

**The Impact of Traumatic Events and Symptoms of Posttraumatic Stress Disorder:
Beyond DSM-IV**

By

Solange T. Lavack-Pambrun

M. A. Thesis

Department of Psychology

University of Manitoba

Winnipeg, Manitoba

(c) Solange T. Lavack-Pambrun, 2000



National Library
of Canada

Acquisitions and
Bibliographic Services

395 Wellington Street
Ottawa ON K1A 0N4
Canada

Bibliothèque nationale
du Canada

Acquisitions et
services bibliographiques

395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file Votre référence

Our file Notre référence

The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

0-612-56135-6

THE UNIVERSITY OF MANITOBA
FACULTY OF GRADUATE STUDIES

COPYRIGHT PERMISSION PAGE

**The Impact of Traumatic Events and Symptoms of Posttraumatic Stress Disorder:
Beyond DSM-IV**

BY

Solange T. Lavack-Pambrun

**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University
of Manitoba in partial fulfillment of the requirements of the degree
of
Master of Arts**

SOLANGE T. LAVACK-PAMBRUN © 2000

Permission has been granted to the Library of The University of Manitoba to lend or sell copies of this thesis/practicum, to the National Library of Canada to microfilm this thesis/practicum and to lend or sell copies of the film, and to Dissertations Abstracts International to publish an abstract of this thesis/practicum.

The author reserves other publication rights, and neither this thesis/practicum nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

Abstract

Posttraumatic stress disorder (PTSD) has gained credibility since its introduction in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III; American Psychiatric Association, 1980), and has become the subject of an extensive literature. The definition of Criterion A, the traumatic event, is the source of on-going debates because it serves as a gate to the diagnosis of PTSD. More specifically, if an individual has not experienced the required traumatic event, then it is of little importance whether all of the other criteria are met because the individual cannot be diagnosed with PTSD. Although both physical and emotional threat have been related to trauma, proponents of DSM-IV (APA; 1994) have focused on the physical threat aspect of the traumatic event. This is due to DSM-IV, which assumes a dangerousness causal component in the diagnosis of PTSD. Proponents of DSM-IV also posit a direct, exclusive, causal relationship between the event and PTSD. Moreover, this line of reasoning maintains that similar patterns of denial and avoidance may exacerbate PTSD or increase its likelihood. Conversely, opponents of DSM-IV argue that emotional threat should also be considered as a causal component. Extensive literature on the coping responses of emergency personnel suggests that, rather than being pathognomic, affective avoidance may serve to protect those

exposed to frequent traumas. The present study investigated (a) whether or not Criterion A should be redefined to include the emotional threat potential of traumatic events and (b) whether or not affective avoidance could serve as a protective factor for individuals who are frequently exposed to traumatic events. The relationships between both the physical and emotional threat aspects of the traumatic event and affective avoidance were also explored. It was hypothesized that emotional threat would be negatively related to affective avoidance but positively related to PTSD symptoms. It was also hypothesized that affective avoidance would be negatively related to PTSD symptoms. The analyses conducted in this study offered strong support for the inclusion of emotional threat as a causal component of PTSD. Physical threat was found to be a weak predictive variable. Contrary to what was expected, affective avoidance was positively related with PTSD symptoms. If the results of this study can be replicated, it would lend support to a redefinition of PTSD's Criterion A conceptualization in DSM-IV.

ACKNOWLEDGEMENTS

I have been aided greatly throughout this journey by the contributions of so many supportive individuals who have made it possible to pursue my passionate interest in the field of trauma research.

First and foremost, it was possible to persevere due to my safe base - the members of my family, who simply have been there for me. My husband, Guy, without whose limitless patience and never-failing encouragement this research would never have been accomplished. Thank you for always believing in the value of my efforts and encouraging me to speak the truth. My children, Jordan (the lover) and Joshua (the kisser) for being my guiding light in striving to master the elements of life that buffet passion and hope. A special thank you goes to my parents for being the hard cover and binding to the loose leaves of my life.

My research has been aided greatly by the contributions of my M.A. committee - Dr. Bruce Tefft, Dr. Brian Cox, and Dr. Wayne Corneil. Their helpful comments and suggestions, and time spent reviewing the drafts were invaluable to me.

I am deeply indebted to Doug Borrowman and Melanie Penner from Correctional Service of Canada and Margaret McCoy from the Professional Institute of the Public Service (PIPS) for their generous support of this research. Margaret I very much

enjoyed our time spent in Ottawa - it was nice to finally put a face to the enthusiastic voice miles away. Thanks again for your constant support throughout this research endeavor.

Much of the credit for the completion of this research was due to the financial assistance and the collaborative efforts of the dedicated individuals of the Critical Incident Stress Management Services (CISMS), Occupational and Health Safety Agency, Health Canada. Dr. Wayne Corneil, although probably the busiest person I know was always readily available to assist and consult with me. Without your help the extensive developmental work leading up to the completion of this research would not have been possible. Your warmth and ever-constant enthusiastic support throughout this research will always be remembered and cherished. Sharon Kirwan, Sandra Swift-Murray, and Eveline Poirier deserve a specific expression of thanks for their continued encouragement, time spent reviewing the manuscript, insightful comments and suggestions, and assistance expediting various phases of the research. Sharon, your supportive words of encouragement when I was faced with challenges along the way will always be treasured. Words alone cannot express how grateful I am to all of you.

I want to thank the many close colleagues, friends, and mentors who have been a continual source of interesting dialogue and support. I also want to acknowledge those who have

generously offered to review and critique the manuscript after the work was done. I am particularly grateful to Dr. Beth Stamm, Dr. Vivienne Rowan, and Dr. Eve Carlson for their constructive criticism, helpful suggestions, and support. Special thanks to Dr. Carlson for permission to draw freely upon her theoretical model of trauma responses. Gratitude is expressed also to Gilbert Remillard and Marc Allary for their tremendous assistance with the statistical analysis. Gilbert, no matter what time of day you were always there - thank you so much.

Finally, the correctional nurses working in the federal institutions (Prairie Region) deserve a special thank you. Without the participation of this special dedicated group of professionals the completion of this research would certainly not have been possible.

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Demographics of Nurses Working in Federal Correctional Institutions, Prairie Region (Alberta, Saskatchewan, Manitoba)	49
2. Threatening Events Experienced Within Last Year	53
3. Physical and Emotional Threat Then and Now for the Most Distressing Event . . .	59
4. Simple Correlations Between Predictors and Outcome Measures	62
5. Part Correlations	64
6. Means and Reliabilities for Scales Measuring Stress, Stressor, and Social Support	69
7. Scores on the Impact of Events Scale as a Function of Nursing Population	73
8. Comparison of Participants' BSI Means with Those of Derogatis' Normative Data and Corneil and Kirwan's Northern Nursing Sample	74

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1. The Impact of Traumatic Events Model (ITEM) . . .	34

TABLE OF CONTENTS

ABSTRACT	ii
ACKNOWLEDGEMENTS	iv
LIST OF TABLES	vii
LIST OF FIGURES	viii
	<u>Page</u>
INTRODUCTION	1
The Classification of PTSD	3
Historical Classification of Trauma	3
PTSD Conceptualized	5
Diagnosis of PTSD	7
Theoretical and Methodological Issues	7
Theoretical Issues	7
Methodological Issues	8
Major Empirical Studies	10
Supporters of DSM-IV's Conceptualization of PTSD	10
Opponents of DSM-IV's Conceptualization of PTSD	12
PTSD Research on Emergency Personnel	14
Understanding the Impact of Traumatic Events	16
Responses to Traumatic Events	16
Re-experiencing	17
Avoidance	18

Responses Common to Nurses	20
Factors that Influence Responses	24
Summary	26
Causal Understanding of Traumatic Events,	
Responses, and PTSD	27
The Present Study	32
Hypotheses	36
Hypothesis 1	36
Hypothesis 2	36
Hypothesis 3	37
Hypothesis 4	37
Hypothesis 5	37
Hypothesis 6	37
METHOD	37
Participants	37
Measurement	39
Measure of Exposure	39
Measure of Traumatic Responses and PTSD Symptoms	
The Impact of Events Scale-Revised . . .	40
Measure of Psychological Symptoms	
Brief Symptom Inventory	41
Demographic Scale	43

Stress, Stressor, Social Support, and	
Correctional Orientation Scales	43
Procedure	45
RESULTS	47
Demographic	48
Threatening Events	52
Threat Associated with the Most	
Distressing Event	58
Threat Across Events	60
Affective Avoidance and PTSD.	61
Hypotheses 2 and 3	63
Hypotheses 4, 5, and 6	67
Work and Home Environment	68
Comparisons with Other Studies	71
DISCUSSION	75
Findings Relevant to Criterion A	75
Findings Relevant to Physical/Emotional	
Threat and Avoidance	79
Nurses' Coping Strategies	81
Implications for Treatment	84
Limitations of the Study	92
Directions for Future Research	93

REFERENCES	99
----------------------	----

APPENDICES

Appendix A: DSM-III-R Criteria for PTSD	114
Appendix B: DSM-IV Criteria for PTSD	116
Appendix C: Declaration of Informed Consent	119
Appendix D: Questionnaire Instructions	121
Appendix E: Demographics	122
Appendix F: Exposure Scale	125
Appendix G: Impact of Events Scale-	
Revised (IES-R)	128
Appendix H: Brief Symptom Inventory (BSI)	130
Appendix I: Stress, Stressor, Social Support,	
and Correctional Orientation Scale	133
Appendix J: Introductory Letter	138
Appendix K: Support Letter	140
Appendix L: Follow-Up Postcard	141
Appendix M: Second Follow-Up Letter	142
Appendix N: Third Follow-Up Letter	143
Appendix O: Federal Correctional Institutions	144
Appendix P: Definitions	146
Appendix Q: Correctional Registered Nurses versus	
Correctional Registered Psychiatric Nurses	148
Appendix R: Correctional Registered Nurses versus	
Registered Nurses from Other Nursing Groups.	154

Introduction

Post-traumatic Stress Disorder (PTSD) is recognized as a debilitating, long-standing, and pervasive psychological disorder following exposure to extreme trauma (Horowitz, 1986; Mitchell & Everly, 1994). Although both the actual or potential physical and emotional threat of traumatic experiences have been related to PTSD, research has focused on the physical threat. This is largely due to DSM-IV's (DSM-IV; American Psychiatric Association (APA), 1994) criteria for the diagnosis of PTSD: An individual must have experienced "... an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or other close associate." In addition, "the person's response to the event must involve intense fear, helplessness, or horror" (p. 424).

Taking DSM-IV's criteria at face value, a theoretical explanation for what causes traumatic responses might be that the event is perceived as physically dangerous and that people are naturally fearful of injury, death, and threats to physical integrity. Although this theoretical explanation works well for events involving physical threat

to oneself, it does not accurately explain why individuals would be fearful of the threat of injury or death of another person. In fact, clinical observations show that people are not necessarily fearful of injury to or death of another person unless the person injured is a loved one, or if one felt responsible for another person being injured. The inadequacy of a definition of traumatic events based on "dangerousness" also applies to events that are not perceived as physically injurious or life threatening but that can, nonetheless, be clearly traumatic (i.e., incest). According to Carlson (1997), traumatization may still occur if the individual believes that she/he is not in physical danger; more precisely, if damage to an individual's psychic integrity (i.e., low self-esteem, shame, guilt, anguish) is great enough, traumatization may occur.

The conventional conceptualization of PTSD is based on two core assumptions: First, PTSD never occurs de novo but, rather, is always preceded by an initiating external event, assumed to be sufficient to account for the development of the disorder. More precisely, PTSD is the only anxiety disorder for which the occurrence of an external event is specified as a diagnostic criterion and for which a causal relationship between the event and disorder onset is stipulated (Davidson & Foa, 1992; Foa, Steketee, & Rothbaum, 1989). Second, diagnostic categorization of PTSD (DSM-IV;

APA, 1994) assumes a dose-response relationship, whereby the magnitude of the traumatic event (dose) is directly proportionate to the subsequent risk of developing PTSD. Yet, it has been widely noted that, when exposed to the same extreme event, only a small minority of individuals develop PTSD (McFarlane, 1995).

This latter observation raises an important question because it challenges the theoretical conceptions of what causes traumatic responses and later PTSD symptomatology. It is important to note, however, that theoretical conceptions of PTSD have not remained constant through time; more precisely, the classification of PTSD has evolved in accordance with historical trends. The historical evolution of PTSD's classification is discussed next.

The Classification of PTSD

Historical Classification of Trauma

Interest in trauma has fluctuated drastically over the last 50 years. This is reflected in the Diagnostic and Statistical Manual of Mental Disorders, first to fourth edition (DSM; American Psychiatric Association, (APA), 1952, 1968, 1980, 1987, 1994). Interest has increased around wartime and waned during peace (for reviews see Herman, 1992; Horowitz, 1986). For example, DSM-I (APA, 1952), published after World War II, not only recognized traumatic neuroses but, as well, gave it a deserved emphasis in the

nomenclature. In contrast, DSM-II (APA, 1968), published twenty years following the end of World War II but prior to the Vietnam War, equated traumatic reactions to situational disturbances experienced in essentially normal individuals (Davidson & Foa, 1992; Kleber, Figley, & Gersons, 1995). Although psychodynamic formulations such as neuroses were retained, the forward (p. viii) described DSM-II's efforts to replace unverifiable etiological theories with descriptive criteria and alternative, research-based etiological theories.

Following the Vietnam War, a more comprehensive diagnostic nomenclature was deemed necessary (for discussions of historical developments see APA, 1994; Wilson, 1989). DSM-III (APA, 1980) represented a revolutionary landmark, reflecting a drastic shift from psychodynamic formulations to a theoretically-neutral, research-oriented, descriptive approach which "shattered" the classification of Neuroticism in two ways (Rogler, 1997). First, it eradicated their psychodynamic underpinning, the so-called neurotic process, as a component of diagnoses. Second, it distributed the symptomatic remnants into affective, anxiety, somatoform, and dissociative disorders. PTSD was introduced in DSM-III's (APA, 1980) nomenclature as an anxiety disorder. Although DSM-III deleted neurotic disorders, PTSD's criteria were

based on Kardiner's (1941) formulations of traumatic neuroses, derived from his work with World War I veterans.

As a result of increased scientific interest in traumatic stress syndromes, both theoretical and clinical insights were integrated in the DSM-III-R (APA, 1987; see Appendix A). DSM-IV (APA, 1994) reflects only minor alterations which incorporate more recently accumulated clinical and empirical studies regarding the nature and dynamics of PTSD.

PTSD Conceptualized

The essential features of PTSD include exposure to a traumatic event and three phenomenological/symptomatological constituents: Recollective ideation relevant to the trauma (e.g., flashbacks, nightmares about the trauma), pathognomonic automatic nervous system arousal (e.g., difficulty sleeping, hypervigilance, startle response), and withdrawal from usual activities combined with a dysphoric numbing to stimulation whereby the individual feels detached or estranged from people with a markedly reduced ability to feel emotions (Appendix B).

According to DSM-IV (APA, 1994), the stressor criterion incorporates two elements. Criterion A1 states "the person experienced, witnessed, or has been confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical

integrity of self or others" (p. 427). Criterion A2 reads "the person's response involved intense fear, helplessness, or horror " (p. 428).

Symptoms that are expected to result from exposure to a traumatic event cluster into three distinct groups: (a) five symptoms associated with re-experiencing the trauma (Criterion B), such as intrusive recollections or recurrent dreams; (b) seven symptoms associated with avoidance of stimuli related to the trauma or numbing of general responsiveness (Criterion C), such as avoidance of trauma-related thoughts or diminished interest in people or activities; and (c) five symptoms of continued increased arousal (Criterion D), such as problems in sleeping or concentration (Carlson, 1996). The duration of the disturbances in clusters B, C, and D must be more than one month, in order to qualify for a diagnosis of PTSD (Criterion E). The F or functional impairment criterion states that, in order to obtain a diagnosis of PTSD, an individual must not only have experienced a trauma and responded with the symptoms described in Criteria B, C, and D for over one month, but the disturbing symptoms must also have significantly diminished the individual's capacity to work, love, and play. Finally, there is a distinction between acute (duration of symptoms for less than 3 months)

and chronic (duration of symptoms for more than 3 months) PTSD (Everly, 1993).

Diagnosis of PTSD

Theoretical and Methodological Issues

Theoretical Issues. Research designed to study the effects of trauma has the potential for adding to our understanding of a wide range of issues of critical importance to mental health, such as identifying responses that place the individual at risk of developing a pathological outcome, and mitigating factors that may protect the individual or favor a path to recovery (Baum, Solomon, Ursano, 1993). The extent to which this research potential is realized may depend on the degree to which study goals are grounded in relevant theory (Carlson, 1996).

Theory-driven research which attempts to identify mechanisms, predictors, and mediators with respect to the etiological course of pathology is more likely to yield useful findings than is research which is purely descriptive and anecdotal in nature. More precisely, theory-driven research offers direction with respect to design decisions about subject sampling, the selection of control groups, and other procedural problems. As well, it provides a useful guide for refining measurement of the phenomenon of interest (Baum, Solomon, & Ursano, 1993). Yet, the majority of research efforts in the area of PTSD have been clinical and

descriptive in nature, emphasizing the nature of symptoms found among those affected (Green, 1982). As a consequence, research has focused on symptom identification without any recognition of the interconnections among characteristics of traumatic events, individual responses, and the development and maintenance of PTSD.

Trauma responses are still not well understood despite the prevalence of traumatic events and the magnitude of pain they cause. The main reason for this is that substantial research on trauma responses did not start in earnest until the 1980s, when funding and interest in PTSD increased. Arguably, researchers have made significant progress in understanding responses to traumatic events in only two decades of systemic research.

Methodological Issues. Carlson (1997) argues that a better diagnostic conceptualization of PTSD would address a wider variety of traumatic events and a wider variety of responses. First, a different criterion addressing a wider variety of traumatic events would make possible the inclusion of events as traumatizing that would otherwise be excluded or poorly represented by DSM-IV's (APA, 1994) conceptualization. According to Carlson, Furby, Armstrong, and Shlaes (1997), DSM-IV's diagnostic Criterion A for PTSD does not take into account events that are not physically

threatening; for instance, it is unclear whether incest would meet criterion A-1 if physical injury or death was not perceived by the child. However, it can be argued that most adult survivors of incest would perceive their experience(s) as traumatic. In this situation, the psychological impact is related to the emotional meaning of the event, not the physical consequences of the event. In other situations, the psychological impact of a traumatic event may involve damage or threat of damage to an individual's psychic integrity or sense of self. For instance, a nurse who is attacked by a patient may be traumatized even if she believes that she was not in physical danger. This experience may damage her self-esteem if she feels responsible for what happened.

Conversely, March (1993) argues that addressing a wider range of traumatic events would make a PTSD diagnosis potentially applicable to anyone experiencing recollections of even a mildly distressing event, leading to an unacceptable high number of false positive diagnoses.

Despite these obvious methodological issues, research has traditionally supported DSM-IV's (APA, 1994) conceptualization of PTSD. However, several recently published studies have provided valuable contributions toward a better understanding of the impact of traumatic events. These contributions are discussed next.

Major Empirical Studies

Proponents of DSM-IV's (American Psychiatric Association, 1994) categorization of PTSD (e.g., Green & Grace, 1988; Goldberg, True, Eisen, & Henderson, 1990; Herman, 1992; Holen, 1991; Horowitz, Wilner, & Alvarez, 1979) maintain that exposure to a stressor (traumatic event), assumed to be unique because of its magnitude (quantitative aspects) and nature (qualitative aspects), is not only necessary but also sufficient to account for PTSD. In contrast, opponents of DSM-IV's categorization of PTSD (e.g., Breslau & Davis, 1992; Creamer, 1995; Freyd, 1996) agree that exposure to an extreme event is necessary for the development of PTSD but disagree that such exposure is sufficient. Opponents argue that a better understanding of the impact of traumatic events could be achieved by considering the rich complexity of connections among aspects of traumatic events, the moderating variables that influence the responses to trauma, and the symptom outcomes.

Supporters of DSM-IV's Conceptualization of PTSD

Supporters of DSM-IV (APA, 1994) argue that PTSD's "dose-response" relationship is strongly supported in the literature. For example, Kulka, Schlenger, Fairbanks, Hough, Jordon, Marmar, & Weiss (1990) found PTSD prevalence rates to be significantly higher in Vietnam war veterans

(15.2% of men, 8.5% of women) than in military personnel not serving in Vietnam (2.5% of men, 1.1% of women) and in civilians (1.2% of men, 3.0% of women). Similarly, Goldberg, True, Eisen, and Henderson (1990) found that of the 2,000 monozygotic twin pairs discordant for Vietnam war service, the twin exposed to combat had a much higher risk of developing PTSD.

Evidence for the dose-response relationship has also been observed in non-war contexts. For example, Weisaeth (1989) found that the likelihood of factory workers developing PTSD following a tragic fire decreased as the distance between workers and the fire increased. Forty percent, 25%, and 10% of those very close, moderately close, and at a distance from the fire developed PTSD respectively. As another example, eight years following the Alexander Kielland oil rig disaster (Holen, 1991), psychiatric disorders were more prevalent in a group of survivors (12.3 per 100) than in a control group not involved in this disaster (1.5 per 100). Similarly, fourteen months following a fatal sniper attack on a school playground (Pynoos, Frederick, Nader, Arroyo, Steinberg, Eth, Numez, and Fairbanks, 1987), PTSD prevalence rates for children on the playground were higher (74%) than for children in the school at the time of the attack (19%).

With respect to sexual assaults, Herman (1992) found that, for rape victims, exposure to life threat and physical injury were predictors of PTSD symptoms, which were twice as severe when both were present than when neither was present. This finding is consistent with that of Winfield, George, Swartz, and Blazer, (1990) who found a prevalence rate of 14.1% among victims exposed to physical injury, 22 times higher than those of non-physically injured victims of sexual assault (0.64%).

Finally, Green (1993) reviewed the data sets from three events (the Buffalo Creek dam collapse and flood of 1971; the Beverly Hills Supper Club fire of 1977; and military service in the Vietnam War) and found that each of the three dimensions of a traumatic event (life threat, loss of a loved one, and severely disfigured bodies) predicted PTSD symptomatology, with life threat being the strongest predictor. According to Green, this finding indicates a clear-cut "dose-response" relationship between the traumatic event and outcome across samples.

Opponents of DSM-IV's Conceptualization of PTSD

Critics of DSM-IV (APA; 1994) argue against a direct and exclusive causal relationship between an extreme event and PTSD symptomatology. Evidence that a traumatic event is not sufficient for PTSD onset comes from the Duke University Epidemiologic Catchment Area (ECA) study (Davidson, Hughes,

Blazer, & George, 1991) which found lifetime and six-month PTSD prevalence rates among 2,985 individuals of 1.30% and 0.44% respectively. Importantly, those who developed PTSD reported significantly more life stressors (e.g., job instability, parental poverty, experiences of child abuse, parental divorce) than those who did not develop PTSD. This suggests that a traumatic event may not be sufficient for PTSD onset, and that other predisposing factors may also have to be present. Although life stressors and negative events may predispose an individual to PTSD, some have argued that these may have an opposite, or 'toughening' effect by making the individual more resistant to subsequent traumas (e.g., Neil & Turner, 1991; Dienstbier, 1989).

Kessler, Sonnega, Bromet, and Nelson (1995), as part of the National Comorbidity Survey, studied 8,098 individuals to assess current and lifetime PTSD prevalence rates in the U.S. population. The most common cause of PTSD in men was active participation in combat (with 10.7% developing PTSD), whereas rape and sexual assault were the most common causes in women (with 48.4% developing PTSD). According to Carlson (1997), these prevalence rates do not accurately reflect potential traumatization because the consequence of not including emotional threat as a causal agent in traumatization is that the traumatic potential of events that do not include physical threat cannot be

understood. Similarly, Janoff-Bulman (1992) argues that because subjective perceptions can affect both the emotional meaning attributed to events and perceived controllability, varied symptoms occur even though individuals are exposed to the same traumatic event. For instance, a woman who is threatened with a knife and fears that she may be injured but not killed may perceive the event with less intensity than a woman who is threatened with a knife and believes her life is in danger. This view is supported by Feinstein and Dolman (1991) who argue that the issues of perception and emotional meaning are more important than actual severity of traumatic events.

PTSD Research on Emergency Personnel

The individuals who have generally received the most attention in research studies of PTSD have been victims of trauma. However, persons other than victims are also exposed to trauma. The paucity of literature prior to 1990 related to emergency personnel, such as fire fighters, paramedics, police officers, and nurses is noteworthy. For example, research on fire fighters focused on measuring biochemical or physiological indicators of stress (Barnard, Gardner, Diaco, & Katon, 1975; Blimkie, Rechnitzer, & Cunningham, 1977). Although studies on the psychological impacts of major disasters on emergency personnel have been conducted (e.g., Jones, 1985; Lawson, 1987), these have, for

the most part, been clinical descriptive studies of single events based mostly on retrospective self-reports of pre- and post-event functioning (i.e., disturbed sleep and appetite, close personal identification with the victims, increased alcohol consumption). Moreover, the PTSD studies conducted prior to 1990 did not apply epidemiological methods to arrive at their estimates. It is as if those who work among maimed bodies, disfigured body parts, and injured children were considered exempt from the psychological sequelae of the carnage which befell the victims (Mitchell & Dyregrov, 1993). Recent observations and experience with emergency personnel, however, clearly demonstrate that these professionals are subjected to stressors, which can produce a multitude of psychological, social, and physical reactions that may be extremely painful (Mitchell & Dyregrov 1993). For example, Corneil (1993) found a PTSD prevalence rate of 16.2% among 1,154 metropolitan fire fighters.

The first study to investigate PTSD prevalence rates for nurses was carried out quite recently under the auspices of Medical Services Branch (MSB) of Health Canada (Corneil & Kirwan, 1994). The data revealed a PTSD prevalence rate of 33% among northern registered nurses, twice as high as studies of Vietnam veterans. A replication study was conducted among 426 registered nurses working in emergency and intensive care units in Manitoba hospitals. Findings

revealed a prevalence rate of 42.1% among this sample. According to Corneil and Kirwan (1994), the nursing profession is an understudied group, which appears to be at high-risk for developing PTSD. Despite common knowledge that nurses working in federal correctional facilities (consisting mostly of registered nurses and registered psychiatric nurses) deal closely with violent offenders, this group has not as yet been studied. Studying correctional nurses could contribute to a better understanding of whether nurses on a whole are at risk for developing PTSD, or whether certain nursing groups (registered nurses vs. registered psychiatric nurses) are more at risk for developing PTSD.

Understanding the Impact of Traumatic Events

Responses to Traumatic Events

A complete understanding of the impact of traumatic experiences must explain what responses tend to follow traumatic events. There is tremendous individual variation in response to traumatic events. Underlying this variation, however, are a number of symptoms that appear to closely follow a wide variety of traumatic events. Although various authors may use somewhat different terms for the same symptoms, reexperiencing and avoidance have long been considered to be the core responses to traumatic events (Horowitz, 1986; van der Kolk, 1987). Researchers and

clinicians have come to view these symptoms as core responses for two reasons. First, research has shown that different forms of reexperiencing and avoidance often occur in individuals who have been exposed to traumatic events. Second, theory and research demonstrate that these symptoms are part of the natural human response to sudden, negative, and uncontrollable events. Both sets of responses can be manifested cognitively, affectively, and behaviorally. Examples of symptoms in each of these modes follow.

Reexperiencing. Reexperiencing responses vary, depending on whether they are manifested cognitively, affectively, or behaviorally. Cognitive manifestations include intrusive thoughts and images, hypervigilance (thinking one is in constant danger), flashbacks, and nightmares. It is important to note, however, that while nightmares are often about thoughts of the trauma, a flashback refers to a belief that the individual is back in the traumatic situation again (Horowitz, 1993). The most prominent affective manifestations include hypervigilance (feeling on edge), nightmares (feel the emotion of the dream), anxiety, and anger or irritability (van der Kolk, 1996). Anxiety symptoms have been extensively researched, whereas there is a paucity of empirical research investigating how anger is related to PTSD symptomatology. Behavioral manifestations include restlessness and increased

activity level, physical aggression toward self or others, and behaviors that are similar to those experienced at the time of the trauma. For instance, some children who are abused may reverse the roles to become the aggressor in school.

Avoidance. Avoidance responses can also be manifested cognitively, affectively, and behaviorally. The purpose of avoidance responses is to protect the individual from exposure to reminders of the traumatic event. Cognitive manifestations include amnesia, derealization (i.e., distortions in perceptions of what actually occurred at the scene of a traumatic event), depersonalization (i.e., out of body experiences), and cognitive distortions (i.e., black and white thinking).

Affective avoidance has been reported after many different types of traumatic events but has only recently been the focus of empirical work (Litz, 1992). Affective avoidance is commonly experienced as isolation of affect (reporting the details of the event with no accompanying affect), and emotional numbing in which the individual emotionally shuts down and becomes unresponsive to various stimuli that are necessary for involvement in the present (i.e., inability to laugh, feel joy, or any sense of pleasure; no desire for emotional or sexual intimacy). Stated differently, in attempting to guard against intrusive

affect, individuals become constricted and appear to organize their lives around not feeling and not considering options for the most appropriate way of responding to emotional arousal (van der Kolk & Fisher, 1995). In the immediate context of the trauma, numbing can be beneficial because it serves to reduce acute internal stimuli (McFarlane, Weber, & Clark, 1993). For PTSD sufferers, however, affective numbing becomes part of their everyday functioning, whereby stimulation, whether pleasurable or aversive, provokes further detachment from people and situations that previously gave them joy (van der Kolk & McFarlane, 1996). Finally, behavioral manifestations of avoidance involves avoiding reminders of the traumatic event; for instance, avoiding situations, places, or people associated with the traumatic event.

It is important to note that there is a paucity of empirical research investigating the affective manifestations of both reexperiencing and avoidance responses, which are related to PTSD symptomatology but fall short of being diagnostic criteria (American Psychiatric Association, 1994). On the one hand, affective responses such as fear, shame, and feelings of low self-esteem have been addressed very broadly in studies that measure a variety of PTSD symptoms. On the other hand, it appears that trauma research does not investigate non-criteria

symptoms (i.e., aggression, shame, low self-esteem), making their relative importance difficult to determine. For example, it is widely acknowledged that disgust, guilt, low self-esteem, and anger are common symptoms experienced by rape victims; yet, measures assessing for PTSD symptomatology usually do not provide for their inclusion.

Responses Common to Nurses

It is currently unknown if nurses respond to traumas in unique ways (Appleton, 1994). Understanding which events nurses consider to be traumatic incidents is the first step in researching nurses' responses to trauma. According to Appleton, the predominant events which are viewed by nurses as traumatic include: (a) verbal abuse, threats, and physical abuse by a patient or another member of the health care team; (b) emergency situations (i.e., cardiac arrest, prolonged resuscitation); (c) death of a patient, particularly death of a child; (d) actual or potential contact with infectious body fluids (i.e., hepatitis B or HIV); and (e) line of duty death.

Coping is the process by which nurses respond to the extremely stressful events they experience. This includes the cognitive and behavioral changes which are necessary to manage the trauma. According to Appleton (1994), nurses use varied coping strategies when faced with a traumatic event, such as seeking out social support, self-control, positive

reappraisal, and problem-solving. In a similar vein, Lanza (1985) identified four cognitive strategies commonly used by nurses to cope with trauma: (a) comparing oneself with those who are less fortunate, (b) focusing on positive attributes of oneself so as to feel advantaged, (c) imagining a potential worse outcome, and (d) conceptualizing benefits from the trauma (i.e., patient's quality of life would have been severely diminished if he/she did not die).

According to Roberts (1991), common avoidance strategies used by nurses to cope with trauma include minimizing, denying, and forgetting about the event. Similarly, Dyregrov and Mitchell (1992) have found that these professionals rely heavily on different coping strategies, such as suppression of emotions, to regulate the emotional intensity in the acute phase of a trauma. Moreover, other strategies that serve to regulate the amount of exposure include activities that restrict reflection (i.e., keep on focusing on the emergency task at hand), developing a sense of purpose, and self-reassuring comments. These defenses result in a reduction of their anxiety level and an increased ability to function effectively. A breakdown of psychological defenses occurs, however, when emotional distancing cannot be used; this is most evident when children are the patients, or when they identify with the victim (Dyregrov & Mitchell, 1992).

Preliminary biological findings have important implications for understanding the outcomes associated with the suppression of emotions following traumatic events. The evidence is strongest when considering cortisol levels in traumatized populations. Cortisol is an important hormone produced in response to physical and psychosocial stressors; hence, it allows the body to prepare for stressful situations (for review see McEwen, 1997). According to Sapolsky (1999), individuals who typically cope with frequent exposure to serious life events by suppressing negative emotions have significantly elevated basal cortisol levels. According to Sapolsky, it is not that these individuals have difficulty coping with serious life stressors, but rather that for these individuals, ". . . it can be stressful to laboriously construct a world in which there are no stressors" (p. 38). Recent studies suggest that cortisol levels are lower in trauma survivors with PTSD than in trauma survivors without PTSD (van der Kolk, 1997). McFarland (1996) studied cortisol levels in emergency room car accident victims. He found that low cortisol levels measured right after the accident predicted the onset of PTSD. A similar picture has emerged from a study conducted by Resnick, Yehuda, and Pitman (1995). These researchers found that acute rape victims with histories of prior sexual assault had lower cortisol levels than rape victims who did

not have histories of sexual abuse. This finding was consistent with previous studies of individuals exposed to chronic stressors and may reflect down regulation of cortisol systems in response to chronic exposure of traumatic events (Resnick, Yehuda, & Acierro, 1997). It can, thus, be hypothesized from the aforementioned that nurses who use emotional distancing as a means to cope with exposure to traumatic events may be at lower risk of developing PTSD. Further investigations of the associations of neurobiological systems that significantly influence emotional regulation are warranted.

Understanding responses common to nurses is further complicated when considering potential consequences of self-disclosure. For example, admission by a nurse that her involvement in a difficult situation (i.e., patient assault, prolonged resuscitation) is causing her emotional problems is still often perceived as a sign of weakness. For example, a frequently mentioned fear expressed by nurses who have experienced patient assault(s) is that of being considered clinically incompetent and responsible for the assault (Appleton, 1994).

According to Firth (1994), traumatic stresses which are buried, or the application of poor or maladaptive coping skills, will take their toll and the resulting dysfunction (i.e., memory dysfunction, chronically fatigued) may be

clinically costly. Taking this view at face value, it appears that, either by preselection or by adaptation to the inherent job stress, a condition exists of low self disclosure and high defensiveness.

It is important to note, however, that although all of the core responses can occur as part of PTSD symptomatology, all of these will not necessarily occur. Different symptoms may predominate in an individual's symptom picture as a result of the influence of various factors (Carlson, 1997). Factors that influence responses to traumatic events are discussed next.

Factors that Influence Responses to Traumatic Events

The major factors that influence responses to sudden, uncontrollable, and negative experiences include biological factors (i.e., resiliency), the severity of the event, social context (i.e., supportive environment), and previous and subsequent life events (van der Kolk, 1987). According to van der Kolk, these factors influence trauma responses because they affect the perception of uncontrollability and the degree to which an event is viewed as negative.

The severity factor refers to the nature, intensity, and the duration of the traumatic event. Numerous studies among traumatized populations have found a relationship between severity of traumatic events and symptoms, such as samples of crime victims (Kilpatrick, Saunders, Amick-

McMullan, Best, Veronen, & Resnick, 1989), combat veterans (Sutker, Allain, Albert, & Winstead, 1993), burn victims (Perry, Difede, Musngi, Frances, & Jacobsberg, 1992), and sexually abused children (Wolfe, Gentile, & Wolfe, 1989). Overall, these studies show that intensity, nature, and duration of the trauma all influence an individual's perceptions of controllability and the degree to which events were viewed as negative. However, individual perceptions can greatly influence the perceived nature and intensity of a traumatic event. This is because subjective perceptions affect the negativity and perceived controllability of an event. As an illustration, a woman who is threatened with a knife and believes that she will not be killed may experience the event as less intense than a woman who is threatened with a knife and believes that she will be killed (Janoff-Bulman, 1992).

Prior and subsequent life events could exacerbate or mitigate negative responses to traumatic events. On the one hand, prior traumas may make individuals more resistant to subsequent traumas. Some researchers have argued that intermittent stressors can produce a "toughening" effect so that the individual is not as sensitive to later stressors (Dienstbier, 1989). On the other hand, prior traumas may cause substantial distress and, in turn, impede an individual's ability to cope with trauma (Neal & Turner,

1991). Stressful or negative life events following exposure to a traumatic event, however, appear certain to exacerbate a trauma response. For example, having to cope with marital discord, work demands, and personal losses would be expected to impair the individual's recovery from trauma. It is important to note, however, that with the exception of research on the effects of social support, there are no published studies on the influence of negative life events subsequent to trauma.

In the present study, only the intensity component of the severity factor (physical and emotional threat) and previous and subsequent life events will be addressed.

Summary

Recent research findings and clinical accounts point to the importance of understanding the responses to trauma, the moderating variables that impact on responses to trauma, and PTSD. Moreover, factors such as emotional threat have not yet been systematically explored. The observation that some individuals become focused on the emotional meaning of the trauma, independent of the details of the event, supports the hypothesis that emotional threat plays a crucial role in the development of PTSD symptoms (Carlson, 1997). Although many researchers have studied PTSD's core diagnostic symptoms, namely, reexperiencing an event and later avoidance of similar circumstances (Horowitz, 1986;

van der Kolk & McFarlane, 1996), affective avoidance has only recently been the focus of empirical study (Litz, 1992). Research is also lacking to clarify the potential mitigating and exacerbating effects of past and subsequent events (Carlson, 1997).

Thus, it appears that the relationship between the traumatic event and PTSD symptoms is not simple and clear-cut. However, causal models have traditionally supported DSM-IV's (APA, 1994) conceptualization of PTSD. Recent advances in other domains, however, have provided valuable contributions. Contributions toward a better understanding of the impact of traumatic events on the onset and maintenance of PTSD is discussed next.

Causal Understanding of Traumatic Events,
Responses to Traumatic Events, and PTSD

Despite the extraordinary growth of PTSD studies, there is presently a lack of consensus on the etiology of this disorder. According to traditional psychoanalytic theory (e.g., Freud, 1953), failure to recover from a trauma, and hence the development of PTSD, is not due to the magnitude (quantitative) aspects of the trauma per se, but rather to premorbid instinctual conflicts (e.g., sexual and aggressive impulses). These impulses are unleashed into awareness when the traumatic event overwhelms and breaks through ego defenses which serve to protect the individual

from conflicts between the external world and these intrapsychic impulses. Stated differently, Freud viewed the persistence of PTSD symptoms as manifestations of premorbid character flaws or innate weaknesses in the ego apparatus.

Drawing on Freud's (1953) observations concerning defensive processes, Kardiner (1941) maintained that an infantile conflict may be symbolically revived by a trauma. In sharp contrast to Freud, however, Kardiner argued that intrapsychic memories occur as an independent accompaniment to the event; they are not what cause PTSD. According to Kardiner, the predictive factor in the genesis of PTSD is the individual's inability to adapt to the traumatic event. It follows from this viewpoint that the psychic meaning of the trauma is formulated after the event. More precisely, it is only when the individual attempts to defend against the damage done to his/her adaptive functioning that meaning symbolic of old conflicts are attributed to it. Kardiner posited two mechanisms, which account for PTSD. The first concerns the immediate response to the traumatic event, which involves the destruction of adaptive functioning. This adaptive failure consists of a massive psychological and physiological constriction, and withdrawal of adaptive systems necessary for the maintenance of interaction with the environment. In the second stage of traumatic neurosis,

the personality reorganizes in an effort to compensate for its impoverished adaptive capability. Manifestation of the impaired adaptive functioning, that is, the individual's inability to modulate its memory of the trauma, is responsible for PTSD.

Overall, these two polarized perspectives, the traditional psychoanalytic theory maintaining that factors related to infantile conflict are decisive in PTSD and Kardiner's (1941) formulation maintaining that factors related to the individual's inability to adapt to the trauma are decisive in the development of PTSD, have both been influential in shaping psychiatric thinking about PTSD.

Horowitz (1986) has attempted to integrate the principles of psychodynamic functioning with modern information-processing theory. According to Horowitz, normal traumatic responses include a phase of reexperiencing alternating with a phase of avoidance (numbing or denial), and a working-through of the traumatic event with pre-existing schemas until completion is achieved. In the case of those who develop PTSD, they are unable to enact a healthy stress recovery process and become pathologically fixated at one of the phases in the recovery process.

According to Horowitz (1986), the resurfacing of cognitions associated with traumatic events triggers negative emotion because the events were emotionally

painful. Awareness of trauma is often interrupted when cognitive controls are activated to reduce emotional responses that threaten to impair functioning. Whenever the emotional response is controlled enough to permit normal functioning, thinking about the trauma will begin again. Basically, the individual alternates between thinking about the event and avoiding the event.

Building on previous cognitive and behavioral conceptions, Carlson's (1997) framework attempts to better understand the impact of traumatic events. This theory specifically addresses the theoretical connections between the defining features of traumatic events and responses to such events. More specifically, although considerable research has provided explanations for what makes events traumatic and has delineated responses that commonly follow traumatic events, there has been little effort to explain specific causal relationships between features of traumatic events and later responses. This is because much of the trauma research has supported DSM-IV's (APA, 1994) conceptualization of PTSD which defines features of a traumatic event as involving "actual or threatened death or serious injury or a threat to the physical integrity of self or others" (pp. 427-428).

Carlson's (1997) framework expands upon previous

theories by acknowledging the effects of a wider range of traumatic events. More precisely, Carlson posits a different criteria for a traumatic event than do most theories. According to Carlson, a better conceptualization of the defining features of a traumatic event would consist of three important elements.

The first critical element is the perception of the traumatic event as highly negative. A traumatic event might be perceived as negative because it is physically painful or injurious, because it is emotionally painful, or both. According to Carlson (1997), the advantage of considering emotional threat as a potential causal agent in traumatization is that the traumatic potential of events that do not involve physical threat can also be understood.

The second element is the suddenness of the event. More precisely, events that involve an immediate threat are considered more likely to cause overwhelming fear than events that occur gradually, because of the limited amount of time that an individual has to act or to process the trauma.

The third element that renders an event traumatic is the inability of the individual to control it. The importance of controllability of a traumatic event can be seen by contrasting the effects of an uncontrollable event with one that was controllable. For instance, if you

arrived on the scene of an accident, saw an individual who was bleeding profusely, and believed that you had no ability to prevent the individual from dying, you might be traumatized by this sudden, very negative, and uncontrollable event. Conversely, if you arrived on the scene of an accident and perceived yourself as having some ability to prevent the individual's death, you might not be traumatized by the event. The above three elements are considered by Carlson (1997) to be necessary, though not sufficient, to cause traumatization.

Building on the formulations of van der Kolk (1987), Carlson's (1997) framework addresses categories of factors that influence responses to traumatic events, such as biological factors (i.e., resiliency), severity of trauma (i.e., intensity, nature, duration), social context (i.e., social support), and prior and subsequent life events. According to Carlson, these factors affect an individual's response to trauma because they affect perceptions of the suddenness, negativity, and uncontrollability of the traumatic event.

The Present Study

There is evidence for an association among perception of threat, responses to trauma, and the moderating variables that influence responses to trauma, on the onset and maintenance of PTSD. Although both actual or potential

physical and emotional threat have been related to PTSD, research has focused on the physical threat of traumatic experiences. This is largely due to DSM-IV's conceptualization of PTSD that defines a traumatic event as one that involves "actual or threatened death or serious injury or a threat to the physical integrity of self or others" (American Psychiatric Association, 1994, pp.427-428). However, the advantage of including emotional threat as a potential causal factor regarding the onset and maintenance of PTSD is that the traumatic potential of events that do not involve actual or potential threat of physical injury or death can also be understood. This is crucial because it is obvious from research and clinical observations that emotionally painful events can also cause severe posttraumatic responses (Carlson, 1997).

The present study examined aspects of Carlson's (1997) frame-work for describing the complex associations between perception of threat, responses following trauma, the factors influencing responses to trauma, and the development of PTSD or recovery from trauma. The Impact of Traumatic Events Model (ITEM) was developed by this researcher for the purpose of the present study (see Figure 1).

Notwithstanding their potential importance, both suddenness and controllability were not explored in the

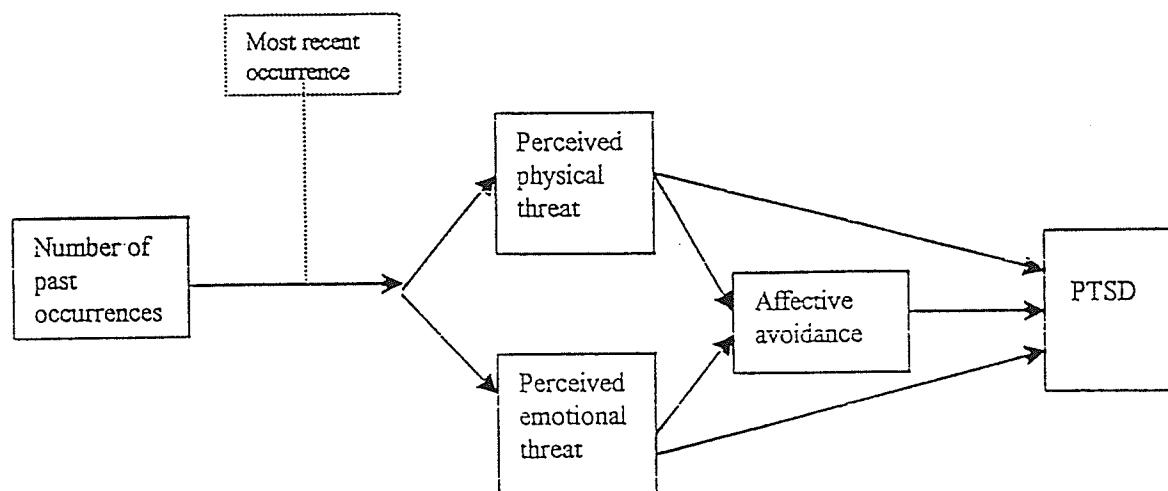


Figure 1. The Impact of Traumatic Events Model (ITEM)

present study. The defining feature captured in the ITEM was the perception of the traumatic event as highly negative. More precisely, actual or potential physical and emotional threat were investigated so as to better understand their causal influences. The ITEM addressed one core response (affective avoidance). The rationale for selecting affective avoidance is based on recent clinical observations which suggest that affective avoidance may not always be a pathognomic sign, but rather, it may represent successful accommodation to higher levels of stress than most of us experience.

As has been explained, severity of the trauma and events that occur prior to the trauma may explain variations in response to trauma. The ITEM addressed the moderating variables of (a) the impact of both physical and emotional threat, and (b) the frequency of past traumatic events.

The theoretical and empirical rationale for predicting the influence of mediating factors on the development of PTSD appears to be strongest when considering severity as it relates to emotional threat. For example, Dyregrov and Mitchell (1992) have found that emergency personnel who have been regularly exposed to traumas rely heavily on avoidance coping strategies, such as suppression of emotions, to regulate the emotional intensity in the acute phase of a

trauma. According to these researchers, a breakdown of psychological defenses occurs when the emotional meaning attributed to the event is extremely negative. This is most evident when children are the patients, or when emergency personnel identify with the victim. As another illustration, if a nurse believes that the cause of a patient's death was her clinical incompetence, substantial distress and increased risk of traumatization may result due to an inability to avoid the negative emotional impact of the trauma. Not being able to use affective avoidance is likely to impede concentration for subsequent emergency situations. Thus, it was expected that individuals who attributed more negative emotional meaning to a trauma would experience more distress and be more at risk of developing PTSD than those who attributed little or no emotional meaning.

The present study explored the relationships among affective avoidance, the intensity of both physical and emotional threat, frequency of past traumatic events, and current levels of PTSD.

Hypotheses

1. It was hypothesized that the frequency of occurrence of a traumatic event in the past year would be positively correlated with both physical and emotional threat.
2. It was hypothesized that perceived physical threat of a

traumatic event would be negatively correlated with affective avoidance, when controlling for perceived emotional threat.

3. It was hypothesized that perceived emotional threat of a traumatic event would be negatively correlated with affective avoidance, when controlling for perceived physical threat.

4. It was hypothesized that perceived physical threat of a traumatic event would be positively correlated with PTSD symptomatology, when controlling for both perceived emotional threat and affective avoidance.

5. It was hypothesized that emotional threat of a traumatic event would be positively correlated with PTSD symptomatology, when controlling for both perceived physical threat and affective avoidance.

6. It was hypothesized that affective avoidance would be negatively correlated with PTSD symptomatology, when controlling for both perceived physical and emotional threat.

Method

Participants

Eligible participants in this study were nurses working in federal correctional institutions in the Prairie Region (Alberta, Saskatchewan, Manitoba) who indicated on their provincial licensure application that they currently

work in a federal correctional institution. Of the 177 questionnaires that were mailed out, N = 77 (50 registered nurses, 26 registered psychiatric nurses, and 1 non-specified) were returned. The correctional nurses provide medical care to inmates on a daily basis. Occasionally correctional nurses are the front line medical personnel called to respond to medical emergencies (i.e., slashing, stabbings, hangings). The 13 federal correctional institutions ranged from minimum, medium, multilevel (minimum and medium), and maximum levels of security (see Appendix O). All nurses in this study either belonged to the Professional Institute of the Public Service or were casually employed on individual contracts. The purpose of the study was discussed with union personnel to elicit their support. All participants were individually mailed (c/o their respective institution) a letter asking them to participate in the study (Appendix J). The aims and purpose of the study, the nature of information to be asked, and the time requirements were explained in the letter. The participants were also mailed a letter signed by both their employer (Correctional Service of Canada) and union (Professional Institute of the Public Service), endorsing the study (Appendix K).

The study group received a declaration of informed

consent assuring that confidentiality would be maintained, including with regard to any publication that may arise (Appendix C). To assure that no information would be used for performance evaluation purposes, the correctional nurses' employer (Correctional Service of Canada) and their union (the Professional Institute of Public Service) were not made aware of the participating nurses' identity.

Measurement

Exposure measure

The development of measures of exposure to traumatic events has lagged behind PTSD measures. One explanation for this lag may be the problems involved in accurately measuring exposure to traumatic events. A second explanation is that traumatic events have been variously categorized by event types, victim's subjective appraisal of their experience, and by salient components of the exposure, such as the degree of physical injury and capacity to escape (Carlson, 1996).

Consequently, an exposure measure was developed by the researcher, for the purpose of this study (Appendix F). The scale includes the defining feature of a traumatic event: "perception of the event as extremely negative." The two subscales are actual (or potential) physical and emotional threat. Respondents were asked to rate the physical and emotional threat associated with various events, at the time

the event occurred (then) and currently (now), from 1 (not at all threatening) to 5 (very threatening). They were also asked to indicate which of their reported events was perceived as the most distressing and to explain why this event was so distressing. Other aspects measured by this scale included the number of times each event had occurred in the past year and the number of months elapsed since the event's last occurrence.

Measure of Trauma Responses and PTSD Symptomatology: Impact of Event Scale-Revised (IES-R)

The Impact of Event Scale-Revised (IES-R; Weiss & Marmar, 1996) is a 22-item scale (Appendix G), specifically developed to tap the central components of the diagnostic criteria for PTSD: (a) Intrusion, which is characterized by recollective thoughts and images, upsetting dreams, and strong emotional states (items 1, 2, 3, 6, 9, 16, 20); (b) avoidance, which is characterized by ideational constriction, blunted sensation, behavioral inhibition, and emotional numbness (items 5, 7, 8, 11, 12, 13, 17, 22); and (c) hyperarousal, which is characterized by anger, irritability, jumpiness and exaggerated startle response, trouble concentrating, psychophysiological arousal upon exposure to reminders, and hypervigilance (items 4, 10, 14, 15, 18, 19, 21). Respondents were asked to rate on a 5-point scale from 0 (not at all) to 4 (extremely) how

affected they were by each difficulty with respect to the event they reported as most distressing on the exposure scale.

The IES-R was developed from two studies of the response of emergency service personnel to traumatic events (Marmar, Weiss, Metzler, Ronfeldt, & Foreman, 1996). The first was a study of the I-880 freeway collapse that occurred during the 1989 Loma Prieta earthquake. The second study included workers exposed to the 1994 Northridge earthquake in the Los Angeles area. The IES-R has been shown to have high internal consistency (Intrusion = .87 - .90; avoidance = .84 - .85; and hyperarousal = .79 - .90) and good test-retest reliability (Intrusion = .57 - .94; avoidance = .51 - .89; and hyperarousal = .59 - .92) (Marmar, Weiss, et al., 1996).

Measure of Psychological Symptoms: Brief Symptom Inventory (BSI)

The Brief Symptom Inventory (BSI; Derogatis & Spencer, 1982) is a 53-item self-report symptom inventory (Appendix H) designed to represent the psychological symptoms of psychiatric and medical patients, as well as community non-patient populations. It is an abbreviated version of Derogatis and Spencer's (1982) Symptom Check List (SCL-90).

The BSI includes three global indices, nine primary symptom dimensions, and 53 items, which descend from general

superordinate measures of psychological status, to syndromal representations, and to individual symptoms. The three global indices which represent distinct components of psychological disorder include: (a) Global Severity Index (GSI); (b) Positive Symptom Total (PST); and (c) Positive Symptom Distress Index (PSDI), (Derogatis, Yevzeroff, & Wittelsberger, 1975). The nine primary symptom dimensions consist of: (a) somatization, (b) obsessive-compulsive (concentration problems), (c) interpersonal sensitivity (interpersonal relationship problems), (d) depression, (e) anxiety, (f) hostility (anger), (g) phobic anxiety (fear), (h) paranoid ideation (suspiciousness), and (i) psychoticism (alienation).

Respondents were given the following instructions: "On the next page is a list of problems people sometimes have. Please read each one carefully, and blacken the circle that best describes how much that problem has distressed or bothered you during the past month including today." Many studies have demonstrated that this assessment interval usually reveals the most relevant clinical information (Farber, Weinerman, & Kuypers, 1984). Respondents were asked to rate the items on a five-point scale ranging from 0 (not at all) to 4 (extremely).

Scoring of the BSI is gender-based, that is, separate

scores are derived for males and females. The development of gender-appropriate norms is based on consistent research documenting higher psychological symptoms for females. Gender-based norms make the interpretation of test scores more precise (Derogatis & Spencer, 1982).

Internal consistency, as assessed by Cronbach's alpha, ranges from a low of 0.71 on the Psychoticism dimension to a high of 0.85 on Depression (Derogatis & Spencer, 1982; Cochran & Hale, 1985). Test-retest reliabilities (over a period of two weeks) range from a low of 0.68 for Somatization to a high of 0.91 for Phobic Anxiety (Derogatis & Spencer, 1982). Finally, many studies have lent support to BSI's convergent and discriminant validity (e.g., Dahlstrom, 1969; Derogatis & Cleary, 1977a, 1977b; Derogatis, Rickels, & Rock, 1976).

Demographic Scale

A demographic scale was developed for the purpose of this study by the researcher (Appendix E). This scale includes items such as, formal nursing experience, academic achievement, job status, nursing work classification, and correctional work experience.

Stress, Stressor, Social Support, and Correctional Orientation Scales (SSSCO)

The Stress, Stressor, Social Support, and Correctional Orientation Scales developed by Cullen and his colleagues

for use with correctional officers (Cullen, Link, Wolfe, & Frank, 1985) and police officers (Cullen, Lemming, Link, Wozniak, 1985) was administered in this study (Appendix I). The scales measure two job-related stressors, namely, role problems and potential for physical danger; four types of social support, namely, peer, supervisor, family, and community; psychological work stress; and correctional orientation. Cullen et al. reported an internal consistency ranging from .66 to .84 (Cronbach's alpha) for the sub-scales.

In the present study, only a random subset of the original items comprising each sub-scale was selected. Moreover, items from the correctional orientation and potential for physical danger sub-scales were not included. The 34 selected items were randomly ordered in the questionnaire. Items comprising each scale were as follows: (a) Role problems (items 1, 6, 11, 15, 29); (b) work stress (items 14, 19, 20, 21, 26, 28); (c) supervisor support (items 2, 7, 12, 16, 22); (d) peer support (items 3, 8, 13, 23); (e) family support (items 4, 9, 17, 18, 24, 25, 27); (f) community support (items 5, 10); and (g) work satisfaction (items 30, 31, 32, 33, 34). Respondents were asked to rate on a 7-point scale from 1 (very strongly agree) to 7 (very strongly disagree) the extent to which they agreed or disagreed with the statements. Items 2, 3,

4, 5, 7, 10, 12, 13, 15, 16, 18, 20, 21, 25, and 27 were reverse-scored so that a high rating reflected a positive situation.

Procedure

Following approval of the study by the Department of Psychology, its Human Ethical Review Committee, the employer (Correctional Service of Canada), and the union (Professional Institute of Public Serve), 177 correctional nurses were contacted by mail requesting their participation.

The present study adhered to Dilman's (1978) total design method (TDM), which is a step-by-step process of how to successfully conduct mail surveys. Based on a theory of why individuals do and do not respond to questionnaires, the TDM aims to maximize both the quantity and quality of responses. Stated differently, the notion that virtually any step in the process of sending and retrieving questionnaires may produce a nonresponse constitutes the frame of reference from which the procedures for implementing the TDM were developed. The TDM is based on convincing individuals that a problem exists that is important to the membership with which they identify and also that their help in finding a solution to this problem is needed.

First, a cover letter emphasizing the importance of the subject of the study, its benefit to the membership with which the respondent identifies, and the personal importance of the respondent to the study's success was mailed to all respondents, along with a booklet of questionnaires with instructions (Appendix D) and a self-addressed envelop. One week following the initial mailing, a postcard follow-up was sent to all recipients (Appendix L). This postcard was written as both a thank you for individuals who have already returned their questionnaires and a reminder for those who have not already done so. A second follow-up was mailed three weeks following the initial mailing (Appendix M) and a third and final follow-up was mailed six weeks following the initial mailing (Appendix N).

Confidentiality was maintained by requesting that nurses not indicate their name anywhere on the questionnaires. The nurses were also requested to not indicate their address on the return envelope.

The package of questionnaires (see Appendices C-I) contained the following: (a) A declaration of consent form, (b) the questionnaire instructions (Appendix C), (c) the demographic measure, (d) the exposure scale, (e) the Impact of Events Scale-Revised (IES-R; Weiss & Marmar, 1996), (f) the Brief Symptom Inventory (BSI; Derogatis & Spencer, 1982), and (g) the Stress, Stressors, Social Support and

Correctional Orientation Scales (Cullen, Link, Wolfe, & Frank, 1985; Cullen, Lemming, Link, Wozniak, 1985).

To minimize order effects, two different arrangements of the booklets were mailed. In the first arrangement, the questionnaires were ordered as follows: instruction letter; demographic measure; exposure scale; Impact of Events Scale-Revised (IES-R; Weiss & Marmar, 1996); Brief Symptom Inventory (BSI; Derogatis & Spencer, 1982); and Stress, Stressors, Social Support and Correctional Orientation Scales (Cullen, Link, Wolfe, & Frank, 1985; Cullen, Lemming, Link, & Wozniak, 1985). In the second booklet arrangement, the questionnaires were ordered as follows: instruction letter; demographic measure; exposure scale; Impact of Events Scale-Revised; Stress, Stressors, Social Support and Correctional Orientation Scales; and Brief Symptom Inventory.

Results

Seventy-seven of the 177 questionnaires that were mailed out (44%) were returned. The overall response rate is lower than Corneil and Kirwan's (1994) response rate among northern registered nurses (63%) but higher than Powell's (1996) among emergency and intensive care registered nurses (35.5%). The higher response rate reported by Corneil and Kirwan (1994) could have been due to

the fact that these researchers were well known to the participants. Moreover, they were heading a critical incident stress management program at the time of the study, with direct benefits to their sample.

All 77 participants completed the demographics and the Stress, Stressor, Social Support, and Correctional Orientation Scale. Seventy-four participants (96.10%) completed the BSI, 68 (88.31%) completed the IES-R, and 74 (96.10%) completed the exposure scale. For a given analysis (e.g., correlation, t-test, F-test, etc.), participants were excluded if they had missing values on variables required by the analysis. Thus, different analyses might involve different numbers of participants.

Demographics

Table 1 outlines the percentage of participants falling into various categories. With respect to gender, a much larger proportion of the nurses were female than male. This is not surprising, considering females more than males tend to self-select into the nursing profession. Although this finding is echoed throughout the literature, it is unclear whether the percentage of males (25%) is similar to that in other nursing groups.

Table 1

Demographics of Correctional Nurses from the Present Study

	<u>Percentage of</u> <u>Sample (N = 77)</u>
Gender	
Male	25
Female	75
Age	
Less than 36 years	26
36 - 46 years	42
More than 46 years	32
Nursing designation	
Registered nurse	65
Registered psychiatric nurse	34
Non-specified	1
Educational background	
Diploma	84
Baccalaureate	14
Masters (or higher)	1
Non-specified	1
Level of security	
Minimum	8
Medium	17
Maximum	6
Multilevel	69
Employment status	
Indeterminant (full-time)	92
Term or casual	8
Formal nursing experience	
Less than 5 years	10
6 - 10 years	17
11 - 15 years	14
16 - 20 years	26
More than 20 years	33
Correctional experience	
Less than 1 year	6
2 - 4 years	25
5 - 7 years	12
8 - 10 years	10
more than 10 years	47
Smoking status	
Non-smoker	83
Smoker	17

Table 1 (continued)

Sought professional help for
a stress-related problem

No	61
Yes	39

Participated in CISD session

No	34
Yes	66

Reluctant to disclose traumatic event

No	75
Yes	25

Few nurses worked in minimum and maximum security correctional institutions. It should be noted, however, that only one out of the 13 institutions sampled had a maximum level of security. Moreover, six of the institutions had a multilevel (medium/minimum) security level, whereas only four and two represented minimum and medium institutions, respectively. Multilevel institutions also had more nurses. This likely explains why the majority of participants reported working in multilevel security institutions (see Appendix O).

In terms of correctional and nursing experience, almost half of nurses had more than 10 years of correctional experience and many had 2-4 years of experience. Proportionally fewer nurses fell in the 5-7 and 8-10 year categories. This curvilinear trend may reflect fluctuating hiring practices over the last decade. Moreover, the majority of the participants were employed on a full-time basis and were diploma nurses.

In terms of health habits and help-seeking behaviours, 83% of participants were non-smokers, 39% reported seeking help from a professional for a stress-related problem, and 66% reported having participated in a formal group critical incident stress debriefing. However, 25% of participants reported experiencing a traumatic event at work, which they

were reluctant to disclose to peers and/or supervisors for fear of compromising their employment situation.

Threatening Events

The 22 events from the exposure scale have been organized into six categories on the basis of their nature. The categories are actual threat to life, personal abuse, witnessing abuse of other, sexual assault, unique fears from working with a high risk population, and witnessing serious injury or death of other (see Table 2). For each event, Table 2 indicates the percentage of participants endorsing the event as having occurred in the past year, the mean number of times the event occurred in the past year, the mean number of months elapsed since the last occurrence, and the mean physical and emotional threat then and now associated with the event.

Verbal abuse by an inmate was the most reported event (87.8%). Corneil and Kirwan (1994) also found verbal abuse to be the most reported event in their study (72.3%). Also noteworthy is the finding that in the current study, verbal abuse by a peer was high (35.1%), as was being involved in a hostage taking (23.0%). However, most participants described individual hostage taking scenarios of short duration.

Table 2

Threatening Events Experienced Within Last Year

(Standard deviations and the number of observations appear below each mean)

Category and Events	Percent of nurses (N = 74) ^a	Prev. occur.	Months Elapsed	Phys. then	Phys. now	Emo then	Emo. now
ACTUAL THREAT TO LIFE							
Physically attacked (without a weapon) by inmate/patient with intent to kill or harm	13.5	1.11 (.33) n=9	5.78 (4.68) n=9	4.56 (.73) n=9	2.00 (1.32) n=9	4.30 (1.06) n=10	2.50 (1.18) n=10
Hostage taking	23.0	1.67 (.72) n=15	3.71 (4.16) n=14	2.60 (1.68) n=15	2.13 (.83) n=15	3.82 (1.38) n=17	2.71 (1.21) n=17
Attacked with a weapon by inmate/patient	10.8	1.14 (.38) n=7	7.00 (4.32) n=7	3.71 (1.38) n=7	2.00 (.93) n=8	3.71 (1.70) n=7	2.13 (1.13) n=8
PERSONAL ABUSE							
Verbal abuse/threat by inmate/ patient	87.8	10.29 (16.16) n=48	3.60 (3.82) n=48	3.14 (1.27) n=57	1.79 (.91) n=56	3.13 (1.43) n=60	2.10 (1.08) n=60
Verbal abuse/threat by peer/ Staff	35.1	3.42 (4.17) n=24	5.00 (4.48) n=23	1.68 (.90) n=25	1.25 (.44) n=24	3.32 (1.46) n=25	2.48 (1.36) n=25
Physical assault (e.g., pushing, shoving) by peer/staff	8.1	1.60 (.89) n=5	7.25 (4.86) n=4	3.00 (1.41) n=4	1.25 (.50) n=4	3.20 (1.79) n=5	2.20 (1.30) n=5
WITNESSING ABUSE OF OTHER							
Witnessed staff being attacked with a weapon by inmate/ patient	10.8	1.17 (.41) n=6	6.50 (3.67) n=6	3.57 (1.27) n=7	2.29 (1.11) n=7	3.63 (1.41) n=8	2.14 (1.07) n=7

Table 2 (continued)

Threatening Events Experienced Within Last Year

(Standard deviations and the number of observations appear below each mean)

Category and Events	Percent of nurses (N = 74) ^a	Prev. occur.	Months Elapsed	Phys. then	Phys. now	Emo then	Emo. now
Witnessed staff being attacked without a weapon by inmate/ patient with intent to kill or harm	23.0	2.53 (3.18) n=15	5.56 (3.39) n=16	3.13 (1.09) n=16	1.63 (.96) n=16	3.59 (1.54) n=17	2.13 (1.41) n=16
SEXUAL ASSAULT							
Sexually assaulted (other than raped) by inmate/patient	4.1	2.00 (.00) n=2	1.00 (.00) n=2	2.50 (.71) n=2	1.67 (1.15) n=3	3.00 (.00) n=2	2.00 (1.00) n=3
Raped by inmate/patient	1.4				2.00		2.00
Raped by staff	1.4				1.00		1.00
Sexually assaulted (other than raped) by peer/staff	1.4				1.00		1.00
UNIQUE FEARS FROM WORKING WITH A HIGH RISK POPULATION							
Possible/actual contact with infectious body fluids (e.g. Hepatitis B, HIV)	40.5	10.83 (17.89) n=18	4.15 (4.40) n=20	2.42 (.99) n=26	1.93 (1.17) n=27	2.96 (1.28) n=26	2.08 (1.15) n=25
Alone with a dangerous inmate/patient	66.2	18.09 (27.28) n=34	3.29 (4.15) n=31	3.15 (1.33) n=46	2.06 (1.11) n=47	3.04 (1.49) n=46	2.17 (1.12) n=46

Table 2 (continued)

Threatening Events Experienced Within Last Year

(Standard deviations and the number of observations appear below each mean)

Category and Events	Percent of nurses (N = 74) ^a	Prev. occur.	Months Elapsed	Phys. then	Phys. now	Emo then	Emo. now
WITNESSING SERIOUS INJURY OR DEATH OF OTHER							
Serious injury or death of a inmate/patient due to non- violent causes (e.g. accident, illness)	50.0	4.76 (16.72) n=34	3.52 (3.04) n=33	1.07 (.37) n=30	1.13 (.43) n=30	2.23 (1.36) n=31	1.61 (1.12) n=31
Serious injury or death of a inmate/patient due to violent causes (e.g. stabbing)	21.6	2.43 (1.22) n=14	3.71 (3.00) n=14	1.27 (.59) n=15	1.27 (.59) n=15	1.60 (.83) n=15	1.33 (.62) n=15
Saw a completed suicide	14.9	2.09 (3.36) n=11	6.00 (5.37) n=8	1.10 (.32) n=10	1.10 (.32) n=10	2.73 (1.74) n=11	2.27 (1.56) n=11
Exposed to an attempted Suicide	48.6	5.62 (6.46) n=32	4.75 (4.11) n=32	1.61 (1.12) n=33	1.33 (.92) n=33	2.41 (1.42) n=34	1.79 (1.34) n=34
Prolonged resuscitation	12.2	1.56 (.73) n=9	4.56 (5.05) n=9	1.33 (.50) n=9	1.22 (.44) n=9	2.78 (1.92) n=9	2.00 (1.50) n=9
Handled a dismembered or disfigured body	2.7	12.50 (16.26) n=2	1.00 (.00) n=2	3.00 (1.41) n=2	1.50 (.71) n=2	4.00 (1.41) n=2	2.00 (1.41) n=2
Death of a colleague	24.3	2.06 (3.04) n=18	5.33 (3.63) n=18	1.06 (.25) n=16	1.00 (.00) n=14	1.88 (1.27) n=17	1.35 (.70) n=17

Table 2 (continued)

Threatening Events Experienced Within Last Year

(Standard deviations and the number of observations appear below each mean)

Category and Events	Percent of nurses (N = 74) ^a	Prev. occur.	Months Elapsed	Phys. then	Phys. now	Emo then	Emo. now
OTHER	9.5	6.57 (5.13) n=7	2.00 (.89) n=6	2.57 (1.99) n=7	1.57 (1.51) n=7	3.43 (1.62) n=7	1.57 (1.51) n=7

Note. Prev.occur.= Previous occurrences of event; Months Elapsed = Months Elapsed Since Last Occurrence; Phys.then = Physical Threat Then; Phys.now = Physical Threat Now; Emo.then = Emotional Threat Then; Emo.now = Emotional Threat Now; Other = inmate inflicting self-harm; heroine overdose; accumulated past events (e.g., feeling demeaned by inmates, feeling unsupported by peers/superiors).

a = 74 of the 77 participants completed the Exposure Scale

On the exposure scale, participants were required to specify a most distressing event to which they referred when completing the IES-R (Appendix E). The event that was chosen most frequently as being the most distressing was 'verbal abuse/threat by inmate/patient' (20.3%), followed by 'hostage taking' (13.5%), 'verbal abuse/threat by peer/other staff' (12.2%), and 'physical attack (without a weapon) by inmate/patient with intent to kill or harm' (6.8%). Finally, 17.6% of participants did not report a most distressing event. Participants were also asked about the emotional meaning of their most distressing event. Some of the examples cited for 'verbal abuse/threat by inmate/patient' were (a) feelings of anger due to loss of personal self-worth, (b) loss of control of personal integrity, (c) fear of loss for family and oneself, and (d) feeling unsupported when peer or supervisor minimized the extent of abuse. Examples for 'hostage taking' included (a) re-evaluation of life and death, (b) anger due to loss of personal integrity, and (c) fear for the potential subsequent loss(es) of family members. Finally, for 'verbal abuse/threat by peer/other staff', interpretations included (a) feeling belittled and devalued, (b) victimized, and (c) feeling unsupported. All of these events involved feelings of being de-valued, re-evaluation of life and death issues, and issues pertaining to fairness.

Threat associated with the most distressing event.

Physical and emotional threat (then and now) associated with the event specified as most distressing were used to test the hypotheses of interest in the current study. Means are displayed at the top of Table 3. Also, the mean number of occurrences, in the past year, of the most distressing event was 3.34 ($SD = 4.85$, $N = 53$).

An analysis of variance with threat (physical, emotional) and time (then, now) as within-subjects factors yielded significant effects of threat, $F(1, 51) = 19.42$, $p < .001$, and time, $F(1, 51) = 45.38$, $p < .001$, and a nonsignificant interaction, $F(1, 51) = 1.32$, $p = .255$. Thus participants tended to judge their most distressing event as being more emotionally than physically threatening. Also, threat declined with time and this decline was the same for the physical and emotional components.

Physical threat then and emotional threat then were positively correlated, $r = .39$, $p = .003$, as were physical threat now and emotional threat now, $r = .44$, $p = .001$. Thus, as the physical threat of the most distressing event increased, so did its emotional threat. However, number of occurrences of the event in the past year was not significantly correlated with physical and emotional threat (then and now), $rs = .02, -.21, -.12$, and $-.16$, respectively, four $ps > .150$. Thus HYPOTHESIS 1 (see page

Table 3

Physical and Emotional Threat Then and Now for the Most Distressing Event (Top) and Averaged Across Events (Bottom).

Most Distressing Event	Mean	SD	N
pthen1	2.88	1.60	56
pnow1	1.80	1.02	54
ethen1	3.67	1.41	58
enow1	2.39	1.32	57
Across Events			
pthen2	2.39	.97	64
pnow2	1.60	.80	64
ethen2	2.82	1.21	64
enow2	1.97	.98	64

Note. pthen1 = Physical Threat Then for Most Distressing Event; pnow1 = Physical Threat Now for Most Distressing Event; ethen1 = Emotional Threat Then for Most Distressing Event; enow1 = Emotional Threat Now for Most Distressing Event; pthen2 = Physical Threat Then Across Events; pnow2 = Physical Threat Now Across Events; ethen2 = Emotional Threat Then Across Events; enow2 = Emotional Threat Now Across Events.

36) was not supported. Previous occurrences had neither a sensitization nor a toughening effect on subsequent perceptions of physical and emotional threat.

Threat across events. A different set of physical and emotional threat (then and now) scores was determined for each participant by averaging across the events that were endorsed. Here, only those events for which a participant gave all four ratings were averaged. Results are displayed at the bottom of Table 3.

An analysis of variance with threat (physical, emotional) and time (then, now) as within-subjects factors yielded significant effects of threat, $F(1, 63) = 18.57$, $p < .001$, and time, $F(1, 63) = 76.46$, $p < .001$, and a nonsignificant interaction, $F(1, 63) = 1.10$, $p = .298$. Thus participants tended to judge events as being more emotionally than physically threatening. Also, threat declined with time, and this decline was the same for the physical and emotional components.

Physical threat then and emotional threat then were positively correlated, $r = .69$, $p < .001$, as were physical threat now and emotional threat now, $r = .72$, $p < .001$. Thus, as the physical threat of an event increased, so did its emotional threat.

Affective Avoidance and PTSD

For each participant, affective avoidance was calculated by averaging the responses to those items on the IES-R, related to affective avoidance (i.e., items 5, 7, 12, 13). Scores on the Intrusion, Avoidance, and Hyperarousal sub-scales of the IES-R were calculated by averaging the responses to those items belonging to the corresponding sub-scale. The resulting three scores were then summed to obtain a PTSD score. Mean affective avoidance and PTSD scores on scales of 0 - 4 and 0 - 12 were 0.93 ($\underline{SD} = .88$, $\underline{N} = 68$) and 3.89 ($\underline{SD} = 3.03$, $\underline{N} = 68$), respectively. Affective avoidance and PTSD were highly correlated, $\underline{r} = .76$, $\underline{p} < .001$, which is not surprising given that the items comprising affective avoidance were a subset of those comprising PTSD (see Appendix B).

Simple correlations between various predictor and outcome variables are shown in Table 4. As the perceived physical and emotional threat of an event increases, so do PTSD scores. The last three predictor variables in Table 4 will be discussed later.

To determine the relative contributions of each variable to the prediction of affective avoidance and PTSD, and to test the hypotheses of interest in the present study,

Table 4

Simple Correlations Between Predictors and Outcome Measures

Predictor Variables	Affective Avoidance	PTSD
pthen1	.19	.25*
pnw1	.20	.23*
ethen1	.32**	.58***
enow1	.28**	.57***
pthen2	.23*	.44***
pnw2	.32**	.41***
ethen2	.43***	.73***
enow2	.36***	.64***
n_events	.29**	.34***
wk_env	-.36***	-.50***
hm_env	-.22*	-.20

Note. pthen1 = Physical Threat Then for Most Distressing Event; pnw1 = Physical Threat Now for Most Distressing Event; ethen1 = Emotional Threat Then for Most Distressing Event; enow1 = Emotional Threat Now for Most Distressing Event; pthen2 = Physical Threat Then Across Events; pnw2 = Physical Threat Now Across Events; ethen2 = Emotional Threat Then Across Events; enow2 = Emotional Threat Now Across Events; n_events = Number of Events Endorsed on Exposure Scale; wk_env = Work Environment; hm_env = Home Environment.

* $p < .10$

** $p < .05$

*** $p < .01$

part (semi-partial) correlations were computed. Table 5 shows 16 sets of part correlations. In a set, the part correlation between the dependent variable and a predictor simultaneously controlled for all other predictors in the set. For example, set 1 had affective avoidance as the dependent variable and physical and emotional threat then for the most distressing event as the predictors. The part correlation between physical threat then and affective avoidance, controlling for emotional threat then, was $r = .10$, which was not significant, $p = .462$. Set 9 had PTSD as the dependent variable and physical and emotional threat then for the most distressing event and affective avoidance as the predictors. The part correlation between emotional threat then and PTSD, controlling for physical threat then and affective avoidance simultaneously, was $r = .35$, which was significant, $p < .001$.

Hypotheses 2 and 3. Sets 1 to 4 in Table 5 clearly show that the part correlations between emotional threat and affective avoidance, controlling for physical threat, are consistently positive and significant or approaching significance. This is inconsistent with HYPOTHESIS 3, which predicted negative correlations (see page 37). In contrast, the part correlations between physical threat and affective avoidance, controlling for emotional threat, are

Table 5

Part (i.e., semi-partial) Correlations

Set	Dependent Variable	Predictors	Part Correlations	p-value
1	aff_av	pthen1	.10	.462 <i>ns</i>
		ethen1	.23	.087
2	aff_av	pnow1	.14	.288 <i>ns</i>
		enow1	.20	.133
3	aff_av	pthen2	-.10	.426 <i>ns</i>
		ethen2	.38	.002
4	aff_av	pnow2	.09	.489 <i>ns</i>
		enow2	.19	.119
5	ptsd	pthen1	.06	.595 <i>ns</i>
		ethen1	.49	<.001
6	ptsd	pnow1	.06	.593 <i>ns</i>
		enow1	.48	<.001
7	ptsd	pthen2	-.08	.364 <i>ns</i>
		ethen2	.59	<.001
8	ptsd	pnow2	-.06	.526 <i>ns</i>
		enow2	.50	<.001
9	ptsd	pthen1	.00	.958 <i>ns</i>
		ethen1	.35	<.001 ✓ <i>sgn.</i>
		aff_av	.55	<.001
10	ptsd	pnow1	-.02	.816
		enow1	.35	<.001
		aff_av	.55	<.001

Table 5 (continued)

Part (i.e., semi-partial) Correlations

Set	Dependent Variable	Predictors	Part Correlations	p-value
11	ptsd	pthen2	-.03	.617 ns
		ethen2	.36	<.001
		aff_av	.46	<.001
12	ptsd	pnow2	-.11	.116 ns
		enow2	.37	<.001
		aff_av	.54	<.001
13	ptsd	pthen1	.06	.568
		ethen1	.43	<.001
		n_events	.07	.521
		wk_env	-.37	<.001
		hm_env	-.11	.276
14	ptsd	pnow1	.04	.751
		enow1	.34	.004
		n_events	.08	.468
		wk_env	-.23	.038
		hm_env	-.20	.075
15	ptsd	pthen2	-.06	.459
		ethen2	.45	<.001
		n_events	.10	.262
		wk_env	-.17	.061
		hm_env	-.12	.163

Table 5 (continued)

Part (i.e., semi-partial) Correlations

Set	Dependent Variable	Predictors	Part Correlations	p-value
16	ptsd	pnow2	-.06	.529
		enow2	.38	<.001
		n_events	.15	.123
		wk_env	-.10	.288
		hm_env	-.20	.038

Note. aff_av = Affective Avoidance; ptsd = Posttraumatic Stress Disorder; pthen1 = Physical Threat Then for Most Distressing Event; pnow1 = Physical Threat Now for Most Distressing Event; ethen1 = Emotional Threat Then for Most Distressing Event; enow1 = Emotional Threat Now for Most Distressing Event; pthen2 = Physical Threat Then Across Events; pnow2 = Physical Threat Now Across Events; ethen2 = Emotional Threat Across Events; enow2 = Emotional Threat Now Across Events; n_events = Number of Events Endorsed on Exposure Scale; wk_env = Work Environment; hm_env = Home Environment.

consistently nonsignificant. Thus, there is no evidence supporting HYPOTHESIS 2, which predicted negative correlations.

A similar pattern was observed when PTSD was the dependent variable. Sets 5 to 8 in Table 5 clearly show that the part correlations between physical threat and PTSD, controlling for emotional threat, are consistently small and nonsignificant. In contrast, the part correlations between emotional threat and PTSD, controlling for physical threat, are consistently positive and significant.

Hypotheses 4, 5, and 6. Sets 9 to 12 in Table 5 show that the part correlations between physical threat and PTSD, controlling for emotional threat and affective avoidance, are consistently small and nonsignificant. This does not support HYPOTHESIS 4, which predicted positive correlations. In contrast, the part correlations between emotional threat and PTSD, when controlling for physical threat and affective avoidance, were consistently positive and significant. This supports HYPOTHESIS 5. Finally, the part correlations between affective avoidance and PTSD, controlling for physical and emotional threat, are consistently positive and significant. This is inconsistent with HYPOTHESIS 6, which predicted negative correlations.

Work and Home Environment

For each participant, a work environment score was calculated by averaging responses to those items on the Stress, Stressor, Social Support, and Correctional Orientation (SSSCO) Scale comprising the role problems, work stress, supervisor support, and peer support sub-scales. Similarly, a home environment score was calculated by averaging responses to those items comprising the family support and community support sub-scales. The environment and sub-scale scores ranged from 1 (negative) to 7 (positive), with a high score indicating a positive situation. For example, a score of 7 on the work stress sub-scale would indicate little stress, and a score of 7 on the community support sub-scale would indicate good support. Scores on the job satisfaction sub-scale ranged from 1 (dissatisfied) to 3 (satisfied).

Sub-scale and environment scores are displayed in the first column of Table 6. On average, participants rated their home environment as being generally positive, and their work environment as being neither particularly negative nor particularly positive. Because the SSSCO Scale has only been used in three prior studies (Cullen, Link, Wolfe, & Frank, 1985; Cullen, Lemming, Link, & Wozniak, 1985; Rosine, 1992), subscale reliabilities (Cronbach's

Table 6

Means and Reliabilities for Scales Measuring Stress,
Stressors, and Social Support

Scales	Current Study Mean (SD) (N = 77)	Current Study (alpha)	Correctional ^a Officers (alpha)	Police ^b Officers (alpha)
Correctional Orientation	*	*	.81	*
Dangerousness	*	*	.78	.64
Role Problems	4.13 (1.40)	.82	.66	.75
Work Stress	3.86 (1.34)	.86	.74	.78
Supervisor Support	3.76 (1.33)	.70	*	.81
Peer support	4.11 (1.29)	.66	*	.74
Family support	4.86 (1.37)	.81	*	.84
Community support	5.97 (1.16)	.44	*	.74
Job Satisfaction ^c	2.19 (.54)	.84	.84	*
Work Environment	3.95 (1.02)			
Home Environment	5.11 (1.14)			

* Not included in study

^a Cullen, Link, Wolfe & Frank Study (1985)

^b Cullen, Lemming, Link & Wozniak Study (1985)

^c Scale from 1 (dissatisfied) to 3 (satisfied)

alpha) were computed and compared to those of previous studies (columns 2-4 in Table 6). With the exception of community support (which was comprised of only two items in the present study), the reliabilities were generally similar to those of prior studies.

Work and home environment were not significantly correlated, $r = .06$, $p = .580$. However, work environment was negatively correlated with the number of threatening events (out of 22) endorsed on the exposure scale, $r = -.40$, $p < .001$. Nurses endorsing a greater number of events on the exposure scale reported a more negative work environment. Number of events endorsed was not significantly correlated with home environment, $r = .03$, $p = .804$. The bottom of Table 4 shows that number of events endorsed and work environment, but not home environment, were significantly related to PTSD. The greater the number of events endorsed and the more negative the work environment, the higher the PTSD scores.

The part correlations in sets 13 to 16 in Table 5 included not only physical and emotional threat, but also other predictors of PTSD (i.e., number of events endorsed on the exposure scale, work environment, and home environment). The part correlations between physical threat and PTSD, simultaneously controlling for emotional threat, number of events endorsed, and work and home environment, never

approached significance. Thus, the physical threat of an event adds nothing to the prediction of PTSD scores over and above what the other variables add. In contrast, emotional threat and work environment each contribute to the prediction of PTSD, with emotional threat being the greatest contributor.

In summary, the analyses in Table 5 show that the perceived emotional threat of an event is the most important factor in the prediction of PTSD symptomatology. In contrast, and perhaps counterintuitively, the perceived physical threat of an event is not important. Finally, work environment contributes to the prediction of PTSD symptomatology.

Comparisons with Other Nursing Studies

The results of the present study were also compared to those of other studies using different nursing populations. For example, Corneil and Kirwan (1994) studied a group of registered nurses working in northern environments. These investigators used the original IES rather than the IES-R used in the present study. To draw comparisons with the Corneil and Kirwan study, the 22-item IES-R (scaled from 0 - 4) was reduced to the original 15-item IES (scaled from 0 - 3) by eliminating the seven hyperarousal items and compressing the 5-point scale to a 4-point scale (4 on the IES-R was recoded as 3). Responses on the 15 items were

summed to get a total IES score. Scores on the Intrusion and Avoidance sub-scales were calculated by summing responses to the items making up the sub-scales.

Table 7 compares the IES results of the current study with those of Corneil and Kirwan (1994). The two nursing groups did not differ significantly on the IES total score nor on the two sub-scales. Based on Horowitz, Wilner, and Alvarez's (1979) cut point (IES total > 26), 36.8% of the correctional nurses were considered as experiencing a traumatic stress reaction, which is almost identical to the 36.4% found among northern registered nurses.

Participants' scores on the various sub-scales of the BSI were compared to those of Corneil and Kirwan's (1994) sample of northern nurses, and to Derogatis and Spencer's (1982) nonpatient norms. The comparisons are outlined in Table 8. Scores of correctional nurses in the present study were significantly higher than those of nonpatient norms, and generally similar to those of northern nurses. However, the global severity index was lower in correctional than northern nurses. The latter finding may reflect the greater work and environmental challenges faced by northern nurses.

The sample of correctional nurses in the present study consisted of registered nurses (RNs) and registered psychiatric nurses (RPNs). Comparisons between correctional

Table 7

Scores on the Impact of Events Scale as a Function of
Nursing Population

	CORRECTIONAL NURSES (N = 68) ^a		NORTHERN NURSES ^b (N = 88)		
ITEM	M	SD	M	SD	p-value ^c
INTRUSION	10.13	(7.08)	11.86	(9.08)	ns
AVOIDANCE	8.00	(6.82)	9.99	(8.76)	ns
IES TOTAL	18.13	(13.07)	21.90	(17.06)	ns

a = 68 of the 77 participants completed the IES-R

b = Corneil, W., & Kirwan, S. (1994).

c = Independent samples t-test

Table 8

COMPARISON OF PARTICIPANTS' BSI MEANS WITH THOSE OF
DEROGATIS' NORMATIVE DATA AND CORNEIL AND KIRWAN'S NORTHERN
NURSING SAMPLE

	1 Correctional Nurses ^a (N = 74)		2 Non- patients ^b (N = 719)		3 Northern nurses ^c (N = 88)		1 vs 2	1 vs 3
SUBSCALE	M	(SD)	M	(SD)	M	(SD)	p-value ^d	p-value
SOMATIZATION	.48	(.62)	.29	(.40)	.27	(.49)	<.01	<.05
OBSESSIVE- COMPULSIVE	1.00	(.87)	.43	(.48)	1.08	(.84)	<.01	ns
INTERPERSONAL SENSITIVITY	.77	(.72)	.32	(.48)	1.03	(.83)	<.01	<.05
DEPRESSION	.60	(.69)	.28	(.46)	.78	(.77)	<.01	ns
ANXIETY	.79	(.79)	.35	(.45)	.73	(.71)	<.01	ns
HOSTILITY	.72	(.71)	.35	(.42)	.64	(.62)	<.01	ns
PHOBIC ANXIETY	.29	(.55)	.17	(.36)	.29	(.52)	<.05	ns
PARANOID IDEATION	.74	(.72)	.34	(.45)	.92	(.71)	<.01	ns
PSYCHOTISM	.45	(.64)	.15	(.30)	.57	(.61)	<.01	ns
GLOBAL SEVERITY INDEX	.65	(.61)	.30	(.31)	.90	(.73)	<.01	<.05

a = 74 of the 77 participants completed the BSI

b = Derogatis, L.R., & Spencer, P. M. (1982)

c = Corneil, W., & Kirwan, S. (1994)

d = Independent samples t-test

RNs and correctional RPNs, as well as between correctional RNs and RNs from other studies are detailed in Appendices Q-R.

Discussion

A growing number of publications have focused on the theoretical conceptualization of PTSD. The present study may alter how we currently conceptualize PTSD and may prompt reevaluation of research efforts. More specifically, this study has attempted to review issues of on-going concern such as (a) whether or not criterion A should be redefined to include the emotional threat component of the traumatic event and (b) whether professionals who are frequently exposed to duty-related traumatic events respond in unique ways.

The objective of the study was to examine the interactions between aspects of the traumatic event, responses to trauma, and the development of PTSD or recovery from trauma, based on Carlson's (1997) theory of trauma responses. Following, a discussion of the implications for treatment, limitations of the study, as well as directions for future study, will be provided.

Findings Relevant to Criterion A

The present study supports the proposed model in predicting the influence of emotional threat on the onset of PTSD symptoms. In particular, the more the correctional

nurses felt emotionally threatened by a traumatic event the more likely they were to have PTSD symptoms. This finding raises important theoretical and practical implications.

In terms of theory, the results support broadening current concepts regarding the nature of the traumatic event. Traditionally, the bulk of research has emphasized the physical threat component of traumatic events. This is largely due to DSM-IV (APA, 1994), which assumes a dangerousness causal component in the diagnosis of PTSD. However, the results of this study found physical threat to be the weakest variable in the model. Indeed, correctional nurses rated life-threatening events as less distressing than verbal abuse. This outcome refutes the widespread opinion (Goldberg, True, Eisen, & Henderson, 1990; Herman, 1992; Holen, 1991) that physical threat is predominant.

In accordance with Carlson's (1997) theory, emotional threat was shown to be a strong predictor of PTSD symptoms. Carlson maintains that considering the potential influence of the emotional threat can better explain why some individuals experience psychological symptoms following exposure to trauma, whereas others do not. Carlson's theory also accounts for why life-threatening events do not necessarily result in detrimental outcomes, whereas non-life-threatening events can result in maladaptive functioning.

Similarly, Quarantelli (1985) maintained that there is not necessarily a direct or isomorphic connection between physical impact and psychological functioning. According to this researcher, the psychological belief that crucial personal resources are in danger is more important than the physical potential of events. Stated differently, if an event is construed psychologically as threatening, the values of the individual may be placed in a new hierarchical order of importance, which takes on the important phenomenological reality.

van der Kolk (1997) predicted that elevated levels of emotional threat are likely responsible for the observation that traumatic experiences initially are imprinted as sensations or states of physiological arousal that often cannot be transcribed into personal narrative. Others have described emotional threat as an analogue for the constant need among trauma survivors to make meaning out of their experience. In other words, to understand what has happened and to find a satisfactory explanation for it (e.g., Lifton, 1976; van der Kolk, 1987; Wilson, 1989).

Malt, Karlehagen, and Hoff (1993) found that, for railway drivers, repetitive witnessing of serious injury or death of another person might provoke stronger reactions than that for a single event, even if the trauma is of brief duration. According to these researchers, a likely

explanation is because the drivers may have experienced a feeling of increased vulnerability. Those who reported being worried by the possibility of getting involved in another accident more often had been involved in previous events.

These findings correspond well to lessons learned during wartime (e.g., combat fatigue in pilots). In other words, a current event may be considered in light of previous events, without having to symbolically represent past unresolved events. Stated differently, beyond a certain point, it appears that repeated events in fact invoke a feeling of vulnerability, which alters the perception of the traumatic event and, thus, increases the likelihood of detrimental consequences. According to this viewpoint, traumatic events can disrupt or contradict important assumptions (e.g., a belief in one's own competence, belief in a just world, and belief one will be rewarded for sacrifices). Over time, these potential adverse effects have been viewed as creating a discrepancy between an individual's prior assumptions about him- or herself and what the individual presently knows to be true.

There has been, as yet, little attention given to the long-term sequelae of such repetitive exposures among nurses. However, the findings in the present study offer an explanation for why the number of reported events served as

a predictor for PTSD symptoms. In other words, it appears that a situation exists of high defensiveness for repetitive traumatic events, each one possibly sub-clinical, but nonetheless cumulatively significant. As an illustration, if nurses depersonalize from frequently occurring events that have the potential to threaten their sense of integrity, it may be possible that, with repeated exposures to trauma, a breakdown of defenses can occur, whereby a previously tolerated event (i.e., verbal abuse) can take on emotional meaning. Thus, the concept of the emotional threat potential of certain event(s), is useful in explaining why some nurses respond maladaptively to events that have emotional meaning, while others (that do not attach emotional meaning to the same type of event) appear unscathed.

Findings Relevant to Physical/Emotional Threat and Avoidance

Rather than the proposed hypothesis, whereby an increase in perceived emotional threat would be negatively related to affective avoidance, the relationship was found to be positive. The more participants perceived their most distressing event as emotionally threatening, the more they used affective avoidance. Therefore, even among those participants whose coping styles include a psychological receptiveness to affect, considerable effort is exercised to avoid overloading resources. It is speculated that the

extent in which events took on emotional meaning accounted for why some nurses were not affected by traumatic events that gave rise to psychological symptoms in others.

Clinical experience and research continually suggest that emergency personnel, such as nurses, have predictable responses of low self-disclosure, emotional distancing, and denying (Lanza, 1985; Roberts, 1991). Given that nurses have a prior understanding that exposure to traumas are likely to occur in correctional work, it is interesting that the large majority have several years of correctional experience. This high retention suggests that nurses do not cognitively or behaviorally stay away from things or situations that might remind them of similar prior traumas. Moreover, correctional nurses have to fill out "officer observation reports" for traumatic events and maintain accurate patient files. This low need for cognitive and behavioral avoidance, but not affective avoidance, regarding potential triggers is in sharp contrast to the higher avoidance scores reported in studies of victims.

A likely explanation for why nurses tend to affectively avoid, but not cognitively and behaviorally avoid, is because nurses as a group pre-select into a profession with normative trauma responses (depersonalize victims, keep on working) as a defense against the incessant and numerous demands of their work. Moreover, nurses may be

mentored to avoid the emotional impact of traumatic events. Stated differently nurses may use more suppression than non-medical types. Thus, their responses may be construed as a conscious or semiconscious decision to suppress or depersonalize, but not cognitively or behaviorally avoid, the emotional meaning of the presenting traumatic event.

Nurses' Coping Strategies

The role of nurses' coping strategies in moderating the relation between frequent exposures to traumatic events and adverse health outcomes is an understudied area. In addition, understanding how nurses cope with on-going trauma exposures may necessitate the examination of coping strategies specific to the nursing group in question. Conventional wisdom suggests that continued use of prolonged affective coping of this type might fail to replenish resources, eventually resulting in psychological distress.

Similar to the findings from other studies, avoidance strategies proved to be a strong intervening variable. That is, the results suggest the moderating function of affective avoidance on the onset of PTSD. For instance, the results indicate that even among those participants whose coping strategies include a psychological receptiveness to affect (reflected by reported emotional threat ratings), considerable effort was exercised to avoid overloading resources, and to constrain affective reactions.

Raphael and Wilson (1993) have maintained that coping strategies may influence perception of the trauma, response to it, and adaptation afterwards. According to these authors, problem-solving active styles may be more significant in the wake of the emergency; whereas other styles, such as expression of feelings, may prove more adaptive subsequently. Similarly, Gibbs (1989), in his review of these factors, argued that more active approach coping, rather than avoidance/denial, may be more effective.

Many (e.g., Krystal, 1988; Lifton, 1976) have noted the defensive strategy of affective blocking in warding off the full impact of emotional sequelae to trauma. This is in accordance with others (e.g., Horowitz, 1985; Lifton, 1976; Wilson, 1989) who noted that trauma victims ward off affect, feel incapable of confronting emotional experience, and develop overcontrolled states of mind.

Some authors have postulated that the higher levels of depersonalization behavior in nurses can be seen as a way of coping with traumatic events, namely by distancing themselves psychologically from the demands at hand (Appleton, 1994; Roberts, 1991). Similarly, McFarlane, Atchison, Rafalowica, and Papay (1994) found that, among a sample of bushfire fire fighters, PTSD sufferers with physical complaints reported high levels of intrusive thoughts regarding the fire. According to these

researchers, far from denying the impact of the traumatic event, the PTSD group was troubled by emotionally laded thoughts about the fire, which they reported as distressing and unwanted.

This view is consistent with Lefkowitz (1977) and Parker and Roth (1973), who argued that police officers who recovered from trauma exposure were resistant to disclosure. Similarly, Adler (1989) argued that recollective thoughts and imagery were pathognomonic of subsequent PTSD symptoms in Vietnam veterans, regardless of the extent or type of combat experiences. According to Adler, failure to keep fears related to the 1979 TMI accident "out-of-mind" differentiated those who suffered from PTSD years later.

Future work is now challenged by the question of which aspect of the traumatic event influences the development of PTSD. In other words, what should Criterion A stipulate; the physical threat component, emotional threat component, or both. While the positive influence of emotional threat is strongly suggested by the findings of the present study, we know relatively little about its effect. At this point, continued research investigating the potential influences of both physical and emotional threat may produce the information required for coming at a decision in this matter.

Implications for Treatment

It has long been known that trauma victims suffer significant psychological sequelae. Consequently, the focus of most psychological interventions has been on the actual victims exposed to traumatic events. However, the results of this study clearly indicate that Correctional Service of Canada has a serious situation with exposure to traumatic events in the workplace resulting in correctional nurses experiencing serious psychological consequences.

The current findings have implications for understanding the nature of PTSD and for designing appropriate treatment. Given that research on responses to traumatic events did not begin until the 1980s, when PTSD was first introduced in the diagnostic nomenclature (APA, 1980), and that diagnostic criteria (and measures of the relevant symptoms) are necessary for empirical research on a disorder, trauma researchers and clinicians have had relatively little time to systematically study how individuals respond to traumatic events. At the same time, studies from the "first generation" of trauma researchers have shown that the prevalence of potentially traumatic events and of trauma-related psychological disorders such as PTSD are far from rare. It is clear, then, that the challenging task of accurately assessing the impact of

traumatic experiences and coming to an understanding of related psychological problems is one faced by virtually every clinician.

The barriers to accurately assessing trauma responses and trauma-related disorders have become increasingly more salient. One obstacle involves the more practical aspects of assessment, while the other obstacles result from the rich complexity of the trauma responses themselves.

In practical terms, inaccurate assessments of trauma and traumatic responses can occur when a clinician does not ask about potential past traumatic experiences. This situation is more likely to occur in specialized treatment facilities where assessment and treatment plans predominantly focus on a problem that is not trauma-related. As an illustration, clinicians working in a pain treatment centre may fail to uncover potentially traumatizing experiences and, subsequently, miss important information in those who have substantial physical injury.

Similarly, the treatment of co-morbid substance use disorders and PTSD presents a particularly difficult problem. Traditional approaches to the treatment of this particular co-morbidity have maintained that exploration of the trauma will precipitate relapse. This theory, however, has never been tested empirically. Moreover, a wealth of anecdotal clinical experience indicates that unresolved

trauma-related symptoms may precipitate relapse. For example, symptoms of hyperarousal (i.e., sleep disturbance, irritability, problems concentrating) can worsen as individuals remain abstinent because trauma-related cognitions are no longer suppressed, or interrupted, by self-medicating (Brady, 1997).

The accurate assessment of trauma responses can be especially perplexing and enigmatic because trauma-related disorders may share symptoms with other disorders. This situation is further complicated by the fact that many clinicians have relatively little training in assessing and conceptualizing trauma-related disorders. As an example, trauma symptoms such as sleep and concentration problems may be misdiagnosed for symptoms of other anxiety disorders or depression.

Another barrier to accurately assessing trauma responses is that many individuals have partial and complete amnesia for traumatic events (Carlson, 1997). In fact, limited memory for important aspects of traumatic events is so pervasive among traumatized individuals that it constitutes one of the diagnostic criteria for PTSD. Consequently, many individuals seeking treatment may give incomplete reports of their trauma histories, even when specifically asked about such experiences. Similarly, in some cases individuals may not be aware of what symptoms are

relevant to the assessment and treatment process. When clinicians do not clearly understand the relationships between traumatic events and co-morbid symptoms it seems unreasonable to assume that the individual would.

In other cases, individuals might give incomplete reports because an important symptom is not perceived as a symptom. As an illustration, an individual who has experienced serious and chronic childhood abuse may have a lifelong restricted range of affect (i.e., emotional numbing). One cannot assume that the individual would report "feeling numb" when he/she has no recollection of ever feeling differently.

In still other cases, individuals may be ambivalent about discussing their traumas in their attempts to avoid the painful recollections. Such avoidance or denial and the complex nature of the symptomatology can complicate diagnosis and subsequent appropriate treatment. Knowing that the individual is generally high on emotional avoidance might direct the clinician's exploration of the emotional significance of the event for which the individual is experiencing intrusive symptoms. On the other hand, knowing that the individual typically experiences intrusive symptoms following exposure to numerous events might lead to a broader exploration of preexisting concepts and beliefs. This may involve substantial editing of autobiographical

memory in order to bring awareness of the event in line with prior beliefs. Thus, a systematic assessment of trauma responses is problematic when clinicians fail to ask questions about potential traumatic events and trauma-related responses, when an individual has limited memory for part or all of his or her trauma experiences, or when an individual gives an incomplete report about their symptoms.

Another reason why presenting symptoms may be misleading is because symptoms (i.e., loss of personal integrity, low self-esteem, issues of fairness) may be present that are secondary to the trauma disorder.

Secondary symptoms consist of a new wave of symptoms that have occurred subsequent to trauma-related symptoms. As an illustration, loss of control over intrusive memories and subsequent loss of personal self-worth may result in depression. Here, a clinician may misdiagnose an individual with an affective disorder rather than a trauma disorder.

Thus, a better theoretical understanding of the relationships among aspects of traumatic events and responses will reduce the likelihood of misdiagnoses and, more importantly, will improve clinical assessments. This, in turn, permits clinicians to better assess the parameters of presenting symptoms, establish an effective assessment strategy, and provide mechanisms for optimal treatment. For instance, knowledge about the defining characteristics of a

traumatic event can alert the clinician to distinguishing between events that have the potential to cause traumatic responses and those that simply reflect distressing experiences. Making this distinction is imperative for appropriate planning of treatment interventions.

Understanding the relationship between presenting symptoms and past traumatization will also lead to improved treatment planning. For example, an individual might self-medicate so as to avoid intrusive-related thoughts and emotions related to past unresolved traumas. It is important to note that self-medication may not be reflective of an addiction. However, the high use of alcohol consumption reported by correctional nurses seems to suggest that this group may self-medicate. It follows that, until intrusive trauma symptoms are dealt with, treatment of the individual's addiction problems are likely to be ineffective.

Thus, making accurate assessments of responses to trauma poses many challenges to clinicians. These challenges are compounded by the complex interconnections among aspects of traumatic events, moderating variables that impact on responses to trauma, and complex symptom outcome.

Obstacles to accurately assessing trauma responses include lack of training in the theoretical understanding of trauma responses, inaccurate self-reports, and the complex

manifestation of trauma-related symptoms. Commitment to better understand the meaning of trauma-related symptoms cannot be emphasized enough; failure to do so is highly likely to result in inaccurate assessments and ineffective treatment interventions.

The current findings have practical implications for correctional settings, as this group of nurses reported high levels psychological distress. While this group of nurses were found to be receptive to group debriefings and accessing professional assistance, 25% were reluctant to disclose a traumatic experience to peers and/or supervisors for fear of being perceived as clinically incompetent.

It is important to note that Correctional Service of Canada has a national policy regarding the provision of formal debriefings (group intervention services following a traumatic event). According to Mitchell and Dyregrov (1993), debriefings prevent the worsening of trauma symptoms. However, the manner and extent Correctional Service of Canada implements its debriefing policy is unclear. The uncertainty of the effectiveness of this policy is best understood when considering existent barriers. First, although each region has a psychologist responsible for their debriefing teams, there is no formal mechanism for ensuring consistency of procedures across the regions. Second, current budget restraints have prevented

the implementation of educational awareness and training sessions for administrators and debriefing teams. Further, debriefing team members are employed by Correctional Service of Canada. Although it is uncertain whether correctional nurses would be receptive to disclosing to their colleagues it is speculated that they would be resistant. Stated differently, if we can assume that nurses want to appear clinically competent, confident, unbothered, and undiminished by high stress situations, especially within their workplace, they may not want to be perceived as not functioning well by colleagues (M. McCoy, personal communication, April, 2000).

It is hoped that Correctional Service of Canada will be encouraged to evaluate the effectiveness of their trauma intervention services. In particular, it is recommended that there be on-going education on the effects of trauma to destigmatize the request for help by the insightful nurse who recognizes her need for assistance. Moreover, on-going training of debriefing teams should be conducted so as to maximize on lessons learned from previous intervention efforts and to ensure quality service provision. Further, it is recommended that union and management support trauma response programs as being a-political and communicate via joint committee participation and funding agreements.

It is also recommended that correctional settings build on the lessons learned from other organizations with well-established comprehensive and cost-effective debriefing programs. For example Health Canada has a well-established trauma program (Critical Incident Stress Management Services, CISMS) that has endured rigorous evaluation (Corneil & Kirwan, 1994). In particular, CISMS has been evaluated as being a cost-effective means of assisting northern registered nurses in processing traumatic events and reducing sick leave. Thus, to have the greatest impact, intervention services, such as formal debriefings with follow-up services, should be part of a comprehensive integrated program of services within Correctional Service of Canada and have full administrative commitment and support.

Limitations of the Study

The results of the present study need to be considered against a background of methodological issues. This study was based on retrospective, self-report measures. One concern is the role of perceptual distortions, such as negative response set or selective memory, on the results. Stated differently, the degree to which participants accurately recollected past events may limit the validity of these findings. Further, because it is hypothesized that this group of nurses is somewhat resistant to disclose, for

fear their employment situation could be compromised, it is unclear if this sample underreported their symptoms.

Another limitation of this study relates to the nature of traumatic experiences per se. More specifically, because it is impossible to know who will experience a traumatic event it is difficult to determine individual pre-trauma levels of functioning. This is important to know because the comorbidity of other disorders (in particular, alcoholism and depression) may influence study results. Further, it is impossible, not to mention unethical, to manipulate aspects of traumatic events so as to compare the influences of such variables on participants' responses.

A final limitation of the present study is the lower response rate (44%) than anticipated. It is important to note, however, that Correctional Service of Canada is currently undergoing organizational change (i.e., reclassification of its membership, union negotiations) which may have caused some correctional nurses to be reluctant to participate.

Directions for Future Research

The majority of studies among emergency personnel focus on one traumatic event and are outcome oriented, focusing on the 'disaster event' itself rather than on the broader issues relevant to psychological well being. Integrated lessons learned from the nursing literature may

serve to broaden a particular study's significance. For instance, if variables thought to differentiate response to traumatic events are psychological processes (e.g., loss of personal integrity, reevaluating the meaning of life) these processes should be most prominent. Thus, the significance of a study is aided by considering information about the basic processes, most often employed by individuals exposed to traumatic event(s).

The bulk of research on emergency personnel does not systematically explore factors conducive to recovery from trauma (i.e., optimism, hardiness). Yet, factors which help promote health and well being by protecting against the onset of pernicious emotional experiences have been well documented (Nowack, 1989; Schier and Carver, 1987). While these factors are neither emotions nor emotional reactions, each of them have important emotional components that can facilitate positive health and well being.

While it is acknowledged that physical threat may be a significant factor when measuring for the presence of diagnosable PTSD this was not the focus of this study. The current study explored trauma responses and found that the emotional meaning attributed to events influenced the nature and extent of nurses' responses. If this outcome can be replicated, it would lend support to a redefinition of Criterion A. It's also probable, however, that certain

types or components of events are related to higher levels of symptoms. Systematic study of these aspects, as well as the overall impact, may contribute to a better understanding of the pathological aspects of traumatic events. For all these reasons, research which aims to investigate links between aspects of the stressor(s) and later psychological functioning are crucial to a better understanding of trauma processes.

As with other areas of new research, more questions than answers are raised regarding the beneficial use of affective avoidance strategies. These questions should stimulate research. For instance, when the emotional content of traumatic events surfaces, is there, in fact, a predictable response pattern? Beyond the use of psychological defenses, what else accounts for why some correctional nurses recover from repeated exposures to traumatic events while others develop PTSD symptoms? Are there common assumptions made by correctional nurses that place them at greater risk for maladaptive use of psychological defenses or do defenses only become maladaptive for certain personality types? Is the use of avoidance always a pathognomonic sign, or can it simply reflect an individual who has successfully accommodated to higher levels trauma exposure than most of us experience? Do personality differences, or differences in correctional

nurses' successful use of affective avoidance defenses in the past, make some of them more effective in their use of this strategy than others, or does everyone have their own absolute breaking point? Are there characteristics of the defenses themselves (e.g., their sophistication, rigidity, and pattern of maintenance in the face of conflicting evidence), that differentiates the grace of 'blocking-out' emotionally laden events from the defenses that can become the genesis of psychopathology? It is hoped that future research will be stimulated by these unanswered questions.

Because systematic research focusing on traumatic events and responses among professionals frequently exposed to traumatic events began only recently, it stands to reason that much information still remains to be learned. For some constructs, measures exist but require further validation; whereas, for other constructs, measures do not exist.

Exposure measures have consistently lagged behind the development of instruments to measure PTSD symptomatology. This is surprising, especially since optimal measurement strategies assesses PTSD symptoms independently of types of stressors. One probable explanation for this lag may be the complexities involved in accurately measuring exposure to traumatic events. For instance, each nursing group is exposed to unique work-related traumas; exposure scales

should, therefore, reflect the unique experiences of each nursing group.

A second problem with exposure instruments is that events have been variously categorized by event types and salient physical threat aspects of exposure (e.g., extent of physical injury, witnessing death), without the inclusion of the emotional meaning (threat) attributed to the event. It is hoped that future research will test the reliability of the current study's exposure scale.

Another problem for future research involves the definition of PTSD symptomatology. While some researchers aim to establish the presence of diagnosable psychopathology, others aim to demonstrate prevalence rates or persistence of symptoms that are, more or less, present within the normal population. Notwithstanding the importance of both focuses, it is important that researchers utilize the right kind of outcome measures for their stated aims.

Several well-validated scales are available to measure symptoms following exposure to a single event. Measures assessing responses to multiple exposures are, however, seriously lacking. This situation raises a concern for researchers wanting to study various nursing groups, who are frequently exposed to unique work-related traumatic events. A similar concern involves DSM-based measurements. Future

research might require the development of instruments that assess a wider range of PTSD symptoms. More specifically, given current controversies over the appropriateness of the DSM-IV (APA, 1994) diagnostic criteria for PTSD, especially for some groups whose avoidance responses might be protective rather than maladaptive, broader measures of symptoms (i.e., self-blame, anger, low self-esteem, issues of fairness) might foster further refinement of these criteria. Given that some nursing groups may pre-select into a profession whereby they are frequently exposed to certain types of traumas, exploring their unique coping responses could help answer the many questions raised in this study. In other words, basic research on the presentation of trauma responses among emergency personnel is needed and may result in the development of PTSD criteria specific to this group of individuals.

In conclusion, there is no doubt that the complex findings of the present study need further investigation. As with any single study, replication of these findings is essential. Finally, research efforts will derive its greatest value when considered toward the goal of better understanding how to provide psychological assistance to those devoted professionals who are impacted by work-related traumas. To that end this research effort is dedicated.

References

Adler, T. (1989). Victims of stress from intrusive thoughts. Monitor, American Psychological Association, Washington, D.C., p.8.

American Psychiatric Association. (1952). Diagnostic and statistical manual of mental disorders. Washington, DC: Author.

American Psychiatric Association. (1968). Diagnostic and statistical manual of mental disorders. Washington, DC: Author.

American Psychiatric Association. (1980). Diagnostic and statistical manual of mental disorders (3rd ed.). Washington, DC: Author.

American Psychiatric Association. (1987). Diagnostic and statistical manual of mental disorders (3rd ed. - rev.). Washington, DC: Author.

American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

Appleton, L. (1994). What's a critical incident? The Canadian Nurse, (September) 23-26.

Bard, M., & Sangrey, D. (1986). The crime victim's book (2nd ed.). New York: Brunner/Mazel.

Barnard, R. J., Gardner, G. W., Diacc, N. V., Katon, A.

A. (1975). Near maximal ECG stress testing and coronary artery disease risk factor analysis in Los Angeles City fire fighters. Journal of Occupational Medicine, 17, 693-695.

Baum, A., Solomon, S. D., & Ursano, R. J. (1993). Emergency / disaster studies: Practical, conceptual, and methodological issues. In J. P. Wilson & B. Raphael (Eds.), International handbook of traumatic stress syndromes (pp. 125-133). New York: Plenum Press.

Blimki, C. J. R., Rechnitzer, P. A., & Cunningham, P. A. (1977). Heart rate and catecholamine response of fire fighters to an alarm. Canadian Journal of Applied Sports Science, 2, 153-156.

Brady, K. T. (1997). Posttraumatic stress disorder and comorbidity: Recognizing the many faces of PTSD. Journal of Clinical Psychiatry, 58, 12-15.

Breslau, N., & Davis, G. C. (1992). Posttraumatic stress disorder in an urban population of young adults: Risk factors for chronicity. American Journal of Psychiatry, 149, 671-675.

Carlson, E. B., (Ed.). (1996). Trauma research methodology. Lutherville, MD: The Sidran Press.

Carlson, E. B. (Ed.). (1997). Trauma assessments: A clinician's guide. New York, NY: The Guilford Press.

Carlson, E. B., Furby, L., Armstrong, J. A., & Shlaes, J. (1997). A conceptual framework for the long-term

psychological effects of traumatic childhood abuse. Child Maltreatment. New York, NY: The Guilford Press.

Cochrane, C. D., & Hale, W. D. (1985). College student norms on the Brief Symptom Inventory. Journal of Clinical Psychology, 41, 777-779.

Corneil, D. W. (1993). Prevalence of posttraumatic stress disorders in a metropolitan fire department. Unpublished doctoral dissertation, John Hopkins University, Baltimore, Maryland.

Corneil, W., & Kirwan, S. (1994). Preliminary results study of posttraumatic stress disorders among medical services branch nurses in Manitoba region. Ottawa: Queen's Printer.

Creamer, M. (1995). A cognitive processing formulation of posttrauma reactions. In R. J. Kleber, C. R. Figley, & B. P. R. Gersons (Eds.), Beyond trauma: Cultural and societal dynamics (pp. 55-74). New York: Plenum Press.

Cullen, F. T., Lemming, T., Link, B. G., & Wozniak, J. F. (1985). The impact of social supports on police stress. Criminology, 23, 503-522.

Cullen, F. T., Link, B. G., Wolfe, N. T., & Frank, J. (1985). The social dimensions of correctional officer

stress. Justice Quarterly, 2, 505-533.

Dahlstrom, W. G. (1969). Recurrent issues in the development of the MMPI. In J. Butcher (Ed.). MMPI: Research development and clinical applications. New York: McGraw Hill.

Davidson, J., & Foa, E. (Eds.). (1992). Post-traumatic stress disorder: DSM-IV and beyond. Washington, DC: American Psychiatric Press.

Davidson, J. R. T., Hughes, D., Blazer, D. G., & George, L. K. (1991). Post-traumatic stress disorder in the community: An epidemiological study. Psychological Medicine, 21, 713-721.

Derogatis, L. R., & Cleary, P. A. (1977a). Confirmation of the dimensional structure of the SCL-90-R: A study in construct validation. Journal of Clinical Psychology, 33, 981-989.

Derogatis, L. R., & Cleary, P. A. (1977b). Factorial invariance across gender for the primary symptom dimensions of the SCL-90. British Journal of Social and Clinical Psychology, 16, 347-356.

Derogatis, L. R., & Rickels, & Rock, A. (1976). The SCL-90 and the MMPI: A step in the validation of a new self-report scale. British Journal of Psychiatry, 128, 280-289.

Derogatis, L. R., & Spencer, P. M. (1982). The Brief Symptom Anxiety Inventory (BSI): Administration, scoring,

and procedures manual. Baltimore, Md: Johns Hopkins University.

Derogatis, L. R., Yevzeroff, H., & Wittelsberger, B. (1975). Social class, psychological disorders, and the nature of the psychopathologic indicator. Journal of Consulting and Clinical Psychology, 43, 183-191.

Dienstbier, R. A. (1989). Arousal and physiological toughness: Implications for mental and physical health. Psychological Review, 96, 84-100.

Dilman, D. A. (Ed.). (1978). Mail and telephone surveys: The total design method. New York: John Willy & Sons.

Dobbyn, J. (1994). The relationship between social support and post-traumatic stress disorder in rural and outpost nurses. Unpublished thesis, University of Manitoba, Winnipeg, Manitoba.

Dyregrov, A., & Mitchell, J. (1992). Work with traumatized children: Psychological effects and coping strategies. Journal of Traumatic Stress, 5, 5-17.

Everly, G. S. (1993). Neurophysiological considerations in the treatment of posttraumatic stress disorder: A neurocognitive perspective. In J. Wilson & B. Raphael (Eds.), International handbook of traumatic stress syndromes (pp. 795-801) New York: Plenum Press.

Farber, J.M., Weinerman, B. H., & Kuypers, J. A.

(1984). Psychosocial distress in oncology outpatients. Journal of Psychosocial Oncology, 2, 109-118.

Feinstein, A., & Dolman, R. (1991). Predictors of posttraumatic stress disorder following physical trauma: An examination of the stressor criterion. Psychological Medicine, 21, 85-91.

Firth, M. (1994, Summer). Critical incident stress [Letter to the editor]. Journal of the Ontario Occupational Health Association, 6-9.

Foa, E. B., Steketee, G., & Rothbaum, B.O. (1989). Behavioral/cognitive conceptualizations of post-traumatic stress Disorder. Behavior Therapy, 20, 155-176.

Freud, S. (1953). Beyond the pleasure principle. In J. Strachey (Ed.), The standard edition of the complete psychological works of Sigmund Freud, 18, 7-64. London: Hogarth Press. (Original work published 1920).

Freyd, J. J. (1996). Betrayal trauma: The logic of forgetting. Cambridge, MA: Howard University Press.

Gibbs, M. (1989). Factors in the victim that mediate between disaster and psychopathology: A review. Journal of Traumatic Stress, 2, 489-514.

Goldberg, J., True, W. R., Eisen, S. A., & Henderson, W. G. (1990). A twin study of the effects of the Vietnam war on posttraumatic stress disorder. Journal of the American Medical Association, 263, 1227-1232.

Green, B. L. (1982). Assessing level of psychological impairment following disaster: Consideration of actual and methodological dimensions. Journal of Nervous and Mental Disease, 170, 544-552.

Green, B. L. (1993). Identifying survivors at risk: Trauma and stressors across event. In J. Wilson & B. Raphael (Eds.), International handbook of traumatic stress syndromes (pp. 135-144). New York: Plenum.

Green, B. L., & Grace, M. (1988). Human adaptation to extreme stress: From the holocaust to Vietnam. In J. Wilson & B. Raphael (Eds.), International handbook of traumatic stress syndromes (pp. 127-134). New York: Plenum Press.

Hartsough, D. M. (1988). Traumatic stress as an area of research. Journal of Traumatic Stress, 1, 145-154.

Herman, J. L. (1992). Trauma and recovery. New York: Basic Books.

Holen, A. (1991). A longitudinal study of the occurrence and persistence of post-traumatic health problems in disaster survivors. Stress Medicine, 7, 11-17.

Horowitz, M. J. (1985). Disasters and psychological responses to stress. Psychiatric Annals, 15, 161-167.

Horowitz, M. J. (1986). Stress-response syndromes: A review of posttraumatic and adjustment disorders. Hospital and Community Psychiatry, 37, 241-249.

Horowitz, M. (1993). Stress-response syndromes: A

review of post traumatic stress and adjustment disorders. In J.P. Wilson & B. Raphael (Eds.), International handbook of traumatic stress syndromes (pp.49-60). New York: Plenum Press.

Horowitz, M. J., Wilner, N., & Alvarez, W. (1979). Impact of Event Scale: A measure of subjective stress. Psychosomatic Medicine, 41, 209-218.

Janoff-Bulman, R. (1992). Toward a new psychology of trauma. New York: Free Press.

Jones, D. (1985). Secondary disaster victims: The emotional effects of recovery and identifying human remains. American Journal of Psychiatry, 142, 303-307.

Kardiner, A. (1941). The traumatic neuroses of war. New York: Hoeber.

Kessler, R., Sonnega, A., Bromet, H., & Nelson, C. (1995). Posttraumatic stress disorder in the national comorbidity survey. Archives of General Psychiatry, 52, 1048-1060.

Kilpatrick, P. G., Saunders, B. E., Amick-McMullan, A., Best, C. L., Veronen, L. J. & Resnick, H. S. (1989). Victim and crime factors associated with the development of crime-related post-traumatic stress disorder. Behavior Therapy, 20, 199-214.

Kleber, R. J., Figley, C. R., & Gersons, B.P. (Eds.), (1995). Beyond trauma: Cultural and societal dynamics. New

York: Plenum Press.

Krystal, H. (1988). Integration and self healing: Affect, trauma, alexithymia. New York: Analytic Press.

Kulka, R., Schlenger, W. E., Fairbanks, J. A., Hough, R. L., Jordan, B. K., Marmar, C. R., & Weiss, D. S. (1990). Trauma and the Vietnam war generation: Report of findings from the national Vietnam veterans readjustment study. New York: Brunner / Mazel.

Lanza, M. L. (1985). How nurses react to patient assault. Journal of Psychological Nursing, 23, 6-10.

Lawson, Z. (1987). Work-related posttraumatic stress reaction: The hidden dimension. Health and Social Work, Fall, 250-258.

Lefkowitz, R. (1977). Industrial-organizational psychology with the police. American Psychologist, 32, 346-364.

Lifton, R. J. (1976). The human meaning of total disaster: The Buffalo Creek experience. Psychiatry, 39, 1-18.

Litz, B. T. (1992). Emotional numbing in combat-related post-traumatic stress disorder: A critical review and reformulation. Clinical Psychology Review, 12, 417-432.

Malt, U., Karlehagen, S., & Hoff, H. (1993). The effect of major railway accidents on the psychological health of train drivers: Acute psychological responses to

accident. Journal of Psychosomatic Research, 37, 793-805.

March, J. S. C. (1993). What constitutes a stressor? The criterion A issue. In J. R. T. Davidson & E. B. Foa (Eds.), Posttraumatic stress disorder: DSM-IV and beyond (pp. 37-54). Washington, DC: American Psychiatric Press.

Marmar, C. R., Weiss, D. S., Metzler, T. J., Ronfeldt, H. M., & Foreman, C. (1996). Stress responses of emergency services personnel to the Long Prieta earthquake Interstate 880 freeway collapse and control traumatic incidents. Journal of Traumatic Stress, 9, 63-85.

McEwen, B. (1997). Hormones as regulators of brain development: Life-long effects related to health and disease. Acta Paediatrica, Supplement, 422, 41-4.

McFarlane, A. C. (1995). The severity of the trauma: Issues about its role in posttraumatic stress disorder. In R. Kleber, C. Figley, & B. Gersons (Eds.), Beyond trauma: Cultural and societal dynamics (pp.31-52). New York: Plenum Press.

McFarland, A.C. (1996). Control response as a predictor of the development of PTSD following motor vehicle accidents. Presented at the New York Academy of Sciences; September, 1996.

McFarlane, A. C., Atchison, M., Rafalowica, E., & Papay, P. (1994). Physical symptoms in post-traumatic stress disorder. Journal of Psychosomatic Research, 38,

715-726.

McFarlane, A. C., Weber, D. L., & Clark, C. R. (1993). Abnormal stimulus processing in PTSD. Biological Psychiatry, 34, 311-320.

Mitchell, J. T., & Dyregrov, A. (1993). Traumatic stress in disaster workers and emergency personnel: Prevention and intervention. In J. P. Wilson & B. Raphael (Eds.), International handbook of traumatic stress syndromes (pp. 905-913). New York: Plenum Press.

Mitchell, J. T., & Everly, G. (1994). Critical incident stress debriefing: The basic workbook. Ellicott City, MD: International Critical Incident Stress Foundation.

Neal, A., & Turner, S. (1991). Anxiety disorders research with African Americans: Current status. Psychological Bulletin, 109, 400-410.

Nowack, K. M. (1989). Coping style, cognitive hardiness, and Health status. Journal of Behavioral Medicine, 12, 145-158.

Parker, C., & Roth, M. (1973). The relationship between self-disclosure, personality, and a dimension of job performance of policemen. Journal of Political Science Administration, 1, 292.

Perry, S., Difede, J., Musngi, G., Frances, A. J., & Jacobsberg, L. (1992). Predictors of posttraumatic stress disorder after burn injury. American Journal of Psychiatry,

149, 931-935.

Powell, P. (1996). The prevalence of post traumatic stress disorder among registered nurses working Manitoba emergency and intensive care units: A replication study. Unpublished thesis, University of Manitoba, Winnipeg, Manitoba.

Pynoos, R., Frederick, C., Nader, K., Arroyo, W., Steinberg, A., Eth, S., Nunez, F., & Fairbanks, L. (1987). Life threat and post-traumatic stress in school-age children. Archives of General Psychiatry, 44, 1057-1063.

Solomon, S. & Davidson, J. (1997). Trauma: Prevalence, Impairment, service use, and cost. Journal of Clinical Psychiatry, 58, 5-11.

Quarantelli, E. L. (1985). An assessment of conflicting views on mental health: The consequences of traumatic events. In C. R. Figley (Ed.), Trauma and its wake: The study and treatment of post-traumatic stress disorder (pp.173-215). New York: Brunner/Mazel.

Raphael, B. & Wilson, J. (1993). In J. P. Wilson & B. Raphael (Eds.), International handbook of traumatic stress syndromes (pp. 105-117). New York: Plenum Press.

Resnick, H., Yehuda, R., & Pitman, P. K., (1995).
Effect of previous trauma on acute plasma cortisol level
following rape. *American Journal of Psychiatry*, 152, 1675-
1677.

Resnick, H., Yehuda, R., Acierno, R. (1997). Acute
post-rape plasma cortisol, alcohol use, and PTSD symptom
profile among recent rape victims. In R. Yehuda & A.
McFarland, (Eds.), Psychobiology of posttraumatic stress
disorder, (pp. 433-436). New York, N.Y.: New York Academy of
Sciences.

Roberts, S. (1991). Nurse abuse: A taboo topic. The
Canadian Nurse, March, 23-25.

Rogler, L. H. (1997). Making sense of historical
changes in the Diagnostic and Statistical Manual of Mental
Disorder: Five propositions. Journal of Health and Social
Behavior, 38, 9-20.

Rosine, L. (1992). The impact on correctional officers
of exposure to critical incidents. Unpublished doctorate
dissertation.

Sapolsky, R., (1999). Hormonal correlates of
personality and social contexts: From non-human to human
primates. In C. Panter-Brick & C. M. Worthman, (Eds.),
Hormones, health, and behavior: A socioeconomical and
lifespan perspective (pp.18-46). New York: Cambridge
University Press.

Schier, M., & Carver, C. 1987. Dispositional optimism and physical wellbeing: The influence of generalized outcome expectancies on health. Journal of Personality, 55, 169-210.

Sutker, P. B., Allain, J., Albert, N., & Winstead, D. K. (1993). Psychopathology and psychiatric diagnosis of World War II pacific theater prisoners of war survivors and combat veterans. American Journal of Psychiatry, 150, 240-245.

van der Kolk, B. A. (1987). The psychological consequences of overwhelming life experiences. In B. A. van der Kolk (Ed.), Psychological trauma, (pp. 1-30).

van der Kolk, B.A. (1997). The psychobiology of posttraumatic stress disorder. Journal of Clinical Psychology, 58, 16-24.

van der Kolk, B. A., & Fisher, R. (1995). Dissociation and the fragmentary nature of traumatic memories: Review and experimental configuration. Journal of Traumatic Stress, 8, 505-525.

van der Kolk, B. A., & McFarlane, A. C. (1996). The black hole of trauma. In B. A. van der Kolk, A. C. McFarlane, & L. Weisaeth, (Eds.), The traumatic stress: The effects of overwhelming experience on mind, body, and society (pp. 3-23). New York: The Guilford Press.

Weisaeth, L. (1989). A study of behavioral responses

to an industrial disaster. Acta Psychiatrica Scandinavia, 80, (Supplement 355), 13-24.

Weiss, D. S., & Marmar, C. R. (1996). The Impact of Event Scale-Revised. In J. Wilson & T. M. Keane (Eds.), Assessing psychological trauma and PTSD, (pp. 399-411). New York: Guilford Press.

Wilson, J. P., (Ed.). (1989). Transformation and healing: An integrative approach to theory, research, and post-traumatic therapy. New York: Bruner/Mazel.

Winfield, I., George, L. K., Swartz, M. S., & Blazer, D. G. (1990). Sexual assault and psychiatric disorders among women in a community population. American Journal of Psychiatry, 147, 335-341.

Wolfe, V. V., Gentile, C., & Wolfe, D. A. (1989). The impact of sexual abuse on children: A PTSD formulation. Behavior Therapy, 20, 215-228.

Appendix A

DSM-III-R Criteria For PTSD

(American Psychiatric Association, 1987)

- A. The person has experienced an event that is outside the range of usual human experience and would be markedly distressing to almost anyone, e.g., serious threat to one's life or physical integrity; serious threat or harm to one's children, spouse, or other close relatives and friends; sudden destruction of one's home or community; or seeing another person who has recently been, or is being, seriously injured or killed as the result of an accident or physical violence.
- B. The traumatic event is persistently reexperienced in at least one of the following ways:
- (1) recurrent and intrusive distressing recollections of the event
(In young children, repetitive play in which themes or aspects of the trauma are expressed);
 - (2) recurrent distressing dreams of the event;
 - (3) sudden acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative [flashback] episodes, even those that occur upon awakening or when intoxicated);
 - (4) intense psychological distress at exposure to events that symbolize or resemble an aspect of the traumatic event, including anniversaries of the trauma.
- C. Persistent avoidance of stimuli associated with the trauma or numbing of general responsiveness (not present before the trauma), as indicated by at least three of the following:
- (1) efforts to avoid thoughts or feelings associated with the trauma;

- (2) efforts to avoid activities or situations that arouse recollections of the trauma;
- (3) inability to recall an important aspect of the trauma (psychogenic amnesia);
- (4) markedly diminished interest in significant activities (in young children, loss of recently acquired developmental skills such as toilet training or language skills);
- (5) feeling of detachment or estrangement from others;
- (6) restricted range of affect (e.g., unable to have loving feelings);
- (7) sense of a foreshortened future (e.g., does not expect to have a career, marriage, or children, or a long life).

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by at least two of the following:

- (1) difficulty falling or staying asleep;
- (2) irritability or outbursts of anger;
- (3) difficulty concentrating;
- (4) hypervigilance;
- (5) exaggerated startle response;
- (6) physiologic reactivity upon exposure to events that symbolize or resemble an aspect of the traumatic event (e.g., a woman who was raped in an elevator breaks out in a sweat when entering any elevator).

E. Duration of the disturbance (Symptoms in B, C, and D) of at least one month.

Appendix B

DSM-IV Criteria For PTSD
(American Psychiatric Association, 1994)

- A. The person has been exposed to a traumatic event in which both of the following were present:
- (1) the person experienced, witnessed, or been confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others;
 - (2) the person's response involved intense fear, helplessness, or horror. Note: In children, this may be expressed instead by disorganized or agitated behavior.
- B. The traumatic event is persistently reexperienced in one (or more) of the following ways:
- (1) recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. Note: In young children, repetitive play may occur in which themes or aspects of the trauma are expressed;
 - (2) recurrent distressing dreams of the event. Note: In children, there may be frightening dreams without recognizable content;
 - (3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated. Note: In young children, trauma-specific reenactment may occur;
 - (4) intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event;
 - (5) physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.

- C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:
- (1) efforts to avoid thoughts, feelings, or conversations associated with the trauma;
 - (2) efforts to avoid activities, places, or people that arouse recollections of the trauma;
 - (3) inability to recall an important aspect of the trauma;
 - (4) markedly diminished interest or participation in significant activities;
 - (5) feeling of detachment or estrangement from others;
 - (6) restricted range of affect (e.g., unable to have loving feelings);
 - (7) sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span).
- D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:
- (1) difficulty falling or staying asleep;
 - (2) irritability or outbursts of anger;
 - (3) difficulty concentrating;
 - (4) hypervigilance;
 - (5) exaggerated startle response.
- E. Duration of the disturbance (Symptoms in B, C, and D) is more than one month.
- F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Specify if:

Acute: if duration of symptoms is less than three months

Chronic: if duration of symptoms is three months or more

Specify if:

With Delayed Onset: if onset of symptoms at least six months after the stressor

From Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington, D.

C. 1994

Appendix C

Declaration of Informed Consent

I give my informed consent to participate in the present study. I consent to publication of study results so long as the information is confidential and disguised so that no identification can be made. I further understand that although a record will be kept of my having participated in the study, all study data collected from my participation will be identified by number only.

1. I have been informed that the purpose of this study will be to determine the relationships between aspects of traumatic events and responses.
2. I have been informed that there are no known expected discomforts or risks involved in my participation in this study. This judgment is based upon a relatively large body of research. However, if you do experience discomfort of any kind assistance is available through your extended health insurance.
3. I have been informed that there are no "disguised" procedures in this study. All procedures can be taken at face value.
4. I have been informed that the researcher will gladly answer any question regarding the procedures of this study when the study session is completed.
5. I have been informed that I am free to withdraw from the study at any time without penalty of any kind.
6. I have been informed that this study has been approved by the Department of Psychology Human Ethical Review Committee and any complaint regarding a procedure may be reported to the Chair of the Department of Psychology Human Ethical Review Committee, Dr. Bruce Tefft, Phone No. (204) 474-8259.

Concerns about any aspects of this study may be referred to Solange Lavack-Pambrun, Researcher, Phone No. (204) 943-5271 or Faculty Advisor, Dr. Bruce Tefft, Psychology Department, University of Manitoba, Phone No. (204) 474-8259

Signature: _____

Date: _____

Reminder:

This form is not to be mailed with your questionnaire package. Please either mail it in the enclosed (white) self-addressed envelope or fax it back to me (fax #: (204) 989-2179). This procedure secures your confidentiality.

"Results Requested":

If you are requesting a summary of the results, please complete the following information.

Name:

Address:

Appendix D

Introduction to Questionnaires

The included set of questionnaires, Parts A to E, is designed to collect information regarding nurses' responses to traumatic events. It is requested that you answer all of the questions frankly and honestly. Please complete the questionnaires in the order they appear. Do not write your name on this booklet so that your confidentiality can be maintained.

Appendix E
(developed by this researcher)

Demographics

- 1.0 I would like to ask a few questions about yourself to help interpret the results.
- 1.1 What is your gender? (Circle one number) [4]
1 MALE
2 FEMALE
- 1.2 What is your present age? (Circle one number) [5]
1 UNDER 25 YEARS
2 25-35 YEARS
3 36-46 YEARS
4 OVER 46
- 1.3 What is your professional nursing designation? (Circle one number). [6]
1 REGISTERED NURSE
2 REGISTERED PSYCHIATRIC NURSE
3 OTHER (Specify): _____
- 1.4 What is your highest level of nursing academic achievement? (Circle one number). [7]
1 DIPLOMA
2 BACCALAUREATE
3 MASTERS (or higher)
- 1.5 Do you have any additional nursing certification/education? (Circle one number). [8]
1 NO
2 YES (Specify): _____
- 1.6 Other than nursing, what is your highest academic achievement? (Circle one number). [9]
1 DIPLOMA (Specify): _____
2 BACCALAUREATE (Specify): _____
3 MASTERS (Specify): _____
4 SPECIALTY CERTIFICATE (Specify): _____
5 OTHER (Specify): _____

1.7 What is the security classification of your [10]
correctional institution? (Circle one number)

- 1 MINIMUM
- 2 MEDIUM
- 3 MAXIMUM
- 4 MULTILEVEL
- 5 HIGH MAXIMUM

1.8 What is your job status? (Circle one number) [11]

- 1 INDETERMINANT POSITION
- 2 TERM POSITION (> 3 MONTHS)
- 3 TERM POSITION (< 3 MONTHS)
- 4 CASUAL POSITION (FULL TIME)
- 6 CONTRACT POSITION

1.9 What is your present nursing work classification? [12]

- 1 NU01, NU02, or NU03
- 2 NU04, NU05, or NU06

1.10 How many years of formal nursing experience have [13]
you accumulated in your life? (Circle one number)

- 1 UNDER 5 YEARS
- 2 6-10 YEARS
- 3 11-15 YEARS
- 4 16-20 YEARS
- 5 OVER 20 YEARS

1.11 How many years have you worked in a federal [14]
correctional institution? (Circle one number)

- 1 LESS THAN 1 YEAR
- 2 2-4 YEARS
- 3 5-7 YEARS
- 4 8-10 YEARS
- 5 MORE THAN 10 YEARS

1.12 Do you smoke cigarettes? (Circle one number) [15]

- 1 NO
- 2 YES (Specify how many per day): _____

1.13 Do you drink alcohol? (Circle one number) [16]

- 1 NO
- 2 YES (Specify how many drinks a week): _____

1.14 Have you ever sought professional help for a [17]
stress-related health problem? (Circle one number)

- 1 NO
- 2 YES

1.15 Have you ever participated in a formal group [18]
Critical Incident Stress Debriefing session?

- 1 NO
- 2 YES

1.16 Have you experienced extreme stress in the [19]
past year which you feared could have compromised
your employment situation? (Circle one number)

- 1 NO
- 2 YES

Appendix F

Exposure Scale

(developed by this researcher)

Instruction:

Many people have lived through or witnessed traumatic events at some point in their lives. We are interested in learning about your experience. This information is important to us because it can help us understand how nurses deal with traumatic events so that your needs can be better met.

This questionnaire consists of a list of traumatic events. For each event indicate:

- a) If you have experienced it in the past 12 months,
- b) How many times you have experienced this event in the past 12 months,
- c) How many months ago did the most recent event occur,
- d) How physically and emotionally threatening (THEN and NOW) was the most recent event for you.

USE THE FOLLOWING DEFINITIONS OF PHYSICAL THREAT AND EMOTIONAL THREAT AS A GUIDE WHEN RATING STATEMENTS FOR PHYSICAL AND EMOTIONAL THREAT (THEN AND NOW).

Definitions

Physical threat:

- Relates to the physical consequences of events
- Involves actual or high likelihood of physical pain, serious injury, or death (i.e., you were in actual danger or at high risk of being in danger, etc.)
- Intense feelings of fear for your physical safety

Emotional threat:

- Relates to the emotional meaning of the event (i.e., event brought back past losses, changed the way you now view the world, etc.)
- Involves emotions such as loss, intense sadness, anguish, or anger
- Involves threat to your personal integrity (i.e., your sense of self has been substantially compromised)

THEN means: at the time of the most recent event

NOW means: current (today) level of threat

Column ①: Place (✓) for each event experienced in the past year.

Column ②: Fill in the number of times you experienced each event in the past year.

Column ③: Fill in number of months ago each event occurred: if event occurred more than once, choose the MOST RECENT.

Columns ④ to ⑦: Fill in one number (1 to 5) for each event (1 = not at all threatening . . . 5 = very threatening).

See KEY at top of page →
for explanation

EVENT

	① (✓)	② # TIMES	③ # MONTHS AGO	④ PHYSICALLY THREATENING (Scale of 1,2,3,4,5)	⑤ CONTINUED FEAR FOR SAFETY NOW (Scale of 1,2,3,4,5)	⑥ EMOTIONALLY THREATENING (Scale of 1,2,3,4,5)	⑦ EMOTIONALLY THREATENING (Scale of 1,2,3,4,5)
Serious injury or death of a patient/inmate due to non-violent causes (e.g. accident, illness)							
Attacked with a weapon by inmate/patient							
Witnessed staff being attacked with a weapon by inmate/patient							
Physically attacked (with- out a weapon) by inmate/ patient with intent to kill or harm							
Witnessed staff being physically attacked (with- out a weapon) by inmate/ patient with intent to kill or harm							
Death of a colleague							
Prolonged Resuscitation							
Hostage taking							
Verbal abuse/threat by inmate/patient							
Verbal abuse/threat by peer/other staff							
Physical assault (e.g. pushing, shoving) by peer/other staff							
Possible/actual contact with infectious body fluids (e.g. Hepatitis B, HIV)							
Alone with a dangerous patient/inmate							

See KEY at top of page 6 →
for explanation

EVENT

	1	2	3	4	5	6	7
	(✓)	# TIMES	# MONTHS AGO	PHYSICALLY THREATENING THEN (Scale of 1,2,3,4,5)	CONTINUED FEAR FOR SAFETY NOW (Scale of 1,2,3,4,5)	EMOTIONALLY THREATENING THEN (Scale of 1,2,3,4,5)	EMOTIONALLY THREATENING NOW (Scale of 1,2,3,4,5)
Raped by inmate/patient							
Raped by staff							
Sexually assaulted (other than raped) by inmate/patient							
Sexually assaulted (other than raped) by peer/other staff							
Serious injury or death of a patient/inmate due to violent causes (e.g. stab- bing)							
Saw a completed suicide							
Exposed to an attempted suicide							
Handled a dismembered or disfigured body							
Other (please explain)							
<hr/> <hr/> <hr/>							

PLEASE ANSWER BOTH OF THE FOLLOWING QUESTIONS:

- 1) Of the preceding list of events, which one was the **MOST DISTRESSING FOR YOU?**
Out of these events, the one that was the **MOST DISTRESSING** was (Please specify):

- 2) What was the emotional meaning of this **MOST DISTRESSING** event for you?
(i.e., What did it mean for you?) (Please specify):

Appendix G

The Impact of Events Scale-Revised (IES-R)

(Instructions adapted by permission of D.S. Weiss)

Instructions: The following is a list of difficulties people sometimes have after stressful events. Please read each item, and then indicate how affected you have been by each difficulty during the past month with respect to the **MOST DISTRESSING EVENT** that you **specified in PART A (#1 at the bottom of that page)**. How much were you bothered by these difficulties?

NOT AT ALL	A LITTLE BIT	MODERATE	QUITE A BIT	EXTREMELY
0	1	2	3	4
1. Any reminder brought back feelings about it -----	0	1	2	3 4
2. I had trouble staying asleep -----	0	1	2 3	4
3. Other things kept making me think about it -----	0	1	2 3	4
4. I felt irritable and angry -----	0	1	2 3	4
5. I avoided letting myself get upset when I thought about it or was reminded of it -----	0	1	2 3	4
6. I thought about it when I didn't mean to -----	0	1	2 3	4
7. I felt as if it hadn't happened or wasn't real-----	0	1	2 3	4
8. I stayed away from reminders of it -----	0	1	2 3	4
9. Pictures about it popped into my mind -----	0	1	2 3	4
10. I was jumpy and easily startled -----	0	1	2 3	4
11. I tried not to think about it -----	0	1	2 3	4
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them-----	0	1	2 3	4
13. My feelings about it were kind of numb-----	0	1	2 3	4
14. I found myself acting or feeling like I was back in time-----	0	1	2 3	4
15. I had trouble falling asleep -----	0	1	2 3	4
16. I had waves of strong feelings about it -----	0	1	2 3	4
17. I tried to remove it from my memory -----	0	1	2 3	4
18. I had trouble concentrating -----	0	1	2 3	4

NOT AT ALL A LITTLE BIT MODERATE QUITE A BIT EXTREMELY

0

1

2

3

4

- | | | |
|-----|--|-----------|
| 19. | Reminders of it caused me to have physical
reactions, such as sweating, trouble breathing,
nausea, or a pounding heart ----- | 0 1 2 3 4 |
| 20. | I had dreams about it ----- | 0 1 2 3 4 |
| 21. | I felt watchful and on guard ----- | 0 1 2 3 4 |
| 22. | I tried not to talk about it ----- | 0 1 2 3 4 |

Appendix H

The Brief Symptom Inventory (BSI)

(permission by L.R. Derogatis & P.M. Spencer)

Below is a list of problems people sometimes have. Please read each problem carefully and circle the number that best describes how much that problem has distressed or bothered you during the past 30 days, including today.

NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY
0	1	2	3	4
In the past two weeks how much were you bothered by:				
1. Nervousness or shakiness inside----- 0 1 2 3 4				
2. Faintness or dizziness ----- 0 1 2 3 4				
3. The idea that someone else can control your thoughts --- 0 1 2 3 4				
4. Feeling that others were to blame for most of your				
troubles ----- 0 1 2 3 4				
5. Trouble remembering things ----- 0 1 2 3 4				
6. Feeling easily annoyed or irritated ----- 0 1 2 3 4				
7. Pains in heart or chest ----- 0 1 2 3 4				
8. Feeling afraid in open spaces ----- 0 1 2 3 4				
9. Thoughts of ending your life ----- 0 1 2 3 4				
10. Feeling that most people cannot be trusted ----- 0 1 2 3 4				
11. Poor appetite ----- 0 1 2 3 4				
12. Suddenly scared for no reason ----- 0 1 2 3 4				
13. Temper outbursts that you could not control ----- 0 1 2 3 4				
14. Feeling lonely even when you are with people ----- 0 1 2 3 4				
15. Feeling blocked in getting things done ----- 0 1 2 3 4				
16. Feeling lonely ----- 0 1 2 3 4				

NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY
0	1	2	3	4
17. Feeling blue -----				0 1 2 3 4
18. Feeling no interest in things -----				0 1 2 3 4
19. Feeling fearful -----				0 1 2 3 4
20. Your feelings being easily hurt -----				0 1 2 3 4
21. Feeling that people are unfriendly or dislike you -----				0 1 2 3 4
22. Feeling inferior to others -----				0 1 2 3 4
23. Nausea or upset stomach -----				0 1 2 3 4
24. Feeling that you are watched or talked about by others -				0 1 2 3 4
25. Trouble falling asleep -----				0 1 2 3 4
26. Having to check or double check what you do -----				0 1 2 3 4
27. Difficulty making decision -----				0 1 2 3 4
28. Feeling afraid to travel on buses, subways or trains ---				0 1 2 3 4
29. Trouble getting your breath -----				0 1 2 3 4
30. Hot or cold spells -----				0 1 2 3 4
31. Having to avoid certain things, places or activities because they frighten you -----				0 1 2 3 4
32. Your mind going blank -----				0 1 2 3 4
33. Numbness or tingling in parts of your body -----				0 1 2 3 4
34. The idea that you should be punished for your sins -----				0 1 2 3 4
35. Feeling hopeless about the future -----				0 1 2 3 4
36. Trouble concentrating -----				0 1 2 3 4
37. Feeling weak in parts of your body -----				0 1 2 3 4
38. Feeling tense or keyed up -----				0 1 2 3 4
39. Thoughts of death or dying -----				0 1 2 3 4
40. Having urges to beat, injure, or harm someone -----				0 1 2 3 4
41. Having urges to break or smash something -----				0 1 2 3 4
42. Feeling very self-conscious with others -----				0 1 2 3 4

NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY
0	1	2	3	4
43. Feeling uneasy in crowds-----				0 1 2 3 4
44. Never feeling close to another person -----				0 1 2 3 4
45. Spells of terror or panic -----				0 1 2 3 4
46. Getting into frequent arguments -----				0 1 2 3 4
47. Feeling nervous when you are left alone -----				0 1 2 3 4
48. Others not giving you proper credit for your achievements -----				0 1 2 3 4
49. Feeling restless -----				0 1 2 3 4
50. Feeling of worthlessness -----				0 1 2 3 4
51. Feelings that people will take advantage of you if let them -----				0 1 2 3 4
52. Feelings of guilt -----				0 1 2 3 4
53. The idea that something is wrong with your mind -----				0 1 2 3 4

Appendix I

Stress, Stressors, Social Support
and Correctional Orientation Scale

(Adapted by permission of F.T. Cullen)

The following are some statements about your work and your family. Please circle the number that best reflects how you feel about each statement. (Circle one number for each item)

VERY
STRONGLY
AGREE

VERY
STRONGLY
DISAGREE

- | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|--|---|---|---|---|---|---|---|-------|
| 1. When a problem comes up here, people I work with seldom agree on how it should be handled..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [189] |
| 2. The people I work with often have the importance of their job stressed to them by their supervisors..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [190] |
| 3. My colleagues often compliment someone who has done his/her job well..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [191] |
| 4. I have people in my family that I can talk to about problems I have at work..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [192] |
| 5. I like the neighborhood that I live in..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [193] |
| 6. The rules that we're supposed to follow here never seem to be very clear..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [194] |
| 7. My supervisors often encourage the people I work with to think of better ways of getting the work done which may never have been thought of before..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [195] |
| 8. My colleagues often blame each other when things go wrong..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [196] |
| 9. No one in my family can really understand how tough my job can be..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [197] |

VERY
STRONGLY
AGREE

VERY
STRONGLY
DISAGREE

- | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|-------|
| 10. I like the people who live in my neighborhood..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [198] |
| 11. There are so many people telling us what to do here that you never can be sure who is the boss..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [199] |
| 12. My supervisors often encourage us to do the job in a way that we really would be proud of..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [200] |
| 13. My colleagues often encourage each other to do the job in a way that we would be really proud of..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [201] |
| 14. When I'm at work, I often feel tense or uptight..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [202] |
| 15. The rules and regulations are clear enough here that I know specifically what I can and cannot do..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [203] |
| 16. My supervisors often encourage the people I work with if they do their job well..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [204] |
| 17. There is really no one in my family that I can talk to about my job..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [205] |
| 18. Not counting people that I work with, I have close friends that I can get together with pretty often..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [206] |
| 19. A lot of times, my job makes me very frustrated or angry..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [207] |
| 20. Most of the time when I am at work, I don't feel that I have much to worry about..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [208] |
| 21. I am usually calm and at ease when I am working..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [209] |

VERY
STRONGLY
AGREE

VERY
STRONGLY
DISAGREE

- | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|----|---|---|---|---|---|---|-------|
| 22. My supervisors often blame others when things go wrong, which are possibly not the fault of those blamed..... | .1 | 2 | 3 | 4 | 5 | 6 | 7 | [210] |
| 23. My colleagues spend hardly any time helping me work myself up to a better job by showing me how to improve my performance.... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [211] |
| 24. My spouse (or girlfriend/boyfriend) can't really help me much when my job gets me tense..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [212] |
| 25. I have a friend that lives nearby that I can confide in and tell all my problems to..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [213] |
| 26. I usually feel that I am under a lot of pressure when I am at work..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [214] |
| 27. It's a good thing that I have my spouse (girlfriend/boyfriend) around when things aren't going well at work. She/he can really understand me and make me feel better..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [215] |
| 28. There are a lot of aspects about my job that can make me pretty upset about things..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [216] |
| 29. A problem in this profession is that no one really knows what their colleagues are doing..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | [217] |

CIRCLE THE NUMBER OF THE RESPONSE THAT BEST REFLECTS YOUR FEELINGS.

30. All in all, how satisfied would you say you are [218]
with your job?

- 1 NOT SATISFIED AT ALL
- 2 NOT TOO SATISFIED
- 3 SOMEWHAT SATISFIED
- 4 SATISFIED

31. Before we talk about your present job, I'd like [219]
to get some idea of the kind of job you'd most
like to have. If you were free to go to any type
of job you wanted, what would your choice be?

- 1 PREFER SOME OTHER JOB TO THE JOB
I NOW HAVE
- 2 WANT TO RETIRE AND NOT WORK AT ALL
- 3 KEEP THE JOB I HAVE NOW

32. Knowing what you know now, if you had to decide [220]
all over again whether to take the job you now
have, what would you decide?

- 1 DECIDE DEFINITELY NOT TO TAKE SAME
JOB
- 2 HAVE SOME SECOND THOUGHTS ABOUT TAKING
MY JOB
- 3 DECIDE WITHOUT HESITATION TO TAKE THE
SAME JOB

33. In general, how well would you say that your job [221]
measures up to the sort of job you wanted when
you took it?

- 1 NOT VERY MUCH LIKE THE JOB I WANTED
- 2 SOMEWHAT LIKE THE JOB I WANTED
- 3 VERY MUCH LIKE THE JOB I WANTED

34. If a good friend of yours told you he/she was [222]
interested in working in a job like yours for
your employer, what would you tell him/her?

- 1 ADVISE MY FRIEND AGAINST TAKING
THIS JOB
- 2 HAVE DOUBTS ABOUT RECOMMENDING
THIS JOB
- 3 STRONGLY RECOMMEND THE JOB

Thank you very much for the time you spent filling out this questionnaire. Your contribution is greatly appreciated. Please return your completed questionnaire by mail using the enclosed self-addressed envelope. (Do not write your name on the envelope).

Appendix J
Introductory Letter

(Respondent's name and address)

(Date mailed)

Hi! My name is Solange Lavack-Pambrun. I am doing research on the impact of experiencing traumatic events, among nurses working in Correctional institutions. Studies conducted on nurses in Canada indicate nurses are experiencing trauma in the workplace. The type of responses experienced by nurses working in Correctional institutions is currently unknown. I would very much appreciate it if you could take the time to complete the attached questionnaire.

You are guaranteed confidentiality. Please do not place your name or any identifying marks on the questionnaire or envelope. This procedure protects the confidentiality of all nurses completing the questionnaire.

This study has been approved by the Ethical Review Committee of the Faculty of Psychology (University of Manitoba), your employer (Correctional Service of Canada), and your Union (Professional Institute of the Public Service). Your employer, Union, or any other third party will not have access to your individual results. However, group data will be made available to your Union and employer.

Please return the booklet of questionnaires in the enclosed self-addressed envelope. Please return your signed Declaration of Informed Consent separately, either by mailing it in the enclosed white envelope or by faxing it to me (fax # (204) 989-2179). You may request a summary of the results by indicating "summary of results requested" on the bottom of the Declaration of Informed Consent, and printing your name and address below it. Please do not write your name and address on any part of the questionnaire.

As a nurse, you are a member of a profession at high risk for exposure to potential traumatic events. In order for the questionnaire results to truly reflect the experiences of nurses working in federal correctional institutions, it is crucial that each questionnaire be completed and returned.

(over)

I would be happy to answer any questions you might have.
Thanking you in advance for your assistance.

Sincerely,

Solange Lavack-Pambrun
Researcher
Ph.: (204) 943-5271 / Fax: (204) 989-2179

Appendix K

Nurses
Prairie Region
Correctional Service of Canada

Dear Nurse:

The questionnaire package that is enclosed with this letter is part of a research project being conducted by Ms. Solange Lavack-Pambrun with the approval of both your employer (Correctional Service of Canada) and your Union, the Professional Institute of the Public Service. The aim of this study is designed to explore how exposure to different traumatic events affects responses among nurses working in correctional institutions.

The results from this study will be helpful in getting a better understanding of the needs expressed by nurses for on-going assistance in dealing with traumatic events. We need your help in getting a clear understanding of what those needs are.

Every effort has been made to ensure the confidentiality of the information you provide. Your responses will not be made available to your superiors, or anyone in either Correctional Service of Canada or the Union.

We support and endorse this research study. Your participation in this study is greatly appreciated, as it is an important step in having traumatic events recognized as a legitimate concern of the nursing profession.

If you have any further questions, please feel free to contact us directly.

Yours fraternally,

Margaret McCoy
Vice-President, PIPS
(506) 379-4121
e-mail address:
mccoymj@csc-scc.gc.ca

Doug Borrowman
Chair, Regional Research Committee
Correctional Service of Canada
(306) 975-6991

Appendix L

Follow-up Postcard

(Date mailed)

Last week a booklet of questionnaires regarding nurses' responses to traumatic events was mailed to you.

If you have already completed and mailed it to us we are greatly appreciative. If you have not already done so please do so today. It is very important that we receive your booklet so that the study results accurately represent the opinions of all nurses working in federal correctional institutions.

If you did not receive the booklet of questionnaires, or if it got misplaced, please let me know via fax (204) 989-2179, so that I can get another one in the mail to you today.

Sincerely,

Solange Lavack-Pambrun
Researcher

Appendix M

Second Follow-up Letter

(Date mailed)

(Name and address)

Three weeks ago I wrote to you requesting your opinion on the types of traumatic events faced by nurses like yourself and the ways in which nurses cope with these events. If you have already completed and mailed your booklet of questionnaires we are greatly appreciative. If you have not already done so please do so today.

I am writing to you again because each nurse's opinion will contribute to the usefulness of this study. In order for the results of this study to be really representative of the opinions of all nurses working in federal correctional institutions it is crucial that each person in your membership return their questionnaire.

If you did not receive or have misplaced your booklet of questionnaires please phone (204) 943-5271 or fax (204) 989-2179 me as soon as possible so that a replacement booklet can be sent to you.

PLEASE TAKE TIME TO FILL OUT THE QUESTIONNAIRE AND RETURN BY FEBRUARY 15, 2000.

Thanking you in advance for your cooperation.

Cordially,

Solange Lavack-Pambrun
Researcher

Appendix N

Third Follow-up letter

(Date mailed)

(Name and address)

The large number of questionnaires received to date is very encouraging. If you have already sent in your questionnaire I thank you. If you have not, please do so today. It is important that the study results capture the opinions of all nurses in your membership.

Never has this kind of study been done before. It follows that the results are of special importance to the nursing membership, your union, and your employer.

The deadline for sending in your booklet of questionnaires has been extended to February 28, 2000. If you have not already done so please mail it in today.

Your participation and contribution to the success of this study is greatly appreciated.

Most sincerely, -

✓ Solange Lavack-Pambrun
Researcher

Appendix O

Federal Correctional InstitutionLevel of Security

Maximum	(max.)
Medium	(med.)
Minimum	(min.)
Multilevel	(multi.)

Number of questionnaires
sent to correctional
institutions^aAlberta:

- | | | |
|----|--|-------------------|
| 1. | Bowden Institution (med./min.)
P.O. Box 6000
Innisfail, Alberta T4G 1V1 | 13 questionnaires |
| 2. | Drumheller Institution (med./min.)
P.O. Box 3000
Drumheller, Alberta T0J 0Y0 | 9 questionnaires |
| 3. | Edmonton Institution (max.)
21611 Meridian Street
P.O. Box 2290
Edmonton, Alberta T5J 3H7 | 12 questionnaires |
| 4. | Edmonton Institution for Women
(multi.)
11151-178th Street
Edmonton, Alberta T5S 2H9 | 6 questionnaires |
| 5. | Grande Cache Institution (med./min.)
Bag 4000
Grande Cache, Alberta T0E 0Y0 | 10 questionnaires |
| 6. | Pe Sakastew Centre (min.)
P.O. Box 1500
Hobbema, Alberta, T0C 1N0 | 3 questionnaires |
| 7. | Grierson Centre (min.)
9530 - 101 Avenue
Edmonton, Alberta, T5H 0B3 | 1 questionnaire |

Saskatchewan:

8. Regional Psychiatric Centre (multi.) 78 questionnaires
2520 Central Avenue North
P.O. Box 9243
Saskatoon, Saskatchewan S7K 3X5
9. Riverbend Institution (min.) 1 questionnaire
15th Street West
P.O. Box 850
Prince Albert, Saskatchewan S6V 5SA
10. Saskatchewan Penitentiary (med.) 24 questionnaires
Special Handling Unit (high max.)
15th Street West
P.O. Box 160
Prince Albert, Saskatchewan S6V 5R6
11. Okimaw Ohci (Healing Lodge) (med./min.) 4 questionnaires
P.O. Box 1929
Maple Creek, Saskatchewan S0N 1N0

Manitoba

12. Rockwood Institution (min.) 1 questionnaire
P.O. Box 72
Stony Mountain, Manitoba R0C 3A0
13. Stony Mountain Institution (med.) 14 questionnaires
P.O. Box 4500
Winnipeg, Manitoba R3C 3W8

Total	177
questionnaires sent	

a. All of the correctional nurses who currently work in Federal Correctional Institutions were individually mailed a questionnaire. This researcher wishes to acknowledge Correctional Service of Canada for the provision of their mailing list.

Appendix P

Definitions

- Affective avoidance:** Avoidance of emotional arousal or isolation of emotional expression following exposure to a traumatic event.
- Correctional nurse:** Registered nurses and registered psychiatric nurses working in correctional institutions. It is not assumed that these two nursing groups are homogenous or comparable to other nursing groups.
- Dangerousness:** The traumatic event is perceived as one involving actual or potential physical danger.
- Emergency personnel:** Medical staff and paramedics who are, on a regular basis, expected to respond to emergency situations (i.e., dismemberment/disfigurement, shootings, serious accidents, deaths, and various other rescue attempts). Although correctional nurses, at times, are the first on scene, their roles differ from emergency personnel in that they primarily perform general medical functions.
- Emotional threat:** Relates to the emotional meaning of the traumatic event and involves emotions such as loss, intense sadness, anguish, or anger. Emotional threat, in this context, also refers to the threat of one's personal integrity (i.e., sense of self has been substantially compromised)
- Debriefing:** Group intervention support services provided to employees following a traumatic event. This intervention is provided by specially trained peers working in conjunction with trained mental health personnel.

Flashback:	Refers to the belief that the individual is back in the traumatic situation again.
Officer's observation report:	A report filled-out by the Health Unit following a traumatic event
Physical threat:	Relates to the physical consequences of traumatic events and involves actual or high likelihood of physical pain, serious injury, or death. Physical threat, in this context, also involves intense feelings of fear for one's physical safety.
Posttraumatic Stress Disorder (PTSD):	Debilitating chronic condition following exposure to a traumatic event.
Recollective:	Different forms of cognitive (i.e., repeated intrusive thoughts), affective (i.e., feeling on edge when reminded of the event), and behavioral (i.e., restlessness) reexperiencing of the traumatic event.

Appendix Q

Correctional Registered Nurses (RNs) versus Correctional
Registered Psychiatric Nurses (RPNs)

The results in Table Q-1 show that differences in perceived physical and emotional threat then and now between RNs and RPNs were, with one exception, not significant. However, RPNs endorsed a significantly greater number of events on the exposure scale than did RNs.

Table Q-1

Perceived Physical and Emotional Threat Then and Now
 (Standard Deviations and Number of Observations Contributing
 to Each Mean Appear in Parentheses)

Threat	Correctional RNs	Correctional RPNs	p-value ^a
	Mean (SD, N)	Mean (SD, N)	
pthen1	2.65 (1.59, 34)	3.14 (1.56, 21)	ns
pnow1	1.76 (0.97, 33)	1.70 (0.86, 20)	ns
ethen1	3.54 (1.52, 35)	3.82 (1.22, 22)	ns
enow1	2.34 (1.33, 35)	2.33 (1.24, 21)	ns
pthen2	2.21 (0.90, 39)	2.66 (1.06, 24)	.074
pnow2	1.53 (0.72, 39)	1.68 (0.91, 24)	ns
ethen2	2.53 (1.20, 39)	3.28 (1.13, 24)	.016
enow2	1.84 (0.95, 39)	2.13 (1.01, 24)	ns
n_events	4.15 (1.98, 47)	6.58 (2.97, 26)	<.001

Note. pthen1 = Physical Threat Then for Most Distressing Event; pnow1 = Physical Threat Now for Most Distressing Event; ethen1 = Emotional Threat Then for Most Distressing Event; enow1 = Emotional Threat Now for Most Distressing Event; pthen2 = Physical Threat Then Across Events; pnow2 = Physical Threat Now Across Events; ethen2 = Emotional Threat Then Across Events; enow2 = Emotional Threat Now Across Events; n_events = Number of Events Endorsed on Exposure Scale.

a = independent samples t-test

Results from the Stress, Stressor, Social Support, and Correctional Orientation Scale are outlined in Table Q-2. Correctional RPNs rated their work environment more negatively than correctional RNs.

Table Q-2

Mean Scores on the Stress, Stressor, Social Support, and Correctional Orientation Scale (Standard Deviations Appear in Parentheses).

	Correctional RNs (N = 50)	Correctional RPNs (N = 26)	p-value ^a
Role Problems	4.42 (1.40)	3.62 (1.29)	.018
Work Stress	4.17 (1.37)	3.37 (1.02)	.010
Supervisor Support	3.81 (1.46)	3.72 (1.07)	ns
Peer Support	4.15 (1.33)	4.13 (1.16)	ns
Family Support	4.82 (1.31)	5.08 (1.30)	ns
Community Support	6.04 (1.14)	5.90 (1.19)	ns
Job Satisfaction	2.29 (0.54)	2.05 (0.49)	.069
Work Environment	4.14 (1.07)	3.67 (0.77)	.051
Home Environment	5.09 (1.05)	5.27 (1.14)	ns

Note. Lower scores indicate a more negative situation.

a = independent samples t-test

The results from the BSI are outlined in Table Q-3. Although RPNs had consistently higher scores than RNs on the various subscales, none of the differences were significant.

Table Q-3

Mean Scores on the BSI (Standard Deviations Appear in Parentheses)

	Correctional RNs (N = 47)	Correctional RPNs (N = 26)	p-value ^a
Somatization	.41 (.59)	.57 (.61)	ns
Obsessive Compulsive	.88 (.86)	1.16 (.84)	ns
Interpersonal Sensitivity	.68 (.62)	.85 (.77)	ns
Depression	.52 (.63)	.65 (.64)	ns
Anxiety	.64 (.67)	.96 (.77)	.075
Hostility	.62 (.67)	.84 (.65)	ns
Phobic Anxiety	.24 (.49)	.30 (.55)	ns
Paranoid Ideation	.64 (.63)	.82 (.71)	ns
Psychoticism	.41 (.62)	.45 (.61)	ns
Global Severity Index	.55 (.55)	.73 (.57)	ns

a = independent samples t-test

IES scores are outlined in Table Q-4. Scores were computed as described in the earlier section Comparisons with Other Nursing Studies. Again, RPNs had consistently higher scores than RNs, but none of the differences were significant.

Table Q-4

IES Scores (Standard Deviations Appear in Parentheses)

	Correctional RNs (N = 43)	Correctional RPNs (N = 24)	p-value ^a
Intrusion	8.84 (6.95)	12.00 (6.78)	.076
Avoidance	7.05 (6.74)	9.17 (6.49)	ns
IES Total	15.88 (13.04)	21.17 (11.98)	ns
IES Total > 26 (Traumatic Stress Reaction)	34.9%	37.5%	ns ^b

a = independent samples t-test

b = chi-square test for independence

Finally, PTSD scores were computed as described in the earlier section Affective Avoidance and PTSD. The mean PTSD score for RPNs ($M = 4.59$, $SD = 2.79$, $N = 24$) was not significantly greater than that for RNs ($M = 3.38$, $SD = 3.04$, $N = 43$), $p = .112$.

In summary, correctional RPNs, relative to correctional RNs, endorsed a greater number of events on the exposure scale and rated their work environment more negatively. In addition, RPNs had numerically higher BSI, IES, and PTSD scores than RNs, but none of the differences were significant. The general pattern of results is not all that surprising given that correctional RPNs work with a more challenging population of inmates.

Appendix R

Correctional RNs versus RNs from Other Nursing Groups

The BSI scores of correctional RNs from the current study were compared to Derogatis and Spencer's (1982) nonpatient norms and to Corneil and Kirwan's (1994) sample of northern RNs. The results are shown in Table R-1. Correctional RNs generally scored significantly higher than the nonpatient norms. However, they scored significantly lower than northern RNs on three of the subscales and on the Global Severity Index. This may reflect the greater work and environmental challenges faced by northern RNs.

Table R-2 compares IES scores of correctional RNs to that of northern RNs from Corneil and Kirwan's (1994) study. Scores were computed as described in the earlier section Comparisons with Other Nursing Studies. Northern RNs scored significantly higher than correctional RNs on the IES Total. However, the percentage of RNs experiencing a traumatic stress reaction did not differ between the two groups.

Table R-1

MEAN SCORES ON THE BSI

	1 Correctional RNs (N = 47)		2 Non- patients ^a (N = 719)		3 Northern RNs ^b (N = 88)		1 vs 2	1 vs 3
SUBSCALE	M	(SD)	M	(SD)	M	(SD)	p-value ^c	p-value
SOMATIZATION	.41	(.59)	.29	(.40)	.27	(.49)	<.10	ns
OBSESSIVE- COMPULSIVE	.88	(.86)	.43	(.48)	1.08	(.84)	<.01	ns
INTERPERSONAL SENSITIVITY	.68	(.62)	.32	(.48)	1.03	(.83)	<.01	<.05
DEPRESSION	.52	(.63)	.28	(.46)	.78	(.77)	<.01	<.05
ANXIETY	.64	(.67)	.35	(.45)	.73	(.71)	<.01	ns
HOSTILITY	.62	(.67)	.35	(.42)	.64	(.62)	<.01	ns
PHOBIC ANXIETY	.24	(.49)	.17	(.36)	.29	(.52)	ns	ns
PARANOID IDEATION	.64	(.63)	.34	(.45)	.92	(.71)	<.01	<.05
PSYCHOTISM	.41	(.62)	.15	(.30)	.57	(.61)	<.01	ns
GLOBAL SEVERITY INDEX	.55	(.55)	.30	(.31)	.90	(.73)	<.01	<.01

a = Derogatis, L.R., & Spencer, P. M. (1982)

b = Corneil, W., & Kirwan, S. (1994)

c = Independent samples t-test

Table R-2

IES Scores (Standard Deviations Appear in Parentheses)

	Correctional RNs (N = 43)	Northern RNs (N = 88) ^a	p-value ^b
Intrusion	8.84 (6.95)	11.86 (9.08)	<.10
Avoidance	7.05 (6.74)	9.99 (8.76)	<.10
IES Total	15.88 (13.04)	21.90 (17.06)	<.05
IES Total > 26 (Traumatic Stress Reaction)	34.9%	36.4%	ns ^c

a = Corneil & Kirwan (1994)

b = independent samples t-test

c = chi-square test for independence