The Prevalence of Post Traumatic Stress Disorder Among Registered Nurses Working Manitoba Emergency and Intensive Care Units: A Replication Study

by

Patricia A. Powell, RN BN

A Thesis
Submitted to the Faculty of Graduate Studies in Partial Fulfilment of the Requirement for the Degree of

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THE PREVALENCE OF POST TRAUMATIC STRESS DISORDER AMONG REGISTERED NURSES WORKING MANITOBA EMERGENCY AND INTENSIVE CARE UNITS: A REPLICATION STUDY

BY

PATRICIA A. POWELL

A Thesis submitted to the Faculty of Graduate Studies of the University of Manitoba in partial fulfillment of the requirements of the degree of

MASTER OF NURSING

Abstract

A survey for post traumatic stress disorder (PTSD) mailed to Medical Services Branch nurses in Manitoba region (Corneil & Kirwan, 1994) suggested PTSD among 34.8 percent (n=88) of these nurses. Research studies on PTSD includes victims of war, crime, and catastrophes; a dearth exists on the association of exposure to traumatic stress at work and PTSD.

A replication study of registered nurses (RNs) working in emergency (ER) and intensive care units (ICU) in Manitoba examined the prevalence of PTSD.

Questionnaires were mailed to 1,200 RNs: 426 (35.5%) replied. Exposure to violence was used as a proxy measure for traumatic events.

Using Burge's (1988) methodology that links American Psychological Association's Diagnostic and Statistical Manual of Mental Disorders (DSM IV,1994). PTSD diagnostic criteria with items from the Brief Symptom Inventory and Impact of Events instruments, analysis revealed a PTSD prevalence of 42.1% (n=179). Chi square statistic established significance relationship between PTSD and where harm in the workplace occurred; more harm occurred in ICU compared to ER. PTSD was higher among divorced and separated RNs.

Recommendation for nursing education, research and administration are based on the study results.

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CHAPTER ONE

STATEMENT OF THE PROBLEM

Recent Canadian studies (Manitoba Association of Registered Nurses [MARN], 1989; Registered Nurses' Association of Ontario [RNOA], 1992) report an increasing incidence of nurse abuse in the workplace. Not only are registered nurses witnessing the devastating effects of trauma while working in emergency (ER) and intensive care units (ICU), registered nurses are also reporting personal abuse in the workplace. This reported trauma among registered nurses increases the likelihood that some registered nurses will experience post traumatic stress disorder.

Post traumatic stress disorder (PTSD) is categorized as an anxiety disorder in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV fourth edition) (American Phycological Association [APA], 1994). PTSD is neither a disease, nor a medical syndrome. It begins as a normal reaction to an extraordinary event. For some individuals the end result of this normal response to an extraordinary event is PTSD (Hartsough, 1985).

To develop PTSD, an individual must be exposed to an extreme traumatic stressor. A traumatic stressor is defined as a "direct personal experience with 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 close associate. The response to the event must involve intense fear, helplessness, or horror" (DSM-IV (1994) fourth edition p 424).

Individuals who develop post traumatic stress have persistent reexperiencing of the traumatic event. They continually avoid stimuli associated with the trauma and psychologically experience a numbing of their general responsiveness. Physiologically, they exhibit persistent symptoms of increased arousal. Post traumatic stress causes distress or impairment in social, occupational, or other important areas of functioning (DSM-IV (1994) fourth edition).

Registered nurses working in emergency and intensive care settings are exposed to and/or experience trauma in their work environment. Whether it is personally experienced trauma, the threat of trauma, or the observation of trauma in others, registered nurses may work in environments that increase the risk for PTSD. The prevalence of PTSD among the registered nurse population is unknown. One reported Canadian study on the prevalence of PTSD in "outpost"

nurses, conducted by Medical Services in Northern Manitoba Nursing Stations in 1994, found a higher prevalence of PTSD among these registered nurses than is reported in post Viet Nam War Veterans (Corneil & Kirwan, 1994).

PTSD is not solely a function of either individual personality characteristics or work environment. It is caused by perceived or actual exposure to, or threat of personal trauma. Perceiving the workplace as a threat could potentially result in PTSD. Liss (1993) reported a 59 percent assault rate among nurses surveyed in Ontario. The problem of abuse among health care staff is recognized by the Federal Government. The Ministers of Labour, Justice and Health have published a protocol for prevention of abuse (Ministerial Committee on Abuse of Health Care Staff, 1991) Some registered nurses who are not performing to expected professional norms in the workplace, may be experiencing PTSD. It is most important that nursing be alerted to the possibility of PTSD as a potential cause of observed behavioral changes in some nurses. If there are registered nurses with PTSD working in emergency and intensive care units, then it is most important that the risk for PTSD be identified and recognized as a normal reaction to an abnormal event so the nurses experiencing PTSD can be encouraged to seek assistance. Alternatively, this knowledge can assist employers to address PTSD among nursing staff through preventive action.

Research Question

What is the prevalence of PTSD in Manitoba registered nurses working in emergency and intensive care units?

Significance of the Study

This replication study, incorporating quantitative and qualitative approaches, contributes to the data accumulating on the prevalence of PTSD among registered nurses in Canada. Data have been collected under the auspices of Health Canada by Dr. Wayne Corneil and Sharon Kirwan (Corneil & Kirwan, 1994). This study is one of many investigating the prevalence PTSD among Canadian registered nurses. As data from these studies accumulate, the prevalence of PTSD among nurses will be established.

The results of the study may contribute to the improvement of the quality of nursing care in Manitoba as well as to the quality of the lives of registered nurses suffering from PTSD. Increasing the awareness that some registered nurses are not performing at their highest level of competence because of PTSD, could lead to appropriate assistance for nurses with PTSD. Healthier nurses should result in an improvement in their ability to nurse as well as improved personal lives. Awareness of the possibility of PTSD can lead to the establishment of support for nurses in work environments. Nursing has a responsibility to nurture nurses. The establishment of the "Nurses at Risk Program" by the Manitoba Association of Registered Nurses is one program

that acknowledges nurses' commitment to help themselves. Knowledge gained from the study will assist in the identification of the prevalence of PSTD among Manitoba registered nurses. This study is a gross analysis for the prevalence of PTSD among nurses; finer diagnostic analysis is beyond the parameters of this study.

This study will also contribute to the applicability and evaluation of Sister Callista Roy's Adaptation Model as a primary assessment tool (Fawcett, 1981). Roy's Model indicates PTSD is an inability to adapt or cope with stressors. There appears to be a good conceptual "fit" between Roy's Model and the present understanding of PTSD. The Model also serves to direct data collection related to PTSD.

CHAPTER TWO

REVIEW OF THE LITERATURE

Post traumatic stress disorder (PTSD) is identified as a normal stress reaction to abnormal events (Horowitz, 1986; Mitchell & Everly, 1993). It is not a "syndrome" nor a "disease". The phenomenology of PTSD has been well studied and most researchers endorse the validity of the DSM-111 (1980) third edition criteria (Choy & de Bosset, 1992).

Historically, the recognition of post traumatic stress disorder originates primarily from studies conducted by the American military on soldiers suffering from the effects of war when they returned from battle. What is now known to be PTSD was called "soldier's heart" during the American Civil War, and "shell shock" during World War One. "Survivor syndrome" and "concentration camp syndrome" were the labels attached to PTSD in both soldiers and civilians following World War Two (Choy & Bossett, 1992; Peebles, 1989; Ramsay, 1990).

During the Korean War, PTSD was classified as "gross stress reaction" in the Diagnostic and Statistical Manual of Mental Disorders authored by the American Phycological Association (DSM-1 (1952) first edition (Choy & Bossett, 1989; Peebles, 1989; Ramsay, 1990). The DSM-II (1968) second

edition, contains no reference to traumatic stress disorder. The Korean War was over and interest in the disorder waned.

The Viet Nam War resulted in a multitude of studies being conducted on the returning war veterans. PTSD reappeared in DSM-III (1980) third edition, and became the distinct entity it is today in DSM-III A, (1987) third edition, revised (Mejo, 1990).

Epidemiological research into the incidence of PTSD has also been conducted on civilians. Experiencing a distressing event that is "outside the range of usual human experience" occurs fairly frequently. Populations exposed to natural disasters (for example, earthquakes, floods, hurricanes, and tornados), automobile accidents, rape, person-made fires, etcetera, have been studied during the past twenty years (McFarlane, 1988; Ramsay, 1990).

Studies have been conducted on emergency personnel, for example, fire fighters, police, and ambulance attendants (Corneil, 1993; Lawson, 1987; McFarlane, 1988; Manolias & Hyatt-Williams, 1993). However, registered nurses as a group have not been assessed for the prevalence of PTSD except by Corneil and Kirwan in 1994. Their study found that the prevalence of PTSD among registered nurses working for Medical Services in a Northern Manitoba was 34.8 percent.

There are numerous studies published on PTSD that report the history of the debates around the establishment of diagnostic criteria for PTSD (Keane, Wolfe, & Taylor,

1987; Moody and Kish, 1989). The primary argument was whether PTSD was a legitimate disorder of its own, or just other previously identified disorders being manifested in a different ways. Many of these studies make use of case histories which illustrate the symptoms of PTSD (Green, Wilson & Lundy, 1985; Mejo, 1990). Other studies examined the biological bases of PSTD (Choy & de Bosset, 1992; Peebles, 1989).

There are many studies that report the efficacy of various treatments for PTSD. Treatments include psychotherapy, eye movement therapy (found helpful in reducing the incidence of intrusive dreams), group therapy, pharmacotherapy (antidepressants primarily), occupational therapy, sweat lodges, humour, and diet (Choy & de Bosset, 1992; Everly Jr., 1993; Friedman, 1993; McFarlane, 1988; Mejo, 1990; Merwin & Smith-Kurtz, 1988; Ochberg, 1988, Rosenbluh, 1984; Roth, 1988; Shapiro, 1988; Walker & Webster, 1989; Wilson, 1989).

Diagnostic tools have been developed, then tested and re-tested for validity and reliability in the course of identifying PTSD as a distinct entity. For instance, studies on veterans have used the Minnesota Multiphasic Personality Inventory (MMPI) (Keane, Wolfe & Taylor, 1987; Kuhne, Baraga & Czekala, 1988; McCaffrey & Bellamy-Campbell, 1989; Watson, Kucala and Manifold, 1986). Rating scales that include the Impact of Events Scale have been used to assess for

subjective distress (Ramsay, 1990). Interview guides and psychophysiological assessment protocols have also been developed (Davidson, Smith & Kudler, 1989; Feinstein, 1989; Keane, Wolfe, & Taylor, 1987; Watson, Kucala & Manifold, 1986).

In 1993, it was estimated that 15.2 percent of Viet Nam war veterans evidenced PTSD. Up to 85 percent of the veterans with PTSD have never seen a mental health professional (Scurfield, 1993). This has contributed in part, to their inability to adjust to civilian life following active military service. North American society has been slow, due to the continued stigma surrounding mental distress, in the acceptance of PTSD as treatable "normal" reaction to extraordinary events. It appears, however, there are many people who may require treatment for this disorder.

Post traumatic stress disorder has been identified in victims of rape (Burge, 1988; Salasin & Rich, 1993), in those experiencing violence (Ochberg, 1988), in people "caught" in a bank robbery (Sabourin), and in staff who work with children who have survived abuse (Lyon, 1993).

Studies identifying critical incident stress, for example, an event that involves many individuals being exposed to extreme trauma and threat, indicate that all emergency personnel involved in an incident are effected (MARN, 1993; Solomon, 1989). Although the nursing literature

reports nurses working in emergency units and intensive care units are effected by critical incidents (Acker, 1993; Appleton, 1994; Burns & Harm, 1993), PTSD among nurses has not been studied.

Rayner (1958) studied registered nurses "post hurricane" thiry-eight years ago and Waters, Selander and Stuart (1992) studied registered nurses "post hurricane" more recently. These were the only studies found in the literature that were conducted on registered nurses following natural disasters, although many registered nurses have been a part of and worked in natural disasters. Critical incident stress debriefing teams have only recently commenced work with emergency personnel and civilians following critical incidents. It is anticipated that long term benefits of debriefing will help to prevent post traumatic stress disorder.

Burnout among nurses was studied in the 1980s (Graham, 1981; Benica,Longo & Barnseiner, 1989; Bartz & Maloney, 1986; McConnell, 1982; Pines, Aronson & Kafry, 1981). Caryn Summers (1992) in her article, "Nursing stress: Burnout or PTSD", summarizes the differences between burnout and PTSD. The "burned out" registered nurse may be irritable and depressed as he/she has not learned to separate work stress from personal life, whereas the nurse with PTSD is a walking "time bomb" who can suddenly become explosive or panic,

causing great disruption in the workplace. PTSD is a more debilitating disorder than burn out.

There is a dearth of studies on the prevalence of PTSD among registered nurses. Corneil and Kirwan's (1994) study on the prevalence of PTSD in Northern Manitoba nurses appears to be the first of its kind.

Limitations of the Study

As this study is a survey, the percentage of registered nurses electing to respond to a voluntary confidential questionnaire does, in part, determine the accuracy of the findings. Individual interpretation of questions will also effect accuracy of responses. Nurses not self-reporting as working in emergency and intensive care units on their 1995 MARN licensure application were not included in the survey. Normally, there is a low rate of return to mail out surveys and this questionnaire requires an investment of at least 30 minutes to complete which further hinders the response rate.

Assumptions

It is assumed in this replication study, based on Corneil and Kirwan (1993) who explored the prevalence of PTSD in a northern nursing population, is equally valid and reliable when repeated on another nursing population, that is, registered nurses who work and reside primarily in southern Manitoba. It is assumed that registered nurses working in emergency and intensive care units in southern

Manitoba are exposed to similar trauma in the workplace as nurses working in northern Manitoba.

Summary

Post traumatic stress disorder is now established as a "legitimate" disorder following decades of study and debate. A survey to establish the prevalence of PTSD among registered nurses working in emergency and intensive care units in Manitoba will add to the body of knowledge about this normal reaction to traumatic events.

CHAPTER THREE

METHODOLOGY

Theoretical Considerations

Research related to PTSD has primarily been conducted by professionals working in three domains; psychology, biology and sociology. The DSM-IV (1994) fourth edition criteria for PTSD (see table 1) describes the difficulties experienced by individuals with PTSD. Cognitive ability, biological functioning and social interactions are affected in this disorder. Corneil and Kirwan's original study, 1994, in which the prevalence of PTSD was surveyed in northern Manitoba registered nurses, focused primarily on a cognitive assessment. More precise measurements of biological changes and assessment of social interactions is more appropriately assessed in an interview.

Nursing theorist, Sister Callister Roy, deduced a framework for nursing that views individuals from a systems and adaptation theoretical perspectives (Meleis, 1985). Her theory has demonstrated its helpfulness in identifying where individuals experience difficulties with their adaptation to life events (Fawcett, 1981). Roy describes individuals as:

> "in constant interaction with a changing environment: therefore, a person is continually changing and attempting to adapt . . . . A person uses both innate

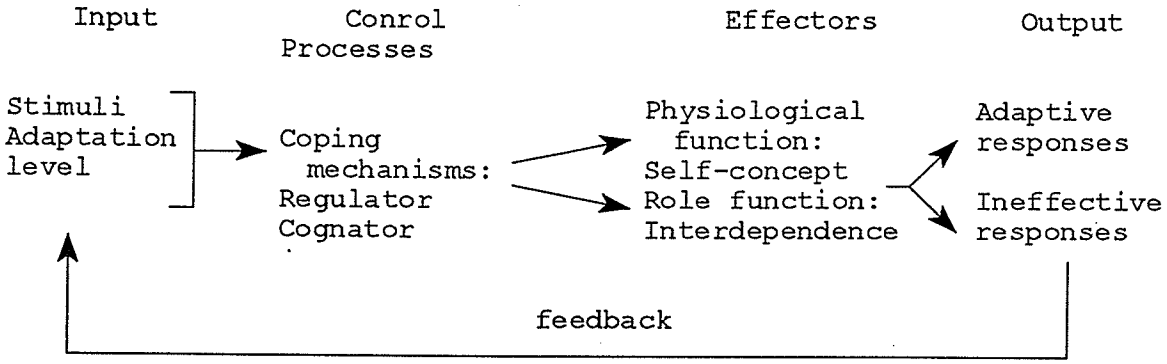
and acquired mechanisms to ready himself to adapt to his environment. A person is conceptualized as having two subsystems for adapting. These are the regulator and cognator mechanisms" (Meleis, 1985, p. 207).

The regulator mechanism receives all input from the external and internal environments of the individual into the central nervous system. The cognator mechanism identifies, stores and relates stimuli so that a symbolic meaning can be attached to the behavior (Meleis, 1985, p. 207).

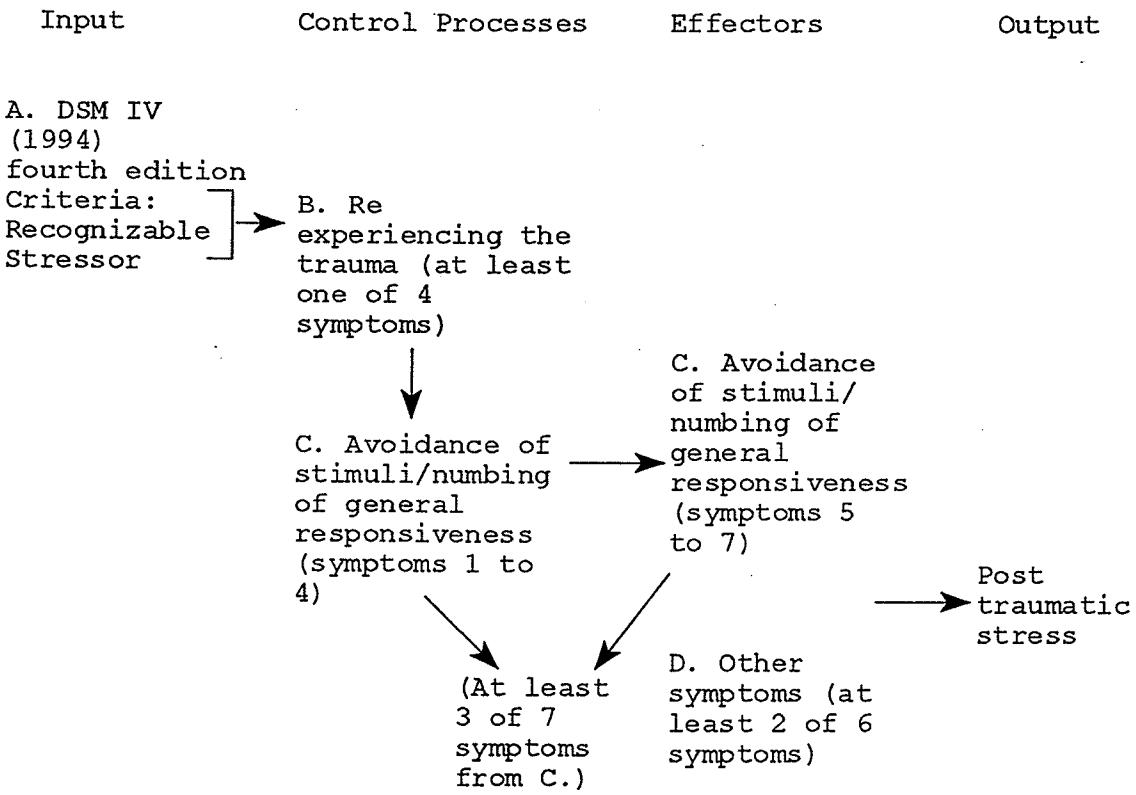
Roy's framework is illustrated in Figure 1. (Riehl-Sisca, 1989). The systems components for this model are input, control processes, effectors and output. Input are considered as stimuli. Adaptation is seen as a part of the control process and is manifested through an individual's coping mechanisms; the regulator and cognator subsystems. The effectors register the outcome of the individual's cognitive ability to process the stimuli; changes in physiological function, self-concept, role function and interdependence. The output discloses individuals adaptation.

Figure 1

Roy's Adaptation Model (Riehl-Sisca, 1989)



Roy's Adaptation Model and DSM-IV (1994) fourth edition



This replication study surveyed for the prevalence of PTSD among nurses working in emergency and intensive care units in Manitoba. Roy's framework was applied to Burge's profile of PTSD (table 1) that places items from the Brief Symptom Index (BSI) and Impact of Events Scale (IES), two instruments included in the survey, in a framework that links questionnaire items to the diagnostic criteria for PTSD assessment.

Table 1

LINKING DSM 111R PTSD DIAGNOSTIC CRITERIA WITH ITEMS FROM THE BSI AND IES INSTRUMENTS AND ROY'S ADAPTATION MODEL

DSM 111R Dx CRITERIA	ITEMS from BSI & IES	ROY'S MODEL
A. **Recognizable Stressor**	Exposure as defined i.e. abuse in workplace	Regulator Mechanism processes stimuli external stressor) as a threat
B. **Re-experiencing the trauma** (at least one of following four symptoms)		
B.1 Recurrent/ intrusive images	IES 1 Intrusive Thoughts IES 10 Intrusive Images	Regulator Mechanism processes stimuli (internal) as a threat
B.2 Recurrent dreams	IES 6 Had dreams about it	Regulator Mechanism processes stimuli (internal) as a threat
B.3 Sudden acting/ feeling like it is recurring	IES 5 Waves of emotion	Regulator Mechanism processes stimuli (internal) as a threat
B.4 Distress at exposure to events resembling trauma	IES 11 Things trigger it IES 14 Reminders brought back feelings about it	Regulator Mechanism processes stimuli (external) as a threat

C.	**Avoidance of Stimuli/ Numbing of general responsiveness** (at least three of the following symptoms)		
C.1	Avoid thoughts/ feelings	IES 9 not talk about it IES 13 tried not to think about it IES 2 avoid upsets IES 12 not deal with feelings	Cognator Mechanism processes stimuli as negative... avoidance used as coping mechanism
C.2	Avoid activities	IES 7 stayed away from reminders BSI 31 avoiding things, places, activities	see C.1
C.3	Inability to recall details	IES 8 felt like it had not happened IES 3 removed from memory	see C.1
C.4	Lowered interest in significant activities	BSI 18 no interest in things	see C.1
C.5	Feeling detached/ estranged	BSI 44 not feeling close to others	Effectors: self-concept
C.6	Restricted affect	IES 15 feelings were numb BSI 14 feeling lonely	Effectors: self-concept
C.7	Sense of fore-shortened future	BSI 35 feeling hopeless about future BSI 39 thoughts of dying BSI 16 feeling lonely BSI 17 feeling blue BSI 9 thoughts of ending life BSI 50 feelings of worthlessness	Effectors: self-concept

D. Other symptoms
(at least two symptoms)

D.1 Sleep disturbances	IES 4 trouble sleeping BSI 25 trouble sleeping	Effectors: physio-logical function
D.2 Irritability/ outbursts of anger	BSI 16 easily annoyed BSI 13 uncontrollable temper outbursts BSI 40 urge to harm others BSI 41 urge to smash things BSI 46 frequent arguments	Effectors: role function
D.3 Memory loss or trouble concentrating	BSI 5 trouble remembering BSI 15 work seems blocked BSI 26 double checking BSI 27 trouble deciding BSI 32 mind going blank BSI 36 lack of concentration	Effectors: role function
D.4 Hypervigilance	BSI 1 nervous or shaky BSI 19 feeling fearful BSI 38 feeling tense BSI 49 feeling restless	Effectors: self-concept physio-logical function
D.5 Startle Response	BSI 12 suddenly scared BSI 45 spells of panic	Effectors: physio-logical function
D.6 Physiological reactivity to reminders	BSI 2 faintness/ dizziness BSI 7 chest/heart pains BSI 23 nausea/GI upset BSI 29 trouble breathing BSI 30 hot/cold spells BSI 33 numbness/tingling BSI 37 feeling weak	Effectors: physio-logical function

The Brief Symptom Index (BSI) developed by Derogatis and Spencer (1982) is a self-report psychiatric symptom rating scale. Items are rated on a 5-point scale from "not at all" to "extremely". The scores profile nine primary symptom dimensions: Somatization, Obsessive-Compulsive (concentration problems), Interpersonal Sensitivity (interpersonal relationship problems), Depression, Anxiety, Hostility (anger), Phobic Anxiety (fear), Paranoid Ideation (suspiciousness), and Psychoticism (alienation). The BSI is not a measure of personality or of past psychiatric status. The BSI has been used with a wide range of groups and has been standardized on both community and patient groups. Test re-test reliabilities range from 0.78 to 0.90 for individual scale dimensions (Derogatis & Spencer, 1982).

Corneil and Kirwan (1994) state in their study that the Impact of Events Scale (IES), developed by Horowitz, Wilner and Alverez (1979), was selected:

> "to detect conscious experience related to a stressful event, focusing on the Intrusion and Avoidance components of the stress response. The most widely used instrument for the assessment of trauma, the IES has 15 items rated on 4-point scale of intensity. Cluster analysis has shown the subscales to be logically and empirically consistent, using Cronbach's alpha, as 0.78 and 0.82, respectively (Horowitz, Wilner and Alverez, 1979)" (Corneil & Kirwan, 1994).

The input stimulus for this study is abuse experienced in the workplace. It is believed that personal abuse or threat of abuse is more accurately remembered than the witnessing of traumatic events in the workplace. The demographic questions and the instruments used in the survey assess the control process, or the cognitive and regulator mechanisms of the individual. The effectors are assessed by questions relating to physiological function, self-concept, role function and interdependence. Self reported identified difficulties in control processes and subsequent effector deficiencies will assist in organization of data needed to establish PTSD.

Subjects

The subjects for this study were registered nurses currently working in emergency and intensive care units within the Province of Manitoba. The work environments of these nurses closely approximates the work environments of nurses working in northern Manitoba nursing stations surveyed in the original 1994 study by Corneil and Kirwan. The assumption was made that nurses working in nursing stations are exposed to personal abuse and threat of abuse similar to the abuse nurses working in emergency and intensive care units experience. Questionnaires were mailed to 1,200 registered nurses identified as being a member of this population.

Procedure

Registered nurses working in Manitoba who indicated on their 1995 MARN licensure application that they were currently working in emergency units (ER) or intensive care units (ICU) [includes coronary care units (CCU), surgical intensive care units (SICU) and medical intensive care units (MICU)] were mailed the study questionnaire used by Corneil and Kirwan (1994) in their research on nurses working in northern Manitoba nursing stations.

Demographic questions in the questionnaire were changed from the original study to reflect professional work designations used in employee/employer contracts in the Province of Manitoba. The five psychometric tools (BSI, IES, coping, family scale and workplace scale) used for measurement of PTSD by Corneil and Kirwan (1994) were not changed (Appendix A). This allowed for an accurate as possible replication of the study in a different registered nurse population.

The names and addresses of registered nurses were obtained from the Manitoba Association of Registered Nurses (MARN) registration data bank. Following ethical approval of the study by the Faculty of Nursing, University of Manitoba Ethics Committee, and the MARN Board, the MARN Registrar was approached to identify these nurses. The stuffed envelopes containing questionnaires and a covering letter that explained the purpose of the study (Appendix B) were mailed

by the staff at MARN. An enclosed stamped addressed envelope was included in the package for the return of the completed questionnaire.

Confidentiality and anonymity were maintained by requesting that participants not place their name anywhere on the questionnaire. The return envelope did not require participants' addresses. As registered nurses residing in small towns may be easily traced, return envelopes were addressed to Ms Marni Laurencelle, a secretary in the Faculty of Nursing who destroyed the return envelopes and forwarded only the completed questionnaire to the researcher.

A reminder letter (Appendix C) was mailed by MARN staff to all potential subjects two weeks following the original mailing. A copy of all data collected was sent by registered mail to Dr. Wayne Corneil, Health Canada, for analysis 6 weeks following the initial mailing of the questionnaire. Dr. Corneil's research associate then entered the data into the computer SAS program at the University of Ottawa. Dr. Corneil safely secured the hard and soft copies of the data. The original data are stored in a locked filing cabinet in the Faculty of Nursing and will be saved for 7 to 10 years. Future research may include a secondary analysis of the material. Data access is limited to the researcher, the researcher's committee, Dr. Corneil, and Dr. Corneil's research assistant.

Questionnaire

Demographic questions included lifestyle information since problems with relationships, the ability to complete normal activities of daily living (ADL) and use of chemical substances can be attributed to PTSD (Green, Wilson & Lindy, 1985; Keane, Wolfe & Taylor,1987; Kuhne, Baraga & Czekala, 1988; Solomon, 1989).

Exposure to violence was used as a proxy measure for traumatic events in this study. It was anticipated that the occurrence of threats to personal safety or actual assaults, 31.2% and 33.1% respectively, for nurses in the 1989 MARN study, were more likely to be recalled by nurses with greater reliability than their observance of trauma experienced by others in the workplace.

Horowitz's Impact of Events Scale (IES) is the most widely used instrument for assessment of trauma. It focuses on the intrusion and avoidance components of the stress response. Test-retest reliability for the entire scale is 0.87, for intrusion 0.89 and for avoidance 0.89. Normative data is available from a wide range of populations (Burge, 1998).

Derogatis' 53 item Brief Symptom Inventory (BSI) (Derogatis & Spencer)is scored to profile nine primary symptom dimensions: somatization, obsessive-compulsive behavior, interpersonal sensitivity, depression, anxiety, hostility , phobic anxiety , paranoid ideation and

psychoticism. Test-retest reliabilities range from 0.78 to 0.90 for individual scale dimensions. Normative data exists for several populations. The BSI has been widely used in the study of traumatic stress reactions (Corneil, 1993, p 59).

To create a diagnostic tool for PTSD, Burge (1988) matched the individual test items from the IES and the BSI to the DMS-111-R (1987) third edition revised criteria for PTSD and created a new profile (Table 1). This profile makes possible a differentiation in the levels of chronic stress when arriving at a diagnosis of PTSD. IES is a 4 point scale and BSI is a 5 point scale. Responses from both scales are re-coded to a 3 point scale: high("3"), moderate("2") and low("1"). Then, items within each section of the profile (A,B,C &D) are averaged and ranked high, medium or low. The severity of PTSD is estimated by summing the "B", "C" and "D" section rankings. Subjects with scores in the moderate and high rank are diagnosed as having PTSD. Score ranges are: high 8-9, moderate 5-7, and low 3-4.

To screen for PTSD caused by life events other than workplace trauma, the questionnaire has 3 additional instruments: Horowitz and Wilner's Coping Scale (Horowitz, Wilner & Alvarez, 1979), and Billings and Moos Family Scale and their Workplace Scale (Heitzmann & Kaplan, 1988). Further analysis of the data from these scales can be a done in subsequent studies to determine the effect of PTSD on registered nurses' coping abilities, family relationships

and workplace conditions. This study only assessed for the prevalence of PTSD among nurses working in emergency and intensive care units in Manitoba.

Analysis of Data

The program for the analyses of all of five instruments has been set up by Marc Alary, University of Otttawa, using the Statistical Analysis System program (SAS Institute, 1988). This computer program was originally set up and used to analyze Corneil's 1993 study on fire fighters. It has since been modified for the analysis of Corneil and Kirwan (1994) study on registered nurses working for Medical Services in Manitoba. As this is a replication study, analysis was conducted by Wayne Corneil and Marc Alary at the University of Ottawa using the same SAS program as was used for the analysis of the data collected in the Corneil and Kirwan (1994) study.

In this study, each individual's data from the IES and the BSI were re-coded to Burge's profile. Profile scores were tallied. The number of subjects with scores of 5 and above (Moderate and high range) divided by the number of subjects in the study were calculated to arrive at the prevalence of PTSD in Manitoba nurses working in emergency and intensive care units.

Roy's framework, adapted to Burge's profile (Table 1), was reviewed as an organizational assessment tool in this

study. Demographic data from the questionnaire (Appendix A) were summarized The demographic profile included:

- marital status
- educational attainment
- primary work area
- institution size
- current work status
- work classification
- length of employment
- injury on duty
- verbal threats of physical harm on duty
- attempts of physical harm on duty
- actual physical attacks
- cigarette smoking
- alcohol use
- physical exercise
- weight
- socialization and recreational activities
- past history of stress related health problems
- work place stress and past experience with critical incident stress debriefing.

Gender was not included in the data collection as this might have lead to identification of the respondent as there are few male registered nurses working in Manitoba.

Chi-Square statistic was used to identify any specific relationships between these demographic data and PTSD.

Ethical Considerations

The collection of data was by mail survey. The introductory letter explained the purpose of the study; how the study was to be analyzed; the time required to complete the questionnaire; how confidentiality will be maintained; that there was no obligation to participate; and the risks that may have been incurred from completing the questionnaire (Appendix B).

There was the possibility that registered nurses would be very concerned, during this time of health care reform in the province, about absolute confidentiality of the participants in this study. If they were experiencing difficulties in their lives, they may not have wanted their employers to know for fear that their jobs would be in jeopardy.

Registered nurses may have been alerted to the fact that they were experiencing difficulties in their lives as they answered the questionnaire. Included in the mailed out package was information regarding the Manitoba Association of Registered Nurses' "Nurses at Risk Program" that facilitates access to support. The "Nurses at Risk Program" provides confidential support and information regarding treatment options available for nurses in their home communities.

Ethical approval was received from the University of Manitoba, Faculty of Nursing, Ethical Review Committee on April 4, 1995 (Appendix D).

CHAPTER FOUR

FINDINGS

Quantitative Data

According to the Manitoba Association of Registered Nurses (MARN) there was a total of 1,290 nurses working in intensive care and emergency units in Manitoba during 1995. Of this number, 830 (62%) nurses worked in intensive care units and 460 (38%) worked in emergency departments. MARN predicted that approximately 10% or 129 nurses would not be "reachable" by June 1995 because of resignations, retirements and the effects of health care reform. The researcher decided to mail out 1,200 questionnaires to nurses who indicated on their MARN registration forms that they were working general duty in either intensive care units or emergency departments. Nurses who indicated they were employed by Medical Services Branch (Health Canada) were excluded from the survey as they constituted the population for the initial 1994 Corneil and Kirwan PTSD study.

Twelve hundred questionnaires were mailed on June 30, 1995. A reminder letter requesting responses by July 31, 1995 was then mailed on July 19, 1995. By August 8, 1995, 438 questionnaires were returned (36.5%). Copies of these questionnaires were sent to Health Canada in Ottawa for

assistance with computer analysis. Twelve questionnaires were incomplete and were not included in the analysis. The total number of usable questionnaires was 426 or 35.5% of the population of nurses working in intensive care units and emergency departments throughout the Province of Manitoba.

Personal profile

Marital Status

Nearly 74 percent (n=313) of the nurses responding to the survey were married. Although 9.7 percent (n=41) were currently separated or divorced, 17.7 percent (n=72) had previously been separated or divorced. A small percentage (n=7) of the respondents were widowed while 15.3 percent (65) had never married.

Education

Just over 16 percent (79) of the nurses had completed a baccalaureate degree. Forty-seven percent (194) of nurses had obtained a nursing diploma, while 36.1 percent (49) held a specialty certificate in nursing. One nurse held a master of nursing degree (see Table 2).

Table 2

Educational preparation of registered nurses

Educational Preparation	Percent	Number
Nursing diploma	47.0%	194
Specialty certificate	36.1%	149
Nursing baccalaureate	12.6%	52
Other baccalaureate	03.6%	15
Masters	00.2%	1
Other	00.5%	7

Social Habits

Approximately one fifth (n=84) of the nurses were cigarette smokers. Most of the smokers (n=50) smoked 1/2 to one package a day. Eight percent (n=34) of the nurses smoked less than one half a package a day, and only 2 nurses smoked more than one package per day.

Seventy-three percent (n=311) of the nurses reported that they consumed alcohol with 68.5 percent (n= 282) drinking between one and seven drinks per week. Four percent (n=19) drank eight to fourteen alcoholic drinks per week. Less than one percent (n=2) indicated that they drank 15 to 21 drinks per week.

Life Styles

Fifty-five percent (n= 235) of the nurses exercised regularly. The number of nurses who reported that they exercised regularly three times a week or more was 39

percent (n=156). Fifteen percent (n=65) exercised at least twice a week, 0.9 percent (n=4) exercised once a week and 45 percent (n=191) of the respondents did not exercise regularly. Fifty-one percent (n=217) of the nurses declared themselves as overweight.

Life Stressors

Registered nurses indicated that they had experienced a major personal/life event in the past year. Thirty-five percent (n=149) of respondents reported a serious illness in the immediate family, while "a death in the family" was experienced by 18.5 percent (n=79) of the registered nurses. Serious financial problems (15%, n= 65) and serious injuries occurring in their immediate family (10%, n=42) were also identified by the respondents.

Approximately one quarter of the nurses (23.7% n=101) had sought professional assistance for stressful problems during the past year. A majority (12.9%, n=55) had contacted their family physician. Other professionals consulted were psychologists (6.8%, n=29), social workers (4%, n=17), clergy (2.6%, n=11) and workplace health units (4% n=17). Unidentified sources were sought by six percent (n=25) of the registered nurses.

Workplace and Nursing experience

Workplace

The percentage of nurses from emergency versus intensive care units who responded to the questionnaire was

proportionally the same as MARN had recorded as working in these areas.

Table 3

Survey Nurses' Place of Employment Compared to MARN Records

Place of Employment	Survey	MARN Records
Emergency care unit	38.0% (n=159)	38%
Intensive care unit	62.0% (n=259)	62%

Fifty-five percent (n=230) of the nurses who responded worked in institutions with 400 or more beds; forty-five percent (n=188) were employed in institutions with less than four hundred beds. The percent of nurses who worked full-time and permanent part-time was comparable at 47.5 percent (n= 194) and 44.9 percent (n= 190) respectively. Most (80.7%, n=293) of the nurses who reported their work classification (17%, n=63, did not answer this question) were in the category Nurse Two or Nurse Three, indicating that they were working primarily as general duty nurses.

Years of Nursing Experience

The reported nursing experience ranged from one to 43 years. Just over 6 percent (n=28) of the nurses indicated that they had worked for less than two years in the emergency or intensive care. Most of the nurses who were surveyed were not novices. They (72%, n=303) had been working from six to 20 years (mean 14.6 years, standard deviation 7.35).

Injury in the workplace

During the course of their careers, 60.3 percent (n=257) of the nurses had been injured in the workplace setting. Of those who reported being injured, 41.1 percent (n=175) were injured more than once and 20 percent (n=85) identified that they were absent from work for more than one week because of work injury. Nurses (19.7%,n=84) who were injured at work continued to experience problems related to their injury. Back injuries were the most common (37.8%, n=161) followed by needlestick injuries (25.4%, n=108).

Table 4

Work Related Injuries Reported by Nurses

Type of Injury	Percent Nurses Injured	Number Nurses Injured
back injury	37.8%	161
needlestick injury	25.4%	108
sprain	09.2%	39
laceration	06.1%	26
other	15.5%	66

Nurse abuse in the workplace

Most verbal threats of physical harm were from patients (77.2%,n=329), followed by patients' family members and friends (43.7%, n= 186). Other threats (18%, n=80) in the workplace were from physicians (13.1%, n=56).

Attempts of physical harm occurred most frequently by patients (84.7%, 361), followed by patients' family members and friends (14.6%,n=62). Again, in the workplace, physicians attempted physical harm (3.1%,n=13) more often than any other workers (1.6%, n=7)).

Nurses were subjected to actual physical attacks most often by patients (73%, n= 311), then by patients' family members and friends (5.2%, n=22) and also by co-workers; physicians accounting for 2.1% (n=9), nurses for 0.5% (n=2) and other workers 0.9% (n=4).

Some nurses (10.5% n=45) required medical attention when attacked by patients (9.6%, n=41), patients' families and friends (0.5%, n=2) and from doctors and nurses (0.2%, n=1, in each category).

Stress in the workplace

Working alone on a unit, especially at night was identified as stressful. Seven and one half percent of the nurses reported working alone on their nursing units. Formal group critical incident stress debriefing sessions were attended by seventeen percent (n= 73) of the nurses.

The majority of the registered nurses (62.5%, n= 240) recorded at least one significant event at work that caused them significant stress during the past year. Most of the stress was reported as occurring during the months of February, March, May, June, and July 1994 (see Table 4).

Table 5

Work Related Stress By Month

Month of Incidents	No. of Incidences	Percent of Total
January	14	7.3%
February	21	10.9%
March	22	11.5%
April	14	7.3%
May	26	13.5%
June	25	13.0%
July	24	12.5%
August	5	2.6%
September	11	5.7%
October	6	3.1%
November	12	6.3%
December	12	6.3%

When asked where stressful incidents occurred, a grouping of the responses indicated that "at work" was the most frequent answer (27.1%, n= 64), followed by emergency department (25.7%), intensive care unit (20.5%, n=60), at the bedside (3.4%, n=8), and transporting a patient (0.9%, n=2). Other locations such as in the hall way, the nursing desk, or while in an administrator's office accounted for 22.4 percent (n= 52) of the rest of the locations for the occurrence of remembered significant stress. Forty-five

percent (n= 192) of the registered nurses did not respond to this question.

Qualitative data

Nursing practice issues

The majority of registered nurses (62.5%, n=240) who returned the questionnaires indicated at least one significant stressor that they had encountered over the last year. Qualitative comments underwent content analysis. Two major groupings were supported by the data: nursing practice issues and workplace issues. Work place incidents reports (n=240) outnumbered nursing practice reports (n=206) by 14 percent.

Nursing practice issues anecdotes were reports that related the nature of nursing practice, that is, the nurses would only have been exposed to the incident as a direct result of being employed as a nurse. The five most common nursing practice issues in order of the number of anecdotes reported were: death of a child, abuse from patients and patient's families and friends, personal identification with the victim, loss of life following extraordinary expenditure of energy during rescue efforts, and death of patient or serious injury as a consequence of a medical procedure.

Death of a child

The death of a child (n=46) was identified by nurses as the most significant stressor in the category of nursing

practice issues. Nurses reported that children's deaths from physical abuse were very difficult to manage and were extremely difficult when the abuser was present in the unit at the time of the child's death. One nurse voiced that a nine month old was "stomped on by the boyfriend of the mom".

Many nurses reported being very upset by the unexplained sudden deaths of young children following heart surgery at the Children's Hospital. The cancellation of the heart program because of higher than expected deaths was thoroughly detailed in the local press during the past year. Nurses found it exceptionally difficult to orient parents pre-operatively for their child's heart surgery when they "knew" the baby would, in all probability, die post-operatively. One nurse commented that she wanted to tell parents to cancel their child's heart surgery.

Another death of a child incident that was exceptionally poignant and upsetting for a nurse concerned a parent arriving at an emergency department and placing her dead child in the nurse's arms. The parent turned and fled the room. The parent had run over the child with her car.

Nurse abuse

Nurse abuse from patients and patient's families (n=34) and visitors (n=2) was the second most significant stressor identified by nurses. One nurse reported that she felt frightened for her own safety when the son of a patient accused the staff and the facility of incompetent care as he

banged his fist on the unit desk and then the wall. Another nurse wrote that a mentally ill patient hit and kicked out at her and then following discharge from the unit, phoned in a "bomb threat" against her. One angry visitor threatened to kill another nurse. These events illustrate the day to day stressful incidents that exist in the workplace for nurses.

Identification with victims

Nurses identified with victims (n=30) in many ways. Some nurses also knew the patients they cared for. The death of an 18 year old elicited the following comment, "I know the family well and used to baby sit this boy". Other nurses wrote; "A two year old who died was the same age as my daughter", "My own father came in with a M.I.(myocardial infarction) and died!", "The sister of a staff member on our unit was brought in "DOA" (dead on arrival) following a motor vehicle accident". "A patient, the same age as a relative, died from the same cause on the first anniversary of the event". "A fifteen year old hanging victim had the same name as my sixteen year old son." These experiences exemplify the constant vulnerability nurses have of being suddenly exposed incidents that create emotional turmoil.

Extraordinary efforts to save life

There were numerous accounts (n=14) of extraordinary efforts to save life that were not successful. One patient underwent a double lung transplant twice within six months and then died. A young patient was admitted and placed on a

respirator for several days and then died of unknown causes. Full resuscitation was carried out on a child for two hours but the child died anyway from unexplained circumstances following heart surgery. A patient following cardiac surgery had two arrests, went back to surgery twice and had his chest opened up on the unit before death occurred. After weeks of burn treatment and managing difficult family dynamics, treatments were discontinued and the patient died. Loss of life following extraordinary energy and commitment to life can elicit multiple emotional responses, for example, anger at defeat, and despair at the inability to save life, that can be difficult to resolve. Emotional turmoil can effect job performance.

Failure of medical treatment

Reported failure of medical treatment (n=18) included death from catheters being misplaced into the body, children dying following "routine" cardiac surgery, and inexperienced staff attending "99" calls. The "normal expectation" following routine medical procedures is a successful outcome. Failure of procedures, that resulted in the death of patients, was perceived by nurses to be needless deaths. These incidents caused significant stress in registered nurses in this study.

Workplace issues

The five most distressing workplace issues were behavior of medical personal, behavior of co-workers,

increased patient work load, behavior of management, and the effects of "bumping".

Medical incompetence

Nurses reported (n=38) that incompetence in the performance of medical procedures was very stressful. Nurses offered the following accounts of what they perceived to be medical incompetence. There were incidents of a physician who left the room of a hemorrhaging patient, a physician who stood in the doorway and watched a patient experience cardiac arrest, and a physician who was unable to assess critically ill patients. Difficult interpersonal behavior included physicians who swore at their patients, physicians who sexually harassed nurses, physicians who chose to speak to only some nurses on a unit and not others, physicians arrogance, physicians who experienced difficulty "dealing" with grieving families, and physicians who blamed nurses for bed and operating room time cut backs.

Nursing incompetence

Co-workers (n=32) who were not "team players" created stress in the workplace. As one nurse wrote, "They are type A personalities trying to 'one' up each other." A number of nurses remarked about the lack of support they received from their colleagues. There was also considerable concern expressed about nurses who were perceived to be incompetent. The documentation required to have a nurse relieved of

his/her duties was extremely stressful for the nurses on a unit.

Workloads

Remembered stressful incidents (n=29) of increased workload recorded, referred to occasions when nurses felt demeaned because they had to ask to go to the washroom when there was no relief staff for hours. Nurses indicated that they felt overwhelmed and fearful of making errors because patient assignments were so heavy. These nurses experienced that they were "being run off their feet". They were also worried because relief nursing staff had no emergency or intensive care experience. Many nurses reported working all day without any breaks. Some voiced that the standard of care was being lowered given the recent cutbacks in staffing.

Management

There were many concerns (n=27) about management at all levels. One nurse wrote, "total quality management means solve your own problems and half of the managers problems, and still care for the patients." Other nurses reported a lack of support from managers when units were short staffed. On occasion, patients continued to be admitted but there was no staff called in for relief. Not supporting staff when they were harassed by medical personal or were harassed by nursing management were also reported by eighteen nurses.

Bumping

Bumping is the process whereby nurses who lose their nursing position because of health care restructuring are permitted, on the basis of seniority, to bump another nurse on another unit out of her or his position. The bumping of staff throughout units created stress for nurses. Nurses commented (n=5) that they do not know if they would be "bumped" next and lose their jobs. The nurses who bump into an intensive care or emergency unit are inexperienced in critical care. There was increased stress reported by nurses who had to work with novice nurses, especially in units where the inservice education nurse's position was deleted. Furthermore, nurse/patient ratios have been doubled and units have been reclassified to non critical care units, to accommodate bumping by nurses who do not have critical care nursing experience.

Data Analysis

Post traumatic stress disorder (PTSD)

Data from the Impact of Events scale (IES) and the Brief Symptom Inventory Scale (BSI) were analyzed to determine a mean response for each question within the scales. Using Burge's matching of IES and BSI items to the DSM-III-R (1980) third edition revised / DSM-IV (1994) fourth edition criteria for PTSD (see table 1) the registered nurses' means for these items were calculated to arrive at diagnostic

levels of PTSD. Burge's means for PTSD disorder and the findings in this study of registered nurses were:

Table 6 (Burge, 1988)

Post Traumatic Stress Disorder

Number of Symptoms	Number of RNs	Percent of RNs
0-3 (level 0) minimal symptoms:	4 nurses	0.9%
3 or 4 (level 1) low number of symptoms:	43 nurses	57.0%
5, 6 or 7 (level 2) moderate number of symptoms:	140 nurses	32.9%
8 or 9 (level 3) high number of symptoms:	39 nurses	9.2%

According to Burge, a diagnosis of PTSD occurs when an individual reports a moderate or high number of symptoms that are interfering with their ability to live a normal life. In this study, there were 179 registered nurses who had a moderate to high number of symptoms, that is 42.1% met Burge's criteria diagnostic of PTSD. PTSD symptoms as organized by Burge can be viewed as a continuum of symptomology, that is, reactions to traumatic stress, or post traumatic stress (PTS) can be minimal to severe. Nurses exhibiting a moderate number of symptoms can be identified as having a PTS reaction (n=140) whereas those with a high number of symptoms can be identified as having PTSD (n=39).

Analysis also identified the number of registered nurses having symptoms in each category of the DSM-IV (1994) fourth edition for PTSD (table 7). Table 7 illustrates the symptoms in category B, C and D. Category B is "re-experiencing the trauma". Sixty percent, n=238, of the registered nurses experienced recurrent/intrusive images, that is they were unable to control images of traumatic events intruding into their thoughts while engaged in other activities. Recurrent dreams were experienced by 20% (n=85) of the registered nurses. Forty-nine percent, n=207, registered nurses experienced sudden acting/feelings like it is recurring, that is they re-lived the experience of the traumatic event. When exposed to events resembling the initial trauma, 45.1 percent, n=192, of the registered nurses reported feeling distressed.

Table 7

LINKING DSM 111R PTSD DIAGNOSTIC CRITERIA WITH ITEMS FROM THE BSI AND IES INSTRUMENTS AND ROY'S ADAPTATION MODEL REGISTERED NURSES' RESPONSES

DSM 111R Dx CRITERIA	ITEMS from BSI & IES		ROY'S MODEL
A. Recognizable Stressor	Exposure as defined i.e. abuse in workplace		Regulator Mechanism processes stimuli external stressor) as a threat
A. Registered Nurses:			
Injured on duty		257 (60.3%)	
Injured more than once		175 (41.1%)	
Away from work more than one week due to injury		85 (20.0%)	
Subjected to verbal threats from patients		329 (77.2%)	
Attempts of physical harm from patients		361 (84.7%)	
Actual physical attacks from patients		311 (73.0%)	
Received medical attenntion for attacks from patients		41 (09.6%)	
B. Re-experiencing the trauma (at least one of following four symptoms)			
B.1 Recurrent/ intrusive images	IES 1 Intrusive Thoughts IES 10 Intrusive Images		Regulator Mechanism processes stimuli (internal) as a threat
B.1 Registered Nurses:		238 (55.9%)	
B.2 Recurrent dreams	IES 6 Had dreams about it		Regulator Mechanism processes stimuli (internal) as a threat
B.2 Registered Nurses:		85 (20.0%)	

B.3	Sudden acting/ feeling like it is recurring	IES 5 Waves of emotion	Regulator Mechanism processes stimuli (internal) as a threat

B.3 Registered Nurses: 207 (48.6%)

B.4	Distress at exposure to events resembling trauma	IES 11 Things trigger it IES 14 Reminders brought back feelings about it	Regulator Mechanism processes stimuli (external) as a threat

B.4 Registered Nurses: 192 (45.1%)

C. Avoidance of Stimuli/ Numbing of general responsiveness
(at least three of the following symptoms)

C.1	Avoid thoughts/ feelings	IES 9 not talk about it IES 13 tried not to think about it IES 2 avoid upsets IES 12 not deal with feelings	Cognator Mechanism processes stimuli as negative... avoidance used as coping mechanism

C.1 Registered Nurses: 220 (51.6%)

C.2	Avoid activities	IES 7 stayed away from reminders BSI 31 avoiding things, places, activities	see C.1

C.2 Registered Nurses: 220 (51.6%)

C.3	Inability to recall details	IES 8 felt like it had not happened IES 3 removed from memory	see C.1

C.3 Registered Nurses: 185 (43.5%)

C.4 Lowered interest in significant activities	BSI 18	no interest in things	see C.1
C.4 Registered Nurses:		44 (10.3%)	
C.5 Feeling detached/ estranged	BSI 44	not feeling close to others	Effectors: self-concept
C.5 Registered Nurses:		52 (12.2%)	
C.6 Restricted affect	IES 15	feelings were numb	Effectors: self-concept
	BSI 14	feeling lonely	
C.6 Registered Nurses:		83 (19.5%)	
C.7 Sense of foreshortened future	BSI 35	feeling hopeless about future	Effectors: self-concept
	BSI 39	thoughts of dying	
	BSI 16	feeling lonely	
	BSI 17	feeling blue	
	BSI 9	thoughts of ending life	
	BSI 50	feelings of worthlessness	
C.7 Registered Nurses:		58 (13.6%)	
D. Other symptoms (at least two symptoms)			
D.1 Sleep disturbances	IES 4	trouble sleeping	Effectors: physiological function
	BSI 25	trouble sleeping	
D.1 Registered Nurses:		197 (46.2%)	
D.2 Irritability/ outbursts of anger	BSI 16	easily annoyed	Effectors: role function
	BSI 13	uncontrollable temper outbursts	
	BSI 40	urge to harm others	
	BSI 41	urge to smash things	
	BSI 46	frequent arguments	
D.2 Registered Nurses:		54 (12.7%)	

D.3 Memory loss or trouble concentrating	BSI 5 trouble remembering BSI 15 work seems blocked BSI 26 double checking BSI 27 trouble deciding BSI 32 mind going blank BSI 36 lack of concentration	Effectors: role function

D.3 Registered Nurses: 101 (23.7%)

D.4 Hypervigilance	BSI 1 nervous or shaky BSI 19 feeling fearful BSI 38 feeling tense BSI 49 feeling restless	Effectors: self-concept physio-logical function

D.4 Registered Nurses: 73 (17.1%)

D.5 Startle Response	BSI 12 suddenly scared BSI 45 spells of panic	Effectors: physio-logical function

D.5 Registered Nurses: 15 (3.5%)

D.6 Physiological reactivity to reminders	BSI 2 faintness/ dizziness BSI 7 chest/heart pains BSI 23 nausea/GI upset BSI 29 trouble breathing BSI 30 hot/cold spells BSI 33 numbness/tingling BSI 37 feeling weak	Effectors: physio-logical function

D.6 Registered Nurses: 20 (4.7%)

Analysis of Category C of the DMS-IV (1994) fourth edition criteria for PTSD, "avoidance of stimuli/numbing of general responsiveness", showed avoidance behaviors were being used by registered nurses. Avoiding thoughts/feelings was used by 51.6 percent (n=220) of the registered nurses. For example, they tried not to think about the traumatic event they had experienced. Avoidance activities were used by 19.5 percent,(n=83) of the registered nurses, that is, they purposely stayed away from the area where the traumatic event occurred in order to stop being reminded of the event. The inability to recall details, for example, the removal of the traumatic event from conscious thought, was reported by 43.5 percent (n=185) of the registered nurses. A lowered interest in significant activities, that is they experienced a change in how important they felt some activities of their lives were, was reported by 10.3 percent (n=44) registered nurses. Twelve percent (n=52) of the registered nurses felt detached or estranged and 19.5 percent (n=83) had restricted affect, that is they did not feel close to others. The last symptom in the C category is a sense of fore-shortened future which was found to be present in 13.6 percent (n=58) of the sample.

Category D in the DMS-IV (1994) fourth edition criteria for PTSD is entitled "other symptoms". These include sleep disturbances, experienced by 197 (46.2%) registered nurses; irritability/outbursts of anger, experienced by 54 (12.7%)

registered nurses; memory loss or trouble concentrating, experienced by 101 (23.7%) of the nurses; hypervigilence, experienced by 73 (17.1%) of the nurses: startle response, experienced by 15 (3.5%) of registered nurses and physiological reactivity to reminders, experienced by 20 (4.7%) registered nurses.

Relationships between demographic data and PTSD

The Chi Square statistic was used to determine whether there were any significant relationships between the diagnosis of PTSD and current marital status; past separation or divorce; level of education; workplace, for example, emergency room or intensive care unit; size of the institution where employed; employment status, for example, permanent, term or casual position, full time or part time employment; work classification; and years of nursing service. There were no statistically significant relationships found. However, there may be a relationship between having been divorced or separated and experiencing PTSD.

The rate of experiencing Burge's level 3, that is the severest level of PTSD symptomology was 32 percent for divorced nurses and 39 percent for separated nurses compared to 6 percent for married and never married nurses.

Table 8

Marital Status and Relationship to PTSD

Burge's level of symptoms:	0	1	2	3	Total
Marital status:					
Married					
frequency	3	188	102	20	313
percent	0.96	60.06	32.59	6.39	73.47
Separated					
frequency	1	5	2	5	13
percent	7.69	38.46	15.38	38.46	3.05
Divorced					
frequency	0	8	11	9	28
percent	0.0	28.57	39.29	32.14	6.62
Widowed					
frequency	0	5	1	1	7
percent	0.0	71.43	14.29	14.29	1.67
Never Married					
frequency	0	37	24	4	65
percent	0.0	56.23	36.92	6.15	15.26
Total	4	243	140	39	426
	0.94%	57.04%	32.86%	9.15%	100%

Chi-Square Statistic for marital status and relationship to PTSD

Statistic	DF	Value	Prob
Chi-Square	12	47.217	0.000

Sample size = 426
Warning: 55% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

There may be a statistically significant relationship between registered nurses being "hurt at work" and experiencing PTSD. The chi square statistic generated p. 0.002 for this relationship, but it carries a warning that 38% of the cells have expected counts of less than 5 in a sample size of 426. Therefore, this relationship must be viewed with some caution. There was a significant relationship (p.0.000 chi statistic) between harm and where

it occurred. Fifty-seven registered nurses reported being harmed in the workplace. Eighty-four percent (48) harm-events occurred in intensive care units. Attacks (n=78) on the 112 registered nurses (70%) working in intensive care units was significantly higher than attacks on registered nurses working in emergency rooms (chi square p.0.05). The chi square p.0.048 statistic suggests that of the 240 (64%) registered nurses who reported being harmed at work, the expected rate in the intensive care units was significantly higher than what was expected in emergency rooms.

Table 9

Relationship of hurt experienced at work to PTSD

Burge's Level of symptoms	0	1	2	3	Total
# Not hurt at work	4	220	132	29	385
% Not hurt at work	1.04	51.14	34.29	7.53	90.38
# Hurt at work	0	23	8	10	41
% Hurt at work	0	56.1	19.51	24.39	9.62

Chi-Square Statistic

Statistic	DF	Value	Prob
Chi-Square	3	14.396	0.002

Sample size: 426
Warning: 38% of the cells have expected counts less the 5. Chi-Square may not be a valid test.

The rate of experiencing level 3, that is the severest level of PTSD symptomology, is higher for nurses who have been hurt at work (24.39%, n=10) than for nurses who have not been hurt at work (7.53%, n=29).

There is a significant difference in years of service by work location (chi square p. 0.00). One hundred and twenty-six of the 159 (79.2%) registered nurses working in the emergency rooms had over ten years of nursing experience. One hundred and fifty-four of the 259 (59.4%) registered nurses working in intensive care units had over ten years of nursing experience.

Eight nurses did not state their work location. In the hospitals with over 400 beds, 52 of the 225 nurses (23%) worked in emergency. In the hospitals with under 400 beds, 102 of the 185 (55%) of the nurses worked in emergency. This

is a significant difference of registered nurse representation (chi square p. 0.000.) from emergency rooms related to size of work institution.

CHAPTER FIVE

DISCUSSION

Replication Study: Differences and Similarities

Numbers of Participants

There were 88 registered nurses who participated in the Medical Services Branch (MSB) study conducted by Corneil and Kirwan (1994). The large difference in the sample size between the two studies places limits on analysis for significant differences and similarities between the two study groups.

Education

Twenty-five percent (22) of the registered nurses working for MSB during the Corneil and Kirwan (1994) study graduated from a university compared to 16.7 percent (69) of the registered nurses working in emergency (ER) and intensive care units (ICU) in Manitoba. There may be a relationship between education and PTSD. The rate of PTSD appears lower in the Corneil and Kirwan (1994) study where the percentage of university educated nurses is higher than in this study. The rate of PTSD in nurses with university education may be lower than diploma educated nurses as the liberal arts component of a degree program may increase nurses' understanding of human behavior, both their own and those they encounter in the workplace. In the ER and ICU

registered nurses' study the chi square statistic was not reliable as the number of university educated nurses was low (n=82).

Work experience

The response to the question on nursing experience in the MSB study indicated thirty-four (38.6%) of the registered nurses had worked for less than two years with MSB, whereas in the ER and ICU study, registered nurses indicated that only twenty-eight (6.6%) had less than two years work experience in their respective work areas. The MSB registered nurses working in nursing stations had a PTSD rate of 34.8 percent. The nurses working ER and ICU had a PTSD rate of 42.1 percent. The ER and ICU nurses had from one to forty-three years of work experience in nursing (mean 14.6, standard deviation 7.35). Three hundred and eighty-eight of the four hundred and nine registered nurses who responded (92.6%) had over five years of experience in nursing. An initial chi square analysis using five year intervals per cell was not valid to establish a relationship between work experience and PTSD as some of the cells had too few numbers. Perhaps constant exposure to traumatic events does have an effect over time. Studies to date have primarily been done on the effects of trauma over a short period of time, for example, post war, following earthquakes, following rape. Little is known about the cumulative effect of traumatic events.

Replication Studies

There are benefits and drawbacks to conducting replication studies. The benefits include: the problem is identified and well defined; the methodology is established with the strengths and limitations of the study delineated; the literature review is ready to be read and updated; the original researcher who conducted the first study is available for consultation in this particular case. Contact and discussion with the original researcher was educational and helpful. Replication studies strengthen the findings in all previous studies. However, for the individual researcher, the freedom to change design is not available and the weaknesses identified in the original study can not be corrected if a true replication is to take place. As environments change over time, and populations differ, it is to be remembered that replication is always a matter of degree of sameness to the original study.

Prevalence of PTSD

This study identifies the existing cases (42.1%, n= 179) of PTS reaction and PTSD among registered nurses working in ER and ICU in Manitoba based on Burge's (1988) methodology for analysis of BSI and IES instruments that registered nurses completed and mailed back in July, 1995. Dr. Louis Ludwig, emergency director, Health Sciences Centre, Winnipeg, is concerned about the staff in Emergency

following an emergency doctor's strike in the fall of 1995. "We're still feeling the effects of what was a very traumatic time for everyone and some staff are still reeling from that" (Paul, 1996). Alexandra Paul, author of the Free Press article that quoted Dr. Ludwig, also wrote "Almost four months after the end of the emergency doctor's strike, the pressure is so bad hat one doctor suggests some emergency staff suffer post traumatic syndrome (Paul, 1996, p A3). It is of interest to note that this study found a high prevalence of PTSD among ER and ICU nurses before the event of the emergency doctors' strike.

No studies to determine the prevalence of PTSD in the general Manitoba population have been conducted. A study of a financially stable general population in the United States of America by Helzer, Robins & McEvoy (1987) found a PTSD rate of one percent. Whether the results of Helzer's study is generalizable to the Manitoba population is questionable as the subjects in his study were all financially stable and this certainly not the case for all nurses in Manitoba. Few studies have been done in "normal" populations.

Work trauma

The combination of the reported work trauma and the responses to the questions in the survey asking for descriptions of significant stress in the workplace over the past year, suggest that perhaps the criterion "A Recognizable Stressor" in the DSM IV (1994) fourth edition

diagnostic criteria for PTSD extends beyond the exposure to violence that was used as a proxy for traumatic events in this study. It may be probable that significant stress as described by the nurses in this study is as upsetting as exposure to violence at work. Encountering dead children and their families, knowing the victims of accidents, being emotionally involved in accidents, being involved in extra ordinary efforts to save life, and observing the failure of medical treatment, year after year must take its toll. PTS reaction is a normal reaction to traumatic stressor(s). Nurses' experiences in their day to day work lives are traumatic stressors.

DSM IV (1994) fourth edition defines a traumatic stressor as "direct personal experience with 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 threat to the personal integrity of another person, or injury experienced by a family member or close associate. Response to the event must involve intense fear, helplessness, or horror. Nurses reported experiencing the above underlined events and feelings that are a part of the DSM IV (1994) fourth edition definition of a traumatic stressor. PTS reaction and PTSD prevalent in 179 (42.1%) of the registered nurses is a normal response to traumatic stress in the work place.

The high prevalence of PTS reaction and PTSD in the registered nurse population working in ER and ICU in Manitoba may indicate the need for therapy for nurses. Nurses need to be reminded that PTS reaction is a normal reaction and all nurses, for example, general duty nurses, nurse administrator, and nurse educators need to be informed regarding the high prevalence of PST reaction and PTSD among nurses working in ER and ICU. An improved knowledge of PTS reaction and PTSD may lead to a better understanding of peer behavior and earlier therapy for PTSD sufferers. The Manitoba Association of Registered Nurses has a "Nurses at Risk Program" that can direct nurses to therapists residing in nurses residential area of the province. This program was developed primarily to assist nurses with drug and alcohol dependency. Perhaps the mandate for the "Nurses at Risk Program" could be expanded to include preventive intervention for nurses vulnerable for PTSD.

The coordinator of the Physicians at Risk program for the province of Manitoba, Dr. Bill Jayck, was credited as stating in the Winnipeg Free Press on November 26, 1995, that the number of physicians seeking help has risen from 5 to 15 percent over the last three years (Redekopp, 1995). Last year, 35 of 2,300 physicians sought help. Dr. Jacyk identified health care reform as the key stressor. "Health care reform has really shaken people up". He was also credited as saying that "one sign that doctors are under

increasing stress is that complaints are rising against them for being abusive in the workplace" (Redekopp, 1995). In this study, the physicians were identified as the prime co-worker abusers: verbal threats from physicians, 56(13.1%); from nurses and other co-workers, 24(5.7%); attempts of physical harm from physicians, 13(3.1%), from nurses and other co-workers, 7(1.6%); and actual physical harm from physicians, 9(2.1%), from nurses and other co-workers 4(0.9%). This study confirms Dr. Jacyk's observations that physicians are experiencing difficulty with interpersonal relationships in the workplace.

Sister Callista Roy's Adaptation Model

Sister Roy's Adaptation Model used as an assessment framework in this study, reveals that the registered nurses in ER and ICU were primarily having difficulty coping. The DSM IV (1994) fourth edition symptomology of recurrent/intrusive images, sudden acting/feeling like the event is recurring, distress at exposure to events resembling trauma, avoiding thoughts and feelings, and an inability to recall details, all indicate difficulty in Sister Roy's "coping mechanisms" domain. The two main "effectors" identified in the study were sleep disturbance related to physiological function and memory loss or trouble concentrating related to role function.

Roy's framework was useful in identifying that difficulty begins first with coping and then when coping strategies are ineffectual, physiological symptoms develop and there are difficulties experienced carrying out one's role in life. Evidence for the staging of mental processing is noted by the high number of coping symptoms exhibited in the study respondents compared to the number of symptoms noted that were physiological and functional in nature. (Table 7). This study supports Roy's systems framework which organizes stages of mental processing that occur when a stimulus is identified in the external environment by the individual. Roy's framework for organizing the process for dealing with external stimuli could be used to educate nurses to the risk of PTSD and assist in the identification of content for preventive programs.

Limits of the study

Only 426 (36.5%) of the registered nurses working in ER and ICU in Manitoba responded to the survey. Although the number of responses accurately represented the number of registered nurses working in the ER and ICU, it can not necessarily be concluded that the responses reflect the whole population for the study. Perhaps only nurses who were experiencing some symptoms chose to respond or perhaps those who recognized they had PTSD from reading the questionnaire chose not to respond. One nurse who completed the

questionnaire did write that he/she recognized his/her symptoms while completing the questionnaire and he/she was seeking help. The covering letter did alert nurses to the possibility that they may "self diagnose" as having PTSD while answering the questionnaire. Information regarding the MARN "Nurse at Risk Program" was also included in the letter accompanying the questionnaire. The prevalence of PTS reaction and PTSD among ER and ICU nurses could be higher or lower than reported in this study. In the population that did respond, there is a prevalence rate of 42.1 percent. If one were to assume that all who failed to respond did not experience PTSD, the percentage would still be extremely high (15%), when compared to United States studies showing that PTSD is one to three percent in the general population. One might conclude that prevalence is at least five times greater in nurses than in the general public. It is to be remembered that this was a prevalence study only and does not identify the actual incidence of PTSD in registered nurses in Manitoba.

Implications for nursing

Nursing practice

Changes brought about by health care reform and technological advances are creating hospitals with only patients who are acutely ill. Predictions are for hospitals to be composed of only intensive care units in the near

future. The prevalence of PTSD among nurses now working in ER and ICU is high. PTSD can interfere with nurses work performance. Early intervention and preventive measures need to be established in the near future as the number of traumatic events at work will increase for registered nurses with the expected increase in the acuity of illnesses of future patients. The high number of workplace issues that interfere with the delivery of quality nursing care reported in this study indicates that nurses need assistance in developing new skills to manage interpersonal relationships in the workplace.

Nursing administration

Nursing administrators need to be cognizant of the symptoms of PTS reactions and PTSD and address the difficulties PTSD can create in the workplace. It is to be remembered that PTS reaction is a normal reaction to traumatic events. Nurses suffering from PTSD need to have access to educational and therapeutic programs. Some administrators, if the anecdotal reports of their behaviors recorded in this study are accurate, may need therapy for PTSD.

Critical incident stress has been well addressed by administrators in some institutions in recent years. Many institutions are now providing debriefing sessions following identified critical incidents. Hopefully the debriefing sessions are assisting nurses with their coping following

traumatic incidents. However, not all incidents, and not all nurses receive debriefing following traumatic events. In this study, only 17.2 percent (n=73) of the nurses had ever attended a debriefing session. Debriefing protocols need to be established in some institutions and given a priority in all institutions for the health betterment of working nurses.

A report in the Winnipeg Free Press, January 17, 1996 (Paul, 1996), notes the effects of workers in Emergency working with no down time, that is no relief time from high stress work. Traditionally, workers in emergency units have experienced extremely heavy workloads followed by some "recovery" time. If the "recovery" time is removed in the current move for greater monetary efficiencies, the question needs to be asked as to whether this will increase the prevalence of PTSD that will eventually create costly inefficiencies in the workplace.

Implications for nursing education

In nursing education programs, course content needs to include data on PTS reaction and PTSD. Students need to learn that PTS reaction is a normal reaction to traumatic events and need to be alerted to watching for the symptoms of PTSD not only in their work colleagues in years to come but also in themselves. Students need to be aware of the need for early intervention and how they can access therapy if the need arises.

Inservice educators can conduct sessions on PTS reactions and the DSM IV (1994) fourth edition criteria for PTSD so all nurses gain an understanding of this normal reaction to traumatic events. Seeking help for difficulties with coping is still seen as a weakness by many in our society. Until the normalcy of PTS reaction is accepted by nurses, there will be difficulty having nurses attend therapy. All education needs to address the normalcy of PTSD.

The general public needs to be better informed regarding PTSD. That the prevalence among nurses in Manitoba is high, should not reflect negatively on nurses. PTSD is a normal response and the public needs to understand this, and support programs put in place to assist nurses.

Implications for nursing research

This research study raises some questions. What is the relationship between PTSD and formal education? Does multiple exposure to traumatic events over many years influence the prevalence of PTSD? Are nurses effected differently by traumatic stressor than other emergency personnel? Does being female raise the risk of developing PTSD? Most studies on PTSD to date have been carried out with male subjects and it has not been established as to whether there are differences in responses to traumatic stress by males compared to females. All of these questions

address the need for further research into the phenomena of PTSD.

Conclusion

Registered nurses working in ER and ICU in Manitoba face many experiences in the course of the normal work day that increase their vulnerability for PTSD. PTS reaction is a normal response to a traumatic stressor. The nature of the workplace is such that nurses are constantly exposed to working with patients and their families who are under extreme stress following trauma and/or life threatening social and pathological disease. It is not surprising that among the ER and ICU registered nurses the prevalence of PTSD is 42.1 percent. This study demonstrates there is most likely (Chi-Square statistic p 0.002) a significant relationship between experiencing being "hurt at work" and having PTSD. The study did find that there were significantly more nurses harmed while working in ICU than ER. Reported incidents of disturbed interpersonal relationships in the workplace, perhaps, is in part due to a prevalence of 42.1 percent of PTSD among the registered nurses.

Responsibility to address PTSD among nurses rests with all members of the nursing profession. This includes not only general duty nurses but nurse administrators, nurse educators and nurse researchers.

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Appendix A

NURSING QUESTIONNAIRE

As you read through the questionnaire, please circle your response to each question on the question format or write your responses on the page where indicated. Do not put your name on the questionnaire.

1. What is your marital status? Are you presently:
   - Married.....1
   - Separated.....2
   - Divorced.....3
   - Widowed.....4
   - Never married.....5

2. Have you ever been divorced or separated?
   - Yes
   - No

3. What is the highest level of post secondary education you have completed?
   - Nursing diploma.....1
   - Specialty certificate.....2
   - Nursing Baccalaureate.....3
   - Other Baccalaureate.....4
   - Masters.....5
   - Doctorate.....6
   - Other (please specify_____) 7

4. You work primarily:
   - In an Emergency Care Unit.....1
   - In an Intensive Care Unit (CCU, MICU, SICU, etc).....2

   The institution you work in has
   - 400 or more beds.....1
   - 399 beds or less.....2

5. Your present employment status is:
   - Permanent position - full time.....1
   - Term position - full time.....2
   - Permanent position - part time.....3
   - Term position - part time.....4
   - Casual position full time.....5
   - Casual position part time.....6

6. What is your present nursing work classification?

Nurse 1.....1
Nurse 2.....2
Nurse 3.....3
Nurse 4.....4
Nurse 5.....5
Other.....6

7. How many years nursing experience have you accumulated?_____

How long have you worked in an Emergency and/or Intensive Care Unit?

Less than 3 months.....1
3 to 12 months.....2
12 to 24 months.....3
more that 24 months.....4

8. Have you ever been injured on duty while working as a nurse?

Yes
No

Have you been injured more than once?

Yes
No

Have you ever been off the job for more than one week due to an injury?

Yes
No

Was the injury due to:

a back injury.....Yes No
a needlestick injury.....Yes No
a sprain.....Yes No
a laceration.....Yes No
other.....please list_____

Do you still have problems due to this injury?

yes
no

9. Have you ever been subjected to verbal threats of physical harm by:

Patients.....Yes No
Patients' family member(s)/ friend(s).....Yes No
Doctors.....Yes No
Nurses.....Yes No
Other.....please list_____

10. Have you ever been subjected to attempts of physical

harm by:

Patients.....Yes No
Patients' family member(s)/
friend(s).....Yes No
Doctors.....Yes No
Nurses.....Yes No
Other.....please list_____

11. Have you ever been subjected to actual physical attacks by:

Patients.....Yes No
Patients' family member(s)/
friend(s).....Yes No
Doctors.....Yes No
Nurses.....Yes No
Other.....please list_____

12. Have you ever required medical attention for physical injuries from attacks by:

Patients.....Yes No
Patients' family member(s)/
friend(s).....Yes No
Doctors.....Yes No
Nurses.....Yes No
Other.....please list_____

13. Do you smoke cigarettes.....Yes No
If yes, how many cigarettes do you smoke per day? _____

14. Do you drink alcohol?
If yes, how many drinks don you have in a week? _____

15. Do you exercise regularly?
If yes, how often do you work out for more than 30 minutes at a time in the average week? _____

16. Do you consider yourself to be overweight?....Yes No

17. Do you work alone (not with other nurses).....Yes No

18. In the past year have any of the following major events occurred in your personal/family life:

A death in your immediate family.....Yes No
A serious injury in your immediate family....Yes No
A serious illness in your immediate family...Yes No
A major financial problem.....Yes No

19. Have you ever sought professional assistance for a

stress-related health problem?.....Yes No

If yes, who did you contact?

Family physician....._____
Workplace Health Unit....._____
Clergy....._____
Social Worker....._____
Psychologist....._____
Other...Please specify_____

20. Have you ever participated in a formal Critical Incident Stress Debriefing session?.....Yes No

Think back over your past year at work. Do you recall any event at work that caused you, a professional nurse, significant stress?.....Yes No

If yes, please complete the following questions:

When did the event occur?(month)_____
Where did the event occur?_____

_____
Please give a brief description of the event

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

If there was more than one event, please repeat the above data/information for each event. Thank you.

BELOW IS A LIST OF COMMENTS MADE BY PEOPLE AFTER STRESSFUL EVENTS. LEASE CIRCLE EACH ITEM, USING THE FOLLOWING SCALE, INDICATING HOW FREQUENTLY THESE COMMENTS WERE TRUE FOR YOU DURING THE PAST MONTH. IF THEY DID NOT OCCUR DURING THAT TIME, PLEASE CIRCLE THE "NOT AT ALL".

	NOT AT ALL 0	RARELY 1	SOMETIMES 2	OFTEN 3	DO NOT WRITE IN THIS SPACE
1.	I thought about it when I didn't mean to	0	1	2 3	(75)
2.	I avoided letting myself get upset when I thought about it or was reminded of it	0	1	2 3	(76)
3.	I tried to remove it from memory	0	1	2 3	(77)
4.	I had trouble falling asleep or staying asleep	0	1	2 3	(78)
5.	I had waves of strong feelings about it	0	1	2 3	(79)
6.	I had dreams about it	0	1	2 3	(80)
7.	I stayed away from reminders of it	0	1	2 3	(81)
	I felt as if it hadn't happened or it wasn't real	0	1	2 3	(82)
9.	I tried not to talk about it	0	1	2 3	(83)
10.	Pictures about it popped into my mind	0	1	2 3	(84)
11.	Other things kept making me think about it	0	1	2 3	(85)
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	(86)
13.	I tried not to think about it	0	1	2 3	(87)
14.	Any reminder brought back feelings about it	0	1	2 3	(88)
15.	My feelings about it were kind of numb	0	1	2 3	(89)

THE FOLLOWING ARE SOME OF THE THINGS PEOPLE DO TO HANDLE STRESS. WHEN YOU HAVE EXPERIENCED A STRESSFUL SITUATION AS A NURSE, HOW FREQUENTLY DO YOU USE ONE OF THESE WAYS TO HANDLE IT? PLEASE CIRCLE THE APPROPRIATE ANSWER.

	NOT AT ALL 0	RARELY 1	SOMETIMES 2	OFTEN 3	DO NOT WRITE IN THIS SPACE
1.	Remind myself I am providing help	0	1	2 3	(90)
2.	Remind myself things could be worse	0	1	2 3	(91)
3.	Look at the situation realistically	0	1	2 3	(92)
4.	Figure out which things you feared really could have happened	0	1	2 3	(93)
5.	Concentrate on other things	0	1	2 3	(94)
6.	Think about the more humorous parts of the event	0	1	2 3	(95)
7.	Be more helpful to others	0	1	2 3	(96)
8.	Think of the meaning of life after the event	0	1	2 3	(97)
9.	Work on expectations for the future	0	1	2 3	(98)
10.	Let myself experience all the feeling about the event	0	1	2 3	(99)
11.	Talk to others about the incident	0	1	2 3	(100)
12.	Put feelings out of my mind	0	1	2 3	(101)
13.	Think about the good things in life	0	1	2 3	(102)
14.	Figure out when my responses were irrational	0	1	2 3	(103)
15.	Devote myself to work	0	1	2 3	(104)
16.	Figure out how things would be different if I acted in a different way	0	1	2 3	(105)
17.	Seek out other nurses who are dealing with the same thing	0	1	2 3	(106)
18.	Figure out the meaning in nursing	0	1	2 3	(107)
19.	Put the whole thing out of my mind	0	1	2 3	(108)
20.	Withdraw from people	0	1	2 3	(109)
21.	Develop a positive attitude about the event	0	1	2 3	(110)
22.	Think about what happened on my own	0	1	2 3	(111)

23.	Figure out why the event made me feel the way it did	0	1	2	3
24.	Not be bothered by conflicting feelings	0	1	2	3
25.	Involve myself in other activities	0	1	2	3
26.	Seek increased emotional support from others	0	1	2	3
27.	Look for someone to provide direction	0	1	2	3
28.	Turn to religion or philosophy for help	0	1	2	3
29.	Find new interest	0	1	2	3
30.	Spend more time listening to music, writing or getting in touch with nature	0	1	2	3
31.	Do things impulsively to see if such activities would help	0	1	2	3
32.	Figure out choices in life and how they are related to the event	0	1	2	3

DO NOT WRITE IN THIS SPACE

__ (112)
__ (113)
__ (114)
__ (115)
__ (116)
__ (117)
__ (118)
__ (119)
__ (120)
__ (121)

THE FOLLOWING ARE SOME STATEMENTS ABOUT WORKPLACES. THEY ARE INTENDED TO APPLY TO ALL WORKPLACES. SOME OF THE WORDS MAY NOT DIRECTLY APPLY TO NURSING. FOR EXAMPLE, THE TERM SUPERVISOR IS MEANT TO REFER TO THE PERSON YOU DIRECTLY REPORT TO. YOU ARE TO DECIDE WHICH STATEMENTS ARE TRUE OF YOUR WORK AND WHICH ARE FALSE. IF YOU THINK THE STATEMENT IS TRUE OR MOSTLY TRUE FOR YOUR WORK, CIRCLE THE "T". IF YOU THINK THE STATEMENT IS FALSE OR MOSTLY FALSE FOR YOUR WORK, CIRCLE THE "F"

			DO NOT WRITE IN THIS SPACE
1)	The work is really challenging.....	T F	__ (122)
2)	People go out of their way to make a new employee comfortable.....	T F	__ (123)
3)	Supervisors tend to talk down to employees.....	T F	__ (124)
4)	Few employees have any important responsibilities.....	T F	__ (125)
5)	There is constant pressure to keep working.....	T F	__ (126)
6)	Things are sometimes pretty disorganized.....	T F	__ (127)
7)	There's a strict emphasis on following policies and regulations.....	T F	__ (128)
8)	There's not much group spirit.....	T F	__ (129)
9)	The atmosphere is somewhat impersonal.....	T F	__ (130)
10)	Supervisors usually compliment an employee who does something well.....	T F	__ (131)
11)	Employees have a great deal of freedom to do as they like.....	T F	__ (132)
12)	There always seems to be an urgency about everything.....	T F	__ (133)
13)	Activities are well planned.....	T F	__ (134)
14)	A lot of people seem to be just putting in time.....	T F	__ (135)
15)	People take a personal interest in each other.....	T F	__ (136)
16)	Supervisors tend to discourage criticisms from employees.....	T F	__ (137)
17)	Employees are encouraged to make their own decisions.....	T F	__ (138)
18)	People can't afford to relax.....	T F	__ (139)
19)	Rules and regulations are somewhat vague and ambiguous.....	T F	__ (140)

20)	People are expected to follow set rules in doing their work	T	F
21)	People seem to take pride in the department	T	F
22)	Employees rarely do things together after work	T	F
23)	Supervisors usually give full credit to ideas contributed by employees	T	F
24)	People can use their own initiative to do things	T	F
25)	Nobody works too hard	T	F
26)	The responsibilities of supervisors are clearly defined	T	F
27)	Supervisors keep a rather close watch on employees	T	F
28)	People put quite a lot of effort into what they do	T	F
29)	People are generally frank about how they feel	T	F
30)	Supervisors often criticize employees over minor things	T	F
31)	Supervisors encourage employees to rely on themselves when a problem arises	T	F
32)	There is no time pressure	T	F
33)	The details of assigned jobs are generally explained to employees	T	F
34)	Rules and regulations are pretty well enforced	T	F
35)	Few people ever volunteer	T	F
36)	Employees often eat lunch together	T	F
37)	Employees generally do not try to be unique and different	T	F
38)	It is hard to keep up with your work load	T	F
39)	Employees are often confused about exactly what they are supposed to do	T	F
40)	Supervisors are always checking on employees and supervise them very closely	T	F
41)	It is quite a lively place	T	F
?)	Employees who differ greatly from others in the organization don't get on well	T	F

DO NOT WRITE IN THIS SPACE

__ (141)
__ (142)
__ (143)
__ (144)
__ (145)
__ (146)
__ (147)
__ (148)
__ (149)
__ (150)
__ (151)
__ (152)
__ (153)
__ (154)
__ (155)
__ (156)
__ (157)
__ (158)
__ (159)
__ (160)
__ (161)
__ (162)
__ (163)

43) Supervisors expect far too much from employees..... T F

44) Employees are encouraged to learn things even if they are not directly related to the job..... T F

45) You can take it easy and still get your work done..... T F

46) Fringe benefits are fully explained to employees..... T F

47) Supervisors do not often give in to employee pressure..... T F

48) It's hard to get people to do any extra work..... T F

49) Employees often talk to each other about their personal problems..... T F

50) Employees discuss their personal problems with their supervisors..... T F

51. Employees function fairly independently of supervisors..... T F

52) There are always deadlines to be met..... T F

53) Rules and policies are constantly changing..... T F

54) Employees are expected to conform rather strictly to the rules and customs..... T F

55) The work is usually very interesting..... T F

56) Often people make trouble by talking behind other's backs..... T F

57) Supervisors really stand up for their people..... T F

58) Supervisors meet with employees regularly to discuss their future work goals..... T F

59) Supervisors encourage employees to be neat and orderly..... T F

DO NOT WRITE IN THIS SPACE

__ (164)
__ (165)
__ (166)
__ (167)
__ (168)
__ (169)
__ (170)
__ (171)
__ (172)
__ (173)
__ (174)
__ (175)
__ (176)
__ (177)
__ (178)
__ (179)
__ (180)

THE FOLLOWING ARE SOME STATEMENTS ABOUT FAMILIES. YOU ARE TO DECIDE WHICH OF THESE ARE TRUE FOR YOUR FAMILY AND WHICH ARE FALSE. REMEMBER THIS IS HOW YOU FEEL NOT HOW OTHERS IN THE FAMILY SEE THINGS. IF YOU THINK A STATEMENT IS TRUE OR MOSTLY TRUE FOR YOUR FAMILY, CIRCLE THE "T". IF YOU THINK THE STATEMENT IS FALSE OR MOSTLY FALSE FOR YOUR FAMILY, CIRCLE THE "F".

			DO NOT WRITE IN THIS SPACE
1)	Family members really help and support one another	T F	___ (181)
2)	Family members often keep their feelings to themselves	T F	___ (182)
3)	We fight a lot in our family	T F	___ (183)
4)	We spend most weekends and evenings at home	T F	___ (184)
5)	We often seem to be killing time at home	T F	___ (185)
6)	We say anything we want to around home	T F	___ (186)
7)	Family members rarely become openly angry	T F	___ (187)
8)	Friends often come over for dinner or to visit	T F	___ (188)
9)	We put a lot of energy into what we do at home	T F	___ (189)
10)	It's hard to "blow off steam" at home without upsetting somebody	T F	___ (190)
11)	Nobody in our family is active in sports, Little League, bowling, etc.	T F	___ (191)
12)	There is a feeling of togetherness in our family	T F	___ (192)
13)	We tell each other about our personal problems	T F	___ (193)
14)	Family members hardly every lose their tempers	T F	___ (194)
15)	We often go to movies, sports events, camping, etc.	T F	___ (195)
16)	We rarely volunteer when something has to be done at home	T F	___ (196)
17)	If we feel like doing something on the spur of the moment we just pack up and go	T F	___ (197)
18)	Family members often criticize each other	T F	___ (198)
19)	Everyone in our family has a hobby or two	T F	___ (199)
20)	Family members really back each other up	T F	___ (200)
21)	Someone usually gets upset if you complain in our family	T F	___ (201)

				DO NOT WRITE IN THIS SPACE
22)	Family members sometimes hit each other.....	T	F	(202)
23)	Family members are not very involved in recreational activities outside of work or school.....	T	F	(203)
24)	There is little group spirit in our family.....	T	F	(204)
25)	Money and paying bills is openly talked about in our family.....	T	F	(205)
26)	If there is a disagreement in our family, we try hard to smooth things over and keep the peace.....	T	F	(206)
27)	Family members sometimes attend courses or take lessons for hobbies or interests outside of work.....	T	F	(207)
28)	We really get along well with each other.....	T	F	(208)
29)	We are usually careful about what we say to each other.....	T	F	(209)
30)	Family members often try to one-up or out-do each other.....	T	F	(210)
31)	Family members go out a lot.....	T	F	(211)
32)	There is plenty of time and attention for everyone in our family.....	T	F	(212)
33)	There is a lot of spontaneous discussions in our family.....	T	F	(213)
34)	In our family, we believe you don't ever get anywhere by raising your voice.....	T	F	(214)
35)	Our main form of entertainment is watching T.V.....	T	F	(215)

BSI™
Brief Symptom Inventory™

Leonard R. Derogatis, Ph.D.

FOR USE WITH
MICROTEST™ Assessment System

IDENTIFICATION NUMBER	AGE	SEX	TESTING DATE	DAY	YEAR
		① MALE	① JAN		
			② FEB		
			③ MAR		
			④ APR		
			⑤ MAY		
			⑥ JUN		
		② FEMALE	⑦ JUL		
			⑧ AUG		
			⑨ SEP		
			⑩ OCT		
			⑪ NOV		
			⑫ DEC		

DIRECTIONS:

Please follow these directions when completing the identification areas on this page and responding to the BSI test items.

1. Print your identification number in the boxes. Then blacken the circle below each box which corresponds to the number in the box. In a similar manner, complete the other grids.
2. Use a soft, black lead pencil only and make a heavy, dark mark when filling in the circles.
3. If you make a mistake or change your mind, please erase the mark fully and then fill in the correct circle.
4. Please do not make any marks outside the circles.

INSTRUCTIONS:
Below 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 7 DAYS INCLUDING TODAY. Blacken the circle for only one number for each problem and do not skip any items. If you change your mind, erase your first mark carefully. Read the example before beginning, and if you have any questions please ask them now.

EXAMPLE

HOW MUCH WERE YOU DISTRESSED BY:	NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY
1. Bodyaches	0	1	2	●	4

HOW MUCH WERE YOU DISTRESSED BY:	NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY
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 others are 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 or on the streets	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
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

PLEASE DO NOT WRITE IN THIS SHADED BOX 39144

50052

	NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY	HOW MUCH WERE YOU DISTRESSED BY:
21.	0	1	2	3	4	Feeling that people are unfriendly or dislike you
22.	0	1	2	3	4	Feeling inferior to others
23.	0	1	2	3	4	Nausea or upset stomach
24.	0	1	2	3	4	Feeling that you are watched or talked about by others
25.	0	1	2	3	4	Trouble falling asleep
26.	0	1	2	3	4	Having to check and double check what you do
27.	0	1	2	3	4	Difficulty making decisions
28.	0	1	2	3	4	Feeling afraid to travel on buses, subways, or trains
29.	0	1	2	3	4	Trouble getting your breath
30.	0	1	2	3	4	Hot or cold spells
31.	0	1	2	3	4	Having to avoid certain things, places, or activities because they frighten you
32.	0	1	2	3	4	Your mind going blank
33.	0	1	2	3	4	Numbness or tingling in parts of your body
34.	0	1	2	3	4	The idea that you should be punished for your sins
35.	0	1	2	3	4	Feeling hopeless about the future
36.	0	1	2	3	4	Trouble concentrating
37.	0	1	2	3	4	Feeling weak in parts of your body
38.	0	1	2	3	4	Feeling tense or keyed up
39.	0	1	2	3	4	Thoughts of death or dying
40.	0	1	2	3	4	Having urges to beat, injure, or harm someone
41.	0	1	2	3	4	Having urges to break or smash things
42.	0	1	2	3	4	Feeling very self-conscious with others
43.	0	1	2	3	4	Feeling uneasy in crowds, such as shopping or at a movie
44.	0	1	2	3	4	Never feeling close to another person
45.	0	1	2	3	4	Spells of terror or panic
46.	0	1	2	3	4	Getting into frequent arguments
47.	0	1	2	3	4	Feeling nervous when you are left alone
48.	0	1	2	3	4	Others not giving you proper credit for your achievements
49.	0	1	2	3	4	Feeling so restless you couldn't sit still
50.	0	1	2	3	4	Feelings of worthlessness
51.	0	1	2	3	4	Feeling that people will take advantage of you if you let them
52.	0	1	2	3	4	Feelings of guilt
53.	0	1	2	3	4	The idea that something is wrong with your mind

Appendix B

Letter Requesting Participation in Study

June 29, 1995.

Post Traumatic Stress Disorder among Registered Nurses working in emergency and intensive care units in Manitoba: A replication study

Dear Registered Nurse

My name is Pat Powell. As partial requirement for my Master of Nursing degree at the University of Manitoba I am undertaking the replication of a 1994 study that identified the prevalence of posttraumatic stress disorder in registered nurses working for Medical Services in Manitoba. Studies on the incidence of nurse abuse in Canada indicate nurses are experiencing trauma in the workplace. A normal reaction to trauma can be posttraumatic stress disorder (PTSD). Studies identifying the prevalence of PTSD have been completed on nonnurse emergency personal (e.g. firefighters, police, ambulance drivers). The prevalence of PTSD in Canadian nurses is unknown. Dr. Wayne Corneil and Sharon Kirwan, Health Canada, are in the process of collecting data across Canada to investigate for the prevalence of PTSD in registered nurses. Data from this survey will be analyzed in Ottawa and become a part of the national data bank on nurse PTSD. This series of studies is being conducted to assess whether there needs to be preventive measures taken to decrease PTSD and increase the safety of nurses in the workplace.

To assist me with this study, I am requesting approximately 30 to 60 minutes of your time. Participation in this project is entirely voluntary. You are under no obligation to participate. By completing and returning the questionnaire in the enclosed self-stamped envelope you are agreeing to take part in the study. This study has been approved by the Ethical Review Committee of the Faculty of Nursing and by the Manitoba Association of Nurses (MARN) Board. The mailing of the questionnaire has been completed by MARN staff. A computer search of the data entered for the 1995 registration generated the names of nurses working in emergency and intensive care units. All data is confidential. Please do not place your name or any

identifying marks on the questionnaire or envelope. Your completed questionnaire is being returned to a secretary in the Faculty of Nursing, Ms Marni Laurencelle, who will destroy the envelope before forwarding the questionnaire to me. This procedure protects the anonymity of all nurses completing the questionnaire. The names of the people who will have access to the collected data are: my research committee chair, Dr. David Gregory, Dr. Corneil and his research associate in Ottawa, Ms Marni Laurencelle and myself, Pat Powell.

The original completed questionnaires will be securely locked in my office in a filing cabinet and kept for seven to ten years and then destroyed. Similarly, data from the study in Ottawa will be securely stored electronically by Dr. Wayne Corneil. They may be made available for further research following the completion of this study. Only pooled data will be published. No individual data will be made public. A summary of the findings from this study will be submitted to the Nurscene for publication.

If you have questions regarding this study, my thesis committee chair, Dr. David Gregory, Associate Dean, Faculty of Nursing, can be contacted by phoning (204) 474-9317.

If you find that completing this questionnaire alerts you to difficulties you are currently experiencing in your life, please call the MARN Nurses at Risk Program. Their telephone number is (204) 775-7660. All enquiries are confidential. This service will assist you in obtaining professional help within the province of Manitoba.

I thank you for your participation. A reminder letter will be mailed to you in two weeks. If you have completed and sent in your questionnaire please ignore this letter, if not, would you please reconsider participating in the study.

Sincerely

Pat Powell R.N., B.N.

Appendix C

Reminder Letter

July 18, 1995

Dear Registered Nurse

Hopefully you received a questionnaire in the mail, approximately two weeks ago, requesting your input into a nursing research project being conducted to establish the prevalence of post traumatic stress disorder among nurses working in emergency and intensive care units in Manitoba.

If you have completed the questionnaire and mailed it back, I thank you. If you are undecided, please reconsider participating in the study. Questionnaires will be accepted for inclusion in the study up to July 31,1995. If you did not receive a questionnaire, please call me collect at
or

Thank you for your time and consideration.

Sincerely

Pat Powell, R.N.,B.N.

Appendix D

Ethical Approval Form

The University of Manitoba

FACULTY OF NURSING
ETHICAL REVIEW COMMITTEE

APPROVAL FORM

Proposal Number N#95/12

Proposal Title: "THE PREVALENCE OF POST TRAUMATIC STRESS DISORDER IN REGISTERED NURSES WORKING IN MANITOBA EMERGENCY AND INTENSIVE CARE UNITS: A REPLICATION STUDY."

Name and Title of Researcher(s): PATRICIA A. POWELL, RN, BN
MASTER OF NURSING GRADUATE STUDENT
FACULTY OF NURSING, UNIVERSITY OF MANITOBA

Date of Review: MARCH 06, 1995.

APPROVED BY THE COMMITTEE: MARCH 06, 1995.

Comments: APPROVED WITH SUBMITTED REVISIONS AND CLARIFICATIONS OF APRIL 3, 1995.

Date: April 4, 1995

Linda J. Kristjanson, PhD, RN — Chairperson
Associate Professor
University of Manitoba Faculty of Nursing

Position

NOTE:
Any significant changes in the proposal should be reported to the Chairperson for the Ethical Review Committee's consideration, in advance of implementation of such changes.

Revised: 92/05/08/se