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# The Relationship Between Stress, Anxiety, Depression, Coping and Satisfaction with Care Among Family of Adult Acute Care Trauma Patients

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THE RELATIONSHIP BETWEEN STRESS, ANXIETY, DEPRESSION, COPING AND SATISFACTION  
WITH CARE AMONG FAMILY OF ADULT ACUTE CARE TRAUMA PATIENTS

by

Asha(lata) Ann Pereira

A Dissertation Submitted in  
Partial Fulfillment of the  
Requirements for the Degree of

Doctor of Philosophy

in

Nursing

at

University of Wisconsin-Milwaukee

May 2020

## ABSTRACT

### THE RELATIONSHIP BETWEEN STRESS, ANXIETY, DEPRESSION, COPING AND SATISFACTION WITH CARE AMONG FAMILY OF ADULT ACUTE CARE TRAUMA PATIENTS

by

Asha(lata) Ann Pereira

The University of Wisconsin-Milwaukee, 2020  
Under the Supervision of Professor Akke Neel Talsma PhD, RN, FAAN

**Background:** Surprisingly few studies have considered the impact of trauma on adult family members of those admitted to the acute care, rather than ICU. Throughout the course of hospitalization, as patients move through different levels of care, family members must learn to adapt to, and cope with changes in care delivery. **Purpose:** To explore the literature to understand the state of the science, to assess the psychosocial and functional impact on family of adult trauma in acute care, and to identify predictors of coping and satisfaction with care provided to meet their needs. **Design:** The Lazarus & Folkman (1984) Stress, Appraisal and Coping Theory framed this non-experimental descriptive, correlational design. **Methods:** Eighty-six family members of adult trauma survivors completed six questionnaires, 72 hours after unexpected hospitalization, to assess Stress (IES-R), Anxiety and Depression (HADS), Coping (CISS-SSC), and Satisfaction with Care (CCFSS). A demographic questionnaire was used to describe the sample and previous trauma was assessed using Life Event Checklist-DSM5. Predictors for coping and satisfaction with care were explored. **Results:** The mean scores indicated high anxiety and stress levels. Patients were predominantly male (N= 59, 68.6%),

while the caregivers were female (N=60, 69.8%). Almost half (48.9%) scored above clinically relevant levels on the HADS-anxiety subscale, and 51.9% had positive IES-R scores above the cut point  $\geq 33$  for severe stress, consistent with symptoms of acute stress disorder. Respondents scored in the low to medium range on the CISS-SSC, coping scale. They were generally moderately satisfied with care provided. Communication identified as a need by family members. Hierarchical regression models identified anxiety as the primary predictor of coping. Other predictors included age, gender, number of dependents, and previous trauma.

**Conclusion:** The impact of the traumatic injury in this study is similar to that reported within critical care literature and offers insight into the psychosocial impact on family of adult trauma survivors. This is the first study to distinguish between critical and acute care environments. Results provide guidance for the development of interventions and strategies to mitigate negative consequences on the patient, staff and family.

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To

Grant Thomas Edwards,

Alexandra Pereira-Edwards, Marlo Pereira-Edwards,

Veronica Lowry-Pereira, Logan Edwards

In loving memory of my brother

Jai Sam Pereira

June 21, 1967-June 27, 2001

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## Chapter 1

### Overview of Manuscript Based Dissertation

#### Statement of the Problem

Admission to the hospital after a traumatic event occurs without warning, and generates intense emotions among all involved, including family members. Most victims are not alone, often connected to other people, generally relatives or family members who arrive at the hospital shortly after the event has taken place (Verharen et al., 2015). While the priority is to provide care and support to the victim or survivor, caring for the needs of family members is increasingly being recognized as part of the role nurses play. Without warning or preparation, family and friends confront expectations and responsibilities suddenly thrust upon them, sometimes as caregiver or decision maker, as they venture on the complicated and unfamiliar road of hospitalization, the acute care system, and rehabilitation (Shields & Bennett, 2006). For the most grievously injured, the hospitalization includes admission to the intensive care unit (ICU), where lifesaving and injury minimization is the dominant outcome driving care strategies. However, of all admissions to hospital, in large tertiary care facilities, only 30% of urgent surgical admissions are to ICU, and of these only 2% are related to trauma. The majority of trauma patients are admitted to less acute stepdown units or hospital wards (Canadian Institute for Health Information, 2016). There is a great deal of literature regarding family members' response to critical care admission, however there is a dearth of research into the impact of trauma on family members admitted to acute care. An understanding of the psychosocial and functional impact on family members, their coping strategies, and their satisfaction

with the care provided to meet their needs when the patient is outside the ICU is necessary to develop strategies and nursing guidelines to mitigate the impact.

### **The Impact of Traumatic Injury**

Traumatic injury is caused by a variety of mechanisms, leading to damage to cells, tissues and organs because of the transmission of external force to the body. It is generally categorized as minor, moderate, serious, and incompatible with life. Injury is often used interchangeably with trauma (Richmond & Aitken, 2011). A trauma is any physical injury suffered by an individual, whether unintentionally or not, resulting in a shock, blow or pressure, for example, following a motor vehicle collision, a fall, burns, knife wound, explosion, etc.(McGill University Health Centre [MUHC], 2016).

For the past several decades, research has been conducted to improve outcomes for patients with better pre-hospital care, lifesaving surgeries, improved wound management, and quality rehabilitation services available to preserve life, prevent complications, and improve quality of life and many organizations, including the World Health Organization have developed guidelines to support these improvements (Mock, Julliard, Brundage, Goosen, & Joshipura, 2009; Mock, Lormand, Goosen, Joshipura, & Peden, 2004). Patients who previously would have succumbed to their injuries are surviving and are being admitted to the hospital in large numbers.

The impact of trauma is felt throughout the course of hospitalization, as patients move through different levels of care, family members must learn to adapt to, and cope with changes in care delivery, and learn to rely upon the nursing staff for comfort and support. The many

care transitions and expectations has been identified as particularly stressful for family members, and nurses are ideally situated to offer support (Mitchell, Courtney, & Coyer, 2003).

Increasingly, care providers, particularly in the ICU setting have recognized the importance of including family in the care provided. The precariousness of the patient's health may represent a crisis for the patient and the family members due to insufficient time to prepare to cope with the new and unfamiliar situation and their role within it. The catastrophic, emotional distress faced by those closest to the trauma victim has been described as the 2<sup>nd</sup> Trauma (Shields & Bennet, 2006). In the early 1980's focus began to shift to the families of patients in ICU. The work of nurse scientists, Nancy C. Molter (RN, MN, PhD) and Jane Leske (PhD, RN, ACNS-BC, FAAN), increased awareness about the needs of families with the development and revision of the Critical Care Family Needs Inventory (Leske, 1991; Molter, 1979). The recognition that family members have a need for proximity, assurance, comfort, information, and support has led to hundreds of studies around the world, initiatives, and changes in practice to support the family members of critically ill patients. Within critical care environments, inclusion of family in the ICU has become a priority and strategies have been developed to assess, and improve quality, satisfaction and safety in healthcare (McAdam, Arai, & Puntillo, 2008; Ponte, Connor, DeMarco, & Price, 2004). It is unclear from this literature if family with loved ones outside of critical care have similar needs and would benefit from interventions offered to ICU families.

### **Canadian Healthcare Context**

As the demand for healthcare resources within a Canadian healthcare system is increasing, the focus of many initiatives being developed is under the premise of patient flow.

To consolidate care and expertise in Canada following a trauma, patients are often transferred from other hospitals or nursing stations within the health region to trauma centers located in larger, metropolitan cities. The reduced availability of critical and acute care beds and emphasis on cost containment or reduction has resulted in economic rationalization of already scarce resources (Bauer, Fitzgerald, Haesler, & Manfrin, 2009). Thus, the pressure upon care providers to decrease length of stay has resulted in a shift in how and where care is being delivered, often shifting the burden and responsibility for the care after discharge to informal caregivers, such as spouses, children, or siblings of the patient. Successful discharge is obtained when positive outcomes for the patient are achieved. This includes reduction in unplanned readmissions, reduction in post discharge complications and mortality, increase in patient and caregiver satisfaction and reduced post discharge anxiety (Bauer et al., 2009).

The physical, psychological, social, and material consequences of trauma impact both the patient and their relatives as balance is disturbed. Relatives with family members in ICU report sleeping badly, eating poorly, and experiencing anxiety, depression and uncertainty. Some are impacted financially, having to take time away from work to support their loved one. Others become responsible for the patient's household, and responsibilities including child care (Davidson et al., 2007; Pochard et al., 2005).

The Canadian Critical Care Trials Group (2016) recently reported on outcomes among family caregivers, one year after discharge from ICU. The authors reported high levels of depressive symptoms and worse mental health which persisted up to one year after the ICU admission. They found less psychological well-being, less social support, less personal growth and worse mental health were associated with younger caregivers. Being older, having lower

family income, and less sense of control was also associated with lower physical health scores and the need to provide more assistance (Cameron et al., 2016). Despite most trauma patients being admitted to areas outside of the ICU, over the past three decades, study upon study has been conducted to research the impact upon family when the patient is in the ICU. Surprisingly few have considered the many demands and impacts upon family of patients in settings other than the critical care/ICU environment.

### **Significance of the Problem**

Families are intimately connected, and trauma impacts family in numerous ways. Emerging evidence has identified the long-term outcomes on family of trauma patients can have deleterious consequences on the family members' ability to care for the person who experienced the traumatic event, but also on the family members themselves. Relatives are deeply affected by the traumatic event, and its aftermath (Agård, Lomborg, Tønnesen, & Egerod, 2014; Linnarsson, Bubini, & Perseius, 2010; Paul & Rattray, 2008). Consequences for family include symptoms of depression, anxiety, and stress (Rahnama, Shahdadi, Bagheri, Moghadam, & Absalan, 2017). Recent studies have identified increased caregiver strain, and increased mortality as significant health concerns (Perkins et al., 2013). Thirty three percent of family members of ICU patients, and 50% of bereaved family members experience symptoms of depression after discharge from ICU, 70% of all family members experience symptoms of anxiety, and 33% of family members have symptoms of post-traumatic stress disorder 90 days after the patient is discharged from ICU (Davidson, Jones, & Bienvenu, 2012; Kentish-Barnes, Lemiale, Chaize, Pochard, & Azoulay, 2009; Siegel, Hayes, Vanderwerker, Loseth, & Prigerson, 2008). Although depression and anxiety decrease over time, symptoms are reportedly higher

than normal six months after the patient's discharge from ICU, and post-traumatic stress symptoms may persist up to four years after discharge from hospital, and the symptoms may not decrease in this time (Desai, Law, & Needham, 2011).

Nurses are ideally positioned to optimize the outcomes of family members who are impacted by trauma. At a time when family members are at the most need for support, nurses are primarily concerned with caring for the patient. Clinically, when family members are supported, they are better positioned to provide care to the person who has been injured. Increasingly, families are receiving sicker patients discharged to their care, and the ability to prepare for and deal with this transition is an important part of the nurses' role (Mitchell et al., 2016). The family's ability to cope is reliant on their ability to draw on supports (Leske, 2003). Numerous studies (Al-Mutair, Plummer, O'Brien, & Clerehan, 2013; Buckley & Andrews, 2011; Chatzaki et al., 2012; Delva, Vanoost, Lauwers, & Wilmer, 2002; Omari, 2009; Verhaeghe, Van Zuuren, Defloor, Duijnste, & Grypdonck, 2007; Verharen et al., 2015) have supported the original work by Leske (1991), which identified the need for support, communication, assurance, proximity, and comfort among family of critically ill patients using the Critical Care Family Needs Inventory (Leske, 1991).

Interventions undertaken by nurses within the ICU environment based on these needs, such as information booklets, family group meetings and liaison nurse roles have been shown to reduce anxiety and improve satisfaction among family members (Bailey, Sabbagh, Loiselle, Boileau, & McVey, 2010; Bérubé et al., 2014; Kirchhoff, Song, & Kehl, 2004; Linton, Grant, & Pellegrini, 2008; M. Mitchell & Courtney, 2005; Tracy & Ceronsky, 2001; Vandall-Walker & Clark, 2011). However, unlike the ICU, the nurse-to-patient ratio on the ward is higher, resulting

in fewer nurses, reduced monitoring of the patient, and less frequent contact with the care team. Few interventions exist to support family members when their loved one is outside of the ICU, in part because there is limited evidence of the outcomes of trauma on the family members beyond the critical care environment.

### **Background**

Admission to hospital generates strong emotions among family members, particularly those whose loved ones have experienced physical trauma because of a force applied to the body, or the body has been in contact with force, such as a motor vehicle crash (MVC), or fall from height, or injury sustained by contact with thermal energy, as in the case of fire or electrocution. Adult patients and their families are unprepared for the new, unplanned and generally foreign impact an unexpected hospitalization will have on their lives. The family members may have been involved in or witnessed the traumatic event. Their previous experience with hospitalization, caring for a loved one, and coping with crisis all may affect their response to the event. In addition to the cardinal symptoms of stress, anxiety and depression, feelings of helplessness, fear, and horror have been described by family members (Davidson et al., 2012). This disruption can be stressful and anxiety provoking for all involved, at different times throughout the hospitalization trajectory. Caring for a family member has been shown to have measurable negative effects on caregiver health, diminished quality of life, and higher one-year mortality (Perkins et al., 2013). Non-caregiving family members have also been shown to be affected, since they also care about the patient (Wittenberg & Prosser, 2016). They may feel anxiety, become ill, and may impose additional demands on the caregivers which may extend to other family members causing further emotional stress, financial burden, and other

psychological impacts (Lavelle, Wittenberg, Lamarand, & Prosser, 2014). Caregivers find fulfillment and purpose, and patients benefit as there is continuity of care, trust, and the emotional bond they share. While the highly technical, well-staffed ICU environment provides both comfort and support to patients and their families in the critical illness phase, once the patient leaves the environment, the long-term impact upon the family members is unknown. Additionally, for patients who bypass the critical care environment entirely, little information exists about the impact on family members following this traumatic disruption. As well, the understanding of the interrelatedness between the trauma patient and the family member is limited, although in one study, Grossman (1995) identified the psychological well-being of the patient explained 20% of the family members' psychological well-being, and the family members' psychological well-being and anxiety explained 20% of the patient's well-being (Grossman, 1995).

It is unclear from the literature whether family members are equipped to make the distinction between critical care and acute care environments without experience or education about these differences. For family members who have little to no experience with hospitalization, their perception and understanding, related to the seriousness of the traumatic event may impact their response to the unfamiliar situation. However, little information exists about what the impact is, the length and depth of the impact, and strategies to mitigate any negative consequences that arise. Thus, without this information, appropriate development of interventions to provide the support and comfort typically offered within critical care environments is hindered.



Given the scarcity of ICU beds, and changes in care options such as stepdown units on acute care wards, many patients bypass the ICU altogether, despite having near life threatening injuries. Moreover, patients who survive with more critical injuries may be transferred out of the ICU early to make way for even sicker patients, leaving those with extensive injuries and complex needs to be cared for by staff with heavy patient loads, and little time to focus on family members and their needs. Thus, research is needed about the trajectory of the impact of hospitalization, and the psychosocial impacts on trauma patients' families outside the ICU to facilitate the development of interventions to minimize the sudden, devastating impact on families, empowering them to effectively support their injured family member.

### **Purpose**

The overall purpose of this study was to identify the psychosocial and functional impact of the event on coping of family members of adult patients unexpectedly admitted to hospital, beyond the critical care environment, following a physical trauma within one month of admission. Additionally, this study aimed to identify family members' satisfaction with care provided to meet their needs. Results from this study will help identify nursing practice that moderates the effect of the traumatic event on the family members' ability to cope in the future.

### **Conceptual Framework**

To advance the science of nursing, and to provide patients and their families with the best options to enhance their health and well-being, it is important to explain how the researcher views the environment under investigation. Using a conceptual framework to guide

the investigation is a way to explain the researcher's understanding of the relationships among the variables under investigation, as well as a way of guiding the direction of the inquiry.

### **Stress, Appraisal and Coping Theory**

The stress, appraisal and coping theory will be utilized within this study as it identifies two processes, cognitive appraisal and coping, as critical mediators of stressful person-environment relationships (Lazarus & Folkman, 1984). The model is based on the idea that stress and emotions, such as anxiety and depression are dependent on how a person appraises or views a transaction with the environment. A great deal of literature exists regarding the variables of interest in this study, however, the combination of these variables and the influence on the satisfaction with needs and coping, among adult family members with loved ones admitted to the acute care setting outside of the intensive care/critical care unit, has not been addressed.

### **Research Questions**

The specific research questions related to this study are;

1. What is the self-reported stress, anxiety, depression, coping and satisfaction with care on the family of adult acute care trauma patients within 3 days of admission to hospital?
2. Among family of trauma patients, do the psychosocial and functional variables of stress, anxiety and depression predict coping?
3. Among family of trauma patients, what is the influence of satisfaction with care on the family members' stress, anxiety and depression?
4. Controlling for stress, anxiety and depression, do demographic factors predict coping?
5. Is there a relationship between coping and satisfaction with care?

## Study Assumptions

There are several assumptions that will be made throughout this study.

1. The event is unexpected, sudden, and unplanned.
2. The patient is at least over the age of 18.
3. The event causes disruption among family members.
4. Each family member will cognitively appraise the event in a different way.
5. The health of people connected by social ties may be interdependent.
6. Each family member is at risk for negative outcomes related to anxiety, stress and depression.
7. Regardless of where the patient is located, family members have the need for information, support, proximity, assurance and comfort.

## Operational Definitions

The following terms will be operationalized as follows;

Trauma admission any physical injury suffered by an individual, resulting in admission to hospital for greater than 48hours.

Patient is an adult (generally age of 18 or older) admitted to the hospital for a trauma-related incident.

Family is an adult (age 18 or older) who has a long-term relationship with the patient. This includes anyone designated as a family member by the patient.

Stress is assessed using the Impact of Event Scale-Revised (IES-R)

Anxiety and Depression is assessed using the Hospital Anxiety and Depression Scale (HADS).

Coping using the Coping Inventory in Stressful Situations-Short Form (CISS-SSC) to assess family member's ability to cope with stressors.

Satisfaction with Care is assessed using the Critical Care Family Satisfaction Survey (CCFSS).

Instruments have been selected for the study because they are conceptually relevant, and able to yield data necessary to answer the research questions. Additionally, the instruments (HADS, IES-R, CISS-SSC, CCFSS) are well established with known validity and reliabilities. The demographic tool, developed by the researcher consists of questions about the patient's age, gender, and reason for hospitalization, and 12 questions about the family member. There are 4 open-ended questions to complete the description of the population of interest. One instrument, the Life Event Checklist for *DSM5* (LEC-5), is a 17-item checklist that provides a baseline to identify participants previous exposure to difficult or stressful events. Each instrument was chosen for the appropriateness for the study population, accessibility, and for ease of administration.

## **Chapters and Manuscripts**

### **Chapter 2**

#### ***Manuscript 1. Review of the Literature.***

The first manuscript presented contains an overview of the current science related to the concept of trauma, its impact on family members, and the effect of family members on patient's outcomes. Variables drawn from Lazarus and Folkman's Stress, Appraisal, and Coping Theory relevant to the current study will be briefly reviewed, including the context to consider the social, economic, cultural and physical environment of the injured person's family that may influence the relationships between the major variables of interest; stress, anxiety, depression,

and coping. The influence of supports, including meeting family member needs will be discussed in the context of satisfaction with care. Gaps in the literature are identified, laying the foundation for the development of a research study to explore the impact of trauma on family of patients admitted to acute, rather than critical care, so strategies and nursing guidelines may be developed to mitigate any negative consequences.

### **Chapter 3**

#### ***Manuscript 2. Methods and Psychosocial Impact of Trauma in Acute Care***

The research design of this study is a non-experimental descriptive, correlational design to identify the coping strategies and symptoms of stress, anxiety and depression among family of adult patients who have experienced unexpected acute care hospitalization, following a traumatic injury will be presented within the second manuscript. The self-reported levels of stress, anxiety, depression, satisfaction with care, and coping levels, as well as demographic information is offered. Finally, the results of three qualitative questions from the demographic survey are shared to enrich the understanding of who the family of adult trauma survivors are.

### **Chapter 4**

#### ***Manuscript 3. Predicators of Coping and Satisfaction with Care***

This manuscript presents findings from research study undertaken to determine the influence of the psychosocial and functional variables of stress, anxiety, depression, and satisfaction with care on coping. Data were analyzed using descriptive statistics and inferential statistics in SPSS v25.0 and results are reported as actual numbers and percentages, as well as mean and standard deviation for normally distributed variables. Non-parametric tests were used when normal distribution could not be assumed. Correlation between variables were

calculated by the Pearson correlation coefficient. A *P* value <0.05 was considered significant, and <.01 considered highly significant. If a difference was found, an independent sample *t*-test were used when comparing two normally distributed variables. One-way analysis of variance (ANOVA) were used to compare mean scores between groups. Data showing the relationship between the variables of interest and any predictors coping are presented. Finally, multiple hierarchical regression was conducted to identify predictors of coping.

## **Chapter 5**

### ***Conclusion***

The final chapter presents a synthesis of the study, including its contribution to the science related to the impact of trauma on family members of adult trauma survivors who are unexpectedly admitted to acute care hospital settings. This information lays the foundation for future interventions, practice guidelines, educational initiatives, and research to support nurses to provide improved the care to the patients and their family members.

### **Conclusion**

Included in this chapter is the introduction to the problem, its significance, and prevalence, the purpose of the research study and relevant questions to address the issues. A review of the literature, the conceptual framework used to guide the study and an overview of the organization of the manuscripts is provided in detail. The three manuscripts will feature the methods, design, population, instruments and data collection methods, as well as the data analysis, findings, limitations, and suggestions for future research. Finally, overall conclusions will be found in the final chapter of this dissertation.

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## **Chapter 2**

### **Family of Acute Care Trauma Survivors: A Review of The Literature**

#### **Introduction**

The purpose of this paper is to provide an overview of the state of the science related to the impact of trauma on family of patients admitted to adult acute care hospital settings following the traumatic injury of a loved one. An overview of trauma and family, as well as the variables of the Stress, Appraisal and Coping Theory (Lazarus & Folkman, 1984) are offered. Gaps in the literature are identified, laying the foundation for the development of a research study to explore the impact of trauma on family of patients admitted to acute, rather than critical care, so strategies and nursing guidelines may be developed to mitigate any negative consequences.

#### **Trauma: An Overview**

After a serious traumatic event resulting in physical injury, care is provided to the survivor in hospital. Patients who previously would have succumbed to their injuries are surviving and are being admitted to the hospital in large numbers. In the United States in 2014 there were 1,628,969 injuries per 100,000 nonfatal incidents among those between 15-85+ years (Centre for Disease Control, 2016). In Canada between 2014-2015 there were 231,111 injury related hospitalizations among those aged 18-85+ years (Canadian Institute for Health Information, 2016). To consolidate care and expertise in Canada, following a trauma, patients are often transferred from other hospitals or nursing stations within the health region to trauma centers located in larger, metropolitan cities. For the most grievously injured, the hospitalization includes admission to the intensive care unit (ICU), where lifesaving and injury minimization is

the dominant outcome driving care strategies. However, of all admissions to hospital, in large tertiary care facilities, only 30% of urgent surgical admissions are to ICU, and of these only 2% are related to trauma. The majority of trauma patients are admitted to less acute stepdown units or hospital wards (Canadian Institute for Health Information, 2016).

The *Diagnostic and Statistical Manual of Mental Disorders*, 5<sup>th</sup> edition defines trauma as “Exposure to actual or threatened death, serious injury...” (American Psychiatric Association., 2013). The trauma may be directly experienced or witnessed, or it may be indirectly experienced via trauma to a loved one (American Psychiatric Association., 2013). The long-term response to trauma is complex, as individuals respond to the traumatic events based on several factors, including previous experience with trauma, previous stresses, financial impacts, and the burden of increased responsibility. Trauma means a serious disruption to those affected. The physical, psychological, social, and material consequences can disturb the balance and may lead to negative outcomes. Families are significantly distressed (Leske, 2003), reporting poor sleep and nutrition, anxiety, uncertainty, or feelings of depression (Rahnama, Shahdadi, Bagheri, Moghadam, & Absalan, 2017), and many are confronted with serious financial problems because of time lost at work, loss of income because of the survivors’ ability to contribute, increased output of money related to childcare, or purchasing equipment or adaptive changes necessary to care for the survivor at home (Davidson et al., 2007; Hwang et al., 2014; Kentish-Barnes, Lemiale, Chaize, Pochard, & Azoulay, 2009; Pochard et al., 2005; Verharen et al., 2015).

Exposure to life-threatening traumatic events can elicit psychophysiological “fight or flight” reactions during the initial impact. The initial distress responses to the threat are mediated by the sympathetic nervous system and include freezing and hypervigilance followed

by attempts to flee, or attack and overcome the threat (Bracha, Ralston, Matsukawa, Williams, & Bracha, 2004). Physiological alterations include release of catecholamines such as norepinephrine, epinephrine, vasoconstriction, tachycardia, tachypnea, muscle tension and suppression of digestive functions. Psychologically, individuals may experience intense fear, horror, or rage, and they may have a sense of helplessness (American Psychiatric Association., 2013). Following the onset of trauma, the individual transitions from a stage of alarm and anxiety and attempts to adapt or cope with the stressor and preserve resources. The individual may relive the trauma through unwanted thoughts, nightmares and flashbacks; experience intense physiological reactions and may have difficulty sleeping (Cherry, 2015). The DSM-V organizes these reactions to trauma under the diagnostic criteria of Acute Stress Disorder (ASD) and Post Traumatic Stress Disorder (PTSD), both with similar symptoms of psychological reexperiencing of trauma, avoidance, negative thoughts and mood, and hyperarousal. The distinction is timing of symptoms, as those that occur within the first 3 days to one month fall under the trauma umbrella of ASD, while symptoms occurring after 1 month fall under the PTSD umbrella (American Psychiatric Association., 2013).

Most survivors are not alone, as they are connected to other people, relatives or close friends who play important roles in the survivors' lives. Throughout the course of hospitalization, as patients move through different levels of care, family members must learn to adapt to, and cope with changes in care delivery, and learn to rely upon the nursing staff for comfort and support. The many care transitions and expectations has been identified as particularly stressful for family members, and nurses are ideally situated to offer support (Mitchell, Courtney, & Coyer, 2003). Numerous studies have been conducted to understand the



impact of trauma on the survivors, and a few researchers have focused attention on needs and outcomes on family members of traumatic injury. Of those who have sought to understand the impact upon family members, the majority have centered their query upon family members of patients admitted to critical care environments, despite most trauma patients being admitted to stepdown or acute care wards. However, unlike the ICU, the nurse-to-patient ratio on the ward is higher, resulting in fewer nurses, reduced monitoring of the patient, and less frequent contact with the care team. Additionally, as families are coming to terms with the impact of the unexpected hospitalization, the uncertainty, lack of familiarity with the hospital environment, and the personal impact of their circumstance, they are faced with additional expectations by the ward staff who begin planning toward discharge. Currently, the literature is replete with strategies and guidelines to support family and staff within the critical care setting, but there is a dearth of information about these complex issues in acute care. A deep exploration into the literature will help direct research to develop policies, interventions and supports for healthcare providers caring for family members with loved ones in acute care trauma settings.

### **Family Research**

Research involving family is complex. Issues related to consistent definitions of family, settings in which studies are conducted, the unit of analysis and the complexity of the relationships within families all lead to challenges in conducting research in the area. Recognition of the bidirectional nature of the role between family, family caregivers, and the patient is an important underpinning to family research, where a patient's health affects that of the caregiver/family, and the well-being of the caregiver/family affects the patient (Wittenberg & Prosser, 2016). Regardless of setting, the injury of a patient affects the individual patient,

individual family members, and may impact the functioning of the family as a collective. In order to direct research related to family, understanding of what currently exists, the definition of family, studies addressing the impact on family, and theories related to family research are presented to help clarify and narrow the focus for future research.

Although family research can be carried out at the level of the family as a unit, related to family characteristics, family-as-environment, family-related, or interventions by nurses that impact family or family members (Duff, 2006), these types of studies require the involvement and perspectives of more than one family member, and include studies addressing areas such as family-functioning, family decision-making and family patterns (Freichels, 1991; Kodali et al., 2014; Ponsford & Schönberger, 2010). Family-centered care is another family unit based collaborative approach to caregiving and decision-making. The essential principles of dignity and respect, information sharing, participation and collaboration, empower families and lead to a shift in healthcare professionals' thinking from serving patients to partnering with them. This philosophy sees the unit of care as the patient and their family, rather than having the patient as the sole focus, and many studies have been conducted using this approach (Al-Mutair, Plummer, Clerehan, & O'Brien, 2014; Fox-Wasylyshyn, El-Masri, & Williamson, 2005; Hinkle & Fitzpatrick, 2011; Hinkle, Fitzpatrick, & Oskrochi, 2009; McPeake et al., 2016; Ponte, Connor, DeMarco, & Price, 2004).

### **Definition of Family**

It is important to distinguish the family unit research from family-related studies, which focus on the individual family member and issues such as stress and coping. The focus is on the individual family member, separate from the patient, but connected. There are many

definitions of family which have evolved to reflect the diverse family compositions within current society. Wright and Leahey (2000) provide a succinct definition, “the family is who they say they are” (p.70), which is respectful of gender issues, cultural diversity, and those who may not be included in legal or traditional definitions of people related by blood or marriage (Wright & Leahey, 2013). This definition reflects a belief in the fluidity and evolution of the family structure, the changes in function and membership and will be utilized for the purpose of this paper and future studies.

### **Impact on Family**

Research of family members of patients following traumatic brain injury (TBI), stroke, dementia, cancer, or cardiovascular events suggests family are significantly impacted by the illness or injury of their loved ones. A plethora of evidence exists about family of those admitted to pediatric or critical care settings, and the psychological, social and functional effects are well researched. Few studies, however, have focused on the impact of hospitalization on family of those admitted to acute or general wards following traumatic injury.

Caring for a family member has been shown to have measurable negative effects on caregiver health, diminished quality of life, and higher one-year mortality (Perkins et al., 2013a). A large, longitudinal study was conducted to examine the association between the hospitalization of a spouse and a partner’s risk of death among elderly people in the United States (Christakis & Allison, 2006). Researchers reported an increased risk of death was found among elderly people, particularly men (22%) whose spouse had been hospitalized for a variety of reasons, including stroke, dementia, psychiatric disease and cancer (Christakis & Allison,

2006). In another large, nationwide study to examine the reason for increased stroke mortality among African Americans, caregiving strain among family caregivers was associated with an increased risk of mortality (Perkins et al., 2013b). After adjusting for demographic, health and other covariates, highly strained caregivers were more than 2 times more likely to die than caregivers who reported 'some strain' over the course of the study. This demonstrates the importance of caregiver appraisal in predicting mortality, and supports research suggesting appraisal is a key component of the stress process (Perkins et al., 2013b).

Using Family Systems Theory (Olson, 1970), where the family is a dynamic, interacting whole, that aims to maintain homeostasis, researchers interviewed 11 families to understand the family experience when an adult member was hospitalized with a critical illness (Eggenberger & Nelms, 2007). This study used a family as a group approach, and found families experienced great suffering and vulnerability. They also discovered families, for the most part, were brought together by the experience and relied on nurses, who had power and influence over the tone of the experience. When relationships with the nurses were good, families were better able to bear the experience, and when the relationships were not good, families united to make sure their loved ones were well cared for. The researchers suggest that nursing practice in the hospital setting needs to embrace the family, and purposefully include them in all aspects of their loved one's care (Eggenberger & Nelms, 2007). Family members who feel supported and included in care and decisions of their loved ones have demonstrated potential benefits which include reduced length of stay, improved satisfaction with care, less anxiety and stress, and improved coping among patients' families (Bailey, Sabbagh, Loiselle, Boileau, &

McVey, 2010; Casarini, Gorayeb, & Basile Filho, 2009; Chaboyer, Thalib, Alcorn, & Foster, 2007; Linton, Grant, & Pellegrini, 2008).

Relatives can offer care to the patient during the admission and throughout the length of stay, act as a conduit between patient and family and friends, offer information and updates on the condition or progress of the patient, and can provide health care team members information about the patient's pre-trauma abilities or challenges (Bergbom & Askwall, 2000; Davidson et al., 2007). Increasingly, there is a growing body of evidence supporting inclusion of family in healthcare provision as there are benefits for both the patient and family. One recent study investigated the effects of family visits on the psychological well-being of patients after suffering an MI. The results suggest family visits reduce anxiety, blood pressure, heart rate, and increase the sense of well-being among the patients (Lolaty, Bagheri-Nesami, Shororfi, Golzarodi, & Charati, 2014). As roles within families change because of the hospitalization, family members take stock of their emotions to model emotional stability for the injured person.

While the highly technical, well-staffed ICU environment provides both comfort and support to patients and their families in the critical illness phase, once the patient leaves the environment, the long-term impact upon the family members is unknown. Additionally, for patients who bypass the critical care environment entirely, little information exists about the impact on family members following this traumatic disruption. As well, the understanding of the interrelatedness between the trauma patient and the family member is limited, although in one classic study, Grossman (1995) identified the psychological well-being of the patient explained 20% of the family members' psychological well-being, and the family members'

psychological well-being and anxiety explained 20% of the patient's well-being (Grossman, 1995). The initial situational response by family members determines how the entire family will respond (Ogilvie, Foster, McCloughen, & Curtis, 2015). Support of only the sickest patients is not sufficient, and support across the care continuum is needed to address the caregivers' unique needs for care and support (Van Pelt, Schulz, Chelluri, & Pinsky, 2010). It is unclear from the literature whether family members are equipped to make the distinction between critical care and acute care environments without experience or education about these differences and therefore, it is unclear if strategies and interventions developed for critical care environments are appropriate or adequate for settings outside of the ICU. In summary, much of the research has focused on the family system, those with loved ones in pediatric, long term or critical care areas. A gap in the research exists about the family of trauma patients in acute care.

### **Conceptual Framework**

The Stress, Appraisal and Coping Theory (Lazarus & Folkman, 1984) is a conceptual framework that identifies two processes, *cognitive appraisal* and *coping*, as critical mediators of stressful *person-environment* relationships. It is based on the idea that stress and emotions are dependent on how a person appraises or views a transaction with the environment, and it will be used to guide the understanding of the relationships between variables pertaining to the impact of trauma on family members.

### **Cognitive Appraisal**

According to Lazarus and Folkman (1984), cognitive appraisal is key to understanding the situation from an individual's point of view, because everyone differs in their interpretation and reaction when faced with a new event. It is defined as a process through which the person

evaluates whether an event or encounter with the environment is relevant to their well-being. The event is defined as harmful, threatening, or nurturing, and is evaluated for the potential risk or benefits to self or loved ones. A family member who appraises a situation as highly threatening but evaluates that there are supportive resources available such as friends, access to reliable healthcare providers or enough finances, would determine the likelihood of managing the situation is higher than someone without supports. The process of cognitive appraisal of a situation as stressful, is ongoing and affects behavioral, physiological, and psychological responses of the individual, and can influence one's coping methods.

### **Person and Environmental Factors**

*Person and environmental* factors influence the judgment when something of importance is at risk. How one appraises a situation depends on person factors such as beliefs about self and the world, personal resources, education, financial resources, social skills and previous experiences (Lazarus & Folkman, 1984). Among the most important *person factors* affecting cognitive appraisal are commitments, which are expressions of what is important and is the foundation of choices they to maintain or achieve their goals, and beliefs about reality. These person factors work together with situational factors to determine the degree to which harm/loss, threat, or challenge will be experienced. Lazarus and Folkman (1984) describe *environmental factors* including demands, constraints, culture, and resources are those properties that make situations potentially harmful, threatening or challenging. The more imminent the event, the more urgent and intense the appraisal.

The factors a person brings to a situation help to determine how the situation is appraised, and how the person responds to the situation. Environmental factors include

socioeconomic status, previous experience with a crisis like hospitalization, and social supports. Previous research sampled primarily white, female and educated family members (Auerbach, Kiesler, Wartella, Rausch, & Ward, 2005; McAdam, Arai, & Puntillo, 2008; Reider, 1994). In a study of Brazilian close relatives, 78% were female, with a median age of 54. The majority had a higher level of education (79%), and were Catholic (69%) (Fumis, Ranzani, Faria, & Schettino, 2015). In a cohort study comparing Indian and American relatives, age of relatives was similar (40 and 45), 74.4% of the American relatives were female, compared to 40.4% of Indian relatives. More American relatives were educated at a graduate level (23.2%), compared to 14.9% of Indian relatives. Parents and siblings were similarly represented, but children were significantly less in the Indian cohort (4.2% vs 25.6% in USA;  $P= 0.0057$ ). Relatives in India had significantly larger family size, and spent more time at the hospital per day than the American counterparts (Kulkarni et al., 2011). In a study to determine the relationship between race/ethnicity to caregivers coping appraisals following Traumatic Brain Injury (TBI), 75% of participants were white, the remainder were black or Hispanic. The median age of family members was 47, the range of education was between 1-23 years, and socioeconomic status also was relatively equally distributed between low, middle and high income (Sander, Cole, Struchen, & Atchison, 2007). Among Iranian family members, 47.2% were younger than 25 years of age, 71.1% were married, 59.8% were male, and 45.7% had a University degree (Rahnama et al., 2017). Similarly, relatives in Turkey were on average 34.7 years of age, male (56.7%), married (31.7%), university educated (28.3%), and most were children of the patients (41.7%) (Acaroglu, Kaya, Sendir, & Tosun, 2008). There is a glaring dearth of research representing Canadian trauma populations.



## **Stress**

Lazarus and Folkman (1984) defined *stress* as a “particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (Lazarus & Folkman, 1984, p.21). For family members, trauma results in psychological stress and may lead to a reaction that is often classified as *Acute Stress Disorder (ASD)*. The initial behavioral response to threats are mediated by the sympathetic nervous system and include freezing and hypervigilance, followed by attempts to flee the situation or attack and overcome the threat (Bracha et al., 2004). In addition to physiological alterations such as the release of catecholamines, increased heart and respiratory rate, and suppression of digestive functions, psychological responses may be experienced (American Psychiatric Association, 2013). One study measured cortisol levels among family of ICU patients and identified a link between this and coping strategies (Turner-Cobb, Smith, Ramchandani, Begen, & Padkin, 2016).

Following the onset of trauma, people transition from a stage of alarm and anxiety and attempt to cope or adapt to the stressor to preserve resources. If coping resources become overwhelmed, the individual becomes exhausted and physical and psychological impairment is increased.

### **Acute Stress Disorder and Post-Traumatic Stress**

The diagnosis of ASD was first introduced into the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV* to predict the recovery of trauma survivors and identify those who would benefit from treatment to support recovery. The diagnosis of ASD was originally applied to a person exhibiting at least one symptom of stress, such as

reexperiencing the trauma, nightmares, flashbacks, recurring thoughts after exposure to a traumatic event. For the event to be classified as a trauma, the person must have “experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or threat to the physical integrity of self or others”, and the “person’s response involved intense fear, helplessness, or horror”(American Psychiatric Association, 1994). The response of intense fear, helplessness, or horror has been removed in the *DSM-V*, as it was deemed to not have predicting ability with PTSD (American Psychiatric Association., 2013). In addition, the person displays symptoms in clusters; re-experiencing; avoidance of trauma-related thoughts, or reminders of the trauma, symptoms of anxiety or increased arousal, such as sleep problems, irritability, trouble concentrating or hypervigilance; and negative cognitions and mood. The disturbance cannot be related to other medical conditions and must cause clinically significant distress or functional impairment. In the revised version, the symptoms must last at least three days, (as opposed to two in the original definition) and cannot last for more than four weeks (American Psychiatric Association., 2013). During this early phase, the preliminary reaction to trauma can be identified, and supports placed to help early resolution of the response.

If the symptoms persist beyond four weeks, the diagnosis changes. Post-traumatic stress disorder (PTSD) is one of the most prevalent anxiety disorders and people who meet the full criteria of ASD are highly likely to develop chronic PTSD without appropriate treatment (Cahill & Pontoski, 2005). The prevalence of both ASD and PTSD varies across the nature of the trauma and other risk factors (Gerhart, Canetti, & Hobfoll, 2015).

In a Chinese study comparing levels of stress between ICU patients and their family, researchers identified family members to have a higher perceived level of stress than the patients, and suggested pre-existing stress may have contributed to the results (Pang & Suen, 2009). High levels of stress was identified among family of ICU patients in many studies (Auerbach, Kiesler, Wartella, Rausch, & Kevin, 2005; Bastian, Schwarzkopf, Reinhart, König, & Hartog, 2017; McAdam et al., 2008; Paparrigopoulos et al., 2006; Pielmaier, Walder, Rebetez, & Maercker, 2011). Factors associated with higher levels of stress included female gender, lower education levels, family member state and trait anxiety levels. Cardinal symptoms of post-traumatic stress disorder (PTSD); *intrusion, avoidance of activities* or thoughts associated with the traumatic event, and *symptoms of hyperarousal*, such as irritability or difficulty falling asleep or staying asleep have been reported in one-third of the family members of ICU patients (Alfheim et al., 2019; Schmidt & Azoulay, 2012; Steel, Dunlavy, Stillman, & Pape, 2011).

In a randomized controlled trial involving close family of patients recovering from ICU admission, 42 family members and 42 controls were surveyed 6 months after cardiac rehabilitation (Jones et al., 2004). The aim of the study was to evaluate the effectiveness of a self-help rehabilitation package on family members psychological distress. Most of the relatives in the study group were spouses who lived in the same house as the patient. Using the Impact of Event Scale (IES), 49% of relatives, at both 6 weeks and at 6 months, scored high (>19) indicating high incidence of psychological distress, that continued and suggested these family members were at high risk for developing severe PTSD, despite intervention (Jones et al., 2004). One study evaluated the risk for PTSD among family of patients with severe traumatic brain injury. Clinically significant PTSD symptoms were observed in 52.2% of relatives who were

assessed by applying the revised IES (IES-R) once during the first month after the accident (Pielmaier et al., 2011). In another study utilizing the IES-R to evaluate for symptoms of PTSD, researchers in India identified 79% of relatives of severe trauma patients developed PTSD following admission to ICU. Most of the relatives were female (52%), middle income earners, who agreed to participate in this longitudinal study. Moderate PTSD symptoms were identified in 54%, and 41% of respondents exhibited severe symptoms of PTSD initially but showed significant reduction in symptoms at the end of two years, with only 5% exhibiting severe symptoms (Pillai et al., 2006). In a systematic review, researchers evaluated 10 studies in which PTSD symptoms in adult family members of ICU patients was identified. Several methodological challenges were identified, including issues related to obtaining adequate sample size, obtaining an accurate psychological history of family members, choice of measurement tools, and timing of administration of surveys. Despite the challenges, symptoms of complicated grief, anxiety and depression are commonly reported with PTSD (Petrinec & Daly, 2014). In summary, science has confirmed family experience symptoms of acute stress and post-traumatic stress after family members' admission to ICU, however, a gap exists related to the impact stress has on family of trauma patients who are cared for in acute, rather than critical care areas.

### **Anxiety and Depression**

Acute stress disorder (ASD) is characterized by excessive worrying, somatic symptoms of feeling tense, feelings of pain or internal shakiness, inability to control thoughts, feeling immobilized, and a sense of anticipated threat or danger (Pittman & Fowler, Susan, 1998). Some individuals are inherently anxious, referred to as trait anxiety, while state anxiety involves feelings at a specific moment when a person interprets a situation as threatening. Coupled with

anxiety, symptoms of depression have been identified among family members of hospitalized patients.

Factors associated with higher stress responses and symptoms of ASD and PTSD have been reported particularly among in family members of ICU patients (Alway, McKay, Ponsford, & Schnberger, 2012; Köse et al., 2016; Kugler, Phares, Salloum, & Storch, 2016; McAdam et al., 2008; Myhren et al., 2009; Paparrigopoulos et al., 2006; Pochard et al., 2005). Females reported more severe anxiety and depression than males, and spouses exhibited higher levels of anxiety than patient's children (Delva, Vanoost, Lauwers, & Wilmer, 2002; Kentish-Barnes et al., 2009; Paparrigopoulos et al., 2006). In a study of PTSD and complicated grief among family of ICU patients, symptoms of depression were less common than symptoms of anxiety but were reported among 16% of family members at one month following the patient's hospital stay and both anxiety and depression symptoms diminished over time (Anderson, Arnold, Angus, & Bryce, 2008). Family of burn victims generally reported normal to mild symptoms of depression and anxiety, and symptoms decreased steadily during the first 3 and 6 months. Despite the unexpected difference in reported anxiety and depression compared to previous studies, one-third of participants demonstrated moderate to severe anxiety symptoms and depression was only present in a few cases. Family members were recruited through patients who were stable during recruitment, so early assessment during the acute phase of injury did not take place, which may account for the low symptomatology (Bäckström, Ekselius, Gerdin, & Willebrand, 2013). In a study of family members of patients following violent trauma, previous exposure to violence significantly affected PTSD, depression, and physical health among family members (Wu, 2011).

The Canadian Critical Care Trials Group (2016) recently reported on outcomes among family caregivers, one year after discharge from ICU. The authors reported high levels of depressive symptoms and worse mental health which persisted up to one year after the ICU admission. They found less psychological well-being, less social support, less personal growth and worse mental health were associated with younger caregivers. Being older, having lower family income, and less sense of control was also associated with lower physical health scores and the need to provide more assistance (Cameron et al., 2016). Why some family members exhibit clinically significant levels of PTSD and impairment while others do not, is not entirely clear, as exposure to a traumatic event is not an adequate predictor of negative psychological symptoms. Understanding the contributing risk factors, including person factors like age, gender, connection to the patient, and environmental factors such as previous exposure to hospitalization, will help clarify variations in severity and will aid in assessment of and early intervention for long term negative effects.

### **Coping**

Coping is the person's constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that exceed a person's resources (Lazarus & Folkman, 1984). *Process oriented coping* focuses on what the person thinks and does in a specific stressful encounter, and how this changes the encounter as it unfolds. Coping is *contextual*, it is influenced by the person's appraisal of the actual demands and resources available to manage the stressful encounter. The person and the situation shape coping efforts, and assumptions about what constitutes good or bad coping cannot be made (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986).

Regulating stressful emotions, known as emotion-focused coping, and altering the person-environment relation causing the distress, known as problem-focused coping are the main functions of coping. The immediate outcome of an encounter is based upon the person's individual values, goals, expectations, and refers to the person's judgment of the extent to which the encounter was successfully resolved (Folkman et al., 1986). The cognitive and coping processes affect the *adaptational outcomes* and can be exhibited as positive or negative feelings and may include physiological changes. The long-term outcome of stress is adaptation.

Positive associations between coping strategies and PTSD symptoms have been described in many research studies, with avoidant coping having the strongest positive association with PTSD (Acaroglu et al., 2008; Petrinec et al., 2015; Turner et al., 2010). Among Hispanic and black caregivers, after TBI of a family member, emotion-focused coping strategies such as distancing and accepting responsibility were the primary coping strategies. It is possible cultural factors, such as familial duty and sense of obligation may result in these caregivers taking on increased responsibility that may result in higher levels of distress (Sander et al., 2007). Problem-solving coping scores were highest at enrollment among decision makers post-ICU, and emotion-focused scores decreased over time. Female decision makers used higher amounts of avoidant coping at enrollment than men, but after 30 days, the results were similar (Petrinec et al., 2015). Educated Turkish families of ICU patients used problem-focused coping more frequently than emotion-focused coping, and females were more likely to use problem-focused coping than males (Acaroglu et al., 2008). In this study, family members with more financial problems, inability to care for children, and inability to attend school or work experienced considerably more anxiety, and poorer coping (Acaroglu et al., 2008). Regardless,

an understanding of the factors contributing to various coping strategies is necessary to provide support to family members.

### **Family Needs**

Most of the literature related to family needs utilized the Critical Care Family Needs Inventory (CCFNI), developed by Molter (1979), and revised by Leske (1991). In the revised CCFNI, Leske studied 55 family members who had an adult relative hospitalized in a critical care unit. Family members were asked to prioritize needs, using a 45-need statement self-report tool. After factor analysis, five distinct subscales were identified; *support, comfort, information, proximity, and assurance* (Leske, 1991; Molter, 1979). Social work researchers explored the needs and anxiety levels of family members with Dutch speaking relatives in ICU in Belgium. These researchers utilized the CCFNI, and the State-Trait Anxiety Scale to assess 200 relatives (Delva et al., 2002). Consistent with other studies (Buckley & Andrews, 2011; Freichels, 1991; Kleinpell, 2006; Koller, 1991; Omari, 2009), they found that the need for information and assurance were the greatest needs identified. Need for support and comfort ranked lower on the scales, and the authors suggest this may be because the family has set their needs aside. However, they suggest, relatives may find themselves in a state of exhaustion, no longer able to cope, if they ignore their own needs (Delva et al., 2002). This study offered many implications for social workers to work with physicians and nurses to support family members with adult relatives in ICU. In an extensive literature review, conducted by researchers in the Netherlands, the need for information was shown to be a universal need (Verhaeghe, Defloor, & Grypdonck, 2005). Omari (2008) used an exploratory, descriptive design to study the needs of family of adult Jordanian ICU patients. Using the CCFNI and Needs Met Inventory, 139 family members of



patients in a large Jordanian hospital completed self-administered questionnaires to identify their needs. Families identified assurance and information as two needs that were effectively met by providers, but comfort and support were not rated as highly as needs for the families. This was attributed to cultural beliefs of the Jordanian people, where the needs of the ill family member are put ahead of one's own needs. Omari's study highlighted the need to identify and consider the cultural diversity of the family members in order to offer family-centered care in a way that is meaningful to them (Omari, 2009). A similar study by Chatzaki et al. (2010), sought to define the needs of ICU patients' relatives in the suburban/rural Crete Islands. Using a Greek translation of the CCFNI, they identified fourteen items that were rated by responders as very important. Reassurance was rated as the most important among the 230 respondents, regardless of their background. Despite cultural differences, need for information and assurance were given the highest priority among families of adult patients in ICU (Chatzaki et al., 2012).

Family needs for assurance, comfort, support, information, and proximity have been identified in countries around the world, in a variety of ICU settings, among many cultures, and by many healthcare professionals including physicians, social workers and physiotherapists (Al-Mutair et al., 2014; Arango-Lasprilla et al., 2010; Blanchard & Alavi, 2008; Buckley & Andrews, 2011; Garrouste-Orgeas et al., 2012; Khalaila, 2013; Kirchhoff, Song, & Kehl, 2004; Maxwell, Stuenkel, & Saylor, 2007; Myhren, Ekeberg, & Stokland, 2011; Omari, 2009; Rukholm, Bailey, Coutu-Wakulczyk, & Bailey, 1991; Siddiqui, Sheikh, & Kamal, 2011; Verharen et al., 2015). With the increase in on-line resources, a better-informed public, and changes in care delivery, patients and families are now expecting to be treated as partners, asking for their concerns to

be addressed as part of the care provided. This approach has become a priority and strategies have been developed to assess, and improve quality, satisfaction and safety in ICU (McAdam et al., 2008; Ponte, 2004). However, none have specifically identified these family needs outside of critical care. Given the changing ICU environments, the increased acuity on the wards, and the complexity of care required by trauma patients, it is reasonable to assume family members of patients on general and acute care wards have similar needs to those in previous studies, but further study to investigate this assumption is needed.

### **Satisfaction with Care**

When family member's needs are appropriately met, they are empowered to support their loved one, and nurses are often positioned to offer support to meet these needs.

Supporting individual family member's needs is an important consideration in the social context of the patient, in that family members' anxiety from perceived unmet needs may prove to be detrimental to patient care because of distrust of nurses, anger and confrontational coping, and potential lawsuits if family members are looking to issue blame.

Many studies have compared satisfaction with care to needs met. Generally, the greater the needs met, the higher the satisfaction with care (Buckley & Andrews, 2011; Fumis et al., 2015; Heyland et al., 2002; Karlsson, Tisell, Engström, & Andershed, 2011; Khalaila, 2013; Roberti & Fitzpatrick, 2010). A Swedish study examined family members' satisfaction with needs met using the Critical Care Family Satisfaction Survey (CCFSS)(Wasser, Matchett, Ray, & Baker, 2004). This instrument identifies family needs, and satisfaction is influenced by patient care, organization of the ICU, support provided by staff during any decision-making process, information provided to family members by the care team, and how well members of the ICU

team are coordinated and cohesive. The results from this study supported the importance nurses play in meeting family members' needs. Family members were satisfied with the information and clear explanations provided, as well as the assurances given by nursing staff, but they did want physicians to be available for regular communication while the patient was in the ICU. The ability of the family to be close and present was beneficial for family and made it easier for the nurses to know what information had been exchanged, and where the gaps were. The researchers identified the most satisfied family members had their need for information, proximity, comfort, assurance and support met by ICU staff, which included nurses, physicians and allied health professionals (Karlsson et al., 2011).

Few studies have linked satisfaction with needs met to psychological impacts. One study assessed family members of ICU patients' satisfaction with needs met, acute stress disorder and the relationship between these variables. Family members were least satisfied with the need for information, and found higher levels of optimism when they were more satisfied that needs were met (Auerbach, Kiesler, Wartella, Rausch, & Ward, 2005). Fumis, et al (2015), compared levels of anxiety and depression with satisfaction with needs met among family of Brazilian patients, and found low rates of anxiety and depression among family with high satisfaction rates (Fumis et al., 2015). Assessing satisfaction with needs met offers information about the gaps in care that may impact family members' psychological, social, and functional coping. In a review of the effectiveness of interventions to meet the needs of critical care families, it was noted that few high quality studies exist evaluating the impact of the interventions developed to meet family needs (Kynoch, Chang, Coyer, & McArdle, 2016).

## Conclusion

Numerous studies exist addressing issues of stress, anxiety, depression, coping and satisfaction with care among family members. However, few have addressed the gap in understanding the relationship between stress, anxiety, depression and coping, and the potential influence of meeting and satisfying the family member's needs. Fewer still address these variables among family of trauma survivors.

As more trauma survivors are admitted directly to acute care beds, more families are faced with navigating unfamiliar situations. It is unknown if the psychological impact on family members' and their needs in acute care, is like that of the family in critical care. As a result, there is no consistent effort to ensure supports are in place, or if, in fact, this is necessary. Exploration of the impact of trauma on acute care families is the first step in the development of a consistent strategy to address these gaps, and to further explore the connection between the impact on family and the patients' overall recovery from injury. Research aimed at describing the relationship between these factors to support the coping and satisfaction among family members is needed to identify any predictors to allow care researchers, care providers, and policy makers to develop strategies and interventions for family of acute care trauma survivors in Canada.

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## Chapter 3

### Psychosocial Impact of Trauma on Family Members in Acute Care

#### Introduction

Admission to hospital generates strong emotions among family members, particularly those whose loved ones have experienced physical trauma. Adult patients and their families are unprepared for the new, unplanned and generally foreign impact an unexpected hospitalization will have on their lives. Additionally, they may have been involved in or witnessed the traumatic event. Previous experience with hospitalization, caring for a loved one, and coping with crisis all may affect family members response to the event, and symptoms of stress, anxiety and depression, feelings of helplessness, fear, and horror have been described by family members (Davidson, Jones, & Bienvenu, 2012). Non-caregiving family members have also been shown to be affected, and may impose additional demands on the caregivers which may extend to other family members causing further emotional stress, financial burden, and other psychological impacts (Lavelle, Wittenberg, Lamarand, & Prosser, 2014; Wittenberg & Prosser, 2016). While the priority is to provide care and support to the survivor, caring for the needs of family members is increasingly being recognized as part of the role nurses play, therefore it is necessary to understand the impact trauma has on family members in acute care.

Despite most trauma patients being admitted to areas outside of the ICU, over the past three decades study upon study has researched the impact upon family when the patient is in the ICU. Many have linked meeting the family members' need for assurance, information, proximity, support and comfort to satisfaction with care provided (Bailey, Sabbagh, Loiselle, Boileau, & McVey, 2010; Fumis, Ranzani, Faria, & Schettino, 2015; Henrich et al., 2011; Heyland

et al., 2002; Karlsson, Tisell, Engström, & Andershed, 2011; Khalaila, 2013; Kodali et al., 2014; Roberti & Fitzpatrick, 2010; Rukholm, Bscn, Bailey, & Mdiv, 1991; Sottile, Lynch, Mealer, & Moss, 2016). Within critical care environments, inclusion of family has become a priority, and strategies have been developed to assess and improve quality, satisfaction and safety in healthcare (Ågård, Egerod, Tønnesen, & Lomborg, 2015; Alfheim et al., 2019; Hickman, Daly, Douglas, & Clochesy, 2010; Hwang et al., 2014; McAdam, Arai, & Puntillo, 2008; Norup, Welling, Qvist, Siert, & Mortensen, 2012; Padilla Fortunatti & Rojas Silva, 2018; Pillai, Aigalikal, Vishwasrao, & Husainy, 2010; Ponte, Connor, DeMarco, & Price, 2004; Sundararajan, Martin, Rajagopala, & Chapman, 2014; van den Born-van Zanten, Dongelmans, Dettling-Ihnenfeldt, Vink, & van der Schaaf, 2016).

Depending on the type of injury and the factors leading up to the trauma, families may have intense psychological reactions. Drugs, alcohol or negligence often contribute to motor vehicle crashes (MVCs), falls, and assaults (Ketchum, 2000). The resulting psychological and social effects among family members include anxiety, depression, shock, denial, anger, despair and anticipatory grief (Kirchhoff, Song, & Kehl, 2004; Verhaeghe, Van Zuuren, Defloor, Duijnste, & Grypdonck, 2007). Furthermore, cardinal symptoms of post-traumatic stress disorder (PTSD); *intrusion, avoidance of activities* or thoughts associated with the traumatic event, and *symptoms of hyperarousal*, such as irritability or difficulty falling asleep or staying asleep have been reported in family members of ICU patients (Choi et al., 2016; Schmidt & Azoulay, 2012; Steel, Dunlavy, Stillman, & Pape, 2011).

Surprisingly few studies have considered the impact of trauma on adult family members of those admitted to the acute care, rather than critical care units, yet given the scarcity of ICU

beds, and changes in care options such as stepdown units on acute care wards, many patients bypass the ICU altogether, despite having near life threatening injuries. Moreover, patients who survive with more critical injuries may be transferred out of the ICU early to make way for even sicker patients, leaving those with extensive injuries and complex needs to be cared for by staff with heavy patient loads, and little time to focus on family members and their needs.

Throughout the course of hospitalization, as patients move through different levels of care, family members must learn to adapt to, and cope with changes in care delivery, and learn to rely upon the nursing staff for comfort and support. The many care transitions and expectations has been identified as particularly stressful for family members, and nurses are ideally situated to offer support (Mitchell, Courtney, & Coyer, 2003). However, unlike the ICU, the nurse-to-patient ratio on the ward is higher, resulting in fewer nurses, reduced monitoring of the patient, and less frequent contact with the care team. Additionally, as families are coming to terms with the impact of the unexpected hospitalization, the uncertainty, lack of familiarity with the hospital environment, and the personal impact of their circumstance, they are faced with additional expectations by the ward staff who begin planning toward discharge.

It is unclear from the literature whether family members are equipped to make the distinction between critical care and acute care environments without experience or education about these differences. Stress, anxiety, depression, and cognitive appraisal related to the seriousness of the traumatic event may all influence or impact family members' ability to cope, and their satisfaction with care provided to meet their needs. To the researcher's knowledge, little information exists for about the impact outside the ICU, and about strategies to mitigate

any negative consequences. Furthermore, it is unclear if strategies and interventions developed for critical care environments are appropriate or adequate for settings outside of the ICU.

### **Purpose**

The overall purpose was to understand and describe the characteristics family members including identifying the self-reported stress, anxiety, depression, coping and satisfaction with care when faced with the unexpected hospitalization of a loved one, following a physical trauma. Patients had been hospitalized for at least 72 hours and were admitted to the acute care wards either directly from the emergency department, or from the ICU. We compared the family members self-reported psychological symptoms to those of family members of ICU patients, as identified in the literature. A single-center non-experimental, descriptive, exploratory study was conducted to answer the question “What is the self-reported stress, anxiety, depression, coping and satisfaction with care?”.

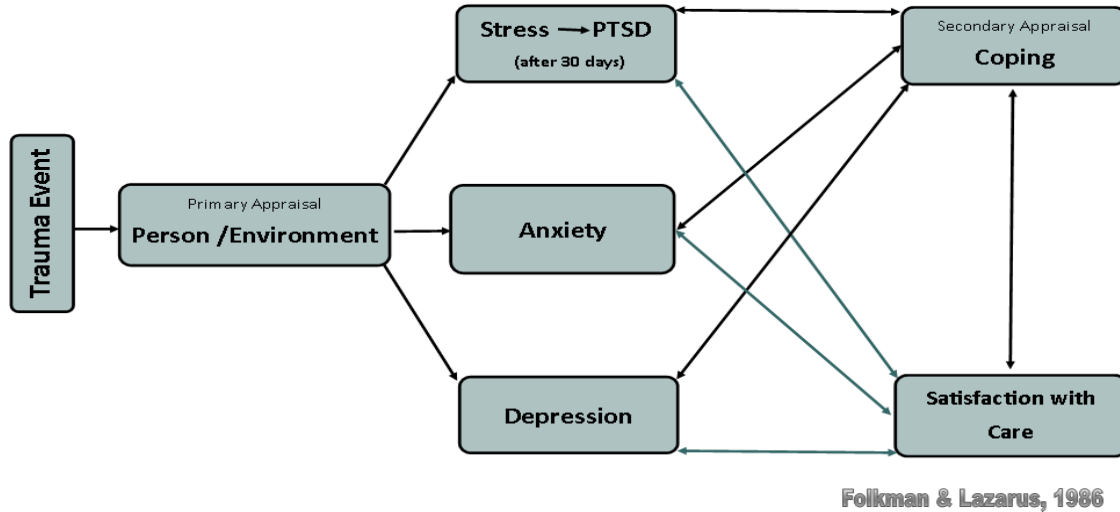
### **Methods**

#### **Design**

The Stress, Appraisal and Coping Theory (Lazarus & Folkman, 1984), based on the idea that stress and emotions are dependent on how a person appraises or views a transaction with the environment was used to guide part one of this study (**Figure 1**).

Figure 1

## Conceptual Framework Stress, Appraisal and Coping



### Population

Anyone identified as family who provides caregiving or support to the patient, or who has a direct next of kin relationship to the patient; spouse, parent, adult child, sibling or significant other, including close friend or neighbour was offered a letter. The study inclusion criteria for family members included: 1) 18 years of age or older, 2) Able to read and complete the study tools in English, 3) Willing to participate in the study, and 4) Self-identify or identified as family/caregiver. Exclusion criteria for family included: 1) Family of patient who was critically ill at time of data collection, and 2) Family of patient who had been hospitalized for less than 72 hours. The voluntary nature of participation was stressed.

### Setting and Ethical Considerations

This study was conducted between June and September 2019 at a large university affiliated trauma hospital in mid-western Canada located in Treaty 1 territory, which is the traditional territory of the Anisinaabeg, Cree, Oji-Cree, Dakota, and Dene Peoples, and



homeland of the Métis Nation. Outside of the critical care areas, the hospital has an acute inpatient surgery program with a dedicated trauma ward, dedicated burn, orthopedic and neurosurgical wards, and one general surgery ward, each with a 1:5 or 1:6 nurse-to-patient ration, where trauma patients may be admitted. Additionally, there are 3 stepdown units, each with a 1:2 or 1:3 nurse-to-patient ratio. There is also a trauma and spinal cord injury rehab unit within the facility where patients may be transferred. Patients on these wards may be admitted for observation overnight, or may stay for over a year, depending on the type and severity of injury, the ability and readiness of family to receive the discharged patient, the home care services and needs required, and/or the availability of rehab or long-term care beds.

## **Instruments**

### ***Demographic Questionnaire.***

To describe the sample, a questionnaire developed by the investigator was used to provide self-reported demographic data about the family member such as gender, age, education, relationship to the patient, and previous experience with hospitalization. Family members were also asked to identify demographics about the patient related to their age, gender, and type of accident and injuries sustained. Family members were invited to offer additional information about the impact of the trauma event, through 4 open-ended questions at the end of the demographic survey, about the overall experience and impact of the trauma and hospitalization. They were asked if there had been any other big events, such as births, deaths, changes in work or home life, what had been the most difficult since their loved one was injured, what had been the most helpful, and if there was anything else they felt the researchers needed to know about their experience.

### ***Previous Trauma Experiences.***

The Life Event Checklist for DSM-5 (LEC-5) (Weathers, Blake, Kaloupek, Marx, & Keane, 2013), developed by staff at VA's National Center for PTSD was used to gather information from family members about other traumatic exposure. The 17-item scale does not yield a total or composite score, as respondents may respond to each question more than once. Respondents were asked to consider their entire lifetime and identify if the event; "Happened to you", "You witnessed it", "You learned about it happening to a close family member or close friend", it was "part of your job", "you are not sure", or "it doesn't apply". Events such as natural disasters, assaults, serious accidents, unwanted or uncomfortable sexual experience, combat or exposure to war zones, sudden accidental death are included in the checklist. Responses were tabulated and categorized as either "yes" or "no", and the number of "yes" responses were then added together to identify how many previous trauma experiences participants had. They were categorized as none, 1-3, 4-6, and greater than 7 exposures to trauma. Missing data was excluded from analysis. The results from the checklist was used to provide a baseline of previous exposure that may impact family members' response to the current situation.

### ***Anxiety and Depression.***

*The Hospital Anxiety and Depression Scale (HADS)* (Zigmond & Snaith, 1983) was used to measure the self-reported anxiety and depression among participants. Despite the word "Hospital" in the title, many studies have been conducted in a variety of settings, including community and clinic settings, and among a variety of populations throughout the world (Colville, Cream, & Kerry, 2010; Kulkarni et al., 2011; Myhren, Ekeberg, Tøien, Karlsson, & Stokland, 2010; Schönberger, Ponsford, Olver, & Ponsford, 2010). Although not specifically

designed for family members, the HADS is considered a reliable tool to screen for symptoms of anxiety and depression in family members of ICU patients (Anderson, Arnold, Angus, & Bryce, 2008; Hwang et al., 2014; Kulkarni et al., 2011; Pochard et al., 2005). It has also been used to screen family members of burn victims (Bäckström, Ekselius, Gerdin, & Willebrand, 2013), and family of patients with traumatic brain injury (Alway et al., 2012; Ponsford & Schönberger, 2010; Schönberger et al., 2010). Additionally, the HADS has been used to screen for family members who may be at risk for developing post-traumatic stress disorder (Fumis, Ranzani, Martins, & Schettino, 2015; Kulkarni et al., 2011; Myhren et al., 2010).

The HADS is a simple to use standardized, quantitative instrument and can be completed in 2-5 minutes. It consists of 14-items, divided into two subscales, Anxiety and Depression. Each are rated on a scale of 0-3, where 0 equals no symptoms and 3 equals severe symptoms. HADS score can range from 0-21 for each subscale, the higher the score, the greater the symptoms. Scores < 8 points indicate non-cases, or normal symptom levels and scores >10 points indicate the presence of moderate to severe symptom levels of anxiety or depression. A HADS global score of >10 has been used to differentiate between those with symptoms of generalized depression or anxiety by a number of researchers (Anderson et al., 2008; Bäckström et al., 2013; Fumis, Ranzani, Martins, et al., 2015; Kulkarni et al., 2011). Previous studies, among family of ICU patients reported acceptable Cronbach's alphas (0.83-0.94) for the total scales and subscales (Bäckström et al., 2013; Steel et al., 2011).

### ***Stress.***

*The Impact of Event Scale-Revised (IES-R)*(Weiss & Marmar, 2004), a 22-item Likert type questionnaire, was used to identify the family members' self-reported level of acute stress. The

original 15-item scale was originally developed to assess for symptoms of intrusion of thought and impressions related to an event, and avoidance of activities or people related to an event (Horowitz, Wilner, & Alvarez, 1979), and the revised scale includes seven additional items reflecting hyperarousal (Weiss & Marmar, 2004). The IES-R contains items which correspond directly to 14 of the 17 *Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV* symptoms of PTSD (American Psychiatric Association, 1994) and 12 of the 15 *DSM-V* symptoms of acute stress disorder (American Psychiatric Association, 2013). Intrusion and hyperarousal sub-scores each consist of 7 items, and the avoidance sub-score consists of 8 items. The total IES-R items are rated on a 5-point scale ranging from 0 (not at all) to 4 (extremely), with a total score range from 0-88 with higher scores indicating higher levels of stress symptoms. Although the original authors did not suggest a cutoff score, a score of  $\geq 33$  was chosen, as it has been used in similar studies to detect symptoms of acute stress disorder (Alfheim et al., 2019; Bryant et al., 2015; Chang, Wang, Chang, Yu, & Lee, 2018; Pielmaier, Walder, Rebetez, & Maercker, 2011; Weiss & Marmar, 2004). Previous studies among family of ICU patients have reported Cronbach's alpha (0.71-0.95) for the total score and for subscales (Beck et al., 2008; Chang et al., 2018; Weiss & Marmar, 2004).

### ***Coping.***

*The Coping Inventory for Stressful Situations: Situation Specific Version (CISS:SSC)* (Endler & Parker, 1999) was used to measure three types of coping styles, and to determine the relationship between stressful situations and coping styles. Congruent with the Stress, Appraisal and Coping Framework (Lazarus & Folkman, 1984), this tool was developed to respond to a lack of consensus in the area of coping among researchers, psychometric weakness among the

other existing tools, and to address the need for a valid and reliable tool to test the interaction model of coping, anxiety and stress (Endler & Parker, 1999). Criticism about the length and time consuming nature of their original 48-item instrument, led the authors to develop a shorter 21-item instrument by choosing items with the highest factor loading for each dimension of coping along three factors; task-oriented coping, avoidance-oriented coping, and emotion-oriented coping (Endler & Parker, 1999).

The CISS: SSC- 21-item tool was designed to examine a specific event, such as a change in relationship or situation, and to be used for adults over the age of 18. It is easy to administer, takes under 10 minutes to complete and is easily hand-scored. Respondents were asked to rate each item on a 5-point Likert-type scale ranging from 1 (not at all) to 5 (very much), three subscales, each with 7 items measure task-oriented, avoidance-oriented and emotion-oriented coping behaviors. The higher the score, the higher the coping, with a maximum total score of 105.

The CISS:SC has demonstrated good psychometric properties among several diverse validation studies, including among Turkish and Chinese college students, hospital-based nurses, sex offenders, young adults with chronic digestive disorders, and factor analysis studies. The Cronbach's alpha ranged from 0.72-0.87 on the avoidance-oriented dimension, 0.72-0.86 on the task-oriented dimension, and 0.74-0.88 on the emotion-oriented scale (Boysan, 2012; Calsbeek, Rijken, Van Berge, Henegouwen, & Dekker, 2003; Cohan, Jang, & Stein, Murray, 2006; Li, Liu, Hu, & Jin, 2017; Pisanti et al., 2015; van Horn & Wilpert, 2017). This is the first study to use the CISS:SSC among family of adult trauma survivors in acute care.

### ***Satisfaction with Care.***

For decades, studies have included the use of the *Critical Care Family Needs Inventory (CCFNI)* (Leske, 1986; Molter, 1979), which focused specifically on the needs of family members when the patient is being cared for in the ICU. The CCFNI has been used in several studies, in various countries, with a variety of family types and cultures. The studies confirmed the original factors families require for needs to be met, including the need for support, comfort, proximity, information and assurance (Auerbach, Kiesler, Wartella, Rausch, & Ward, 2005; Chatzaki et al., 2012; Chien, Chiu, Lam, & Ip, 2006; Hinkle & Fitzpatrick, 2011; Høghaug, Fagermoen, & Lerdal, 2012; Omari, 2009; Petrinec et al., 2015; Rusinova, Kukal, Simek, & Cerny, 2014; Verharen et al., 2015). None of these studies assessed the overall satisfaction with care provided.

The *Critical Care Family Satisfaction Survey (CCFSS)* was developed to measure family satisfaction with overall care and to fill the gap between needs and needs met. The 20-item questionnaire was developed based on items from the literature, incorporating the needs identified by the CCFNI (Leske, 1986). The items are distributed among the five subscales along each dimension of care; 4-items for assurance, 5-items for information, 3-items related to proximity, 6-items referring to support, and 2-items measuring comfort. Each item is rated from 1 (very dissatisfied) to 5 (very satisfied). The total score ranges from 5.0-25.0, and scores for the subscales range from 1.0-5.0 (Wasser, Matchett, Ray, & Baker, 2004). Reliability of subscales ranged from 0.74-0.94 in confirmatory factor analysis studies (Hickman, Daly, Douglas, & Burant, 2012; Wasser, Pasquale, Matchett, Bryan, & Pasquale, 2001), and in a study of family of ICU patients (Roberti & Fitzpatrick, 2010).

Despite the CCFSS specifically intended to measure satisfaction among critically ill patients' family members, only two items, "Preparation for my family member's transfer from critical care", and "Noise level in the critical care unit" specifically mention the critical care environment. The decision was made to include all items in the survey and to address any items deemed problematic during the data analysis. Therefore, the CCFSS was determined to be an appropriate instrument to measure satisfaction among family of trauma patients in acute care.

### **Data Collection**

Data collection began after ethical approval from the University of Wisconsin-Milwaukee *Institutional Review Board (IRB)* (19.A.191 Feb. 25, 2019), the *Education and Nursing Research Ethics Board (ENREB)* of the University of Manitoba (E2019:007 (HS22578) May 27, 2019), and site access from the Winnipeg Regional Health Authority (RAAC 2019-026 June 3, 2019), and Health Sciences Centre (R12019:027 May 28, 2019) was obtained.

A non-probability convenience sampling method was used for recruitment between June and September 2019. Posters were placed in waiting rooms, and staff working on the acute care wards were encouraged to identify and inform charge nurses of potential participants. This cross-sectional study sample was drawn from all family members of adult patients who suffered a traumatic injury and were admitted to hospital for  $\geq 72$  hours. A power analysis conducted prior by Dr. R. Rabbani (personal correspondence, November 8, 2018), determined a sample size between 84-140 with a correlation with coping of 0.3 based on an unadjusted observed correlation for this study.

With the support of the hospital leadership team, clinical resource nurses (CRN), or designated charge nurses working in the clinical areas identified families who's loved one had

been admitted to hospital after a traumatic injury and met the inclusion criteria. The nurses looking after the patients identified patients with family members who might be willing to participate in the study. The clinical resource nurse on the ward then approached family members who met eligibility criteria and presented them with a letter of invitation and indicated the family member was under no obligation to meet with the researcher. During the pre-arranged face-to-face meeting, the investigator discussed and obtained informed consent from family members in accordance with the policies and procedures at the facility as outlined by the IRB and ENREB. Each person who met with the investigator was given a \$10.00 gift card, and their name was entered in a random draw for \$100.00 a self-care basket, regardless of whether they chose to participate or not.

Participants were offered the opportunity to complete a one-time questionnaire bundle, using pen and paper or via a secure on-line service, using the participant's personal electronic device, or one provided by the investigator. All participants were presented with a bundle consisting of a demographic questionnaire, and 5 Likert-type paper surveys. The researcher was available to answer questions, or clarify any issues as needed, either by phone or in person, depending on whether the participant completed the research questionnaires immediately during the visit with the patient, or if they took the bundle to complete later. The completion time for the entire research questionnaire bundle was between 20-40 minutes. Within 24 hours of distribution, completed bundles were returned to the investigator directly, or placed in a secure space by the CRN at the nursing station for the investigator to retrieve.



## Data Analysis

Data from the demographic questionnaire and five surveys were entered with a two person data entry method into the database. The data were screened for errors by running frequencies and visually inspecting each variable, including individual items that made up each scale. Four data entry errors were discovered and corrected, and frequencies were re-run to ensure accuracy. Data were analyzed using descriptive and inferential statistics in SPSS v25.0.

Data were screened for errors and violations of assumptions. Data are reported as actual numbers and percentages, as well as mean and standard deviation for normally distributed variables. When calculating total scores, surveys with any missing items were excluded from analysis. Open-ended questions were used to identify family members most helpful and most difficult experiences during their loved one's hospitalization. The open-ended questions were analyzed using a qualitative process of reading and rereading the text to understand what the data is conveying (Streubert & Carpenter, 2011). The unit of analysis was the written content derived from the answers to each open-ended question. After several readings of the text by the researcher, an overall impression of the content was developed. Words, phrases or sentences containing related aspects were condensed and systematically grouped into categories according to similarities or differences in the content to illustrate family members' responses. Responses to the question about what the most helpful aspect of the hospitalization was, were then grouped according to the five needs, proximity, assurance, comfort, support, and information. The responses to the question about the difficulties or stressors caused by hospitalization of their loved one were sorted into the categories,

emotions, physical discomfort, disruption, hospital, and communication to illustrate the family members' responses.

## **Results**

### ***Demographics.***

The families of all patients who had been admitted to the acute care setting with injuries caused by a trauma between June and September 2019 were considered for inclusion. At least 160 family members were given letters, although an exact number of the eligible pool is unknown, and therefore an accurate response rate is difficult to calculate because invitations may have been offered but not reported to the researcher. Of those who were known recipients of letters, 105 family members met in person with the researcher, and of these, 16 (15.2%) family members declined to participate, and 89 (84.9%) agreed to participate. The subjects were offered the opportunity to complete the surveys on-line using an electronic tablet, by having the link to the survey emailed to them or using a paper and pen version of the surveys. All participants (100%) chose pen and paper method to complete the demographic questionnaire, and 5 Likert-type paper surveys. A total of 86 of the 89 family members who agreed to participate (96.6%) returned completed the 5 surveys and demographic questionnaire. Nurses identified many family members who met the inclusion criteria, but the patient was discharged before a meeting could be arranged between the family and the researcher.

On average, the patients were male (68.6%), between 18-30 years of age (31.4%), or greater than 51 years of age (51.2%). More than half (54.5%) had multiple injuries, ranging from head injuries, burns, and musculoskeletal and orthopedic, to multiple internal injuries. The

cause of injuries included incidents involving motorized vehicles (33.7%), falls (27.9%), to a variety of other causes including workplace injury, farming or sports accidents or fire (25.6 %). Assault or violence accounted for 4.7%, and self-harm 2.7%. At the time of data collection, most patients had been admitted to hospital (either directly from the emergency department or after a stay in ICU) for between 3-10 days (72.1%) (**Table 1**).

**Table 1.**

*Demographic Characteristics of Patients (N=86)*

Characteristic	n	%
<b>Gender</b>		
Female	27	31.4
Male	59	68.6
<b>Age at time of accident</b>		
18-30 years	27	31.4
31-50 years	15	17.4
>51 years	44	51.2
<b>Days since injury</b>		
03-10 days	62	72.1
11-30 days	17	19.8
>30 days	7	8.1
<b>Number of injuries</b>		
Single injury	39	45.3
Multiple injuries	47	54.7
<b>Cause of traumatic injury</b>		
Car crash	16	18.6
ATV/Off-road vehicle/Pedestrian/Bicycle	15	17.4
Fall	24	27.9
Assault/Burn/Self-harm	9	10.5
Other (includes farm/workplace injury, sports related & random 'accidents')	22	25.6

Most family members were female (69.8%), urban dwellers (55.8%) between the ages of 31-60 (62.4%), married/common-in-law (70.9%), White/Caucasian (68.6%). Only one participant had not completed high school (1.2%), most had some education beyond high school (70.9%), with 38.4% having completed College or University, and of these 10.5% completing post

graduate education. The majority had previous experience with hospitalization (91.9%), 69.8% had between one and six previous traumatic experiences, 18.9% had personally experienced more than 7 previous traumatic experiences, including natural disasters (floods, tornadoes), transportation accidents, physical assault, unwanted or uncomfortable sexual experience, the sudden accidental death of someone, and fire (**Table 2**).

**Table 2.**

*Demographic Characteristics of Family Members (N=86)*

Characteristic	n	%
<b>Gender</b>		
Female	60	69.8
Male	26	30.2
<b>Age</b>		
18-30	15	17.4
31-50	27	31.4
51-60	27	31.4
>60	17	19.8
<b>Marital Status</b>		
Never married	14	16.3
Married/Common Law	61	70.9
No longer married (separated, divorced, widowed)	11	12.8
<b>Language</b>		
English	77	89.5
Other	9	10.5
<b>Ethnic background</b>		
White/Caucasian	59	68.6
Aboriginal-First Nation, Metis, Inuk	18	20.9
Asian/Black/Hispanic/Other	9	10.5
<b>Where they live</b>		
Urban	48	55.8
Rural	27	31.4
Northern	11	12.8
<b>Relationship to patient</b>		
Wife	20	23.3
Husband	10	11.6
Parent/Grandparent	23	26.8
Sibling	6	7.0
Child (Daughter/Son)	27	31.4

<b>Education</b>		
Some high school, but did not graduate	10	11.7
High school or high school equivalency	15	17.4
Some college/university, did not graduate	15	17.4
Non-university certificate/Diploma	13	15.1
College/University degree	24	27.9
Post-graduate degree or professional designation	9	10.5
<b>Total number of dependents</b>		
None	37	43.0
1	17	19.8
2	19	22.1
More than 3	13	15.1
<b>Previous experience with hospitalization</b>		
Never	7	8.1
1-5 times	68	79.1
>5 times	11	12.8
<b>Life changing events in the past 6 months</b>		
None	42	48.8
Work/education/house/marital changes	8	9.3
Death/birth/illness/other	17	19.8
More than one event	19	22.1
<b>Previous experience with trauma</b>		
None	10	11.6
1-3 events	32	37.2
4-6 events	28	32.6
> 7 events	16	18.6

***Qualitative results of family stressors and supports.***

Family members shared recent experiences of miscarriages, death of a loved one, births, changes in work, home, or overall life situations. Many identified this recent event was not a new experience for them, and shared stories of previous experiences with loved ones (occasionally the same family member) being hospitalized because of trauma. Many mentioned the inconvenience of having a loved one in hospital, and the need to change plans (surgery dates, vacation, retirement) because of their loved one's trauma hospitalization.

When asked to describe the most helpful aspect of the hospitalization, family members identified their greatest support came from friends and family. As one person shared, "being

around my siblings and close family members has been helpful. My own children have been helpful and very supportive". Another stated the experience "has brought our family closer". They also indicated the staff, particularly the nurses and physiotherapists were the most supportive, offering comfort and assurance. Family identified faith in God and having hope, keeping busy, "I like to clean", as among the most helpful strategies for them to deal with the unexpected hospitalization of their loved one. Knowing the plan, receiving information about what to expect, being made aware of discharge planning, being able to visit and be close were also identified as helpful. Themes were extracted from the comments, and group according to the categories identified as priority needs among families of ICU patients; support, comfort, assurance, and proximity. The responses were then quantified, but no summary counts are offered because family members often provided more than one response in more than one category (Table 3).

**Table 3**  
*Results of qualitative analysis of family members response - Needs*

<b>Needs</b>	<b>Summary Statements</b>	<b>Number of responses</b>
Support and Comfort	Friends and family	46
	Staff, including nurses, healthcare aides, social work, physiotherapists and physicians	30
Assurance	Putting everything into perspective	3
	Faith in God	3
	Hope for improvement	4
Proximity	Being close and ability to visit	7
	Feel like I am being helpful being present	6
Information	Knowing the plan	8

Results of thematic analysis of family members responses to the following question: "What has been most helpful since your loved one was injured"?

Number of family members making at least one statement within category. No sum of counts as family members can make statements in more than one category.

Many family members identified struggling with their emotions, including feeling angry at their loved one, followed by feeling guilty for their negative feelings when asked to describe the most difficult aspect of having a loved one in hospital. They found it difficult to watch the patient in the bed and watching them in pain or suffering was mentioned by many respondents. Fear of the unknown, feeling helpless and guilty for leaving, and having flashbacks about the accident also caused emotional distress. One family member stated *“Seeing him lying there, bleeding. I can’t get the picture out of my head”*. Others found disruption to their routine, from lack of sleep to the logistics of arranging childcare, transportation to and from the hospital, change in the foods they were eating, or not eating, taking time off work and the financial impact incurred as a result was identified. A family member stated, *“The time involved supporting him in the hospital has meant chores at home are left undone”*, and *“The cost of parking, meals and items brought for his needs are an added expense”*, according to another. The overall hospital environment, size, noise levels, lack of privacy, lack of bathrooms and places to sit and secure belongings for visitors was also acknowledged. Frustration with delays in surgeries, discharges deemed to be too soon, and inconsistent care from staff led some to lose trust in the system.

Communication was the most frequently mentioned stressor. Family members expressed concern about the mixed messages they received from different members of the care team. *“It is very important for staff to provide the patient and family members consistent information. It was very frustrating to hear one doctor/nurse tell us one thing and another tell us (same day) something else. No consistency with information. It is very traumatizing and*

*stressful experience and patient and family members need to feel more well-informed and reassured that they know exactly what is happening with their loved one”.*

Lack of information in both written and verbal form was mentioned, as was the lack of access to the physicians *“I would have like to talk to the doctor more about what’s the next steps-felt I had to inquire”*. Not knowing the plan made planning difficult. For those family members whose loved one had been admitted to the ward from the ICU, the difference in care provided was mentioned often. Family members were frustrated with the need to advocate for their loved one, and felt they only got a response if they *“complained loudly”* or had to *“frequently ask questions”*. This was among the most frequently mentioned difficulties. Some family members wrote pages of concerns on the backside of the surveys, while only two family members left the open-ended questions blank. Five common themes were identified; emotions, physical discomfort, disruption, hospital factors, and communication elicited from the survey responses. The data were quantified and sorted, but no summary counts were made, as family members made statements in more than one category. Qualitative results are presented in **Table 4**.



**Table 4.***Results of qualitative analysis of family members response- Stressors*

<b>Content Domain of Statement Related to:</b>	<b>Summary Statements</b>	<b>Number of responses</b>
Emotions	Hard to watch	11
	Watching them in pain/suffering	16
	Fear of the unknown/unsure of the plan	18
	Fear of leaving them alone/leaving behind	3
	Trying to manage emotions	8
	Feelings of regret/blaming self/anger with patient	7
	Helpless	5
Physical Discomfort	Having flashbacks about the event	4
	Changes to sleep patterns	4
Disruption	Exhausted from visiting	5
	Hard to find time to visit	7
Hospital	Travel to and from hospital	4
	Financial concerns/missing work	12
	Change in routine/not being home/not eating regularly	7
	Childcare changes	5
	Overall change in life plans (long term)	5
	Disruption in family relationships/in-fighting	4
	Lack of chairs, bathrooms, space	4
	Lack of nursing staff	12
	Delays in surgery	9
	Discharging too soon	4
Communication	Lack of trust between family and staff/care concerns	12
	Lack of information/inconsistent information	27
	Lack of written information	5
	Lack of access to physician	7
	Had to complain/advocate loudly to be heard	7

Results of thematic analysis of family members responses to the following question: "What has been most difficult for you since your family member was injured"

Number of family members making at least one statement within category. No sum of counts as family members can make statements in more than one category.

### ***Psychological Impact.***

Data from the Life Event Checklist (LEC) were grouped and sorted by determining whether the family member had experienced a previous traumatic life event or not. The number of events experienced by family members were then counted and grouped. Ten respondents had no previous trauma experience (11.6%). Most family members had previous experience with trauma either directly or as a witness. Thirty-two family members (37.2%) experienced between 1-3 trauma events in their lifetime, and the remaining 28 respondents (32.6%) experienced 4-6 events and 16 (18.6%) indicated exposure to over 7 traumatic events in their lifetime.

The prevalence of anxiety symptoms in family members was high. Nearly half (n=42, 48.9%) of the family members had scores on the anxiety subscale above 10, indicating clinically relevant levels of anxiety symptoms (M=10.15 SD=4.89). The mean depression subscale score was 6.96, SD=4.21, but 20.9% scored higher than 10. The overall anxiety and depression scores among participants were M=17.1, SD=8.32.

Overall, family members were distressed. The symptoms of stress among them was high, as measured using the IES-R. More than half of the family members who responded (51.9%) had positive IES-R scores above the cut point  $\geq 33$  for severe stress, and consistent with symptoms of acute stress disorder.

Family members coping was measured using the Coping Inventory for Stressful Situations- Situation Specific Coping tool (CISS-SSC). Eighty-four family members completed the survey, indicating a low to moderate level of coping with the mean score 61.25, SD= 10.83.

Family members Satisfaction with Care was measured with the Critical Care Family Satisfaction Scale (CCFSS). The internal consistency for the instrument was congruent with previous studies conducted to confirm reliability and validity, however, the subscale Proximity had a low Cronbach alpha. The items for proximity included: the ability to share in the care of my family member; privacy provided for me and my family members during our visits; and flexibility of visiting hours. The low reliability may be a result of the sample being homogenous, or due to the sample not being the precise target population of the instrument, as family in ICU generally have very flexible visiting, and family are often included in providing care to the patient, while those on the acute care wards may have different expectations about visiting and providing care. One item, question 16 asked “Preparation for my family member’s transfer from critical care” was either left blank or designated not applicable by 12 participants (90%). When question 16 was excluded, 85 (98.8%) family members fully completed the survey, and when question 16 was included, 80 surveys had no missing data. Data were analyzed with question 16 included and excluded. The total mean score was 19.05, SD= 3.34 without question 16, and M=18.99, SD= 3.36 (with question 16), indicating they were moderately satisfied. (**Table 5**).

**Table 5.**

*Means, Standard Deviation and Cronbach's Alpha Estimates of Internal Consistency for Stress, Anxiety, Depression, Coping and Satisfaction with Care*

Variable	n	Mean	SD	Alpha
<b>Total IES-R</b>	81	34.20	17.39	0.92
Intrusion	83	13.84	7.44	0.88
Avoidance	82	11.04	6.28	0.78
Hyperarousal	84	9.04	5.83	0.82
<b>Total HADS</b>	86	17.09	8.33	0.89
Anxiety	86	10.15	4.88	0.87
Depression	86	6.94	4.2	0.80
<b>Total CISS-SSC</b>	84	61.25	10.84	0.73
Task	84	24.80	5.60	0.76
Emotion	86	18.69	6.15	0.79
Avoidance	86	17.62	5.35	0.66
<b>Total CCFSS without 16</b>	85	19.05	3.34	0.94
<b>Total with 16</b>	80	18.99	3.36	
Assurance	85	3.73	.711	0.63
Proximity	85	4.17	.625	0.55
Comfort	84	3.45	1.01	0.85
Information	85	3.73	.828	0.87
Support- without 16	85	3.98	.751	0.86
With 16	80	3.93	.748	

*Total Score for HADS= 0-21 for Anxiety and 0-21 for Depression. Scores >10 considered moderate to severe.*

*Total Score for IES-R= 0-88. Scores ≥33 considered severe for Acute Stress Disorder.*

*Total Score for CISS:SSC= 0-105. The higher the score, the higher the coping.*

*Total Score for CCFSS= 5-25. The higher the score, the higher the satisfaction*

## Discussion

The main study finding from the quantitative data indicated family of adult trauma survivors admitted to acute care environments demonstrated psychosocial impacts like those report in studies of family with loved ones in ICU. This was supported by the qualitative responses to the questions about the most helpful and most difficult aspects of the hospitalization. This is the first study to survey family in acute care to identify their psychosocial symptoms after unexpected hospitalization following trauma. These findings will be used in the

second part of this study, to identify relationships between variables and predictors to support families in acute care settings.

The Stress, Appraisal and Coping Theory, based upon the idea that stress and emotions are dependent on how a person appraises a situation or views a transaction with their environment (Lazarus & Folkman, 1984) framed this study. The process of cognitive appraisal is ongoing, as the situation is frequently re-appraised, and this affects behavioral, physiological and psychological responses, further influencing a person's coping. This study surveyed family to identify their appraisal of the experience of having a loved one admitted to acute care following a trauma event, and evaluated their stress, anxiety, depression and coping, and the person/environmental factors that influenced their appraisal of the event.

Most patients in this study were male, more than half were over the age of 51, many had more than one injury, caused by a variety of events, including motor vehicle crashes and falls. The caregivers primarily female, spouses, daughters and mothers. They were mostly white, mostly over the age of 31, educated beyond high school, English speaking, urban dwellers. Many had dependents to care for, in addition to the patient. This is reflective of the population in general (Statistics Canada, 2017), and similar to previous studies in ICU (Heyland et al., 2002; Kentish-Barnes, Lemiale, Chaize, Pochard, & Azoulay, 2009).

Overall, family appraised the situation as stressful. It is not surprising family members are overwhelmed and stressed. All were unprepared for the hospitalization, and the disruption this placed on their lives. High rates of anxiety and acute stress were found among respondents, similar to other ICU specific studies. IES-R among this population is higher or similar to some studies of ICU family members (Alfheim et al., 2019; Kulkarni et al., 2011;

Paparrigopoulos et al., 2006). Anxiety and depression levels among this cohort were higher than findings by Fumis, et al (2015), who identified the prevalence of anxiety and depression among 34% and 17% of Brazilian families with loved ones in ICU (Fumis, Ranzani, Faria, et al., 2015; Hwang et al., 2014; Kulkarni et al., 2011). Family members did not identify significant symptoms of depression; however, most completed the surveys within the first 3-10 days following the traumatic event and may not have fully considered the long-term impact on their lives.

Higher scores on the CISS-SSC generally indicate higher levels of coping and the family of acute care patients in this study scored in the low to medium range, indicating they were coping, but not at a high level. Most respondents used task-focused strategies to cope, followed by emotional and avoidance strategies. This was supported by the open-ended questions, where family identified issues related to finding parking, visiting, caring for self and others as priority concerns.

Family members did not indicate a high level of satisfaction with care. They were generally satisfied with the care provided, but few rated the care as excellent or exceptional. As noted in a pilot study to assess family satisfaction in ICU, families often assess the environment as part of satisfaction with care, and the comfort subscale addresses this domain (Roberti & Fitzpatrick, 2010). This study suggests family were less satisfied with care related to comfort. Family members mentioned in the open-ended questions that the lack of bathrooms, chairs, and places to put belongings are aspects of the experience that was most difficult. On one ward, family members had to use the bathroom on the floor below, because of the lack of visitor space. The opportunity to remain close to their loved one was generally rated highly, but

the other domains of assurance, support and information suggest family were possibly less satisfied with the care.

Congruent with previous studies, family members reported spending hours either in the patient's room, or the waiting room, while the care team attended to the patient.

Inconsistently, nursing staff provided support and information to the family members. Given the multiple demands placed on staff, family members are often left to navigate or interpret the complexities of their reality on their own. Many reported frustrations with the lack of communication, although a few mentioned the lack of staff, and expressed support and compassion for the hospital care providers. Consistent with previous studies, some family in this study indicated being unfamiliar with the city, overwhelmed by the size and complexity of the trauma center, and reported being away from family support systems (Boettcher & Schiller, 1990). Often the care of the trauma patient may include multiple surgeries, which may take place several days apart, and was a source of frustration for family members who participated in this study. The trauma patient's surgery delays with little or no warning caused anxiety and led family members to have less trust in the care team.

### **Limitations**

This study has several limitations. It is a single-centre study, limiting generalizability because of variability between hospitals, countries, health systems, and care models. Family members were invited to participate by nursing staff and relied heavily on staff members' commitment to extending invitations. As the study took place over the summer, and regular, experienced staff were away on vacation, leading to variability in recruitment. Additionally, nursing staff were extremely busy, and this approach added burden and extra work for staff.

Future research would benefit from designated staff specifically hired to recruit participants. Despite this, staff were able to invite enough family members to have a sample size adequate to satisfy the power analysis conducted prior to initiation.

The survey was only conducted once. Family members were very motivated to participate, and most returned fully completed surveys. Surveys took between 20-40 minutes to complete for most participants, but some family members spent a lot of time, often writing pages in response to the questions about helpful and difficult aspects of the event. Future studies might consider offering a face to face interview that could be recorded and analyzed later, rather than burdening family with writing their responses. Some family did comment on the length of the surveys, and there were surveys with missing data. The family members who participated were generous with their time, but future studies should consider limiting the surveys to assess only two to three variables at a time.

A longitudinal study would help to identify any changes over time, particularly, a follow-up of study participants after 30 days would allow a determination of the risk for post-traumatic stress disorder (Alfheim et al., 2019; Anderson et al., 2008; Corrigan, Samuelson, Fridlund, & Thomé, 2007; Lv Pillai et al., 2006). Data were collected after the patient was in hospital for a minimum of 3 days. Nurses suggested the 72-hour inclusion criteria was too restrictive, as patients were being discharged very quickly to meet patient flow mandates, therefore limiting the time between inviting participation and meeting with the researcher. As patients are frequently discharged quickly, many potential respondents were missed. Anecdotally, staff identified this as a missed opportunity, as they often received negative feedback from family members who expressed concern about the rapid discharge rate. Staff



strongly believed the family members were clear about their needs and difficulties within 48 hours of admission and mentioned daily about the “missed opportunity”. Future studies should consider reducing the length of hospitalization criteria to 48 hours for acute care populations.

This study did not identify severity of injury, as there is not a consistent tool for acute care patients, so it is unknown if the patient’s injuries influenced the family response. Also, the family member’s pre-injury baseline was unknown. Information about the family members’ psychological and health status prior to the accident is unknown, as is their involvement in the event that caused the injury. Future studies could ask more questions about the events leading up to the hospital admission. These findings will need to be replicated at several points across the care trajectory, in multi-centers, multiple countries, and in different acute care settings.

### **Conclusion**

This study offers insight into the impact of trauma on family members who had a loved one admitted to acute care. It is the first study to make the distinction between the critical care and acute care environments. The study confirmed high prevalence of stress, anxiety and difficulty coping among acute care trauma family members, at levels identified in other investigations into family of critical care patients. Findings from this study will be used to identify relationships to allow for the development of interventions and strategies to mitigate any negative consequences on the patient, staff and family.

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## Chapter 4

### Predictors of Coping and Satisfaction with Care

#### Introduction

The impact of trauma injury extends to the entire healthcare system. Injury is caused by a variety of mechanisms, leading to damage to cells, tissues and organs because of the transmission of external force to the body. It is generally categorized as minor, moderate, serious, and incompatible with life. For the past several decades, research has been conducted to improve outcomes for patients with better pre-hospital care, lifesaving surgeries, improved wound management, and quality rehabilitation services available to preserve life, prevent complications, and improve quality of life and many organizations, including the World Health Organization have developed guidelines to support these improvements (Mock, Julliard, Brundage, Goosen, & Joshipura, 2009; Mock, Lormand, Goosen, Joshipura, & Peden, 2004). In Canada between 2014-2015 there were 231,111 injury related hospitalizations among those aged 18-85+ years (Canadian Institute for Health Information, 2016). For the most grievously injured, the hospitalization includes admission to the intensive care unit (ICU), where lifesaving and injury minimization is the dominant outcome driving care strategies. However, of all admissions to hospital, in large tertiary care facilities, only 30% of urgent surgical admissions are to ICU, and of these only 2% are related to trauma. The majority of trauma patients are admitted to less acute stepdown units or hospital wards (Canadian Institute for Health Information, 2016). Unlike the ICU, the nurse-to-patient ratio on the ward is higher, resulting in fewer nurses, reduced monitoring of the patient, and less frequent contact with the care team. Additionally, as families are coming to terms with the impact of the unexpected hospitalization,

the uncertainty, lack of familiarity with the hospital environment, and the personal impact of their circumstance, they are faced with additional expectations by the ward staff who begin planning toward discharge.

While patients may get relief from medication, or attention focused upon them because of their clinical situation, the family often puts their needs as secondary to the patient. The care team may not consider the role family plays in supporting the patient, therefore do not recognize the impact the event may have on them. Increasingly, care providers, particularly in the ICU setting have recognized this approach as inadequate. In the early 1980's focus began to shift to the families of patients in ICU. The work of nurse scientists, Nancy C. Molter (RN, MN, PhD) and Jane Leske (PhD, RN, ACNS-BC, FAAN), increased awareness about the needs of families with the development and revision of the Critical Care Family Needs Inventory. The recognition that family members have a need for proximity, assurance, comfort, information, and support led to hundreds of studies around the world, initiatives, and changes in practice to support the family members of critically ill patients (Leske, 1991; Molter, 1979). Within critical care environments, inclusion of family in the ICU has become a priority and strategies have been developed to assess, and improve quality, satisfaction with care, and safety in healthcare (Al-Mutair, Plummer, O'Brien, & Clerehan, 2013; Buckley & Andrews, 2011; Chatzaki et al., 2012; Delva, Vanoost, Lauwers, & Wilmer, 2002; McAdam, Arai, & Puntillo, 2008; Omari, 2009; Ponte, Connor, DeMarco, & Price, 2004; Verhaeghe, Van Zuuren, Defloor, Duijnste, & Grypdonck, 2007; Verharen et al., 2015).

As the demand for healthcare resources within a Canadian healthcare system is increasing, the focus of many initiatives being developed is under the premise of patient flow.



The reduced availability of critical and acute care beds and emphasis on cost containment or reduction has resulted in economic rationalization of already scarce resources (Bauer, Fitzgerald, Haesler, & Manfrin, 2009). Despite most trauma patients being admitted to areas outside of the ICU, over the past three decades, study upon study has been conducted to research the impact upon family when the patient is in the ICU. Surprisingly few have considered the many demands and impacts upon family of patients in settings other than the critical care/ICU environment and as a result, few interventions currently exist in the acute care setting to meet the needs of family members. In addition, there is little understanding of the predictors of coping which may help to identify specific interventions to offset any negative outcomes among family members.

Thus, an investigation into the impact of trauma on family members following an unexpected acute care hospitalization of a loved one was conducted to help providers, particularly nurses, understand and develop interventions to minimize any negative outcomes, and enhance and capitalize on outcomes that are positive, with the goal of reducing length of stay, reducing the burden upon the family members, the patient, the healthcare team, the system itself, and ultimately optimizing the health and well-being of the patient and their family members.

## **Purpose**

The overall purpose of this study was to determine answer the following research questions:

Among family of trauma patients;

- 1) Do the psychosocial and functional variables of stress, anxiety and depression predict coping?
- 2) What is the influence of satisfaction with care on stress, anxiety and depression?
- 3) Controlling for stress, anxiety and depression, do demographic factors predict coping?
- 4) Is there a relationship between coping and satisfaction with care?

## **Methods**

### **Design**

The Stress, Appraisal and Coping Theory (Lazarus & Folkman, 1984), based on the premise stress and emotions are dependent on how a person appraises or views a transaction with the environment guided this single-center, exploratory, descriptive, correlational study. A non-probability convenience sampling method was used for recruitment. This cross-sectional survey sample was drawn from all family members of adult patients who suffered a traumatic injury and were admitted to hospital for  $\geq 72$  hours.

### **Population**

The population of this study is comprised of family members of patients who have experienced a traumatic event. The sample for this study is made up of a subset of family whose loved ones are admitted to a Manitoban trauma centre following physical injury. A power analysis conducted prior by Dr. R. Rabbani (personal correspondence, November 8,

2018), determined a sample size between 84-140 with a correlation with coping of 0.3 based on an unadjusted observed correlation for this study.

Anyone whom the patient identified as family, provides caregiving or support to the patient, or who has a direct next of kin relationship to the patient; spouse, parent, adult child, sibling or significant other was offered a letter of invitation to meet with the researcher to discuss the study. The study inclusion criteria for family members included: 1) 18 years of age or older, 2) Able to read and complete the study tools in English, 3) Willing to participate in the study, and 4) Self-identify or identified as family/caregiver. Exclusion criteria for family included: 1) Family of patient who was critically ill at time of data collection, and 2) Family of patient who had been hospitalized for less than 72 hours. The voluntary nature of participation was stressed.

### **Setting**

This study was conducted between June and September 2019 at a large university affiliated trauma hospital in mid-western Canada located in Treaty 1 territory, which is the traditional territory of the Anisinaabeg, Cree, Oji-Cree, Dakota, and Dene Peoples, and homeland of the Métis Nation. The Health Sciences Centre in Winnipeg is the trauma centre for the Province of Manitoba, Northwestern Ontario and Nunavut. The hospital has an acute inpatient surgery program with a dedicated trauma ward, dedicated burn, orthopedic and neurosurgical wards, and one general surgery ward, each with a 1:5 or 1:6 nurse-to-patient ration, where trauma patients may be admitted. Additionally, there are 3 stepdown units, each with a 1:2 or 1:3 nurse-to-patient ratio. There is also a trauma and spinal cord injury rehab unit within the facility where patients may be transferred. Patients on these wards may be admitted

for observation overnight, or may stay for over a year, depending on the type and severity of injury, the ability and readiness of family to receive the discharged patient, the home care services and needs required, and/or the availability of rehab or long-term care beds.

## **Instruments**

### ***Demographic Questionnaire.***

To describe the sample, a questionnaire developed by the investigator was used to provide self-reported demographic data about the family member such as gender, age, education, relationship to the patient, and previous experience with hospitalization. Family members were also asked to identify demographics about the patient related to their age, gender, and type of accident and injuries sustained. Family members were invited to offer additional qualitative information about the impact of the trauma event, thru 4 open-ended questions at the end of the demographic survey, about the overall experience and impact of the trauma and hospitalization.

### ***Previous Trauma Experiences.***

The Life Event Checklist for DSM-5 (LEC-5) (Weathers, Blake, Kaloupek, Marx, & Keane, 2013), developed by staff at VA's National Center for PTSD was used to gather information from family members about other traumatic exposure. The 17-item scale does not yield a total or composite score, as respondents may respond to each question more than once. They are asked to consider their entire lifetime and identify if the event; "Happened to you", "You witnessed it", "You learned about it happening to a close family member or close friend", it was "part of your job", "you are not sure", or "it doesn't apply". Events such as natural disasters, assaults, serious accidents, unwanted or uncomfortable sexual experience, combat or exposure

to war zones, sudden accidental death are included in the checklist. This was used to provide a baseline of previous exposure that may impact family members' response to the current situation.

### ***Anxiety and Depression.***

*The Hospital Anxiety and Depression Scale (HADS)* (Zigmond & Snaith, 1983) was used to measure the self-reported anxiety and depression among participants. Although not specifically designed for family members, the HADS has been considered a reliable tool to screen for symptoms of anxiety and depression in family members of ICU patients (Anderson, Arnold, Angus, & Bryce, 2008; Hwang et al., 2014; Kulkarni et al., 2011; Pochard et al., 2005).

The HADS is a simple to use standardized, quantitative instrument and can be completed in 2-5 minutes. It consists of 14-items, divided into two subscales, Anxiety and Depression. Each are rated on a scale of 0-3, where 0 equals no symptoms and 3 equals severe symptoms. HADS score can range from 0-21 for each subscale, the higher the score, the greater the symptoms. Scores < 8 points indicate non-cases, or normal symptom levels and scores >10 points indicate the presence of moderate to severe symptom levels of anxiety or depression. A HADS global score of >10 has been used to differentiate between those with symptoms of generalized depression or anxiety by a number of researchers (Anderson et al., 2008; Bäckström, Ekselius, Gerdin, & Willebrand, 2013; Fumis, Ranzani, Martins, & Schettino, 2015; Kulkarni et al., 2011). Previous studies reported acceptable Cronbach's alphas (0.83-0.94) for the total scales and subscales (Bäckström et al., 2013; Steel, Dunlavy, Stillman, & Pape, 2011). The Cronbach alphas for Total HADS, Anxiety and Depression in this study are 0.89, 0.87, and 0.80, respectively.

## **Stress.**

*The Impact of Event Scale-Revised (IES-R)* (Weiss & Marmar, 2004), a 22-item Likert type questionnaire, was used to identify the family members' self-reported level of acute stress. The original 15-item scale was originally developed to assess for symptoms of intrusion of thought and impressions related to an event, and avoidance of activities or people related to an event (Horowitz, Wilner, & Alvarez, 1979), and the revised scale includes seven additional items reflecting hyperarousal (Weiss & Marmar, 2004). The IES-R contains items which correspond directly to 14 of the 17 *Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV* symptoms of PTSD (American Psychiatric Association, 1994) and 12 of the 15 *DSM-V* symptoms of acute stress disorder (American Psychiatric Association, 2013). Intrusion and hyperarousal sub-scores each consist of 7 items, and the avoidance sub-score consists of 8 items. The total IES-R items are rated on a 5-point scale ranging from 0 (not at all) to 4 (extremely), with a total score range from 0-88 with higher scores indicating higher levels of stress symptoms. Although the original authors did not suggest a cutoff score, a score of  $\geq 33$  was chosen, as it has been used in similar studies to detect symptoms of acute stress disorder (Alfheim et al., 2019; Bryant et al., 2015; Chang, Wang, Chang, Yu, & Lee, 2018; Pielmaier, Walder, Rebetez, & Maercker, 2011; Weiss & Marmar, 2004). Previous studies have reported Cronbach's alpha (0.71-0.95) for the total score and for subscales (Beck et al., 2008; Chang et al., 2018; Weiss & Marmar, 2004). The Cronbach alphas in this study for the total IES-R, and intrusion, avoidance and hyperarousal are; 0.92, 0.88, 0.78, and 0.82, respectively.

### ***Coping.***

*The Coping Inventory for Stressful Situations: Situation Specific Version (CISS:SSC)* (Endler & Parker, 1999) was used to measure three types of coping styles, and to determine the relationship between stressful situations and coping styles. Congruent with the Stress, Appraisal and Coping Framework (Lazarus & Folkman, 1984), the revised CISS: SSC- 21-item tool was designed to examine a specific event, such as a change in relationship or situation, and to be used for adults over the age of 18. Respondents choose items with the highest factor loading for each dimension of coping along three factors; task-oriented coping, avoidance-oriented coping, and emotion-oriented coping (Endler & Parker, 1999). It is easy to administer, takes under 10 minutes to complete and is easily hand-scored. In this study, respondents were asked to rate each item on a 5-point Likert-type scale ranging from 1 (not at all) to 5 (very much), three subscales, each with 7 items measure task-oriented, avoidance-oriented and emotion-oriented coping behaviors. The higher the score, the higher the coping, with a maximum total score of 105.

The CISS:SC has demonstrated good psychometric properties among several validations studies, with Cronbach's alpha ranging from 0.72-0.87 on the avoidance-oriented dimension, 0.72-0.86 on the task-oriented dimension, and 0.74-0.88 on the emotion-oriented scale (Boysan, 2012; Calsbeek, Rijken, Van Berge, Henegouwen, & Dekker, 2003; Cohan, Jang, & Stein, Murray, 2006; Li, Liu, Hu, & Jin, 2017; Pisanti et al., 2015; van Horn & Wilpert, 2017). In this study, the Cronbach alpha for the total CISS:SSC, and task, emotion and avoidance subscales are; 0.73, 0.76, 0.79, and 0.66.

### ***Satisfaction with Care.***

The *Critical Care Family Satisfaction Survey (CCFSS)* was developed to measure family satisfaction with overall care and to fill the gap between needs and needs met. The 20-item questionnaire was developed based on items from the literature, incorporating the needs identified by the CCFNI (Leske, 1986). The items are distributed among the five subscales along each dimension of care; 4-items for assurance, 5-items for information, 3-items related to proximity, 6-items referring to support, and 2-items measuring comfort. Each item is rated from 1 (very dissatisfied) to 5 (very satisfied). The total score ranges from 5.0-25.0, and scores for the subscales range from 1.0-5.0 (Wasser, Matchett, Ray, & Baker, 2004). Reliability of subscales ranged from 0.74-0.94 (Wasser, Pasquale, Matchett, Bryan, & Pasquale, 2001). The Cronbach alphas for the total CCFSS, and the subscales of assurance, proximity, comfort, information and support are; 0.94,0.63,0.55,0.85,0.87, and 0.86, respectively.

### **Data Collection**

Data collection began after ethical approval from the University of Wisconsin-Milwaukee *Institutional Review Board (IRB)* (19.A.191 Feb. 25, 2019), the *Education and Nursing Research Ethics Board (ENREB)* of the University of Manitoba (E2019:007 (HS22578) May 27, 2019), and site access from the Winnipeg Regional Health Authority (RAAC 2019-026 June 3, 2019), and Health Sciences Centre (R12019:027 May 28, 2019) was obtained.

With the support of the hospital leadership team, clinical resource nurses (CRN) and designated charge nurses working in the clinical areas identified families who met the inclusion criteria. The CRN offered eligible family members a letter inviting them to meet with the researcher to learn about the study. At least 160 family members were given letters, 105 family



members met in person with the researcher, and of these, 16 (15.2%) family members declined to participate, and 89 (84.9%) agreed to participate. During the pre-arranged face-to-face meeting, the investigator discussed and obtained informed consent from 89 family members.

The subjects were offered the opportunity to complete the surveys on-line using an electronic tablet, by having the link to the survey emailed to them or using a paper and pen version of the surveys. All participants (100%) chose a pen and paper method to complete a bundle consisting of a demographic questionnaire, and 5 Likert-type paper surveys. Survey completion time was between 20-40 minutes. A total of 86 of the 89 (96.6%) who consented returned completed the 5 surveys and demographic questionnaire. Upon completion, surveys were returned to the investigator directly, or placed in a secure space for the investigator to retrieve.

### **Data Analysis**

Data from the demographic questionnaire and five surveys were entered with a two person data entry method into the database. The data were screened for errors by running frequencies and visually inspecting each variable, including individual items that made up each scale. Four data entry errors were discovered and corrected, and frequencies were re-run to ensure accuracy. Data were analyzed using descriptive statistics and inferential statistics in SPSS v25.0. Data were screened for errors and violations of assumptions. Data are reported as actual numbers and percentages, as well as mean and standard deviation for normally distributed variables.

Correlation between variables were calculated by the Pearson correlation coefficient. A *P* value <0.05 was considered significant, and <.01 considered highly significant. If a difference

was found, an independent sample *t*-test were used when comparing two normally distributed variables. One-way analysis of variance (ANOVA) were used to compare mean scores between groups. Finally, multiple regression was performed with the aim to identify predictors of coping, and the influence of demographic factors have, to predict coping if the psychosocial factors are controlled.

## **Results**

### **Demographic**

A total of 86 family members who met eligibility criteria between July and September 2019 completed and returned the questionnaires. Three who originally agreed to participate, did not return the survey bundle. On average, the patients were male (68.6%), between 18-30 years of age (31.4 %), or greater than 51 years of age (51.2%) and more than half (54.5%) had multiple injuries. Most family members were female (69.8%), urban dwellers (55.8%) between the ages of 31-60 (62.4%), married/common-in-law (70.9%), White/Caucasian (68.6%), and the majority had previous experience with hospitalization (91.9%). The demographic characteristics and responses to 3-open ended questions are presented in **Appendix A**.

### **Correlation between Demographic and Psychosocial Variables**

A one-way analysis of variance was conducted to explore the relationship between the demographic variables: relationship to the patient; marital status; ethnic group; education; whether the family lived in urban/rural/northern settings; and the variables of stress (IES-R) and subscales; intrusion, avoidance and hyperarousal), subscales; anxiety and depression and total HADS, satisfaction with care (CCFSS and subscales; comfort, support, assurance, proximity and information), and coping (CISS:SSC and subscales; task-oriented, emotion-oriented, avoidance-

oriented). Findings did not indicate a statistically significant relationship between any of the demographic variables identified, and the variables of stress, anxiety, depression, satisfaction with care and coping. Additionally, an independent-sample *t*-test was used to test the relationship between the number of injuries the patient sustained and the psychosocial variables of stress, anxiety, depression, coping and satisfaction with care. Correlation analysis did not identify significant relationship between these variables.

### **Stress, Anxiety and Depression**

The relationship between each of the variables of Stress, Anxiety, Depression, Satisfaction with Care and Coping, and several independent variables was investigated using Pearson product moment correlation coefficient. Correlation analysis identified positive relationships between Stress, Anxiety, Depression, Coping, and Previous Trauma. **(Table 1)**.

There was a positive correlation between stress and the subscale anxiety  $r=.70$ ,  $n=81$ ,  $p<0.01$  (2-tailed), and between stress and the depression subscale,  $r=.52$ ,  $n=81$ ,  $p<0.01$  (2-tailed), indicating the higher the levels of stress, the higher the anxiety and depression. A positive correlation between total stress and previous trauma experience,  $r=.35$ ,  $n=81$ ,  $p<0.01$  (2-tailed), suggests high levels of stress are associated with having previous experience with trauma, and a small, incidental negative correlation between the intrusion subscale of the IES-R and number of dependents,  $r=-.23$ ,  $n=83$ ,  $p<0.05$  (2-tailed) suggesting those with no dependents have higher levels of intrusive thoughts. There was a significant relationship identified between age and the depression subscale,  $r=.22$ ,  $n=86$ ,  $p<0.05$  (2-tailed). Several strong positive correlations were discovered between the stress subscales, and anxiety and depression, indicating the higher the stress, the higher the anxiety and depression. This is of note, as this

was not one of the research questions, but the findings are significant and need further investigation. (Table 2).

### Coping

A significant positive correlation was identified between total coping and stress,  $r=.315$ ,  $n=79$ ,  $p<0.01$ (2-tailed), emotional coping and stress,  $r=.57$ ,  $n=81$ ,  $p<0.01$ (2-tailed), total coping and anxiety,  $r=.44$ ,  $n=84$ ,  $p<0.01$ (2-tailed), emotional coping and anxiety,  $r=.59$ ,  $n=84$ ,  $p<0.01$ (2-tailed), emotional coping and depression,  $r=.35$ ,  $n=86$ ,  $p<0.01$ (2-tailed), and emotional coping and previous trauma,  $r=.28$ ,  $n=86$ ,  $p<0.01$ (2-tailed). Emotional coping appears to be the primary coping strategy among the family of trauma survivors (Table 1).

### Satisfaction with Care

A negative correlation was detected between satisfaction with care and previous trauma experience,  $r= -.255$ ,  $n=80$ ,  $p<0.05$  (2-tailed), when all items from the CCFSS were included, and  $r= -.225$ ,  $n=85$ ,  $p<0.05$  (2-tailed), when item 16 is removed, indicating those with more previous trauma experience have lower satisfaction with care scores, and those with high satisfaction have less experience with trauma (Table 1).

**Table 1.**

*Pearson product-moment Correlations Between Measures of Total Scores Stress, Coping, HADS, Anxiety and Depression and Satisfaction with Care and Previous Trauma Experience*

Scale	1	2	3	4	5	6
1. Total Stress	-	.705**	.315**	-.166	-.120	.352**
2. Total HADS	.705**	-	.360**	-.159	-.106	.115
3. Total Coping	.315**	.360**	-	.051	.053	.152
4. Total Satisfaction with Care (with all)	-.166	-.159	.051	-	-	-.255*
5. Total Sat. with care without #16	-.120	-.106	.053	-	-	-.225*
6. Previous Trauma	.352**	.115	.152	-.255*	-.225*	-

\*. Correlation is significant at the 0.05 level (2-tailed), \*\*. Correlation is significant at the 0.01 level (2-tailed)

**Table 2.**

*Pearson product-moment Correlations Between Measures of Coping, Stress, Anxiety & Depression*

<b>Scale</b>	Stress	Anxiety	Depression	Previous Trauma	Number of Dependents	Age
Total Coping	-	.441**	-	-	-	-
Coping Emotional	.574*	.589*	.349*	.276*	-	-
Total Stress	-	.749**	.527**	.352**	-	-
IES-R Intrusion	-	-	-	-	-.227*	-
Depression	-	-	-	-	-	.258*

\*. Correlation is significant at the 0.05 level (2-tailed), \*\*. Correlation is significant at the 0.01 level (2-tailed)

## Gender

An independent samples t-test was conducted to compare gender (female and male) with scores for stress (IES-R), anxiety and depression (HADS), coping (CISS-SCC), and satisfaction with care (CCFSS). Total scores for each variable are presented. Only significant differences for subscales are presented (**Table 2**). Scores revealed a significant difference in total HADS scores between females (M = 18.37, SD = 7.6) and males (M = 14.15, SD = 9.36),  $t(86) = 2.20$ ,  $df = 84$ ,  $p = 0.03$  (two-tailed). A statistically significant difference between females (M = 10.93, SD = 4.67) and males (M = 8.35, SD = 4.99),  $t(86) = 2.31$ ,  $df = 84$ ,  $p = 0.02$  (two-tailed) was revealed on the Anxiety subscale. There was no significant difference on the Depression subscale, or on Total and subscales for stress, coping, satisfaction with care (**Table 3**).

**Table 3.***Gender Differences for Coping, Stress, Anxiety and Depression, and Satisfaction with Care*

Measure	Female			Male			<i>t</i>	<i>df</i>	<i>p</i>
	N	M	SD	N	M	SD			
Total Stress	57	35.05	16.09	24	32.17	20.38	.61	35.6	.54
Total Anxiety & Depression	60	18.37	7.60	26	14.15	9.36	2.20	84	.03
Anxiety*	60	10.93	4.67	26	8.35	4.99	2.31	84	.02
Depression	60	7.43	3.99	26	5.81	4.61	1.66	84	.10
Total Coping	59	62.32	11.27	25	58.72	9.45	1.40	82	.17
Total Satisfaction with Care***	56	19.04	3.45	24	18.85	3.19	.227	78	.82
Total Satisfaction with Care w/o 16S***	60	19.19	3.46	25	18.71	3.26	.593	83	.48

\*. Subscale Correlation is significant at the 0.05 level (2-tailed)

\*\*. Correlation is significant at the 0.01 level (2-tailed)

\*\*\*Substantial missing data for item 16S (support) led to comparisons with and without item 16S. Results did not show significant differences with inclusion or exclusion of item 16S.

**Age**

A one-way analysis of variance was conducted to explore the impact of age on anxiety and depression, as measured by the HADS. Family members were divided into four groups according to their age: Group 1:18-30 years; Group 2: 31-50 years; Group 3: 51-60 years; Group 4: >60years. There was a statistically significant difference at the  $p<.05$  in depression subscale for the four age groups:  $F(3, 82) = 2.6, p=.05$ . The post-hoc comparison using Tukey HSD test indicated the mean scores for Group 1 ( $M=5.0, SD=3.07$ ) was significantly different from Group 4 ( $M=9.0, SD=4.21$ ). Group 2 ( $M= 6.96, SD=3.65$ ), and Group 3 ( $M=6.70, SD=4.69$ ) did not differ significantly from either Group 1, 4 or each other.

One-way analysis of variance also revealed a significant difference between age and the subscale of avoidance coping at the  $p<.05$  level:  $F(3, 80) = 4.1, p=.01$ . The post-hoc comparison

using Tukey HSD test indicated the mean scores for Group 2 ( $M=18.52$ ,  $SD=5.30$ ) was significantly different from Group 3 ( $M= 14.81$ ,  $SD=4.73$ ). Group 1 ( $M=19.07$ ,  $SD=4.5$ ), and Group 4 ( $M=19.35$ ,  $SD=5.67$ ) did not differ significantly from Group 1, 4 or each other. Family members between 51-60 years of age had lower CISS-SSC scores than other age groups.

### **Previous Trauma Experience**

A one-way analysis of variance was conducted to compare scores on the IES-R and the impact of previous trauma experiences as measured by the Life Experience Checklist. Scores were divided into three groups according to the number of previous trauma experiences (Group 1: None, Group 2: 1-3, Group 3: 4-6, Group 4: more than 7 previous trauma experiences). A medium to large, statistically significant difference was noted at the  $p<0.05$  level in IES-R scores for the three groups:  $F(3, 81) = 3.68$ ,  $p=.01$ . The effect size, calculated using eta squared, was .13 and post-hoc comparisons using the Tukey HSD test indicated the mean score for Group 4 ( $M=44.47$ ,  $SD = 16.73$ ) was significantly different from Group 1 ( $M=24.40$ ,  $SD=11.03$ ), and Group 2 ( $M=30.60$ ,  $SD=16.44$ ). Group 3 ( $M=36.19$ ,  $SD= 18.23$ ) did not differ significantly from the other groups. A higher number of previous trauma exposures is associated with higher IES-R scores.

### **Number of Dependents**

One-way analysis of variance was conducted to explore coping and the impact of having dependents on family members. Family members were divided according to the number of dependents, which included all persons the family member was responsible for, including children under 18, adult children, and older adults. Group 1: none; Group 2: 1 dependent; Group 3: 2 dependents; Group 4: more than 3 dependents. There was a significant difference at

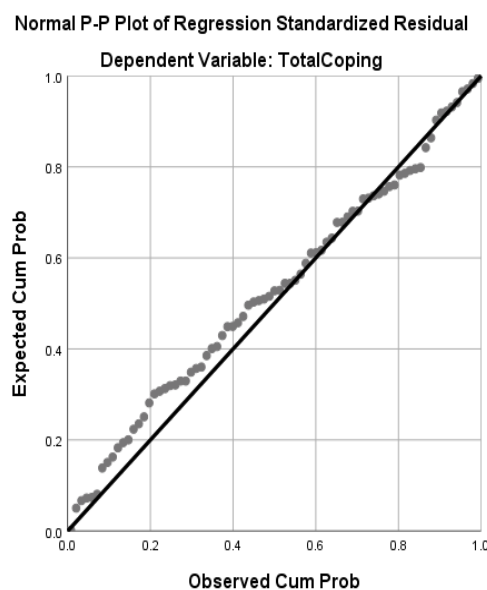
$p < .05$  in coping scores for the four dependents groups:  $F(3, 80) = 4.58, p = .005$ . The post-hoc comparisons using Tukey HSD test indicated the mean score for Group 3 ( $M = 66.79, SD = 9.67$ ) was significantly different from Group 4 ( $M = 53.73, SD = 14.27$ ). Group 1 ( $M = 59.49, SD = 9.38$ ) and Group 2 ( $M = 63.79, SD = 9.58$ ) did not differ significantly from the other groups. Having more than 3 dependents was associated with poorer coping.

### Predictors of Coping

A hierarchical linear regression was used to assess the ability of variables of gender, age, number of dependents and previous trauma to predict coping, after controlling for stress (Total IES-R), HADS-anxiety and HADS-depression. Preliminary analysis was conducted, and no violation of assumptions of normality (**Figure 1**), linearity, multicollinearity ( $VIF < 10$ ) and homoscedasticity were found. The scales for Total IES-R, HADS-anxiety and HADS-depression correlate substantially with Total CISS-SSC (.315, .442 and .201 respectively).

**Figure 1**

Normal Probability Plot with Dependent Variable: Total Coping





Gender, age, number of dependents and previous trauma were first entered the regression model, followed by stress (IES-R), HADS-anxiety, and HADS-depression. In the model, being female, age, number of dependents and previous trauma explaining 6.7% of the variance in coping. The control measures of stress, anxiety and depression were entered at Step 2, the model accounted for 24.4%,  $F(7, 71) = 3.27, p < .005$ . The control measures explained an additional 17.7% of the variance in coping, after controlling for age, gender, number of dependents and previous trauma,  $R$  change = .18,  $F$  change (3,71) = 5.54,  $p < .002$ . In the final model, only anxiety was a statistically significant predictor of coping, with the Anxiety subscale recording a beta value ( $\beta = .616, p < .002$ ). Being female, over 60, having 3 or more dependents, and having more than 3 previous trauma events accounted for 17.7% of coping. Anxiety remained independently associated with coping after controlling for family member age, gender, previous trauma, number of dependents, as well as depression and stress (Table 4).

**Table 4.**

*Hierarchical Regression Analysis for Variables Predicting Coping (N=86)*

Variables	Model 1			Model 2		
	$\beta$	SE	P	$\beta$	SE	P
Constant		5.895			6.248	
Family Age	-.086	1.262	.47	-.113	1.222	.32
Family Gender	-.210	2.746	.08	-.068	2.654	.55
Total Dependents	-.039	1.114	.73	.066	1.062	.55
Previous Trauma	.188	1.355	.11	.101	1.359	.39
IES-R				-.109	.107	.53
<b>HADS-Anxiety</b>				.616	.420	.002**
HADS-Depression				-.142	.376	.33
R <sup>2</sup> a	0.067			.244		
$\Delta R^2$	0.067			.177		
$\Delta F$	1.321			5.541		
	$F(4,74) = 1.321, p = .270$			$F(7, 71) = 3.27, p < .005$		

## Discussion

This study showed family members of acute trauma patients were distressed and anxious because of the hospitalization of their loved one. Despite personal distress, family members enthusiastically responded to the invitation to participate. The staff who work with this population daily understood the relevance of the study and recognized the dearth of research to support the work they do to support families. Regardless of challenges related to low staffing and high nurse: patient ratios, nurses engaged family members and encouraged them to meet with the researcher. This adds validity to the need for more research to support those in acute care hospital settings.

Lazarus & Folkman (1984) suggest a person's environment and how they cognitively appraise a situation impacts their response to it (Lazarus & Folkman, 1984). This was demonstrated by family members self-reported increased stress, anxiety, and depression scores, and their moderate levels of coping and satisfaction with care. Results support prior studies that identified statistically significant relationships between the a variety of psychosocial variables, such as acute stress, anxiety, depression and coping among ICU families (Kulkarni et al., 2011; McKibben, Bresnick, Wiechman Askay, & Fauerbach, 2007; Petrinec et al., 2015; Lalitha Pillai, Aigalikal, Vishwasrao, & Husainy, 2010; Rukholm, Bailey, Coutu-Wakulczyk, & Bailey, 1991; Sander, Cole, Struchen, & Atchison, 2007; Sottile, Lynch, Mealer, & Moss, 2016).

This study is the first to show the relationship between anxiety and coping among family of acute care trauma patients. Family members reported high levels of acute stress symptoms, that were positively correlated with high levels of anxiety and depression. Satisfaction with Care did not correlate with coping. However, the more trauma experiences a person had, the

lower their satisfaction with care, and the fewer experiences with previous trauma correlated with higher satisfaction with care. This supports the Stress, Coping and Appraisal Theory (Lazarus & Folkman, 1984) which acknowledges how one's appraisal of the situation impacts the response. If there are low expectations because family do not know what to expect, they will be satisfied, but if they have had previous experience with trauma, they may have higher expectations.

Anxiety is the only variable to have a statistically significant ability predict coping, according to findings of this study. Demographic factors, such as age, gender, number of dependents and previous experience with trauma contribute minimally to predict who family members cope. Older (over 51) and female family members had higher levels of anxiety and lower levels of coping. They also had more dependents, and more experiences with trauma than other groups (Fumis, Martins, & Schettino, 2012; Wartella, Auerbach, & Ward, 2009). These family members may be juggling older and younger dependents, such as parents and children, while also working and providing care to the patient. Demographic characteristics such as the relationship to the patient, marital status of the family member, the family member's ethnic group, the number of injuries the patient sustained, and whether the family member lived in urban, rural or northern settings did not have a statistically significant influence on coping.

Research focusing on the impact of trauma on family of acute care survivors is limited; however, this study has corroborated findings from others (Alfheim et al., 2019; Anderson et al., 2008; Chang et al., 2018; Kulkarni et al., 2011; Pochard et al., 2005) supporting the hypothesis that family of acute care have similar responses to those in critical care

environments. It is not surprising family members are acutely distressed by the unexpected hospitalization of a loved one following trauma. Although the patient is not in the ICU, the hospital environment is unfamiliar to most, and can be a frightening and overwhelming place. Future studies should consider exploring family members understanding of the acute care setting and comparing this to the family of ICU patients, to determine if family are able to discern the difference between settings under times of stress.

While not the focus of this study, incidental findings revealed high symptoms of stress, including symptoms of hyperarousal, intrusion and avoidance that have been shown by others to predict post-traumatic stress among family members. A longitudinal study to determine the length of symptomology would further the understanding of family members' response to unexpected hospitalization of a loved one in acute care, as stress scores  $\geq 33$  (IES-R) have been shown to predict symptoms of PTSD among family members (Gries et al., 2010; McKibben et al., 2007; Paparrigopoulos et al., 2006; Lalitha Pillai et al., 2010; van den Born-van Zanten, Dongelmans, Dettling-Ihnenfeldt, Vink, & van der Schaaf, 2016). An understanding of the long-term impact of trauma will allow clinicians to anticipate and reduce the negative effects of trauma on family members. In the meantime, findings from this study will help policy makers, clinicians and caregivers to adopt the strategies developed to support family of ICU patients. Initiatives designed specifically for patients and family in acute care, along with practice guidelines should be developed for the entire team caring for the patient and family. Professionals such as clinical nurse specialists, nurse practitioners, social workers, psychologists, and trauma councilors who recognize the need to care for trauma patients and their families should be funded and added to care teams. Opportunities for information sharing among team

members, including the family and patient need to be developed to ensure consistent, comprehensive communication becomes part of the standard operating procedure when caring for acute care trauma patients and their family.

### **Limitations**

This study is not without limitations. It is a single-centre, convenience study. Comparing multiple centers in a variety of cities and countries would allow for a greater generalizability of findings. Family members were invited to participate by nursing staff and relied heavily on staff members' commitment to extending invitations. Despite the staff's overwhelming support for the study, at times, staff excluded family members whom they deemed "too overwhelmed" or "not appropriate", which may have eliminated potential participants whose responses may differ from the current sample. On the other hand, some family members were invited to participate and met with the researcher but did not meet the inclusion criteria. Staff also expressed concern about the stringent 72-hour criteria for inclusion. They identified many family members who had a lot to say about the experience, but who's loved one was discharged from hospital before 72 hours were up. Staff strongly believed the family members were clear about their needs and difficulties within 48 hours of admission and mentioned daily about the "missed opportunity". Future studies should consider reducing the length of hospitalization criteria to 48 hours for acute care populations.

The expectation that only one person per family participate may have led to bias or desirable answering, as the designated respondent may not have been the person most responsible or closest to the patient. During the process of selection, on several occasions, the researcher was questioned by families about the decision to only select one family member to

participate. Family members recognized that each member had a different response to the event. Future studies should consider inviting more than one family member, as each person's response within the family may be different and may reveal dynamics within and between the family which may impact the patient and the patient recovery.

Additionally, timing of the data collection could be expanded. This study was conducted during the summer, 3 months before an election, where healthcare was frequently discussed in the media, which may have contributed to higher levels of stress and anxiety among family members. It is unknown if seasonal variation would influence responses, as Manitoba has four distinct seasons, and weather events such as blizzards, forest fires and floods may add to the psychological distress and burden among family (for example, it is difficult to visit in the middle of a snowstorm). This may also impact the types of traumas admitted to hospital which may in turn influence the family members' response to the event. Further, expanding the population of study to include family impacted by other unexpected hospitalizations, such as cardiac events, brain injuries, patients with spinal cord injuries, and sudden medical conditions would validate the need for a global approach to caring for acute care family.

This study did not measure prior psychological symptoms, although it did measure previous trauma experiences. Knowledge of prior physical and mental health issues, including physiologic assessments, such as blood pressure, or drawing cortisol levels may add to an understanding of the overall response to stress experienced by family and is recommended for future study.

To meet the criteria for post-traumatic stress, symptoms of acute stress must be present for greater than 30 days (Fumis et al., 2012; Pielmaier, Milek, Nussbeck, & Maercker,

2013; Pillai et al., 2006; Wiseman, Curtis, Lam, & Foster, 2015). Therefore, a longitudinal study would identify if the symptoms exhibited during the early days of the trauma event were sustained. Surveying family members after 48 hours, again after 30 days, 3 months and 1 year will offer a wealth of information to identify what types of supports, and at what point in the trauma trajectory these supports need to be made available.

### **Conclusion**

Family members of trauma patients admitted to acute care have high levels of stress, anxiety, depression and utilize emotional coping strategies to deal with the unexpected hospitalization of their loved one. Being over 50, female, having many dependents, and previous trauma experiences contribute to high levels of anxiety, and lower coping. Previous trauma also has a role in the family members' satisfaction with care. Many demographics such as marital status, number of injuries the patient sustained, where family members lived, and ethnic background was not statistically significant, however, high levels of stress and anxiety was reported. The findings from this study corroborate the reported stress and coping responses in literature about family in critical care. The current focus on family members dealing with a traumatic event offers a window into future care models and interventions that can mitigate long term issues for both the patient and the family member coping with unexpected events.

Understanding coping strategies helps care providers, policy makers, and researchers anticipate needs of family members and can lead to improvements in care across the continuum. This study supports the need for more research into the experience of family in acute care. Future studies should focus on long term follow up of a variety of reasons for

unexpected hospitalization experienced by family members at 30 days, 6 months and 1 year to mitigate negative outcomes and to build supports for improved safety, quality, length of stay, and satisfaction. Ultimately, the goal to support the family will lead to improvements in outcomes for the patient.



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## Chapter 5

### Synthesis and Discussion

Within this chapter discussion will focus upon an understanding of impact of trauma on family of adults who have been unexpectedly admitted to acute care hospital wards following a traumatic injury. This study has captured the self-reported experiences of family members after at least 72 hours of hospitalization of a loved one. The use of the Stress, Appraisal and Coping Theory (Lazarus & Folkman, 1984) as a framework to guide this study will be briefly described. The demographic data of the participants will be addressed, followed by a discussion of each study question. The discussion will include the significant findings, limitations of the study will be explored, and recommendations for the future will be provided. Finally, a summary of the dissemination plan will be presented.

#### **Stress, Appraisal and Coping Theory**

The Stress, Appraisal and Coping Theory was chosen to guide this study, and details of the theory are presented in manuscript 2. The intention was to use the model to focus discussion on the two processes of cognitive appraisal and coping, as mediators of stressful person-environment relationships. The model is based on the idea that stress and emotions are dependent on how a person appraises or views their interaction with the environment. Individuals evaluate potential risks or benefits of events as harmful, threatening, or nurturing. The process of cognitive appraisal of a situation as stressful is ongoing, and affects behavioral, physiological, and psychological responses of the individual, and can influence one's coping methods.

During the primary appraisal phase, the person evaluates whether there is anything at stake in the encounter, and determine whether there is personal investment required, or if this would be irrelevant to their well-being. The event is evaluated as either having no implication on well-being, enhancing or maintaining well-being (considered benign-positive), or as stressful. A secondary appraisal follows, during which time the person evaluates whether anything can be done to prevent or overcome harm or improve benefit (Lazarus & Folkman, 1984). Here, the person considers numerous coping strategies such as altering the situation, accepting it, seeking information or enlisting supports.

Coping is the person's constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that exceed a person's resources (Lazarus & Folkman, 1984). It focuses on what the person thinks and does in a specific stressful encounter, such as during the traumatic injury of a loved one, and it is therefore process oriented. As well, it is influenced by the person's appraisal of the demands placed upon them, and the resources utilized to manage the demands. The outcomes can be exhibited as positive or negative feelings and may include physiological changes. The immediate outcome of an encounter is based upon the person's individual values, goals, expectations, and refers to the person's judgment of the extent to which the encounter was successfully resolved. The long-term outcome of stress is adaptation.

**Research Question 1:**

*What is the self-reported stress, anxiety, depression, coping and satisfaction with care on the family of adult acute care trauma patients within 3 days of admission to hospital?*

On average, the patients were male (68.6%), between 18-30 years of age (31.4 %), or greater than 51 years of age (51.2%). More than half (54.5%) had multiple injuries, ranging from head injuries, burns, and musculoskeletal and orthopedic, to multiple internal injuries. The cause of injuries included incidents involving motorized vehicles (33.7%), falls (27.9%), to a variety of other causes including workplace injury, farming or sports accidents or fire (25.6 %). Assault or violence accounted for 4.7%, and self-harm 2.7%. The results correspond to similar studies addressing patients who were admitted to ICU (Chang, Wang, Chang, Yu, & Lee, 2018; Fumis, Ranzani, Martins, & Schettino, 2015; Sottile, Lynch, Mealer, & Moss, 2016).

Most family members were female (69.8%), urban dwellers (55.8%) between the ages of 31-60 (62.4%), married/common-in-law (70.9%), White/Caucasian (68.6%). Most had some education beyond high school (70.9%), with 38.4% having completed College or University, and of these 10.5% completing post graduate education. The majority had previous experience with hospitalization (91.9%), 69.8% had between one and six previous traumatic experiences, including natural disasters (floods, tornadoes), transportation accidents, physical assault, unwanted or uncomfortable sexual experience, the sudden accidental death of someone, and fire. The characteristics of the family were also congruent with previous studies of ICU or trauma family members (Alfheim et al., 2019; Chang et al., 2018; Nantz & Hines, 2015; Pillai, Aigalika, Vishwasrao, & Husainy, 2010; Verharen et al., 2015).

The demographic information reported for the participants in this study is similar to the general population of Canadians in Manitoba. The large sample size (N=86) appears to be reflective of the population in the area, although further investigation with a similar sized population in a variety of settings, including larger and smaller Canadian cities, and international communities is warranted to provide a broader and more diverse pool of participants.

Family members shared recent experiences of miscarriages, death of a loved one, births, changes in work, home, or overall life situations. When asked to describe the most helpful aspect of the hospitalization, family members identified their greatest support came from friends and family. They also indicated the staff, particularly the nurses and physiotherapists were the most supportive, offering comfort and assurance. Family identified faith in God and having hope, keeping busy as among the most helpful strategies for them to deal with the unexpected hospitalization of their loved one. Knowing the plan and being able to visit and be close were also identified as helpful. Priority needs among families were similar to those of ICU patients; information, support, comfort, assurance, and proximity (Davidson, Jones, & Bienvenu, 2012; Foss & Tenholder, 1993; Keenan & Joseph, 2010; Verharen et al., 2015).

Five common themes were identified; emotions, physical discomfort, disruption, hospital factors, and communication elicited from the survey responses when asked about difficulties experienced. Many family members identified struggling with their emotions, including feeling angry at their loved one, followed by feeling guilty for their negative feelings when asked to describe the most difficult aspect of having a loved one in hospital. They found it difficult to watch the patient in the bed and watching them in pain or suffering was mentioned

by many respondents. Fear of the unknown, feeling helpless and guilty for leaving, and having flashbacks about the accident also caused emotional distress. Others found disruption to their routine, from lack of sleep to the logistics of arranging childcare, transportation to and from the hospital, change in the foods they were eating, or not eating, taking time off work and the financial impact incurred as a result was identified. The hospital environment, size, noise levels, lack of privacy, lack of bathrooms and places to sit and secure belongings for visitors was also acknowledged. Frustration with delays in surgeries, discharges deemed to be too soon, and inconsistent care from staff led some to lose trust in the system. Finally, communication was the most frequently mentioned stressor. Mixed messages and lack of information in both written and verbal form was mentioned, as was the lack of access to the physicians.

The main study finding from the quantitative data identified that family of adult trauma survivors admitted to acute care environments demonstrated psychosocial impacts like those report in studies of family with loved ones in ICU, supporting the hypothesis tested. All were unprepared for the hospitalization, and the disruption this placed on their lives. High rates of anxiety and acute stress were found among respondents, similar to other ICU specific studies. This was supported by the qualitative responses indicating the most helpful and most difficult aspects of having a loved one admitted after trauma injury. Anxiety and depression levels among this cohort were higher than findings by Fumis, et al (2015), who identified the prevalence of anxiety and depression among 34% and 17% of Brazilian families with loved ones in ICU (Fumis, Ranzani, Faria, & Schettino, 2015; Hwang et al., 2014; Kulkarni et al., 2011). Family members did not identify significant symptoms of depression; however, most completed

the surveys within the first 3-10 days following the traumatic event and may not have fully considered the long-term impact on their lives.

Higher scores on the CISS-SSC generally indicate higher levels of coping and the family of acute care patients in this study scored in the low to medium range, indicating they were coping, but not at a high level. Most respondents used task-focused strategies to cope, followed by emotional and avoidance strategies. This was supported by the open-ended questions, where family identified issues related to finding parking, visiting, caring for self and others as priorities.

Family members did not indicate a high level of satisfaction with care. They were generally satisfied with the care provided, but few rated the care as excellent or exceptional. As noted in a pilot study to assess family satisfaction in ICU, families often assess the environment as part of satisfaction with care, and the comfort subscale addresses this domain (Roberti & Fitzpatrick, 2010). This study suggests family were less satisfied with care related to comfort. Family members mentioned in the open-ended questions that the lack of bathrooms, chairs, and places to put belongings are aspects of the experience that was most difficult.

Similar to previous studies, family members reported spending hours either in the patient's room, or the waiting room, while the care team attended to the patient. Inconsistently, nursing staff provided support and information to the family members. Given the multiple demands placed on staff, family members are often left to navigate or interpret the complexities of their reality on their own. Many reported frustrations with the lack of communication, although a few mentioned the lack of staff, and expressed support and compassion for the hospital care providers. Consistent with previous studies, family in this



study indicated being unfamiliar with the city, overwhelmed by the size and complexity of the trauma center, and reported being away from family support systems (Boettcher & Schiller, 1990). Often the care of the trauma patient may include multiple surgeries, which may take place several days apart, and was a source of frustration for family members who participated in this study. The trauma patient's surgery delays with little or no warning caused anxiety and led family members to have less trust in the care team.

**Research Question 2:**

*Do the Psychosocial and Functional Variables of Stress, Anxiety and Depression Predict Coping?*

**Research Question 4:**

*Controlling for Stress, Anxiety and Depression, Do Demographic Factors Predict Coping?*

This study is the first to show the relationship between anxiety and coping among family of acute care trauma patients. Family members reported high levels of acute stress symptoms, that were positively correlated with high levels of anxiety and depression. Anxiety is the only variable to have a statistically significant ability predict coping, according to findings of this study. Other demographic factors, such as age, gender, number of dependents and previous experience with trauma contribute minimally to predict who family members cope. Older (over 51) and female family members had higher levels of anxiety and lower levels of coping. They also had more dependents, and more experiences with trauma than other groups. These family members may be juggling older and younger dependents, such as parents and children, while also working and providing care to the patient. Demographic characteristics such as the relationship to the patient, marital status of the family member, the family member's ethnic

group, the number of injuries the patient sustained, and whether the family member lived in urban, rural or northern settings did not have a statistically significant influence on coping.

Research focusing on the impact of trauma on family of acute care survivors is limited; however, this study has corroborated findings from others, supporting the hypothesis that family of acute care have similar responses to those in critical care environments. It is not surprising family members are acutely distressed by the unexpected hospitalization of a loved one following trauma. Although the patient is not in the ICU, the hospital environment is unfamiliar to most, and can be a frightening and overwhelming place. While not the focus of this study, incidental findings revealed high symptoms of stress, including symptoms of hyperarousal, intrusion and avoidance that have been shown by others to predict post-traumatic stress among family members.

***Research Question 3:***

*What is the Influence of Satisfaction with Care on Stress, Anxiety and Depression?*

***Research Question 5:***

*Is there a Relationship between Coping and Satisfaction with Care?*

Satisfaction with care did not have a statistically significant influence on stress, anxiety and depression, and satisfaction with care did not correlate with coping. However, the more trauma experiences a person had, the lower their satisfaction with care, and the fewer experiences correlated with higher satisfaction with care. This supports the Stress, Coping and Appraisal Theory (Lazarus & Folkman, 1984) which acknowledges how one's appraisal of the situation impacts the response. If there are low expectations because family do not know what

to expect, they will presumably be satisfied, but if they have had previous experience with trauma, they may have higher expectations.

### **Discussion**

Lazarus & Folkman (1984) suggest a person's environment and how they cognitively appraise a situation impacts their response to it (Lazarus & Folkman, 1984). This was demonstrated by family members self-reported increased stress, anxiety, and depression scores, and their moderate levels of coping and satisfaction with care. Results support prior studies that identified statistically significant relationships between the a variety of psychosocial variables, such as acute stress, anxiety, depression and coping among ICU families (Kulkarni et al., 2011; McKibben, Bresnick, Wiechman Askay, & Fauerbach, 2007; Petrinec et al., 2015; Pillai et al., 2010; Rukholm, Bailey, Coutu-Wakulczyk, & Bailey, 1991; Sander, Cole, Struchen, & Atchison, 2007; Sottile et al., 2016).

This study showed family members of acute trauma patients were distressed and anxious because of the hospitalization of their loved one. Despite personal distress, family members enthusiastically responded to the invitation to participate. The staff who work with this population daily understood the relevance of the study and recognized the dearth of research to support the work they do to support families. Despite challenges related to low staffing and high nurse: patient ratios, nurses engaged family members and encouraged them to meet with the researcher. This adds validity to the need for more research to support those in acute care hospital settings.

## Limitations

This study has several limitations. It is a single-centre, convenience study. Comparing multiple centers in a variety of cities and countries would help improve generalizability because of variability between hospitals, countries, health systems, and care models. Family members were invited to participate by nursing staff and relied heavily on staff members' commitment to extending invitations. As the study took place over the summer, 3 months before an election, where healthcare was frequently discussed in the media, which may have contributed to higher levels of stress and anxiety among family members. Additionally, during the summer regular, experienced staff were away on vacation, leading to variability in staffing levels, leading to nursing staff being extremely busy. The dependence on staff to invite family added burden and extra work for staff. Family members were invited to participate by nursing staff and recruitment relied heavily on staff members' commitment to extending invitations. At times, staff excluded family members who they deemed "too overwhelmed" or "not appropriate", which may have eliminated potential participants. On the other hand, some family members were invited to participate, and met with the researcher, but did not meet the inclusion criteria, despite being interested in sharing their story. Data were collected after the patient was in hospital for a minimum of 3 days. As patients are frequently discharged quickly, many potential respondents were missed and anecdotally, staff identified this as a missed opportunity, as they often received negative feedback from family members who expressed concern about the rapid discharge rate. Future studies should consider reducing the length of hospitalization criteria to 48 hours for acute care populations. Despite this, staff were exceptionally motivated, and enthusiastically invited enough family members to have a sample size adequate to satisfy the

power analysis conducted prior to initiation. However, a consistent paid staff person to recruit participants would help offload the burden from staff, although the logistics of this is complicated and would likely lead to recruitment taking place during the weekday, missing evening, night and weekend shifts.

The survey was self-reported, and only conducted once. The voluntary nature of this study, and the expectation that only one person per family participate may have led to bias, as the designated respondent may not have been the person most responsible or closest to the patient. A longitudinal study would help to identify any changes over time, particularly a follow-up of study participants after 30 days would allow a determination of the risk for post-traumatic stress disorder.

This study did not identify severity of injury, as there is not a consistent tool for acute care patients, so it is unknown if the patient's injuries influenced the family response. These findings will need to be replicated at several points across the care trajectory, in multi-centers, multiple countries, and in different acute care settings. This study did not measure prior psychological symptoms of family members, although it did measure previous trauma experiences. Physiologic assessments, such as blood pressure, or drawing cortisol levels may add to an understanding of the overall response to stress experienced by family.

### **Future Research**

Future studies should consider exploring family members understanding of the acute care setting and comparing this to the family of ICU patients, to determine if family are able to discern the difference between settings under times of stress. Future research would benefit from designated staff specifically hired to recruit participant. Future studies should consider

inviting more than one family member, as each person's response within the family may be different. Additionally, this study only examined family of trauma patients. Assessing family impacted by other unexpected hospitalizations, such as cardiac events, brain injuries, spinal cord injured, and sudden medical conditions would validate the need for a global approach to caring for acute care family.

A longitudinal study to determine the length of symptomology would further the understanding of family members' response to unexpected hospitalization of a loved one in acute care, as stress scores  $\geq 33$  (IES-R) have been shown to predict symptoms of PTSD among family members (Gries et al., 2010; McKibben et al., 2007; Paparrigopoulos et al., 2006; Pillai et al., 2010; van den Born-van Zanten, Dongelmans, Dettling-Ihnenfeldt, Vink, & van der Schaaf, 2016). An understanding of the long-term impact of trauma will allow clinicians to anticipate and reduce the negative effects of trauma on family members. Furthermore, a longitudinal study would identify if the symptoms exhibited during the early days of the trauma event were sustained, and this would further identify what types of supports, and at what point in time these supports need to be made available for family members.

### **Dissemination**

The results of this study must be shared with the family members who participated in completing the surveys. Staff who were involved in recruitment and caring for the patients and family of trauma survivors will also benefit from hearing the results, as this may influence the care provided in the future. Three manuscripts will be submitted for publication in order to disseminate the findings to add to the state of the nursing science. There is abundant data to support future publications. Additionally, presentation at local, national and international

conferences must be considered, as this study is the first to offer a comprehensive overview of the impact of trauma on family members. There is ample evidence to support the development of practice guidelines, initiatives to support family members, education of staff and family members about the roles, expectations and needs when a loved one is admitted to acute care. Practice guidelines should include strategies for all members of the interdisciplinary and interprofessional team, and provide clear, prescriptive guidance for consistent communication with the patient and family members. Policy makers and architects and designers can use the results of this study to support physical environments that are conducive to the comfort of family members.

### **Conclusion**

Family members of trauma patients admitted to acute care have high levels of stress, anxiety, depression and utilize emotional coping strategies to deal with the unexpected hospitalization of their loved one. Being over 50, female, having many dependents, and previous trauma experiences contribute to high levels of anxiety, and lower coping. Many demographics such as marital status, number of injuries the patient sustained, where family members lived, and ethnic background was not statistically significant, however, high levels of stress and anxiety were reported.

This is the first study to make the distinction between the critical care and acute care environments and offers insight into the impact of trauma on family members who have a loved one admitted to acute care. The study confirmed high prevalence of stress, anxiety and difficulty coping among acute care trauma family members, at levels similar to family of critical care patients, suggesting family members do not understand the differences between

environments, and demonstrate needs similar to those with loved ones in ICU. These findings will be used to identify relationships between variables of stress, anxiety, depression and coping to allow for the development of interventions and strategies to mitigate any negative consequences on the patient, staff and family. The need for more research into the experience of family in acute care is supported, as there is now a preliminary understanding of the challenges faced by family members. In the meantime, the findings will help policy makers, clinicians and caregivers to adopt the strategies developed to support family of ICU patients. Initiatives such as diaries at the bedside, open, flexible visitation, patient navigators and liaisons could be incorporated into daily practice. Strategies designed specifically for patients and family in acute care, along with practice guidelines should be developed, and professionals such as clinical nurse specialists, nurse practitioners, social workers, psychologists, and trauma councilors who recognize the need to care for trauma patients and their families should be funded and added to care teams. The opportunity to mitigate negative consequences, meet the needs of family members, and improve the safety, quality, and experience for the patient, staff and family are supported by the results of this study.



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## Appendix A

### REB Approval from University of Wisconsin-Milwaukee



Leah Stoiber  
IRB Administrator  
Institutional Review Board  
Engelmann 270  
P. O. Box 413  
Milwaukee, WI 53201-0413  
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#### New Study - Notice of IRB Expedited Approval

**Date:** February 25, 2019

**To:** Akke Talsma, PhD  
**Dept:** Nursing

**CC:** Ashalata Pereira

**IRB#:** 19.A.191

**Title:** The Relationship Between Stress, Anxiety & Depression on Coping & Satisfaction Among Family Members of Adult Acute Care Trauma Patients

After review of your research protocol by the University of Wisconsin – Milwaukee Institutional Review Board, your protocol has been approved as minimal risk Expedited under **Category 7** as governed by 45 CFR 46.110.

This protocol has been approved on **February 25, 2019** for one year. IRB approval will expire on **February 24, 2020**. Before the expiration date, you will receive an email notifying you how to keep the study open or close it.

This study may be selected for a post approval review by the IRB. The review will include an in person meeting with members of the IRB to verify that study activities are consistent with the approved protocol and to review signed consent forms and other study related records.

Any proposed changes to the protocol must be reviewed by the IRB before implementation, unless the change is specifically necessary to eliminate apparent immediate hazards to the subjects. It is the principal investigator's responsibility to adhere to the policies and guidelines set forth by the UWM IRB, maintain proper documentation of study records and promptly report to the IRB any adverse events which require reporting. The principal investigator is also responsible for ensuring that all study staff receive appropriate training in the ethical guidelines of conducting human subjects research.

As Principal Investigator, it is also your responsibility to adhere to UWM and UW System Policies, and any applicable state and federal laws governing activities which are independent of IRB review/approval (e.g., [FERPA](#), [Radiation Safety](#), [UWM Data Security](#), [UW System policy on Prizes, Awards and Gifts](#), state gambling laws, etc.). When conducting research at institutions outside of UWM, be sure to obtain permission and/or approval as required by their policies.

Contact the IRB office if you have any further questions. Thank you for your cooperation and best wishes for a successful project.

Respectfully,

Leah Stoiber  
IRB Administrator

## Appendix B

### Approval University of Manitoba



Research Ethics  
and Compliance

**Human Ethics**  
208-194 Dafoe Road  
Winnipeg, MB  
Canada R3T 2N2  
Phone +204-474-7122  
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#### PROTOCOL APPROVAL

**TO:** Asha Pereira  
Michelle Lobchuk  
Principal Investigators

**FROM:** Joseph Gordon, Chair  
Education/Nursing Research Ethics Board (ENREB)

**Re:** Protocol #E2019:007 (HS22578)  
The Impact of Trauma on Family of Adult Care Trauma Patients

**Effective:** May 27, 2019

**Expiry:** May 27, 2020

**Education/Nursing Research Ethics Board (ENREB)** has reviewed and approved the above research. ENREB is constituted and operates in accordance with the current *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*.

This approval is subject to the following conditions:

1. Approval is granted for the research and purposes described in the application only.
2. Any modification to the research or research materials must be submitted to ENREB for approval before implementation.
3. Any deviations to the research or adverse events must be submitted to ENREB as soon as possible.
4. This approval is valid for one year only and a Renewal Request must be submitted and approved by the above expiry date.
5. A Study Closure form must be submitted to ENREB when the research is complete or terminated.
6. The University of Manitoba may request to review research documentation from this project to demonstrate compliance with this approved protocol and the University of Manitoba *Ethics of Research Involving Humans*.

**Funded Protocols:**

- Please mail/e-mail a copy of this Approval, identifying the related UM Project Number, to the Research Grants Officer in ORS.

## Appendix C

### WRHA Approval



Winnipeg Regional Health Authority  
Office régional de la santé de Winnipeg  
Caring for Health À l'écoute de notre santé

George and Fay Yee Centre for Healthcare Innovation  
4<sup>th</sup> Floor, Chown Building  
753 McDermot Avenue, Winnipeg, Manitoba, R3E 0T6

May 27, 2019

Ms. Ashalata Pereira  
Registered Nurse/Doctorate Student, University of Wisconsin-Milwaukee  
860 Elm Street  
Winnipeg, MB R3M 3P5

Dear Ms. Pereira:

**Re: Letter of Approval – “The Impact of Trauma Family Members of Adult Acute Care Trauma Patients”**

**Reference No: RAAC 2019-026**

**UofM REB: E2019:007(HS22578)**

**We are pleased to inform you that your request for the above-named study has been approved by the Winnipeg Regional Health Authority (WRHA) Research Access and Approval Committee (RAAC).**

Access and approval are pending confirmation that the following conditions are met or agreed to:

1. All U of M PHIA Pledges of Confidentiality for research team are up-to-date and current (completed every three years);
2. No Personal or Personal Health Information (PHI) will be disclosed from the WRHA during the undertaking of the above-named study;
3. Submit any significant changes in your proposal prior to implementation, or any significant changes during the course of the study;
4. You agree to be accountable for the appropriate storage, disposal and/or destruction of material;
5. Appropriately acknowledge the role of the WRHA and/or affiliated organizations in any peer-reviewed publications resulting from this study;
6. Submit a summary of the final results of the study to the WRHA and provide the RAAC with a copy of any publications arising from the study;
7. Give the WRHA (facility, program, and RAAC) at least thirty (30) calendar days prior notice (including a draft document) for every intended publication in learned journals or thesis presentation; and at least ten (10) calendar days prior notice is required for every poster or oral presentation.

Thank you for selecting the Winnipeg Regional Health Authority as the site to conduct your research. Please let us know should you encounter any difficulties during the course of your study.

We extend best wishes for successful completion of your study.

Yours sincerely,

A handwritten signature in black ink, appearing to read "P. Beaudin".

Dr. Paul Beaudin, MSc-SLP, PhD  
Researcher, Evaluation Platform, George and Fay Yee Centre for Healthcare Innovation  
Chair, Research Access and Approval Committee, WRHA

cc. Mr. Réal Cloutier, President and CEO, WRHA  
Ms. Christina Von Schindler, Chief Privacy Officer, WRHA  
Dr. John Arnett, Chair, HREB

## Appendix D

### Health Sciences Centre Approval



**Health Sciences Centre**  
Winnipeg

A Shared Health Facility

Regional Director,  
Research Administration  
MS750 – 820 Sherbrook Street  
Winnipeg, MB Canada  
R3A 1R9  
Dial Direct 204-787-4831  
Fax 204-787-4547

May 28, 2019

Asha Pereira  
Principal Investigator  
860 Elm Street  
Winnipeg, MB R3M 3P5

Dear Asha Pereira

**RE: THE RELATIONSHIP BETWEEN STRESS, ANXIETY & DEPRESSION ON COPING  
& SATISFACTION AMONG FAMILY MEMBERS OF ADULT ACUTE CARE TRAUMA  
PATIENTS.**

**ETHICS #: E2019:007 RIC #: RI2019:027**

The above-named protocol, has been evaluated and approved by the HSC Research Impact Committee.

The Department of Research wishes you much success with your study.

Sincerely

Karen Shaw-Allan  
Research Protocol Officer | Research | HSC Winnipeg  
Shared Health

cc: Director of Research  
Ancillary Services, Finance Department

820 Sherbrook Street, Winnipeg, Manitoba, Canada R3A 1R9 | Ph 204.787.3661 | Ph 1.877.499.8774 | [www.hsc.mb.ca](http://www.hsc.mb.ca)



UNIVERSITY  
of MANITOBA | Rady Faculty of  
Health Sciences



Shared health  
Soins communs  
Manitoba



## Appendix E

### Approval for use of Impact of Events Scale-Revised

Mail - Ashalata Ann Pereira - Outlook - Google Chrome


outlook.office.com/mail/deeplink?version=2020031603.23&popoutv2=1&leanbootstrap=1


Reply | Delete | Junk | Block | ...

**Re: Impact of Event-Revised Scale**

You replied on Mon 2018-11-19 3:39 PM

**WD** Weiss, Daniel <Daniel.Weiss@ucsf.edu>  
Mon 2018-11-19 3:38 PM  
Ashalata Ann Pereira ✓

 IES-R Use Issues Ver\_n09.docx  
36 KB

 IES-R Form and Scoring.docx  
18 KB

2 attachments (54 KB) Download all Save all to OneDrive - UWM

see attached files

---

Daniel S. Weiss, Ph.D.  
Editor in Chief Emeritus, *Journal of Traumatic Stress*  
Professor of Medical Psychology  
Department of Psychiatry  
University of California San Francisco  
San Francisco, CA 94143-0984  
P: [415 476 7557](tel:4154767557)  
F: [415 476 7552](tel:4154767552)  
Mail Code: UCSF Box 0984-F

=====

**CONFIDENTIALITY NOTICE**  
This e-mail and any files or previous e-mail messages transmitted with it, may contain confidential information that is privileged or otherwise exempt from disclosure under applicable law. If you are not the intended addressee, nor authorized to receive for the intended addressee, you are hereby notified that you may not use, copy, disclose or distribute to anyone the information contained in or attached to this message. If you received this message in error, please immediately advise [daniel.weiss@ucsf.edu](mailto:daniel.weiss@ucsf.edu) by reply email and delete this message, its attachments and any copies. Thank you.

## Appendix F

### Approval Hospital Anxiety and Depression Scale



GL Assessment Ltd  
Hospital Anxiety and Depression Scale© (HADS)  
USER AGREEMENT

Please Note that the Terms and Conditions of this agreement are non-negotiable. Modifications to the agreement will not be accepted unless approved in writing by GL Assessment.

Agreement Dated : May 27, 2019.....

**1. LICENSEE'S NAME** *Please type all details and send back as Word doc attachment*

LICENSEE : : ...Asha Pereira .....(note 1)

Address : 860 Elm Street.....

Winnipeg, Manitoba .....

Country : Canada R3M 3P5.....

VAT Number (if applicable) : .....(note 2)

Contact Name if Different from above:

Name .....

Title .....

Phone ..... Fax .....

.....

Email : apereira@uwm.edu.....

Invoice Address if Different from above: (credit account form is required for invoicing – note 3)

.....

.....

.....

For Credit Card Payments please phone (UK) 0330 1235375 (International) +44 1793 516316

GL ACCOUNT NUMBER – [.....]

GL READER CODE (Mandatory- note 4).....

GL QUALIFICATION CODE (Mandatory – note 4).....

*For student licensees the following are also required- (note 5):*

University Course and supervisor's name : Dissertator 997- Dr. AkkeNeel Talsma .....

.....

Supervisor's GL Reader Code.....


Supervisor's GL Qualification Code.....

**2. CONTEXT OF HADS USE**

- **PROJECT (note 6):** .....The Impact of Trauma on Family of Adult Acute Care Trauma Patients.....

## Appendix G

### Approval Coping Inventory in Stressful Situations



3770 Victoria Park Ave.  
Toronto, ON M2H 3M6  
Tel: (416) 492-2627, 1-800-268-6011  
Fax: (416) 492-3343, 1-888-540-4484  
Email: customerservice@mhs.com  
www.mhs.com

**Canadian Banking Info:**  
Beneficiary Bank: RBC Royal Bank  
Bank Address: 200 Bay Street, Main Floor, Toronto, ON M5J 2J5  
Account Name/Beneficiary: Multi-Health Systems Inc.  
Bank Account#: 237 648 1  
Branch#/Transit: 00002 Bank 003  
Swift Code: ROYCCAT23

**INVOICE**

Invoice No. I056765  
Date June 06, 2019  
Customer ID 228358  
Order No. 064990  
Shipper ID S874125  
Order Type Sales Order  
Terms Credit Card Payment

INVOICE ADDRESS	DELIVERY ADDRESS
Asha Pereira	Asha Pereira

Notes: Page 1 of 1

ORDER DATE	DELIVERY METHOD	ENTERED BY	CUSTOMER P.O. NO.
June 05, 2019	UPS CA Ground	LISA.CRANE	

PART NO.	DESCRIPTION	QTY ORDERED	QTY SHIPPED	PRICE	DISC %	NET PRICE
CI20P1	CISS:SSC QuikScore Forms (25/pk)	6	4	80.00	30.00	224.00
CI3P0D	CISS Manual (Adult/Adolescent)	1	1	76.00	30.00	53.20

FREIGHT	Shipping and Handling	27.80
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This is your proof of purchase, please retain for your records.

	Sales Total	277.20
	Misc. Charges - see above	27.80
GST 15.25	Sales & Use Tax	15.25
	Less Paid Amount	320.25
	<b>TOTAL</b> CDN\$	<b>0.00</b>

**Paid by credit card.**

Please note our GST #10380 0413 RT

Detach this stub and enclose with your remittance. Keep the above portion for your records.



3770 Victoria Park Ave.  
Toronto, ON M2H 3M6  
Tel: (416) 492-2627, 1-800-268-6011  
Fax: (416) 492-3343, 1-888-540-4484  
Email: customerservice@mhs.com  
www.mhs.com

**Canadian Banking Info:**  
Beneficiary Bank: RBC Royal Bank  
Bank Address: 200 Bay Street, Main Floor, Toronto, ON M5J 2J5  
Account Name/Beneficiary: Multi-Health Systems Inc.  
Bank Account#: 237 648 1  
Branch#/Transit: 00002 Bank 003  
Swift Code: ROYCCAT23

**INVOICE**

Invoice No. I056765  
Date June 06, 2019  
Customer ID 228358  
Order No. 064990  
Shipper ID S874125  
Terms Credit Card Payment

<p><b>Remit To:</b> 3770 Victoria Park Ave. Toronto, ON M2H 3M6 Tel: (416) 492-2627, 1-800-268-6011</p>	<p><b>Payment From:</b> Asha Pereira 860 Elm Street Winnipeg, MB R3M 3P5 Canada</p>	<p><b>AMOUNT DUE</b> CDN\$ <b>0.00</b></p> <p><b>AMOUNT PAID</b> CDN\$ <span style="border: 1px solid black; display: inline-block; width: 50px; height: 15px;"></span></p>
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**Paid by credit card.**

Please note our GST #10380 0413 RT

## Appendix H

### Demographic Questionnaire

Impact of Trauma

Subject no. \_\_\_\_\_

\*Please circle number item that is applicable to **THE PATIENT**

1. Approximate number of days since accident
  - 01 03-10 days
  - 02 11-20 days
  - 03 21-30 days
  - 04 More than 30 days
  - 05 Prefer not to answer
  
2. Age
  - 01 18- 30 years of age
  - 02 31- 40 years of age
  - 03 41- 50 years of age
  - 04 51-60 years of age
  - 05 >60 years of age
  - 06 Prefer not to identify
  
3. Gender
  - 01 Female
  - 02 Male
  - 03 Prefer not to identify
  
4. How was the patient injured?
  - 01 Car crash
  - 02 ATV/off-road vehicle crash
  - 03 Pedestrian/bicycle hit by a motor vehicle
  - 04 Bicycle crash
  - 05 Fall
  - 06 Assault
  - 07 Burn
  - 08 Self-harm
  - 09 Other (please specify) \_\_\_\_\_
  - 10 Prefer not to identify
  
5. Type of injury (please circle/list all that apply)
  - 01 Head injury
  - 02 Neck or Spinal Cord
  - 03 Broken bone(s) \_\_\_\_\_
  - 04 Burn/Thermal injury
  - 05 Internal injuries (e.g. spleen, liver, bladder)\_\_\_\_\_
  - 06 Other \_\_\_\_\_
  - 07 Prefer not to identify

\*\* Please circle numbered item that is applicable **TO YOU**.

1. Age
  - 01 18- 30 years of age
  - 02 31- 40 years of age
  - 03 41- 50 years of age
  - 04 51-60 years of age
  - 05 >60 years of age
  - 06 Prefer not to identify
  
2. Gender
  - 01 Female
  - 02 Male
  - 03 Prefer not to identify
  
3. Marital Status
  - 01 Never married
  - 02 Legally Married/Common-Law
  - 03 Separated (but not divorced)
  - 04 Divorced
  - 05 Widowed
  - 06 Prefer not to identify
  
4. Language most commonly spoken at home
  - 01 English
  - 02 French
  - 03 Other\_\_\_\_\_ 04 Prefer not to identify
  
5. What is your ethnic background (select all that apply)
  - 01 White/Caucasian
  - 02 Aboriginal- First Nation, Metis, Inuk
  - 03 Asian/ Pacific Islander
  - 04 Black/Caribbean/African Canadian
  - 05 Hispanic/Latin Canadian
  - 06 Other\_\_\_\_\_ 07 Prefer not to identify
  
6. Where do you live?
  - 01 Urban
  - 02 Rural
  - 03 Northern
  - 04 Other\_\_\_\_\_

7. You are the patient's....
- |    |                               |    |             |    |         |
|----|-------------------------------|----|-------------|----|---------|
| 01 | Wife                          | 02 | Husband     | 03 | Partner |
| 04 | Mother                        | 05 | Grandmother |    |         |
| 06 | Father                        | 07 | Grandfather |    |         |
| 08 | Sister                        | 09 | Brother     |    |         |
| 10 | Son                           | 11 | Daughter    |    |         |
| 12 | Other (Please specify): _____ |    |             |    |         |

8. Your years of education
- |    |  |
|----|--|
| 01 | 8 <sup>th</sup> grade or less                          |
| 02 | Some high school, but did not graduate                 |
| 03 | High school or high school equivalency                 |
| 04 | Some college/university, did not graduate              |
| 05 | Non-University Certificate/Diploma                     |
| 06 | College/University degree                              |
| 07 | Post-graduate degree or professional designation _____ |
| 08 | Prefer not to identify                                 |

9. Age of your dependents (the people you are responsible for)
- |    |             |                                  |
|----|-------------|----------------------------------|
| 01 | <1-5 years  | How many in this category? _____ |
| 02 | 6-15 years  | How many in this category? _____ |
| 03 | 16-20 years | How many in this category? _____ |
| 04 | 21-50 years | How many in this category? _____ |
| 05 | >50 years   | How many in this category? _____ |
| 06 | None        |                                  |

10. On average, how often did you contact the patient before their injury?
- |    |                       |
|----|-----------------------|
| 01 | Daily                 |
| 02 | More than once a week |
| 03 | Weekly                |
| 04 | Monthly               |
| 05 | Yearly                |
| 06 | Less than once a year |

11. How often do you visit in hospital?
- |    |                    |
|----|--------------------|
| 01 | More than once/day |
| 02 | Daily              |
| 03 | More than 2/week   |
| 04 | Weekly             |
| 05 | More than 2/month  |
| 06 | Other _____        |

12. Prior to this event, how often have you experienced the hospitalization of a close family member?
- 01 Never
  - 02 1-5 times
  - 03 >5 times

**For the following questions, please use the back of this page if you require more space.**

13. Have there been any big family or life events (e.g. Change in job status, illness, death, or birth of a family member etc.) in the past six months before the accident?

---

---

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---

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14. What has been most difficult for you since your family member was injured?

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---

---

15. What has been most helpful for you since your family member was injured?

---

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---

16. Is there anything you would like me to know about this experience?

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---

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## Appendix I

### Approval from Chief Nursing Officer



**Health Sciences Centre**  
Winnipeg

Surgery Program

**Lee Heinrichs**  
Director of Patient Services  
Phone 204-612-7795  
Fax 204-787-7034  
ldheinrichs@hsc.mb.ca

January 14, 2019

To Whom It May Concern:

I am pleased to write this letter in support of Asha Pereira for her proposed dissertation project to study the Relationship Between Stress, Anxiety & Depression on Coping & Satisfaction Among Family Members of Adult Acute Care Trauma Patients. There has been much written in the literature about the impact of admission to hospital on family members of critical care patients, and many supports have been implemented to help meet the family's needs. However, there is little evidence about the impact on family when the patient is admitted to a general or acute care ward following a traumatic injury, and a lack of understanding about the supports they need. As this study is voluntary and will focus upon family members who are informed and able to give consent, it is my feeling that this study will not distress or cause undue burden upon the family members who agree to participate.

Developing an understanding of the impact of trauma on family members will allow for the development of supports to optimize the experience of the family members, and the patients who rely on their family, particularly after discharge. This will also support the healthcare team, and nursing, to practice at the highest level of the profession by helping to support a trusting, collaborative and safe environment for all involved. Finally, this study aligns with our vision of providing the best possible hospital experience for our patients, and their families.

Therefore, I would like to offer my support for this study and wish Asha well in this endeavour.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Lee Heinrichs', with a large, stylized flourish.

Lee Heinrichs  
Director of Patient Services  
Surgery Program, GE706

820 Sherbrook Street, Winnipeg MB R3A 1R9 / Phone 204-787-3661 / Toll free 1-877-499-8774

[www.hsc.mb.ca](http://www.hsc.mb.ca)

An operating  
division of  **Winnipeg Regional  
Health Authority** Office régional de la  
santé de Winnipeg  
*Caring for Health À l'écoute de notre santé*

Affiliated  
with the  **UNIVERSITY  
OF MANITOBA**



## Appendix J

### Approval of Director of Surgery



**Health Sciences Centre**  
Winnipeg

---

November 23, 2018

To Whom It May Concern:

I am pleased to write this letter in support of Asha Pereira for her proposed dissertation project to study the Relationship Between Stress, Anxiety & Depression on Coping & Satisfaction Among Family Members of Adult Acute Care Trauma Patients.

There has been much written in the literature about the impact of admission to hospital on family members of critical care patients, and many supports have been implemented to help meet the family's needs. However, there is little evidence about the impact on family when the patient is admitted to a general or acute care ward following a traumatic injury, and a lack of understanding about the supports they need.

Developing an understanding of the impact of trauma on family members will allow for the development of supports to optimize the experience of the family members, and the patients who rely on their family, particularly after discharge.

This study aligns with our vision of providing the best possible hospital experience for our patients, and their families. Therefore, I would like to offer my support for this study and wish Asha well in this endeavor.

Sincerely,  
Kathy Doerksen  
Chief Nursing Officer, Health Sciences Centre  
JBRC#709B  
820 Sherbrook Street  
Winnipeg, MB  
R3A 1R9

## Curriculum Vitae

**Asha(lata) A. Pereira, RN, PhD, CNCC(C)**

---

### ACADEMIC TRAINING

---

#### PhD

2020

*Nursing, University of Wisconsin, Milwaukee*

#### Dissertation focus:

*The Impact of Trauma on Family Members of Adult Acute Care Trauma Patients.*

Primary Supervisor:

Dr. AkkeNeel Talsma PhD, RN, FAAN

#### Master of Nursing

2008

*University of Manitoba*

#### Thesis:

*The Effect of Shift Work on Critical Care Nurses' Sleep/Wake Patterns.*

Advisor:

Dr. Diana McMillan RN, PhD

#### Bachelor of Nursing -Post-R.N.

1998

*University of Manitoba*

#### Diploma Intensive Care Nursing Collaborative Program

1991

*St. Boniface General Hospital/University of Manitoba*

#### Diploma of Nursing

1989

*St. Boniface Hospital School of Nursing*

#### Bachelor of Arts, Double Major: Psychology and Sociology

1986

*University of Winnipeg*

### CLINICAL BACKGROUND

---

#### Professional Development & Advocacy Advisor

2017 – 2018

*Association of Registered Nurses of Manitoba*

Planned and organized professional development programs for nurses

Advised advocacy activities on behalf of Manitoba nurses

**Lead**, Emerging Leaders Network, Professional Development and Nursing Specialties Committees

Authored harm reduction and advocacy documents utilized for nurse education programs.

#### Clinical Nurse Specialist

2006 –2017

*Health Sciences Centre*

Subject matter expert on trauma, pain management and surgical areas. Mentored and taught individuals and groups in the clinical area (physicians, nurses and interdisciplinary team members). Led accreditation preparation for Surgery Program. Authored guidelines and developed education curriculum to improve patient care. Conducted clinical research. Shared best practices and research at domestic and international conferences as a speaker. Liaised between the health care team, patients and families to optimize outcomes. Precepted graduate students from University of Manitoba and University of Victoria.

2008–2010/2012–2017

**Trauma**

## CLINICAL BACKGROUND (CONT.)

---

2006–2008

### Acute Pain Service

#### Planned and led over 20 major projects, examples include:

Development and implementation of **standardized trauma orders** and revised Trauma processes

- Reduce physician calls by ~60%, decreased patient wait times, improved patient outcomes, streamlined nursing assessments and appropriate clinical escalations.
- Reduced length of stay by 3 days/patient (~\$1.6 million in yearly savings).

#### Standardized care for patients with **Spinal Cord Injury**.

- Led the preparation of the acute care team related to spinal cord injury for accreditation (obtained the highest scores on audits).
- Led a Lean management project with an **estimated cost savings of \$1 million**.
- Researched and developed written curriculum and video guidelines for care of equipment and patients with spinal braces to improve discharge success. Collaborated with the WRHA Home Care program.

#### Led standardization of care implementing **Enhanced Recovery After Surgery (ERAS)** strategies

- Resulting in a reduced the length of patient stays from **12 days to 3-4 days**.

#### Standardized **Sepsis Care**

- Reduced admissions to ICU, length of stay and physician calls. Advocated for, developed, and launched the **Alcohol Withdrawal Protocol**. Partnered with a multidisciplinary team at Riverview Health Centre and WRHA health care services to improve rehabilitation of **traumatic brain injury patients**
- Reduced the length of stay from years to months  
Initiated a **Whiteboard project** using Lean management strategies that expanded to all surgical areas.
- Enhanced team communication and patient expectations.  
Planned and implemented equipment changes throughout HSC.  
Partnered with Infection Prevention and Control during the VRE outbreak and led strategies to reduce virus spread.

### Director, Corporate Projects

2010–2012

#### *Health Sciences Centre*

Reporting to the Chief Nursing Officer, directed hospital-wide nursing initiatives such as equipment and program rollouts. Created project plans, supervised multidisciplinary teams, and oversaw all phases of projects including research, planning, implementation, evaluation and continuous improvements to meet deadlines and quality goals.

#### **Major projects:**

Conducted research and wrote a briefing note to successfully secure funding and approval for the Cochlear Implant Program at Children's Hospital. Chaired the Staffing Rotation Approval Committee and led improvements to staff coverage.

- Ensured compliance with collective agreement scheduling requirements and revised schedules to optimize staff wellness.
- Liaison for the Nursing Practice Council
- Developing a quarterly newsletter publication for staff on initiatives and nursing news at the HSC.
- Planned activities and itinerary for annual Nursing Week event.

## CLINICAL BACKGROUND (CONT.)

---

### Continuing Education Instructor

1999 – 2006

*St. Boniface General Hospital*

**Cardiac Sciences Program: Surgical Intensive Care, Post-Anesthesia Recovery Room, and Cardiac Science Stepdown Surgery Program; General Surgery, Surgical Intensive Care, and Post-Anesthesia Recovery Room; and Vascular/Urology Units**

- Identified nursing education gaps, developed and implemented education curriculum for new practices and equipment, mentored nurses on a one-on-one basis, designed and facilitated group continuing education programs.

### General Duty Nurse

1989 – 2005

*St. Boniface General Hospital*

**Surgical Intensive Care, Medical Intensive Care, Coronary Care, Critical Care, Emergency and Neuroscience Units**

### Teaching Assistant, Marker

2002 – 2003

*University of Manitoba, Faculty of Nursing*

## RESEARCH

---

Clarke, D., Waldman, C., Gonzalez, M., Boyce-Gaudreau, K., **Pereira, A.**, Legare, C., & Demczuk, L. (2015). "The impact of knowledge on attitudes of emergency department staff towards patients with substance-related presentations: a quantitative systematic review", Manitoba Centre for Nursing and Health Research Collaborative Research Grant.

Thompson, G., McClement, S., Chochinov, H., Hack, T., Funk, L., Lubin, N., **Pereira, A.** (2014). "Excellence in delivering person-centered intimate care: What makes a difference" Canadian Institute of Health Research Grant

Temple, B., Sawatzky-Dickson, D., **Pereira, A.A.** (2010). Translation of Evidence into Practice.

**Pereira, A.A.**, (2008). Sleep/Wake Patterns of Critical Care Nurses: A pilot study- Thesis Study

McClement, S.E., Fallis, W.M., **Pereira, A.A.**, Bowles, S. (2005-2010). Family Presence during Resuscitation Study.

## INSTRUCTOR/PRESENTER EXPERIENCE

---

2009 – 2018

**Instructor/Facilitator**, WRHA Evidence Informed Practice Workshop

2008 – 2014

**Advanced Cardiac Life Support Instructor Trainer (ACLS)**

2003 – 2014

**Advanced Cardiac Life Support Instructor (ACLS)**

1993 – Present

**Adult and Infant/Child CPR (BLS) Instructor**

2010, 2012, 2014–2017

**WCCNEP**, Trauma Education

2005 – 2011

**WRHA Advanced Emergency Nursing Program**

Delivered presentations to nurses and the healthcare team on a variety of nursing topics:

2020 (postponed re:COVID-19)

*The Psychosocial Impact of Trauma on Family of Acute Care Trauma Patients*, Oral Presenter, Building Bridges to Research Based Nursing Practice, Milwaukee, Wisconsin

## **INSTRUCTOR/PRESENTER EXPERIENCE (CONT.)**

---

2019	<i>The Impact of Trauma on Family of Acute Care Trauma Patients</i> , Poster Presenter, Dynamics of Critical Care, National Conference
2019	<i>The Impact of Trauma on Family of Acute Care Trauma Patients</i> , Oral and Poster Presenter, UWM Research Symposium, University of Wisconsin-MLK
2015-2018	<i>Introduction to Evidence-Based Health Care &amp; the Systematic Review of Evidence</i> Co-Presenter
2017	<i>Proper use of CTO and TLSO Orthotic Braces for Spinal Cord Injury</i> - WRHA, Home Care and HSC
2015	<i>Implementation of an Alcohol Withdrawal Protocol</i> , Presenter, Canadian Association of Advanced Practice Nurses National Conference
2014, 2016	<i>Clinical Nurse Specialist – Invited Panel Member</i> , NP Program, U of M
2013	<i>The Role of the Clinical Nurse Specialist</i> , Red River College Nursing Program
2012	<i>Bringing Evidence-Based Practice to the Bedside</i> , Co-Presenter, Nursing Research Rounds, MCNHR
2011	<i>A Pilot Study: Critical Care Nurses and Sleep/Wake Patterns: The Results</i> , Dynamics
2011	<i>Challenging the Status Quo: The development of an Advanced Practice Nursing Role</i> , invited speaker, Clinical Nurse Specialist Interest Group
2010	<i>More than Eating, Breathing and Sleeping- Critical Care Nurses Sleep/Wake</i> , Closing Speaker Critical Eye Conference
2010	<i>Sleep/Wake Patterns of Critical Care Nurses-A Pilot Study</i> , Research Rounds, MCNHR
2009	<i>Trajectory of Ladder Fall Injuries</i> , Co-Presenter, Trauma Day
2009	<i>Sepsis: Early Identification and Management</i> , Respiratory Workshop
2009	<i>Thesis Vignettes, Critical Care Nurses Sleep/Wake Patterns</i> , Nursing Week
2009	<i>The Impact of Shiftwork on Nurses Sleep</i> , Clinical and Nursing Research Group
2008	<i>Anatomy and Physiology of Pain Management</i> , Philippine Nurses Association
2007 and 2008	<i>Pain Management</i> , University of Manitoba Restoration Class
2007	<i>Nurses Taking a Closer Look at Safety Huddles</i> , Co-Presenter, Nursing Week
2007	<i>Critical Care Nurses Sleep/Wake Patterns</i> - Presenter, Dynamics
2007	<i>End of Life Care</i> Keynote speaker, BC Transplant Professional Development Day
2006	<i>From Rectal Trumpet to...The making of a journal club</i> –Co-Presenter, Dynamics
2006	<i>Family Presence during Resuscitation- A Pilot Study</i> - Co-Presenter at Dynamics
2006	<i>HELLP Syndrome: An Obstetrical Emergency in the OR</i> – Invited speaker at Manitoba Operating Nurses Association Annual Conference
2006	<i>Mycotic Aneurysm-Salmonella in the ICU</i> - Edge of Excellence Conference
2005	<i>Two Steps Forward, One Step Back</i> –Co-presenter Sigma Theta Tau International
2004	<i>HELLP Syndrome: An Obstetrical Emergency in the ICU</i> Dynamics of Critical Care National Conference
2005	St. Boniface Hospital
2007	Health Sciences Centre
2004	<i>Therapeutic Hypothermia</i> - Edge of Excellence Conference
2004	<i>Therapeutic Hypothermia</i> - Poster Presentation, STTI
2003	<i>CRRT and Cardiac Surgery</i> - Dynamics of Critical Care National Conference <i>Family Presence during Resuscitation</i>
2004	Dynamics of Critical Care National Conference
2005	Victoria General Hospital
2004	Concordia General Hospital
2002	Edge of Excellence Conference
2002	Nursing Week, SBGH

## PROFESSIONAL ORGANIZATIONS AND SERVICE

---

### Association of Registered Nurses of Manitoba (ARNM):

2017-Present                      **Member**  
2017                                      **Member**, Finance Advisory Committee

### Canadian Association of Advanced Practice Nurses (CAAPN):

2015                                      **Co-Chair**, National CAAPN Conference

### Canadian Association of Critical Care Nurses (CACCN):

#### *NATIONAL BOARD OF DIRECTORS:*

1990-Present                      **Member**

2006 – 2008                      **President**  
2019-Present                      **Peer Reviewer**, The Canadian Journal of Critical Care Nursing

2019                                      **Journal Editor Search Committee Member**  
2016 –2019                      **Strategic Direction Advisory Committee**  
2008                                      **Conference Chair**, Dynamics National Conference

2008-2010                      **Lead: Organ Donation Position Statement**

2006-2008                      **Expert Contributor for Resuscitation Position Statement**

2004-2006                      **Publications Chair for *Dynamics: The Journal of Critical Care***

1993                                      **Member at Large and Facilities Chair**

#### *SELECTED MANITOBA CHAPTER ACTIVITIES:*

1995 – 1996                      **Past President**

1993 – 1995                      **President**

1992 – 1995                      **Conference and Facilities Chairperson**

### Canadian Nurses Association:

1989 – Present                      **Member**

2017 – 2018                      **APN National Framework Revision**, ARNM representative

2004 – Present                      **Mentor**, Critical Care Exam Preparation  
2004 – 2012                      **Expert Member**, National Critical Care Certification Examination  
Redevelopment Executive Council

2017                                      **Item Writer**

2009 – 2015                      **Invigilator**, CNA Certification Exam writing

2013                                      **Conference Planning Committee Member**, Biennium

2012                                      **Abstract Reviewer**, Canadian Nurses Association, Biennium

## **PROFESSIONAL ORGANIZATIONS AND SERVICE (CONT.)**

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### **College of Registered Nurses of Manitoba:**

1989- Present	<b>Member on Professional Registry #132462 MARN/CRNM</b>
2016 – Present	<b>Member</b> , Jurisprudence Development
2014 – 2017	<b>Chair</b> , Education Standards Committee
2012 – 2014	<b>Member</b> , Competency Review Committee
2002 – 2012	<b>Member</b> , Nurses Discipline Committee
2010 and 2012	<b>Chief Scrutineer</b>
2009	<b>Focus Group Participant</b> , Scope of Practice Consultation
2010	<b>Member</b> , Foundation of Registered Nurses of Manitoba Strategic Planning

### **Critical Care Journal Club:**

2002 – 2010	<b>Co-Founder and Facilitator</b>
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### **Dorothy Wylie Nursing Leadership Institute (DWNLI):**

2009 – 2017	<b>Co-Lead</b> , HSC Project entitled “Smoothing the Transition”
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### **University of Manitoba:**

2004 – 2006	<b>Co-Chair</b> , Graduate Student Association
2004 – 2006	<b>Selection Committee Member</b> , Faculty of Nursing

### **Manitoba Centre for Nursing and Health Research (MCNHR):**

2018-Present	<b>Nil-salaried appointments:</b> Instructor II, College of Nursing
2009 – 2017	<b>Member, Professional Affiliate</b>
2015-Present	<b>Member, Research Review Committee and Poster Competition Judge</b>
2013, 2014	<b>Member</b> , Research Conference Planning Committee-MCHNR, FoN, WRHA

### **Sigma Theta Tau:**

2003 – Present	<b>Executive Member, Xi Lambda Chapter,</b> <b>Member Eta Nu Chapter (2018-present)</b>
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### **St. Boniface General Hospital Registered Nurses Alumni Association:**

2017 – 2020	<b>Membership Chairperson</b>
2004 – Present	<b>Member</b>

### **Other Memberships:**

2007 – 2017	<b>MANITOBA CLINICAL NURSE SPECIALIST INTEREST GROUP</b>
2015 – Present	<b>TRAUMA ASSOCIATION OF CANADA</b>
2004 – Present	<b>AMERICAN ASSOCIATION OF CRITICAL CARE NURSES</b>
2012- Present	<b>MIDWEST NURSING RESEARCH SOCIETY</b>
2011 – Present Milwaukee	<b>DOCTORAL NURSES STUDENT ORGANIZATION</b> , University of Wisconsin-
2013 – Present	<b>GOLDEN KEY ACADEMIC HONOR SOCIETY</b>

## PROFESSIONAL CERTIFICATES

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2019	Concussion: Prevention, detection and management, University of Calgary, Université Laval
2018	Collaborative Institutional Training Initiative
2016	Tri-Council Ethical Conduct for Research Involving Humans Course (TCPS2:CORE)
2013	<b>Johanna Briggs Institute Training Program</b>
2001 – 2022	<b>Canadian Nurses Association National Certification, Critical Care</b>
2013	<b>TEACH</b> , Smoking Cessation Counsellor
2012	<b>Lean 101 for Healthcare</b> , Health Sciences Centre
2010 – 2014	<b>TNCC</b> , International Trauma Nursing Core Course
2009	<b>Dorothy Wylie Nursing Leadership Institute Certificate</b>
2003 – 2014	<b>Advanced Cardiac Life Support Instructor</b> , Heart and Stroke Foundation
1993 – Present	<b>CPR/BLS Instructor</b> , Heart and Stroke Foundation
2001–2006	Intravenous Therapy and PICC Insertion, Canadian Intra Venous Association certification

## CONFERENCES

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1989 – Present                      Attended numerous Conferences and Workshops throughout career (approx. 2/year)

## PUBLICATIONS

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- Pereira, A.**, Talsma, A.N., Lobchuk, M., Thongpriwan, V., Cahill, S. (2019). The impact of trauma on family of acute care patients. *The Canadian Journal of Critical Care Nursing*, 30 (20), 45. Abstract.
- Gonzalez, M., Clarke, D., **Pereira, A.**, Boyce-Gaudreau, K., Waldman, C., Demczuk, L. & Legare, C., (2017). The impact of knowledge on attitudes of emergency department staff towards patients with substance-related presentations: a quantitative systematic review. *JBI Database System Review Implementation Report*, 15(8), 2153-2181. doi:10.11124/JBISRIR-2016-003006.
- Pereira, A.**, Collis, K., Gillman, L.M., (2016). Collaborative development of a standardized trauma admission set. *Canadian Journal of Emergency Nursing*, 39, (2), 34-41.
- McClement, S.E., Fallis, W.M., & **Pereira, A.** (2009). Family Presence during Resuscitation: Canadian Critical Care Nurses' Perspectives. *Journal of Nursing Scholarship*, 41(3), 233-240.
- Fallis, W., McClement, S., **Pereira, A.** (2008). Family Presence during Resuscitation: A Survey of Canadian Critical Care Nurses' Practices and Perceptions. *Dynamics: The Official Journal of the Canadian Association of Critical Care Nurses*, 19 (1).
- Bowles, S., **Pereira, A.**, Fallis, W., (2006). Family Presence during Resuscitation. *Dynamics: The Official Journal of the Canadian Association of Critical Care Nurses*, 17(2).
- Pereira, A. A.** (2006) Mycotic Aneurysm as a result of Severe Salmonella Infection in the Adult Intensive Care Unit: Two Case Studies. *Dynamics: The Official Journal of the Canadian Association of Critical Care Nurses*, 17 (3).
- Pereira, A.**, Williams, S, MacConnell, G. (2005). Developing leadership skills in critical care nurses: A case scenario-part two. *Dynamics: The Official Journal of the Canadian Association of Critical Care Nurses*, 16 (4), 15-16.



## AWARDS AND SCHOLARSHIPS

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2019	<b>Lanthier Bursary</b> , St. Boniface Registered Nurses Alumni Association (\$500.00)
2017	<b>Canada150 National Nursing Recognition</b> , Canadian Nurses Association
2012	<b>Nursing Excellence Award</b> , Health Sciences Centre
2012 and 2013	<b>Manitoba Nurses Union</b> , Local 10, Bursary (\$5000.00 & \$5000.00)
2011 and 2013	<b>Foundation of Registered Nurses of Manitoba Doctoral Scholarship</b> (\$1500.00 & \$1500.00)
2009	<b>Editorial Award</b> , CACCN "Family Presence during Resuscitation: A Survey of Canadian Critical Care Nurses' Practices and Perceptions. <i>Dynamics: The Official Journal of the Canadian Association of Critical Care Nurses</i> , 19 (1)" with Co-Authors, Susan McClement & Wendy Fallis
2008	<b>Critical Care Nurse of the Year Excellence Award</b> , Manitoba Chapter, CACCN
2006	<b>Foundation of Registered Nurses of Manitoba</b> , CRNM (\$1000.00)
2005	<b>Dr. S. J Winkler Memorial Award for Excellence in Scholarship &amp; Professional Performance</b> (\$1000.00)
2003	<b>Nursing Recognition Award for Nursing Excellence</b> , St. Boniface General Hospital

## ADDITIONAL SKILLS

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### Technical

Intermediate Level

Word, Excel, PowerPoint, SPSS, SharePoint, Zoom, Skype

Beginner Level

D2L, Qualtrics, Canvas, Prezi, TEAMS