonstrated favorable construct validity with respect to the Emotional dimension: Emotional Intensity (r = 0.73), Emotional-Coping (r = -0.74), and Emotional-Combined (r = 0.76). Significant, yet lower, correlations were identified among other dimensions. The six R-SOPAC scales all
reveal significant correlations with varied cognitive tests. The Cognitive scale clearly has the most frequent and significant correlations and predicts attention/concentration disturbances, which are strongly linked to overall memory functioning.

This study does not focus on problems per se, but on coping with problems. The measure utilized in this study (Rehabilitation Survey of Problems and Coping or RSOPAC) successfully differentiates between symptom intensity and symptom coping ability (Salmon & Celinski, 2002). The notion of coping connotes functioning in spite of experienced symptoms. The authors suggest that a focus on symptom coping as opposed to symptom intensity would be preferable in terms of outcome measuring assuming that functional activity improvement and life-role restoration are the ultimate goals of therapeutic interventions. It is especially important for those for whom the acute stage of symptom amelioration is over and who have established chronic conditions, such as chronic pain. Upon establishing intractable symptoms, intervention should focus on symptom management and coping rather than symptom amelioration (Salmon & Celinski, 2002).

*Resourcefulness for Recovery Inventory (RRI)* (Celinski & Antoniazzi, 1999) is a 239-item, multi-purpose self-report questionnaire based on a symmetrical and bipolar conceptualization of an individual’s response to stress. It utilizes a 6-point Likert scale designating “0” as “Do Not Agree” and “5” as “Strongly Agree” with the intermediate intervals designated as “Mildly Agree,” “Somewhat Moderately Agree,” “Moderately Agree,” “Somewhat Strongly Agree,” and allowing for an individual’s response regarding his or her perception of their condition. There are 18 bipolar Clinical Scales each with positive (Health Promoting) and negative (Health Inhibiting) subscale
components. There are also two Validity Scales. Mean and Median RRI full scale alpha reliability is 0.91 (Positive SS=0.86, Negative SS=0.88). The sample that was used to validate RRI consisted of 182 Canadians who were victims of motor vehicle accidents.

Procedures

Participants were patients referred for psychological assessment at a private psychological practice following an accident (motor vehicle accident or work related injury). All the participants were referred for the assessment by their physician, their lawyer or the insurance company with the goal of assessing their level of functional impairment. A total of 178 patients were assessed using an extended battery of psychological tests, as well as, a clinical interview. Of the participants 104 completed the two questionnaires (RSOPAC and RRI) that are of interest for this study. They further completed other questionnaires including RSOPAC at a follow-up assessment 3 to 6 months later. In the present study, data is reported on the patients who completed RSOPAC and RRI at initial assessment (N=104) and RSOPAC at the follow-up assessment (N=38). The high attrition rate for the second group is due to a number of factors, such as no need for further assessment, other assessors chosen for a follow-up assessment, settlement of the claim, etc.

Three subscales of RSOPAC were used in this study in order to explore coping with emotional, cognitive and physical symptoms. Out of 18 bipolar clinical subscales of RRI, ultimately only two were used: positive emotion scale and negative emotion scale. Initially, other scales were considered as predictors of improved coping, such as ability to access social support, healthy attention to the body and focus on the present rather than the past, together with their health-inhibiting corresponding scales (lack of social support,
neglect of one’s bodily needs and preoccupation with the past). These six scales were left behind after the initial statistical analysis indicating a high level of multicollinearity.

All the information including the results of the above-mentioned testing materials was entered in the database on SPSS. For statistical analysis of the data, paired samples t-tests, independent t-tests and hierarchical regression analyses were used.
CHAPTER IV: RESULTS

Before performing any analysis, the data was screened for accuracy, missing values, and normality. Descriptive statistics were examined to ensure that all values were within the expected range. Tests of normality were performed for all variables. Histograms and Q-Q plots were also examined. All variables were normally distributed, and no outliers were detected.

Correlational Analysis

Initial Assessment

Table 3 presents the intercorrelations for all variables including demographic variables at the time of initial assessment. Three aspects of coping are differentiated, coping with emotional problems (emotional coping), coping with physical problems (physical coping) and coping with cognitive problems (cognitive coping). As predicted, the correlations among emotional, physical and cognitive coping at a given time are high (ranging from r=0.71 to r=0.79, p<.01). Among the demographic variables (gender, age, education, marital status and time since injury), age is the only variable that is weakly correlated to cognitive coping suggesting that as the age increases the cognitive coping decreases.

Hypothesis one (prediction 1a) is confirmed, i.e. there is a high, positive correlation between positive emotions and all three types of coping at a given time. Participants who report high ability to experience and utilize positive emotions also report better coping with emotional problems (r=.62, p<.001), physical problems (r=.48, p<.001) and cognitive problems (r=.48, p<.001).
The second hypothesis (prediction 2a) is not confirmed, namely negative emotions are positively correlated with less efficient coping in all three areas, although the effects are not as strong as those involving positive emotions. Participants reporting more intense and frequent negative emotions also report poorer coping with their emotional problems ($r=.38, p<.001$), their physical problems ($r=.31, p<.01$) and their cognitive problems ($r=.27, p<.05$).

Assessments at Time 1 and Time 2

Table 4 presents the intercorrelations of all the coping variables at two points in time. Of note is the fact that positive and negative affect were measured only at one time (the initial assessment). The predicted correlations between emotional coping at time one and emotional coping at time two can be observed in Table 4 ($r=.36, p<.05$). A significant positive correlation was obtained between physical coping at time one and physical coping at time two ($r=.47, p<.01$), as well as, between cognitive coping at time one and cognitive coping at time two ($r=.46, p<.01$). These correlations, however, are not as high as correlations among the coping measures administered at the same time. All three types of coping were highly positively correlated with each other at time one and all of them were highly positively correlated with each other at time two. When a change in coping was measured over time, the autocorrelations were observed, as predicted by the theory of Strack and Deutsch (2004), prediction 3, but were not as strong.

Table 5 focuses on the intercorrelations of all the coping variables in the smaller sample (N=38), the one that was later reassessed. Similarly to the larger sample, the predicted (i.e. positive) correlations between emotional coping, physical coping and cognitive coping are observed at the time of initial assessment. Significant positive
correlations were also obtained between emotional coping scores at two different times, emotional coping and physical coping at two different times and emotional and cognitive coping at two different times. The highest positive correlations at the time of final assessment are observed between the ability to cope with emotional problems and the ability to cope with cognitive problems. Second highest positive correlation is that between coping with physical problems at the time of final assessment and coping with cognitive problems.

Table 6 presents the means for different types of coping at two points in time (initial and final assessments). There was a significant change in coping with physical and cognitive problems from the time of the initial assessment to the time of the final assessment. The direction of the change indicated more effective coping in these two areas. Coping with emotional problems did not improve over time.

**Hierarchical Multiple Regression**

Hierarchical multiple regression is used to test the following: higher scores on the positive emotion scale of RRI will predict better coping in all three areas as time passes (prediction 1b) and higher scores on the negative emotion scale of RRI will predict better coping (prediction 2b). In other words, the use of emotion, both positive and negative will benefit the coping process, helping the individual to get a break from cognitive efforts. In three separate models, coping with emotional, physical and cognitive problems is analysed using hierarchical multiple regression. In block one of the first regression, demographic variables (age, gender, education, marital status and time since injury) are entered. These variables are used as control variables. Positive and negative emotions are entered in the second block.
Coping with Emotional Difficulties

Table 7 presents the results for coping with emotional difficulties. Demographics, entered in block one, account for 10% of the variance in emotional coping \((F(5, 96)=3.33 \ p<.008)\). Positive and negative emotions, entered in block two, add significantly to the model and account for 51% of the variance in emotional coping \((\Delta F(2, 94)=41.14, \ p<.000)\). The only two significant predictors are marital status and positive emotion, confirming prediction 1b. In support of findings from other studies, those who report experiencing more positive emotions also report less concern regarding their coping with emotional problems over time. Being married is also predictive of better coping with emotional problems.

Coping with Physical Difficulties

Table 8 presents the results for physical coping. Demographics, entered in block 1, account for 12% of the variance in cognitive coping \((F(5, 96)=2.52 \ p<.035)\). Positive and negative emotions, entered in block 2, add significantly to the model and account for 25% of the variance in cognitive coping \((\Delta F(2, 94)=18.74, \ p<.000)\). The significant predictors are positive emotion and marital status. Experiencing positive emotion predicts better coping with physical difficulties at a later time. Being married is also predictive of better coping with physical problems. Prediction 2b is not confirmed, i.e. accessing negative emotions does not seem to improve the ability to cope with emotional, physical or cognitive problems over time.

Coping with Cognitive Difficulties

Table 9 presents the results for cognitive coping. Demographics, entered in block 1, account for 8% of the variance in cognitive coping \((F(5, 96)=1.77 \ p<.127)\). Positive and
negative emotions, entered in block 2, add significantly to the model and account for 23% of the variance in cognitive coping ($\Delta F(2, 94)=15.90, p<.000$). The only significant predictor is the positive emotion and it predicts better coping with cognitive problems over a period of time.
CHAPTER V: DISCUSSION

The primary purpose of this study is to examine the association between emotions and coping in the context of loss following an MVA or a work-related injury. As predicted by the work of Baumeister et al. (1999), prolonged coping with a stressful situation exhausts the limited cognitive resources and requires one to find ways to rest in order to avoid further deterioration. The results suggest that emotions do in fact predict coping in significant ways and most likely provide such a break next to other resources mentioned by Baumeister, such as sleep. Using Fredrickson’s (1998, 2001) broaden-and-built theory, it was expected that positive affect would be highly positively associated with improved coping at the time of initial assessment, as well as, that it will predict better coping at a later time. Significant interactions are found indicating that study subjects note less difficulty with their coping at the same time as they report more positive affect. Utilizing positive emotions is also shown to predict better coping with emotional, physical and cognitive problems at a later time.

Negative affect is significantly correlated with worse coping in all three areas: emotional, physical and cognitive, but it does not have the same strength of predictive value as the positive affect. In general, success of coping at one time is correlated with coping efforts at a later time.

Several weaknesses underscore the importance of future replication of this study. The sample used here is a sample of convenience and therefore the design of the study was limited by the assessment battery used at initial contact with the participants. As an exploratory study regarding coping, emotions and resilience, the path undertaken seems to be the right one. However, with the exception of RSOPAC, the measures used in this
study were not specifically designed to measure emotions, or resilience. In order to confirm the value of positive emotions and further illuminate the role of negative emotions in the coping process, it would be helpful to utilize measures specifically designed to study emotions.

In this study, emotions, feelings and affect were referred to interchangeably. Emotions are but a subset of the broader class of affective phenomena (Fredrickson, 2001). Emotions are best conceptualized as multicomponent response tendencies that unfold over relatively short time spans. Affect refers to consciously accessible feelings. Although affect is present within emotion (as the component of subjective experience), it is also present within many other affective phenomena, including physical sensations, attitudes and moods. In order to further clarify how emotions influence coping, a more systematic approach needs to be taken. For example, in many of the studies relied on for generating hypotheses, emotions were often conceptualized and measured as fitting discrete categories (e.g. joy, interest), but affect is usually conceptualized as varying along two dimensions, i.e. positive and negative emotional activation (Tellegen, Watson, & Clark, 1999).

Resourcefulness for Recovery Inventory (RRI) is a broadband measure and one of its strengths is in presenting a comprehensive picture of resources that an individual possesses at a given time. In this case, individual scales were chosen (positive emotion and negative emotion), but it’s important to note that they were not designed to stand on their own and give a clear sense of one’s ability to use emotions. In fact, in the research quoted throughout this work and focusing specifically on affectivity, the measures used (such as PANAS, Positive and Negative Affectivity Schedule, Watson, Clark & Tellegen,
1988) tap much more directly into the emotional content than do the subscales of RRI. For example, in PANAS, specific terms are used to assess the level of positive activation or negative activation (such as active, alert, attentive, amused, angry, anxious), rated on a 5-point Likert scale. Similarly, researchers typically provided additional lists of emotions asked to be rated to directly assess the emotional state of participants. It is possible that by using the positive and negative emotion subscale of RRI, what was measured did not reflect the emotional state, but rather the cognitive appraisal of emotional state of the participants.

One way to approach emotions more specifically would be to follow the lead of Stanton and his colleagues, who have devised Emotional Approach Coping Scale (1998). This way more specific conclusions regarding the benefits and costs of emotional processing in relation to emotional expression can be further analysed. Feature studies may also test the two processes described by Stack and Deutsch (2004) – reflective and impulsive processing by methods more effective than questionnaires alone, for example by utilizing skin conductance and heart rate.

To understand the reason why prediction 2a was not supported, i.e. accessibility to negative emotions making it more likely to get a break from prolonged coping did not improve coping, the argument presented by Stanton and colleagues may be of help. As pointed out by Stanton, emotion-focused coping has bad reputation and there is a repeatedly demonstrated empirical association of emotion-focused coping with negative outcomes (Stanton, et al., 1994). He concludes that published emotion-focused scales are often confounded with negative symptomatology. For example, a confounded item on the scale measuring emotion-focused coping may merge coping and distress (e.g. “when I
get upset, I get very tense” as opposed to more neutral, “when I get upset, I am really aware of it”). In the current study, because negative and positive emotions were measured separately by two scales, it is possible that the use of positive emotions was not contaminated by distress pathology, but it is not as clear with regards to the negative emotions. Again, in the future, when studying emotional coping careful attention needs to be paid to how items are worded.

There are many problems associated with the sample used in this study. Firstly, the number of subjects assessed at time two was quite small (38 vs. 104 assessed initially) and this high attrition rate prevented the author from conducting regression analysis at the time of the second assessment. Secondly, for most of the subjects, the assessments conducted at a private practice office were tied to litigation and this introduced a number of obstacles with regards to the presentation of the subjects. Possible malingering and symptom exaggeration always need to be taken into consideration with this type of population. This problem may have interfered especially in regards to the correlation between the negative emotions and poorer coping. Thirdly, individual differences were not attended to in this study. It would be useful to include information regarding personality traits, as well as, diagnoses of the subjects who participated in the model predicting coping. Individual differences may account for the level of defensiveness observed in participants and help to understand in more depth how emotions were regulated or utilized for one’s advantage in coping. Finally, it would be difficult to generalize results obtained here, because of the modest size of the sample and because of the specific set of circumstances accompanying these particular subjects.
Moving on to the construct of resilience, which was approached here from a theoretical level with no direct measures of resilience applied. The emotions measured and analysed were important resources belonging to an individual, but as explained earlier, resourcefulness was not seen as equivalent to resilience. The attempt to approach the use of emotions in coping and at the same time elucidate the construct resilience may have been somewhat overly ambitious. Study of resilience could be done more directly by utilizing measures designed for the construct. Measures of resilience that could be used in the future include self-report scale of psychological resilience (J. Block & Kremen, 1996) or more recent, Resilience to Trauma Scale (Celinski, Salmon & Allen, 2006).

When studying resilience, individual differences together with situational context need to be much more clearly elaborated. For example, it is essential to differentiate between those who met the criteria for post-traumatic stress disorder with those for whom the nature of the aversive event was possibly not as traumatic. This distinction is deemed important in light of the way resilience is conceptualized here, especially with regards to the way individuals organize their self-knowledge to buffer the effects of unexpected, unwanted events. When it comes to the preference of integration over compartmentalization, research done thus far recommends differentiating between those who were in crisis and those who were not.

It is likely that taking more variables into consideration rather than limiting the study to subjects’ perception of coping, their use of emotions and some demographic information would prove beneficial when it comes to resilience. For example, it would have been helpful to measure subjects’ perception of the impact of the injury on their
lives, as well as, to take a look at their past to see if they have ever had a chance to overcome something of similar proportions. Celinski, Salmon and Allen (2006) designed a measure tapping more directly into the concept of resilience (Resilience to Trauma Scale), where the appraisal of the recovery is measured together with subjects’ pre-traumatic self-image.

Although the above mentioned limitations must be considered seriously, several of the experimental findings offer important directions for future research. The question of possibility of more optimal adjustment in the midst of intense emotions can be approached from the point of view of Kazimierz Dabrowski, the author of the Theory of Positive Disintegration. According to Dabrowski, "The propensity for changing one's internal environment and the ability to influence positively the external environment indicate the capacity of the individual to develop. Almost as a rule, these factors are related to increased mental excitability, depressions, dissatisfaction with oneself, feelings of inferiority and guilt, states of anxiety, inhibitions, and ambivalences” (Dabrowski, 1964, p.112). He goes on to say that as long as there is evidence of active struggle in the direction indicative of a higher level of understanding of one’s circumstances and regaining some form of control over them, the process itself is indicative of mental health.

The results of this study show improvement in subjects’ ability to control their physical symptoms (such as chronic pain) and cognitive problems (such as lack of concentration) even though, the participants remain emotionally upset. Their coping with emotional problems (such as anxiety and depression) continues to present them with obstacles. As such these results do not necessarily indicate increased pathology, what
they point out is evidence of ongoing struggle, one outcome of which is resilience, or increased ability to tolerate uncertainty without losing hope and stamina.

In DSM-IV-TR we find the definition of defense mechanisms (or coping styles) as “automatic psychological processes that protect the individual against anxiety and from the awareness of internal or external dangers or stressors” (p.807). Looking more closely at the types of defense mechanisms once can see how integration is favoured. According to the different defense levels listed in DSM-IV-TR for the purpose of further study, there are seven levels ranging from a highly adaptive one to a level of defensive disregulation leading to a pronounced break with objective reality. With regards to optimal adaptation, defenses that are listed, such as affiliation, altruism, humor, anticipation, self-observation, sublimation, suppression – can be seen as ways to foster connection to others by monitoring of oneself and, to a great extent, self-control. However, this study points out that when coping with stressful events, one may not have the resources needed to engage in such demanding processes as affiliation or suppression. Regression into more primitive defenses needs to be considered in the context of movement of the individual through a difficult period of life. As clinicians, we cannot look at defenses as good or bad, we need to acknowledge their existence and the role they play at a given time, fostering the integration process by acknowledging that at a given time the individual may not be capable of using cognitive functioning to integrate information.

As seen in previous research, when passively coping, i.e. controlling one’s reactions in light of very limited control of other aspects, one’s cognitive resources do get exhausted. As dual-processing theories imply (Strack and Deutsch, 2004) – clinicians need to acknowledge that reflective function can be disengaged and be able to intervene
at the emotional level, which is more automatic and characterized by a general approach or avoidance motivation. If approach is to be maintained, acknowledgement of negative emotions together with strengthening of the positive ones is advisable. The positive emotions in the midst of stress allow one to keep the negative feelings present, which overall leads to a more realistic, appropriate perception of the environment. Two co-existing preconditions seem to describe individuals who are resilient: their ability to recognize the effects of stressful situations and to experience positive outcomes despite sources of adversity (Masten, 2001).

The differentiation between those individuals who have the potential to remain or become resilient and those who are most likely to crumble in light of pressure is very important when it comes to intervention. There will be a set of people, and hopefully future research can differentiate this group more adequately than it’s been done here, who will be able to sustain enough motivation (mainly by using emotions to allow themselves time to process the impact of changes in their lives) and these people will have a chance to grow.

Bonanno, et al. (2002) discusses a small group of resilient individuals who have improved following the death of their spouses. At pre-bereavement, members of the improved group had spouses who were ill, were highly depressed, neurotic, and introspective; had more conflicted, ambivalent marriages; and believed that they were treated less fairly in life than other people. A follow up indicated that they showed no adverse reactions through 18 months of bereavement, gave little indication of denial or avoidance, perceived greater benefits to widowhood, gained increasing comfort from
positive memories of their spouses over time, and reported that they too were somewhat
surprised by their own coping efficacy.

Dabrowski referred to continuous opportunities for advancement of one’s
understanding and autonomy, frequently following a disintegration of some form as an
invitation to re-evaluate one’s choices. Resilience is not about some form of a neat,
quick adjustment. At its core, there seems to be a crisis followed by a clearer sense of
who one is and where one is going, or in other words, increased sense of coherence, self-
efficacy and a sense of meaning.
References


Table 1

Demographic Data for the Sample at the Initial Assessment (N = 104)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
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<tr>
<td>Male</td>
<td>48</td>
<td>46%</td>
</tr>
<tr>
<td>Female</td>
<td>56</td>
<td>54%</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>30</td>
<td>29%</td>
</tr>
<tr>
<td>Married</td>
<td>51</td>
<td>49%</td>
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<tr>
<td>Divorced</td>
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<td>9%</td>
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<tr>
<td>Widowed</td>
<td>10</td>
<td>9%</td>
</tr>
<tr>
<td>Other</td>
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<table>
<thead>
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<th>Maximum</th>
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<tbody>
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<td>12.82</td>
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<td>80.00</td>
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<tr>
<td>Education</td>
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<td>15.81</td>
<td>1.00</td>
<td>75.00</td>
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Table 2

*Demographic Data for the Sample at the Final Assessment (N = 38)*

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<th>N</th>
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<tr>
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<td>53%</td>
</tr>
<tr>
<td>Female</td>
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<td>47%</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
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<td></td>
</tr>
<tr>
<td>Single</td>
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<td>24%</td>
</tr>
<tr>
<td>Married</td>
<td>20</td>
<td>53%</td>
</tr>
<tr>
<td>Divorced</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Widowed</td>
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<tr>
<td>Other</td>
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<table>
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<th>SD</th>
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<th>Maximum</th>
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</thead>
<tbody>
<tr>
<td>Age</td>
<td>41.39</td>
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<tr>
<td>Time since Injury</td>
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<td>1.00</td>
<td>74.00</td>
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Table 3

*Correlations of Variables at the Initial Assessment (N=104)*

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<th>7</th>
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<th>10</th>
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<tr>
<td>1. Emotional Coping</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Physical Coping</td>
<td>0.79***</td>
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<tr>
<td>3. Cognitive Coping</td>
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<td>0.71**</td>
<td>-</td>
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</tr>
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<td>-0.01</td>
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<td>-0.05</td>
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<td>-0.17</td>
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<td>0.05</td>
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<td>9. Positive Emotion</td>
<td>0.62***</td>
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<td>0.48***</td>
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<tr>
<td>10. Negative Emotion</td>
<td>-0.38***</td>
<td>-0.31**</td>
<td>-0.27*</td>
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<td>0.03</td>
<td>0.09</td>
<td>0.00</td>
<td>0.07</td>
<td>-0.48***</td>
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*p<.05  **p<.01  ***p<.001
Table 4

*Correlations of Variables at the Initial (N=104) and Final (N=38) Assessments*

<table>
<thead>
<tr>
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<th>1</th>
<th>2</th>
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<td>2.</td>
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<td>3.</td>
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<tr>
<td>5.</td>
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<tr>
<td>6.</td>
<td></td>
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<tr>
<td>7.</td>
<td></td>
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</tr>
<tr>
<td>8.</td>
<td></td>
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<td></td>
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</table>

*p<.05  **p<.01  ***p<.001
Table 5

*Correlations of Variables at the Initial and Final Assessments for N=38*

<table>
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<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Emotional Coping (I)</td>
<td>-</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Physical Coping (I)</td>
<td>0.33*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Cognitive Coping (I)</td>
<td>0.33*</td>
<td>0.20</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4. Emotional Coping (F)</td>
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<td>0.13</td>
<td>0.25</td>
<td>-</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>5. Physical Coping (F)</td>
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<td>0.18</td>
<td>0.27</td>
<td>0.76**</td>
<td>-</td>
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<tr>
<td>6. Cognitive Coping (F)</td>
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<td>0.24</td>
<td>0.90**</td>
<td>0.78**</td>
<td>-</td>
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</tr>
<tr>
<td>7. Positive Emotion</td>
<td>0.51**</td>
<td>0.08</td>
<td>0.86**</td>
<td>0.34*</td>
<td>0.39*</td>
<td>0.35*</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>8. Negative Emotion</td>
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<td>0.00</td>
<td>-0.82**</td>
<td>-0.39*</td>
<td>-0.35*</td>
<td>-0.37*</td>
<td>-0.84**</td>
<td>-</td>
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</table>

*p<.05  **p<.01
Table 6
Comparison of Coping Means for the Initial and Final Assessments

<table>
<thead>
<tr>
<th></th>
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<th>Final Assessment</th>
<th>t</th>
<th>df</th>
<th>p</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>Emotional Coping</td>
<td>46.42</td>
<td>13.35</td>
<td>34.84</td>
<td>14.35</td>
<td>4.56</td>
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<tr>
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<td>10.85</td>
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<td>Cognitive Coping</td>
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<td>15.76</td>
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</table>

Note.  n=38  * p<.05  **p<.01
Table 7

*Hierarchical Regression Analysis for Predicting Emotional Coping at the Initial Assessment* (N=104)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE (B)</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Sex</td>
<td>5.66</td>
<td>3.16</td>
<td>0.17</td>
</tr>
<tr>
<td>Age</td>
<td>0.11</td>
<td>0.13</td>
<td>0.09</td>
</tr>
<tr>
<td>Years of education</td>
<td>0.19</td>
<td>0.55</td>
<td>0.03</td>
</tr>
<tr>
<td>Marital status</td>
<td>-9.75</td>
<td>3.32</td>
<td>-0.30**</td>
</tr>
<tr>
<td>Time since injury</td>
<td>-0.11</td>
<td>0.10</td>
<td>-0.11</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive emotion</td>
<td>0.55</td>
<td>0.08</td>
<td>0.57***</td>
</tr>
<tr>
<td>Negative emotion</td>
<td>-0.13</td>
<td>0.08</td>
<td>-0.13</td>
</tr>
</tbody>
</table>

*Note. R² = .15 for Step 1; Δ R² = .40 for Step 2 (p<.01). ** p<.01    *** p<.001.*
### Table 8

**Hierarchical Regression Analysis for Predicting Physical Coping at the Initial Assessment**
(N=104)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE (B)</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>2.63</td>
<td>2.03</td>
<td>0.13</td>
</tr>
<tr>
<td>Age</td>
<td>0.09</td>
<td>0.08</td>
<td>0.12</td>
</tr>
<tr>
<td>Years of education</td>
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<td>0.35</td>
<td>-0.04</td>
</tr>
<tr>
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<td>-4.42</td>
<td>2.13</td>
<td>-0.21**</td>
</tr>
<tr>
<td>Time since injury</td>
<td>-0.12</td>
<td>0.06</td>
<td>-0.19</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive emotion</td>
<td>0.27</td>
<td>0.06</td>
<td>0.45***</td>
</tr>
<tr>
<td>Negative emotion</td>
<td>-0.07</td>
<td>0.06</td>
<td>-0.11</td>
</tr>
</tbody>
</table>

*Note. R² = .15 for Step 1; ∆R² = .40 for Step 2 (ps<.01). ** p<.01  *** p<.001.*

Table 9
Hierarchical Regression Analysis for Predicting Cognitive Coping at the Initial Assessment (N=104).

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE (B)</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>2.16</td>
<td>1.38</td>
<td>0.16</td>
</tr>
<tr>
<td>Age</td>
<td>0.11</td>
<td>0.06</td>
<td>0.20</td>
</tr>
<tr>
<td>Years of education</td>
<td>-0.04</td>
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</tr>
<tr>
<td>Marital status</td>
<td>-1.54</td>
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<td>-0.11</td>
</tr>
<tr>
<td>Time since injury</td>
<td>0.01</td>
<td>0.04</td>
<td>0.03</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Positive emotion</td>
<td>0.17</td>
<td>0.04</td>
<td>0.43**</td>
</tr>
<tr>
<td>Negative emotion</td>
<td>-0.04</td>
<td>0.04</td>
<td>-0.10</td>
</tr>
</tbody>
</table>

Note. $R^2 = .15$ for Step 1; $\Delta R^2 = .40$ for Step 2 ($ps<.01$). ** $p<.01$, *** $p<.001$. 