

THE INFLUENCE OF MEANING MAKING ON DISTRESS AND WELL-BEING
FOLLOWING SPINAL CORD INJURY: A CROSS-SECTIONAL
EXAMINATION WITH MILITARY VETERANS

by

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ABSTRACT
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Marquette University, 2008

There are many risk factors that have been linked with distress following a traumatic spinal cord injury. Peritraumatic variables such as perceived life threat and dissociation have been associated with an increased risk for posttraumatic stress disorder (PTSD). The conservation of resources theory proposes that it is the loss of resources (e.g., material possessions, personal characteristics, finances) that contributes to both depression and PTSD. Appraisal processes such as global and situational meaning making have been documented as both inhibiting and facilitating posttrauma psychological health. However, research has not been conducted that combines the injury characteristics, resource loss, and meaning making influences on psychological outcomes with individuals who have experienced a spinal cord injury. This study proposes and evaluates a new model of posttrauma psychological outcomes that is based on these identified traumatogenic factors by emphasizing the individual perspective through narratives.

Eighty-five spinal cord injured veterans completed semi-structured interviews assessing perceived loss of physical, personal, and energy resources; level of global meaning; PTSD; depression; and psychological well-being. Objective ratings of level and completeness of spinal cord injury were retrieved from medical records to calculate injury severity. Additionally, narratives were generated in response to open-ended questions about meaning and impact of the injury, identity and autobiography formation, and coping efficacy. This study utilized a mixed-method approach that involved a grounded theory qualitative evaluation of situational meaning making narratives. Also, quantitative analyses were used to investigate the influence of injury severity, loss of resources, and meaning making on psychological outcomes post-injury.

Results revealed that the variables of interest did not differ across time since injury. Resource loss was positively associated with depression and PTSD and negatively associated with psychological well-being. However, the severity of the spinal cord injury was not associated with psychological outcomes, even though this directly relates to functionality. Global meaning and resource loss were significant predictors of psychological outcomes. Finally, consistent situational meaning making themes were generated describing causal attributions, degree of life change, identity loss and integration, and post-injury growth. Implications of these findings related to factors that are associated with quality of life and human resiliency are discussed, as are suggestions for psychological intervention.

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	i
LIST OF TABLES.....	vi
LIST OF FIGURES.....	vii
CHAPTER	
I. INTRODUCTION.....	1
A. A Proposed Model of Trauma Meaning.....	2
B. Severity of Traumatic Injury.....	4
C. Resource Loss.....	6
D. Meaning Making.....	8
E. Psychological Outcomes following Trauma.....	13
a. Posttraumatic stress reactions.....	14
b. Depression.....	18
c. Psychological well-being.....	20
F. Hypotheses – Phase I.....	21
G. An Open Exploration of Meaning Making.....	22
H. Grounded Inquiry - Phase II.....	26
II. METHODOLOGY.....	28
A. Study Site and Participants.....	28
B. Procedure.....	29
C. Measures.....	30
a. Demographic Information.....	30
b. Time Since Injury.....	30
c. Medical Injury Severity.....	30
d. Conservation of Resources – Evaluation.....	31
e. Purpose in Life.....	32

	f. PTSD Checklist, Civilian Version.....	32
	g. Zung Self-Rating Depression Scale.....	33
	h. Psychological Well-Being.....	33
	i. Meaning Making Narrative.....	34
	j. Grounded Theory.....	35
	k. Coding.....	36
III.	RESULTS.....	43
	A. Overall Plan of Analyses.....	43
	B. Injury and Medical Characteristics.....	44
	C. Group Differences.....	44
	D. Correlations.....	48
	E. Regressions.....	49
	a. PTSD.....	50
	b. Depression.....	51
	c. Psychological Well-Being.....	51
	F. Qualitative Results.....	53
	G. Exploratory Analyses.....	53
IV.	DISCUSSION.....	57
	A. Quantitative Results.....	57
	a. PTSD.....	57
	b. Depression.....	58
	c. Psychological Well-Being.....	59
	d. Injury Severity and Loss of Physical Functioning.....	60
	e. Relationship between global meaning and psychological well-being.....	63
	B. Findings from Qualitative Exploration.....	64

C. Implications for Clinical Intervention.....68

D. Study Limitations.....69

E. Summary and Future Directions.....71

REFERENCES.....72

PREVIEW

LIST OF TABLES

Table 1	Qualitative Categories of Meaning Making from SCI Narratives.....	39
Table 2	Cause of Injury, Medical Status at Time of Interview, Age at Injury, Income, and Education Across Injury Type	45
Table 3	Means and Standard Deviations for Group Differences across Injury Type Assessed by Two-Way ANOVAs.....	47
Table 4	Differences between Single Event Injury and Medical Illness Spinal Cord Injury Utilizing an Independent Samples T-Test.....	48
Table 5	Correlations between Measures of Psychological Outcomes, Resource Loss, and Global Meaning.....	49
Table 6	Simultaneous Regression with Variables Predicting PTSD.....	51
Table 7	Simultaneous Regression with Variables Predicting Depression.....	52
Table 8	Simultaneous Regression with Variables Predicting Psychological Well-Being.....	52
Table 9	Meaning Making Narrative Categories with Frequencies, Means, and Percent Endorsement.....	54
Table 10	Correlations between Meaning Orientations with Injury, Resource Loss, and Outcome Variables	56

LIST OF FIGURES

Figure 1 The Dynamic Model of Posttrauma Distress.....3

PREVIEW

The Influence of Meaning Making on Distress and Well-Being Following Spinal Cord Injury: A Cross-Sectional Examination with Military Veterans

The impact of spinal cord injury (SCI) can be drastic, immediate, and life altering.

Depending on the severity of the injury, physical and functional limitations will ensue and be long lasting. Those who are living with a spinal cord injury will have to make employment (e.g., change or leave their job), social (e.g., marriage and friendship patterns), and functional (e.g., limit activities based on accessibility) changes that may alter the individual's identity, view of self in relation to others, and enjoyment derived from life. Potentially more drastic are the bodily changes that occur for an individual living with a SCI, including not being able to control bowel, bladder, and sexual functioning. Even with adaptations and medical advances, individuals may have to spend more time preparing for and engaging in activities compared to those who are not living with a spinal cord injury. Such changes can trigger stress and loss reactions (Martz, 2005) to the event that caused the injury and the long-term, continuous consequences of the SCI. It is an event rife with potential to lessen one's quality of life. Yet, the empirical literature presents a complex picture that does not easily allow for prediction of psychological distress and well-being following SCI. Many survivors of spinal cord injury report moderate to even high levels of psychological well-being (Matheis, Tulsy, & Matheis, 2006), while others report psychological distress, such as depression (e.g., Nielson, 2003) and posttraumatic stress disorder (PTSD; e.g., Goldman, Radnitz, & McGrath, 2008), since many SCIs are the result of single incident traumas.

This study will demonstrate the nature of positive and negative psychological outcomes following SCI utilizing a multi-method, multi-construct approach. The SCI and its sequelae are conceptualized within the context of a potentially traumatic event (PTE). First, a quantitative investigation of the relationships between injury characteristics, loss of resources, and global meaning are presented. Also, the strength of these variables as predictors of posttrauma psychological outcomes is examined. The psychological outcomes were evaluated as separate constructs of PTSD, depression, and well-being, to determine unique prediction of each outcome.

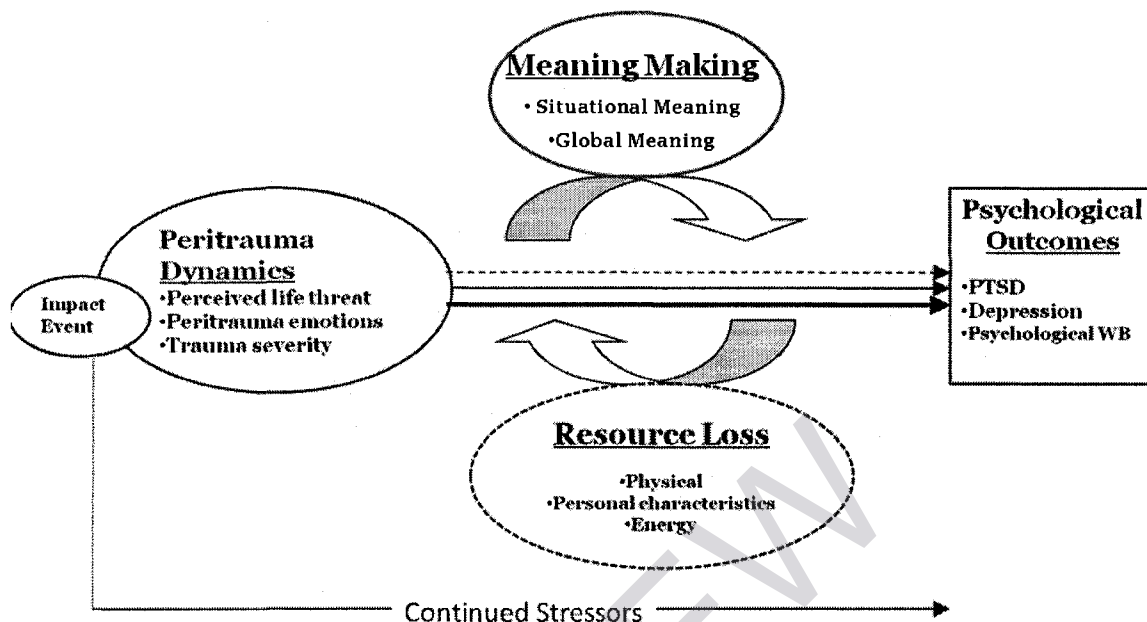
Second, a qualitative approach utilizing grounded theory demonstrated the meaning making themes generated by SCI survivors following the injury and its aftermath. This person-centered, open exploration of trauma appraisals provides both empirical and clinical evidence for prioritizing meaning making as central to the recovery process. This study will determine those variables that impact psychological outcomes following a potentially traumatic event. But first, understanding the recovery process following SCI is presented within the context of the new model of posttrauma adjustment. Components of this model are analyzed for this study as the first investigation of the combined influence of injury variables, resource loss, and meaning making in a SCI population. A discussion of the variables of interest, the hypotheses, results, and discussion for the current study are explained subsequently.

A Proposed Model of Trauma Meaning

At best, research has demonstrated that the risk factors assessed to predict psychological distress post-trauma, individually and combined, only account for approximately 20% of the total variance of psychological outcomes following a potentially traumatic experience (Ozer, Best, Lipsey, & Weiss, 2003). This leaves much variation in psychological outcomes to be explained and accounted for, which may be attributable to individual differences. What is missing in the literature is a larger theoretical edifice that affords us a more comprehensive understanding of what factors are associated with subjective quality of life and psychological distress after one has survived a spinal cord injury. The Dynamic Model of Posttrauma Distress (Figure 1) recognizes the collective importance of the peritrauma reaction and loss of resources while systematically investigating the global and situational process of meaning making that survivors engage in to make sense of a traumatic experience.

Once individuals experience a PTE, cognitive appraisals and coping strategies immediately follow which ultimately send the person down different trajectories of symptom patterns. Posttraumatic stress reactions can develop and eventually fade, continue, or worsen

Figure 1. The Dynamic Model of Posttrauma Distress



with time since the occurrence of the impact event. What may determine this differential responding to PTEs are the characteristics of the trauma environment (considered to be peritraumatic characteristics), the loss of items, bodily functions, personal characteristics and energies (conceptualized as loss of resources), and the meaning or purpose in life that one generates posttrauma. In the sections that follow, the theoretical and empirical connections are drawn between characteristics of the traumatic experience, resource loss, and meaning making that influence psychological outcomes following a PTE for spinal cord injured individuals. Although this model in the current study is being tested on a sample of spinal cord injured survivors of single incident trauma and medical illness, this study is cross-sectional. Therefore, it is not possible to reliably measure information from the peritrauma environment given the range of time since injury. Because of this, the investigations in this study are focused on establishing the relationship between meaning making and resource loss with psychological outcomes for individuals who have experienced a potentially traumatic event and chronic disability.

Severity of Traumatic Injury

After discharge, physical injuries may serve as constant reminders of the potentially traumatic event. Martz and Cook (2001) found that people with physical impairments following a PTE, including spinal cord injury survivors, are more likely to experience PTSD compared to those who experienced a traumatic event without an injurious outcome. Individuals who suffer from ongoing medical problems have a higher chance of a PTSD diagnosis (Blanchard et al., 1997; Ehlers, Mayou, & Bryant, 1998; Mayou, Bryant, & Duthie, 1993; Mayou, Tyndel, & Bryant, 1997). PTSD severity with individuals living with a SCI has been associated with completeness of the injury (Nielson, 2003) and the severity of the disability (Martz, 2005). Unfortunately the findings of injury severity or impairment as a risk factor for poor psychological outcomes are somewhat inconclusive and unclear for both SCI and non-SCI trauma populations. Studies with hospitalized trauma survivors have not found injury severity to predict PTSD symptoms at one, three, four, or 12 months post trauma (Richmond, & Kauder, 2000; Shalev, Peri, Canetti, & Schreiber, 1996; Zatzick et al., 2002). In a study with 286 persons with spinal cord injury, injury severity was not related to psychological outcomes, including depression (Krause & Dawis, 1992).

The inconsistent findings related to severity of SCI may be a direct result of the lack of a reliable and valid measurement of injury severity. Some studies use group difference analyses based on the level of the spinal cord (lumbar, thoracic, cervical; e.g., Crewe & Krause, 1990) as a marker of severity without considering the completeness of the injury. Studies have also used completeness of the injury as a severity index (e.g., Herrick, Elliot, & Crow, 1994). Still others have considered both of these variables, but separately (e.g., level of injury, completeness of injury) without combining the two to determine a total injury severity score (Dryden et al., 2005). The ASIA (American Spinal Cord Injury Association) rating scale is used by medical personnel to diagnose completeness of the injury for the purpose of communicating functional limitations.

Documented along with ASIA scores is usually the level of the injury on the spinal cord, which informs the patient and medical personnel about the nerves, organs, extremities, and bodily functions potentially affected by the injury. A comprehensive continuous score is needed to represent the combined severity and level of the injury in order for more sophisticated analyses of this component of the injury.

Even though the severity of the injury may have a direct relationship with quality of life, what may be a more relevant and consistent factor is the individual perception of that loss, including the awareness and understanding of one's loss of physical abilities. This is important as SCI survivors have to consider functional ability when attempting daily tasks, which could impact resources, such as income, material possessions, and social support. The emphasis in this line of research on the objective or medical severity of the injury fails to consider the importance of the patient's subjective evaluation of what has been lost due to the injury. The perceived loss of physical functioning may indeed be more significant than the medical severity of the injury itself.

Physical abilities can be conceptualized as one type of resource that people need to function on a daily basis. Being able to function physically allows for engagement in life activities that help to acquire other resources. For example, because someone can walk, they are able to (without much effort) get to work, where they expend resources (such as effort) to acquire other resources (payment for the work), which in turn are used to gain additional resources (such as a home). When an individual takes the perspective that they have lost a great amount and physical abilities are limited, this perception will prevent them from being able to function as they once did prior to the SCI. Consequently, one's own discernment of loss of physical functioning can impact the survivors' ability to continue with daily tasks, which in turn could affect other resources. In the section that follows, the conservation of resources (COR) theory is presented in detail as the conceptual premise for some aspects of psychological distress following traumatic injury.

Resource Loss

The life of a person who has suffered a traumatic injury and subsequent chronic disability will undoubtedly change. Survivors of a SCI may have to stop working for an unknown amount of time or change jobs completely, may be unable to invest time with friends and family, will have to learn to function with a significant disability, and may not be able to participate in the activities they once enjoyed. Hobfoll (1989) suggests that this can increase the likelihood of psychological distress for individuals who have experienced a traumatic injury because the single underlying motivating tenet for individuals is to obtain, retain, and protect the resources that they value.

The conservation of resources (COR) theory posits that stress can increase when resources are threatened, when resources are lost, or when there is no adequate increase of resources following attempts to regain loss (Hobfoll, 1991). Resources can include objects (e.g., a car, a house), conditions (e.g., a stable marriage, secure work), personal characteristics (e.g., mastery, high-self esteem, social skillfulness), and energies (e.g., knowledge, credit, insurance). Objects are resources to the extent they meet survival needs or to the extent they have acquired value through demand and scarcity and are basic building blocks of well-being (Hobfoll & Lilly, 1993). Conditions provide access to other key elements of survival and can ensure stability, love and affection, status, and privilege. Characteristics associated with the person are resources to the extent that they are prized aspects of the self (e.g., self-esteem, sense of mastery) or to the extent they provide access to other valued states (e.g., social aplomb, job skills). Finally, energies (e.g., money, credit, and knowledge) are resources to the extent that they enhance access to objects, conditions, or personal resources. For example, money and knowledge are of value because they can be used to obtain objects, enhance conditions, or increase personal resources.

Based on COR theory, traumatic stress causes a dramatic loss of resources, many of which are most valued by individuals, such as a sense of well-being, the well-being of a loved

one, trust, and a sense of control over one's life (Hobfoll, 1991). Rapid resource loss occurs because traumatic events are often unexpected, make excessive demands, are outside the realm for which resource utilization strategies have been developed, and leave a powerful mental image that is easily evoked by cues associated with the event. For SCI survivors, susceptibility to resource loss due to the PTE itself often occurs in addition to resource loss as a result of experiencing such a drastic change in physical abilities. The loss of physical resources can initiate a cascade of resource loss in other areas, including financial, personal, and social support.

This idea of loss spiraling is based on COR theory, which suggests that loss has a primacy effect and is more heavily weighted than gain (Tversky & Kahneman, 1981; Hobfoll & Lilly, 1993) because it is more closely related to the threat of survival, as loss increases vulnerability. Based on this idea, loss is the essence of stress. When loss is experienced, an individual must invest resources in order to obtain, retain, and protect resources. Research has demonstrated that those who are able to invest resources more successfully can resist the more negative impact of stressful circumstances than those who either lack or misuse resources (Hobfoll, Nadler, & Lieberman, 1986; Hobfoll & Lerman, 1989). When a person experiences a traumatic spinal cord injury, resources can be cut so rapidly, deeply, and broadly that the arsenal of coping responses is damaged in a way that leaves him or her much less capable of responding to stress and regaining lost resources.

One study conducted with survivors of natural disasters found that flood exposure is related to psychosocial resource loss, which is in turn related to psychological distress (Smith & Freedy, 2000). In this particular study, resource loss was evaluated solely as psychosocial resource loss, which was defined as a loss of routine, control, optimism, goal accomplishment, and time with loved ones. Resource loss has been shown to predict psychological distress, including PTSD and depression, for hurricane survivors (Benight et al., 1999; Freedy, Shaw, Jarrell, & Masters, 1992; Kaiser, Sattler, Bellack, & Dersin, 1996), earthquake survivors (Freedy,

Saladin, Kilpatrick, Resnick, & Saunders, 1994), and other natural disaster survivors (Canino, Bravo, Rubio-Stipec, & Woodbury, 1990; Lima, Pai, Santacruz, & Lozano, 1991; Shore, Tatum, & Vollmer, 1986).

Yet, what happens when someone loses resources that can not be regained? Survivors of a natural disaster can eventually rebuild, regain material possessions and household items, and can slowly re-establish their communities. However, when an individual is in a motor vehicle crash and the spinal cord is severed, this results in an extreme loss of physical resources, including the ability to walk. And, no amount of physical therapy will regain those physical resources. To date, research on resource loss has not been conducted with survivors of a SCI. This leaves a large gap in understanding how SCI survivors view physical abilities and how this perception becomes a part of psychological adjustment. In order to persevere after the loss of physical functioning, cognitive appraisal processes undoubtedly play a role in conceptualizing how to live with a SCI. Such a dramatic life change may shatter assumptions and beliefs about one's worldview (Janoff-Bulman, 1992) and leave one to question self-identity. Conversely, change in one's life may not be overwhelming but instead viewed as manageable, while maintaining identity congruence. The section that follows describes the concept of meaning and purpose in life as an appraisal process that helps to buffer psychological distress and even enhance quality of life, following a PTE.

Meaning Making

The importance of the perception of the individual throughout the PTE and its sequelae has developed as an essential factor related to posttrauma distress (Park & Folkman, 1997). Humans can struggle with the life chaos that emerges following a traumatic event, whether it is the unreality of the devastating events that occurred, the incomprehensible life circumstances that now confront them, or the internal pandemonium that is frightening and unfamiliar. Because traumatizing events lead to a breakdown of temporal coherence and order, the need to reconstruct

meaning and a sense of identity becomes salient. Based on stress and coping theory (Folkman, 1997; Lazarus & Folkman, 1984), meaning making is incorporated into the appraisal process, which is defined as the evaluation of the personal significance of an experience. Appraisals, along with coping, determine psychological outcomes following stress. The meaning making appraisal process is thought of as fostering the relationship between the self, identity, and social structures in an attempt to make sense of the PTE and its sequelae (Crossley, 2000). This is conducted through a cognitive/emotional system of appraisals about the nature of the event or as an existential search for sense making and purpose in life (Armour, 2003). Meaning making incorporates a person's life circumstances and contexts, such as culture, gender, and other person characteristics, toward an interpretation of the potentially traumatic event.

Park and Folkman (1997) point out that there is much diversity with the conceptualization and operationalization of meaning making, but that over time two major types of meaning making have evolved: global meaning (world views, personality, and coping styles) and situational meaning (appraisals of the traumatic event). Global meaning refers to a person's beliefs and assumptions about the world, including the justification for negative and positive life events (Janoff-Bulman, 1992; Pargament & Hahn, 1986; Wortman & Silver, 1992). This involves a motivational component that has to do with progress and orientation toward life goals and purpose that organizes, justifies and directs a person's motivation (Antonovski, 1987). Global meanings are thought to be relatively stable, having been developed through childhood and reinforced throughout life (Collie & Long, 2005).

When a disruptive life event is so extreme it violates previously held expectations and beliefs in irreconcilable ways, a person may have to engage in the difficult process of rebuilding a sense of global meaning (Janoff-Bulman, 1995). Survivors may be required to convert world views, drastically alter goal hierarchies, or engage in a religious conversion (Park & Folkman, 1997). Intermediary strategies may be enlisted to maintain stability, such as creating linkages