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Responses of Flight Nurses to Catastrophic Events

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RESPONSES OF FLIGHT NURSES TO CATASTROPHIC EVENTS

By

Gene L. Olsen

A THESIS

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Grand Valley State University
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CATASTROPHIC EVENTS

Gene L. Olsen, BSN, RN, CFRN, EMT-P

August, 2004

ABSTRACT

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The purpose of this study was to examine for the presence of symptoms associated with post-traumatic stress disorder (PTSD) in a sample of flight nurses. Also examined were the coping mechanisms used by the sample to ameliorate the stressors associated with performing the role of the flight nurse, as well as the relationship between the symptoms and the coping mechanisms identified by the sample. Data were collected by questionnaires sent to a randomly selected national sample of 350 flight nurses who belong to the Air and Surface Transport Nurses Association.

Of the 101 participants, intrusion was found to be most frequently exhibited symptom with 20.8% of the respondents indicating they had experienced this in a moderate to extreme amount. Symptoms of avoidance and hyperarousal were also present in the sample, but to lesser extents. Planful problem solving, seeking social support, and positive reappraisal were the most frequently used coping strategies in the sample. A significant relationship was found between escape-avoidance and the presence of PTSD symptoms.

The findings of this study suggest that flight nurses are experiencing some of the symptoms associated with the development of PTSD, but not at an alarming rate. The

fact remains however that the symptoms do exist. Nurse administrators must be aware of and support treatment for nurses who may have suffered psychological insult while performing their duties.

Acknowledgments

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I also give thanks to committee members Dr. Andrea Bostrom and Dr. Mark Greenwood. Each has contributed a unique perspective and excellence to my project that is unsurpassed. Acknowledgment is also extended to the Air and Surface Transport Nurses Association and Aero Med at Spectrum Health for their contributions to this study.

Dedication

This study is dedicated to every emergency medical service worker who has at some time in the performance of their duties given more to their patients than they asked for, a piece of themselves. It is also dedicated to those who have paid the ultimate sacrifice in the performance of their service to humankind.

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CHAPTER 1

INTRODUCTION

Unlike any other time in history, the attention of the world is focused on the work performed on a daily basis by fire fighters, police officers, and emergency service personnel. The unfortunate reason for this attention was the terrorist attacks of September 11, 2001 on the World Trade Center, the Pentagon, and the citizens of the United States of America. The heightened public awareness of the challenges faced by emergency service providers has spurred a renewed interest in the effects of occupational stress on emergency service personnel.

Nurses, like emergency service personnel, are subject to occupational stress on a daily basis and much has been written about the effects of stress on nurses who work in a variety of different settings (Badger, 2001; Clark & Gioro, 1998; Pickett, Walsh-Brennan, Greenberg, Licht, & Deignan-Worrell, 1994; Schwam, 1998; Summers, 1992). One area of nursing where occupational stress has been studied on a comparatively smaller scale is that of flight nursing (Whitley, Landis, Revicki, Benson, & Allison, 1988).

The practice of flight nursing is unlike any other in the nursing profession. First, flight nurses are first hand witnesses to the actual scene where a car has struck a child, the site of the motor vehicle crash, the lake where someone has drowned, or the home where violence has occurred. Second, flight nurses personally experience the sights, smells, and

sounds associated with traumatic events such as the sound of extrication tools being used on the wreckage where a victim is trapped, the stench of gasoline, or the smoke of a house on fire. Third, flight nurses function in a wide variety of settings often while being exposed to such diverse environmental conditions as heat, rain, or snow. Undoubtedly, nurses that work in other settings such as the emergency department, the operating room, or the intensive care unit may have similar stress producing experiences, yet none may compare to those of flight nurses.

Holleran (1996) describes stress as “an integral part of flight nursing practice” (p. 692). Holleran identifies that the major sources of stress that flight nurses encounter are patient situations, the work environment, and social responsibilities. In addition, Holleran concludes that one of the most serious reactions of a flight nurse to stress is Post Traumatic Stress Disorder (Holleran, 1996).

The Diagnostic and Statistical Manual of Mental Disorders (4th ed.) – Text Revision (American Psychiatric Association [APA], 2000) describes Post Traumatic Stress Disorder (PTSD) as:

The development of characteristic symptoms following exposure to an extreme traumatic stressor involving direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one’s physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person. (APA, 2000, p. 463)

According to the *DSM-IV-TR* (2000) “witnessed events include, but are not limited to, observing of serious injury or unnatural death of another person due to violent assault, accident, war, or disaster or unexpectedly witnessing a dead body or body parts” (p. 464).

Because flight nurses often witness these types of incidents, and may do so on an almost daily basis, it is reasonable to conclude that their risk for the developing PTSD is greater than for other nursing personnel.

The *DSM-IV-TR* (2000) describes several characteristic symptoms that result from PTSD. Among these symptoms are the reexperiencing of the traumatic event in manners such as recurrent images, thoughts, or perceptions; having recurrent distressing dreams of the event; and experiencing flashbacks or a sense of reliving the experience. Another PTSD symptom includes active attempts at avoiding any stimuli associated with the event by avoiding discussions about the event, or avoiding activities, people, or places associated with the event. Finally, a person with PTSD symptoms may show less of an interest in performing activities and may also exhibit persistent symptoms of heightened arousal or anxiety such as insomnia or difficulty remaining asleep, irritability, anger, and difficulty with concentration. Untreated, PTSD can have devastating psychological effects on an individual manifesting as phobias, panic disorder, depression, or substance abuse. It may also cause interpersonal conflicts such as the loss of a significant relationship or the loss of employment (APA, 2000).

Problem Statement

Weiss, Marmar, Metzler, and Ronfeldt (1995) maintain that due to repeated exposure to traumatic stressors, emergency service personnel are one group who are at risk for the development of problems such as PTSD due to repeated exposure to traumatic stressors. They also state that although emergency service personnel have more frequent exposure than civilians to the experiences implicated with PTSD development, most research has been on the victims of disasters rather than on the personnel who treat them.

This author contends that an additional, frequently overlooked group of emergency medical service (EMS) personnel who are also at risk for the development of PTSD is flight nurses. Therefore, the purpose of this study was three-fold. First, this study examined the presence of symptoms associated with PTSD in a sample of flight nurses who belong to the Air and Surface Transport Nurses Association. Second, this study examined the coping mechanisms used by study participants to alleviate stressors associated with the performance of their job roles. Third, an examination of the relationship between the symptoms of PTSD and the coping mechanisms identified was performed.

CHAPTER 2

REVIEW OF LITERATURE AND CONCEPTUAL FRAMEWORK

Literature Review

As one may expect, there is a very large volume of literature devoted to the study of PTSD. Yet nurses, although exposed to traumatic events on an almost daily basis, remain a population where the study of PTSD is absent. Although many authors (Badger, 2001; Summers, 1992) have proposed that PTSD may exist in nursing, few have conducted studies to ascertain its extent. In addition, ambiguity exists within the nursing profession concerning the definition of PTSD. For example, some studies may inappropriately label symptoms associated with PTSD and instead refer to them as burnout, job stress, or job dissatisfaction. Davidson and Jackson (1985) suggested that PTSD might exist in some form within the civilian nursing profession and made an association with burnout. They suggest that symptoms, which have been associated with burnout, might actually be a manifestation of a delayed reaction to a traumatic event witnessed by a nurse, and therefore, recommended further investigation into this phenomenon. This study attempts to fill this void in the nursing literature.

Given the fact that flight nurses operate in an environment similar to that of other emergency service personnel, the literature review included studies of firefighters, police officers, and military nurse veterans. The literature review was further limited to include only those studies that examined PTSD in a broad sense. That is, individual studies that

examined PTSD in relation to a singular disaster or incident such as earthquakes or airplane crashes were excluded.

Nursing. Paul (1985) conducted a survey of Registered Nurses (RNs) who served in the U.S. Army, Navy, and Air Force in Vietnam from 1962 to 1973. Paul identified this study as one of the very first research projects that examined the effects of the Vietnam War on nurse veterans. Paul's sample ($n = 155$) was comprised of nurses who served tours of duty in South Vietnam, on Air Force evacuation flights, or aboard hospital ships located off the coast of South Vietnam. One hundred thirty-seven nurses (88%) completed the 52, open-ended item questionnaire.

Paul (1985) performed content analysis to identify eight significant stressors, as well as 14 adverse reactions among the nurses in her sample. Paul stated that although the adverse reactions identified are similar to those of PTSD, she cautioned that no inference should be drawn. It is important to note however, that when one compares these reactions to those of the DSM-IV criteria, certain similarities to PTSD can be noted (Table 1).

If the participant was identified as having experienced at least six of the 14 adverse reactions, they were placed in the variant (V) or problem group (Paul, 1985). Of the total sample, 39% ($n = 53$) were placed in this group. Some of the reactions noted were difficulty with interpersonal relationships (one-fourth of the V group), substance abuse (23% used alcohol daily, 21% drank alone, 4% described bingeing), flashbacks (52%), and recurrent dreams or nightmares (Paul, 1985).

Norman (1988) also conducted interviews of 55 nurses who served in Vietnam between the years of 1965-1973. The end points of this study were to determine the conditions that had an impact on the extent to which nurses developed or may still

Table 1

Adverse Reactions

14 Adverse After-Effects	
Recurring Physiological Problems	Negative Self-Image
Stated Depression	Stated Anxiety
Rage, Anger*	Memory Impairment*
Relationship Problems - Re-entry*	Relationship Problems- Current*
Substance Abuse	Flashbacks*
Avoidance of Activities that Arouse Memories*	Hyperalertness*
Dreams/Nightmares*	Disturbed Sleep Patterns*

Note. Adapted from "Wounded Healers: A Summary of the Vietnam Nurse Veteran Project," by E. A. Paul, 1985, *Military Medicine*, 150, p. 575.

Note. * those matching DSM-IV-TR criteria.

have been experiencing PTSD and to examine if the symptoms of PTSD changed over time. To do this, Norman followed an interview schedule that consisted of 75 questions; the researcher developed 60 questions and the remaining 15 were from the Impact of

Events Scale. The interviews were conducted over a two-year period. As was the case with Paul's (1985) study, the majority of the nurses in Norman's study were in the Army Nurse Corps and served on hospital ships, in evacuation hospitals, and onboard medical evacuation aircraft.

Norman (1988) was able to conclude that although the levels of PTSD in her sample varied, the symptoms of intrusive thoughts and avoidance behaviors diminished over time. Of particular interest was that 22% of the participants continued to exhibit high frequency of intrusive thoughts and 14% of the participants still exhibited avoidance behaviors in the year 1985, 12 to 20 years later.

No published studies were identified that studied the presence of PTSD in civilian nursing personnel. However, two scholarly projects, a doctoral dissertation and a thesis, were found that studied the phenomenon of PTSD among civilian nurse samples.

Kerasiotis (2001), in a doctoral dissertation, conducted an assessment of PTSD symptoms in nurses working in an emergency department ($n = 46$) and compared those rates to nurses working in an intensive care unit ($n = 51$) and on a general medical floor ($n = 31$) in a New York hospital. The purpose of this study was to "empirically investigate the relationship between the psychological experiences of emergency, intensive care unit, and general medicine nurses and PTSD in a Level 1 Trauma Center" (Kerasiotis, 2001, p. 25). For data collection, Kerasiotis administered the Modified Posttraumatic Symptom Scale-Self Report (MPSS-SR), the Multidimensional Scale of Perceived Social Support (MSPSS), the Beck Depression Inventory-II (BDI-II), the Beck Anxiety Inventory (BAI), and the Peritraumatic Dissociative Experiences Questionnaire (PDEQ) to the study participants.

Kerasiotis' (2001) study was based on five hypotheses: (a) emergency room nurses would score significantly higher on the MPSS-SR and on the PDEQ than the intensive care unit or nurses on the general medicine unit; (b) emergency room nurses would have significantly higher scores on the BAI and the BDI-II when compared to the other nurses; (c) there would be a negative correlation between emergency room nurses' scores on the MPSS-SR and the MSPSS; (d) there would be negative correlation between the emergency room nurses' scores on the PDEQ and the MSPSS; and (e) there would be a positive correlation between years of experience in the emergency room and elevated scores on the MPSS-SR and the PDEQ. Yet, no clear statistical support for these hypotheses was discovered.

Only hypothesis 2 was partially supported based on one-way analysis of variance procedures. Kerasiotis (2001) found that emergency department and general floor nurses when compared to ICU nurses had a significantly greater number of symptoms of depression ($F(2,125) = 4.168$; $p = 0.018$) and that emergency department and general floor nurses when compared to ICU nurses had a significantly greater number of symptoms of anxiety ($F(2,125) = 4.431$; $p = 0.014$).

Kerasiotis (2001) believes that the lack of statistical evidence to support hypothesis 1 can be attributed to the extensive training that nurses receive while working in high acuity hospitals. In addition, Kerasiotis believes that nurses who routinely interact in these environments may develop coping mechanisms that serve as protective barriers against emotionally and psychologically disruptive syndromes such as PTSD. Finally, Kerasiotis believes that there may be an underlying resiliency factor present among nurses who remain as caregivers at the bedside.

Powell (1996), in a master's thesis, conducted a replication study to assess the prevalence of PTSD symptoms among RNs working in Manitoba emergency and intensive care units. Using Roy's Stress Adaptation Model as the guiding framework, Powell conducted a mailed survey of 1200 RNs in the Manitoba province of Canada who had indicated that they were employed in the emergency department or intensive care unit setting. All 1200 RNs were sent the questionnaire packet that contained a demographic questionnaire, the Brief Symptom Index, and the Impact of Events scale. Of those who received questionnaires, 35.5% ($n = 426$) returned questionnaires usable for analysis.

Powell (1996) used the results of the Brief Symptom Index, the Impact of Events scale, and Burge's matching criteria to ascertain the presence of PTSD in her sample. She concluded that 42.1% ($n = 179$) of the nurses surveyed exhibited a moderate to high number of PTSD symptoms. Powell further divided these nurses into two groups according to the number of symptoms: those exhibiting a moderate number of symptoms ($n = 140$) were considered to have a PTSD reaction (score ranges 5-7), and those with a high number of symptoms ($n = 39$) were identified as having PTSD (score ranges 8-9). The author did not address coping strategies, but did note that assessing coping strategies in this sample would be an appropriate extension of her study.

Firefighters. When researching articles that explored the presence of PTSD in firefighters, two studies were selected on the basis of their broad and international scope. Wagner, Heinrichs, and Ehler (1998) conducted an investigational study of 402 professional firefighters from the State of Rheinland-Pfalz, Germany. In this study, several questionnaires were used including a demographic tool, German versions of the

General Health Questionnaire and the PTSD Symptom Scale. Also, Wagner et al. used the “openness” subscale of a personality inventory, called the Freiburger Persönlichkeitsinventar, the substance use subscale of a stress coping questionnaire, called the Stressverarbeitungsfragebogen, and a self-rating list of bodily complaints, the Freiburger Beschwerdeliste (Wagner et al., 1998). Once distributed, the firefighters had four weeks to complete and return the questionnaires.

After controlling for the influence of social desirability, such as deceit among the study participants, the authors refined their sample to include 318 professional firefighters. Of these, analysis demonstrated that 18.2% ($n = 58$) of the professional firefighters in this sample met the diagnostic criteria for PTSD. In addition, 46.2% ($n = 147$) met the criteria for what Wagner et al. (1998) titled subsyndromal PTSD.

The researchers also analyzed the comorbidity of PTSD with other psychiatric dysfunctions and found that among the firefighters with PTSD, 39.7% ($n = 23$) suffered from depressive mood, 60.3% ($n = 35$) displayed social dysfunction, and 19.0% ($n = 11$) were substance abusers. While Wagner et al. (1998) did not elaborate on these results, it is reasonable to conclude that the participants in this study were displaying behaviors consistent with ineffective coping.

Corneil, Beaton, Murphy, Johnson, and Pike (1999) performed a comparison study on urban firefighters in the United States of America and Canada. The study's goals were twofold: (a) to examine the types and frequency of exposure to traumatic events, and (b) to examine the occurrence of PTSD in the two groups. The sample included United States firefighters ($n = 203$) and Canadian firefighters ($n = 625$) who completed the Impact of Events Scale. Corneil et al. selected this scale to evaluate the

presence of PTSD symptoms. According to Corneil et al. (1999), there were no significant differences between the two groups. Moderate and severe PTSD symptoms were present in 22% of the United States sample and in 17% of the Canadian sample.

When evaluating the types and frequencies of exposure to traumatic events, the researchers evaluated "extremely stressful duty-related events" (Corneil et al., 1999, p. 134) such as suicides, dead-on-scene, crime victim incidents, etc. The researchers found that although significant differences were noted to exist between the two groups on the types of exposures they were witnesses to, these differences did not appear to be a factor in the development of PTSD symptoms.

Police officers. Carlier, Lamberts, Fouwels, and Gersons (1996) conducted a study of Dutch police officers to determine the relationship between dissociation and PTSD. Their sample was obtained from individuals participating in a larger longitudinal study already underway. In their study, Carlier et al. assessed for the presence of dissociation in three groups: police officers with PTSD ($n = 42$), police officers with partial PTSD ($n = 50$), and police officers without PTSD ($n = 50$). Using an adapted version of the Structured Interview for PTSD, the authors attempted to determine the relationship between PTSD and dissociation. To define dissociation, the researchers offered the following, "In the DSM-IV, dissociation is defined as 'a disruption in the usually integrated functions of consciousness, memory, identity, or perception of the environment.' " (Carlier et al., 1996, p. 1325). They offered examples of dissociation as the feeling of observing oneself from a distance, confusion about what is or is not real in one's surroundings, or memory gaps that cannot be accounted for by ordinary forgetfulness.

In their study, Carlier et al. (1996) found that the presence of partial PTSD at 3-months was significantly ($p < 0.01$) related to dissociation at 12-months. However, no significant relationship between the presence of dissociation at 3-months and partial PTSD at 12-months was found. Similarly, the presence of PTSD at 3-months was significantly ($p < 0.01$) associated with dissociation at 12-months. However, no significant relationships were found between dissociation at 3-months, with partial PTSD or PTSD at 12-months. Carlier et al. cautioned that although it appears that partial PTSD or PTSD may predict dissociation, other variables could influence the development of dissociation as well.

Another interesting aspect of this study was how the symptoms of PTSD evolved during the time period. Carlier et al. (1996) examined the three groups at 3-month and 12-month intervals. Of the group without any initial symptoms of PTSD, 94% remained symptom free over time, while 6% exhibited partial symptoms of PTSD. Of the group that initially had partial PTSD, 48% had no symptoms of PTSD, 50% continued to have partial PTSD and 2% had developed full PTSD. Finally, of the group with PTSD at the onset, 21% had no symptoms of PTSD, 48% had partial PTSD and 31% still had full PTSD at the 12-month evaluation period. This evolution is very important to consider, as PTSD may progress from one form to another.

Additional support of the presence of PTSD in police officers is provided in a study conducted by Gershon, Lin, and Li (2002). This study examined work stress, coping behaviors, and health related outcomes in a sample ($n = 105$) of police officers over the age of 50. Using a self-constructed questionnaire, the investigators were able to conclude that symptoms of PTSD were frequent within their sample: 27% reported

having recurrent thoughts, memories, or dreams about traumatic events, 26% avoided anything related to the events, and 26% demonstrated detachment behaviors related to the event.

Summary and Limitations

It is apparent from these studies that symptoms of PTSD can exist among persons in disciplines that are considered “helping” or service oriented and who are witness to a variety of traumatic events. However, the degree to which PTSD exists within each discipline has not been consistent and there is no consistency between the disciplines. This indicates a need for further investigation. Several studies (Durham, McCammon, & Allison, 1985; North et al. 2002; Weiss et al. 1995) examined the adverse effects that isolated incidents or disasters have on emergency service personnel, but few examine how frequent, daily exposure to critical incidents or traumatic events impacts those personnel. Most importantly and what is strikingly apparent, is the absence in the literature regarding the presence of PTSD in the nursing profession.

The limitations of the studies reviewed are primarily based on the generalizability of the results. Wagner et al. (1998) and Corneil et al. (1999) examined PTSD in firefighters in Germany, the United States, and Canada. Comparatively, Carlier et al. (1996) and Gershon et al. (2002) examined PTSD in police officers in the Netherlands and the United States. Although these groups of emergency services personnel work daily in environments similar to that of flight nurses, their work roles, culture, education, training, and experience are not similar to that of the flight nurse and thus, the results are not generalizable. Likewise, studies conducted on civilian nurses by Kerasiotis (2001) and Powell (1996), as well as military nurses by Paul (1985) and Norman (1988) use

similar samples but only in that they were RNs in general, rather than flight nurses in particular.

Conceptual Framework

The framework of Lazarus and Folkman (1984) was selected to provide the conceptual guidance for this study. Lazarus and Folkman's (1984) transactional model "views the person and the environment in a dynamic, mutually reciprocal, bi-directional relationship" (p. 293). Together, a person and the environment interact to arrive at new meanings through the use of appraisal. It is this process that is the basis of the transactional model. In his previous work, *Psychological Stress and the Coping Process*, Lazarus (1966) does not describe this transactional relationship.

The transactional model includes five major variables: stress, appraisal, coping, person and environment antecedents of stress and coping, and short- and long-term adaptational outcomes. Lazarus and Folkman (1984) were primarily concerned with stress, appraisal, and coping. In this model, psychological stress is defined 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. The judgment that a particular person-environmental relationship is stressful hinges on cognitive appraisal" (Lazarus & Folkman, 1984, p. 21).

Two processes mediate this relationship – cognitive appraisal and coping.

Cognitive appraisal is an evaluative process that determines how and why a transaction is stressful to the person. It involves primarily two types: primary appraisal and secondary appraisal. Primary appraisal is the judgment that an encounter is

irrelevant, benign-positive, or stressful. A primary appraisal of an event as stressful indicates that the person perceives harm or loss, threat, or a challenge. In other words, it reflects the demands placed on the person. Secondary appraisal of an event is a judgment of what might and can be done. In other words, it involves the techniques or resources available to the person to act. This includes an evaluation by the person about which coping strategy one could use, if the strategy will be effective, and what the consequences of its use will be.

Finally, Lazarus and Folkman (1984) briefly describe a reappraisal process. They identify this process as a change in a previous appraisal based on new information received from the environment. However, the authors state that it is often difficult to differentiate between a reappraisal and a primary or secondary appraisal. Lazarus and Folkman (1984) point out that cognitive appraisal is not always a conscious process.

Coping is defined as the process that an individual uses to manage the events that the person has appraised as stressful. Specifically, the authors define it as “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, 1984, p. 141). In addition, they distinguish between two forms of coping: emotion-focused and problem-focused. Emotion-focused coping strategies can be used to increase or decrease emotional distress, such as self-blame or avoidance. Problem-focused coping strategies are used when a more problem solving approach is needed to better understand the event.

Appraisal and coping processes work in tandem to effect adaptational outcomes. In other words, how the person appraises an event, and what coping process or resources

are selected to deal with the event, has an impact on the outcome of the stressful event. Three basic kinds of outcomes are identified: functioning in work and social living, morale or life satisfaction, and somatic health. Long-term adaptational outcomes are identified as social functioning, morale, and somatic health. It is the long-term outcome of somatic health that is particularly relevant to this study.

The transactional model discusses how appraisal and coping efforts can affect health over the long term and thus, provides an adaptable framework for application to the possible development of PTSD in flight nurses (see Figure 1). In application of the model, the flight nurse is witness to a stressful event. The flight nurse cognitively appraises the event using primary and secondary means. The flight nurse then applies coping mechanisms to alleviate the stress. If the coping mechanism is effective, adaptational outcome is successful. If the coping mechanisms are ineffective, long term somatic health problems, such as PTSD, may develop. Of primary concern in this study are the emotion-focused forms of coping, such as denial or avoidance, which allow an individual to lower one's emotional distress at the time of the event, but which impedes the individual's ability to resolve the event psychologically. If the event is never truly resolved psychologically, the potential exists for the development of PTSD in the flight nurse.

Figure 1.
Overview of Lazarus and Folkman's (1984) transactional model.

Research Purpose and Goal

The purpose of this research is to determine the presence of symptoms associated with PTSD in a sample of flight nurses. Specifically, the research will attempt to identify symptoms of PTSD present in the sample and ascertain what coping mechanisms may be used by the sample to ameliorate the stressors associated with performing the role of the flight nurse.

Definition of Terms. The theoretical and operational definitions used in this research study are:

Flight Nurse - a RN employed primarily in the air medical environment caring for critically ill or injured patients.

Stressor – any event or situation that a flight nurse may witness in the course of performing their job duties.

Coping – any means used by the participant to ameliorate the effects of the experienced stressor.

CHAPTER 3

METHODS

Design

A descriptive research design was used to assess for the presence of PTSD symptoms in a national random sample of flight RNs. In addition, this study explored the coping mechanisms that flight nurses may use. Data were collected using standardized questionnaires.

Sample

The population for this study included all flight registered nurses that are members of the Air and Surface Transport Nurses Association (ASTNA). Flight nurses that belong to the organization were assumed to be actively practicing nurses in a flight environment. The database containing the addresses of 1,700 ASTNA members was available through ASTNA after procedures for approval were completed (Appendix A). Because the database contained current members of ASTNA of whom 1,655 were domestic and 45 were foreign nurses, ASTNA was asked by the researcher to provide only the addresses of members residing in the United States. The database had no particular organization, except that the members were arranged in chronological order according to the date of membership initiation. ASTNA does not differentiate between nurses working in a flight environment versus a ground transport environment.

Using a table of random numbers and a sampling interval of five, a total of 350 flight nurses were selected from the 1,655 flight nurses in the ASTNA database. This number represented 21% of the total membership. This technique was used to improve the likelihood that the responses were reflective of the flight nurse experience.

From the 350 questionnaire packets that were sent, an initial response rate of 42% (n = 147) was obtained. Four questionnaire packets were returned undeliverable, two respondents indicated they were no longer active flight RNs, four respondents indicated they had no flight RN experience, and two packets were returned because the intended recipient was actively serving in the military overseas. This initially resulted in a useable response rate of 38.6% (n = 135). However, 24 respondents did not meet the inclusion criteria to participate in this study.

Inclusion criteria. To be included in the study, the participants had to be 18 years of age or greater and be a licensed RN in the United States of America. Participants also had to be current members of ASTNA and identify flight nursing as their primary area of practice. They also had to identify that the performance of their duties as a flight nurse occurred primarily (greater than 50% of the time) on board a rotor or fixed wing aircraft. Finally, participants must have been actively (greater than 32 hours per pay period) working as a flight nurse.

From the questionnaires deemed useable (n = 135), 25.2% (n = 34) did not meet the inclusion criteria and therefore, an eligible sample of 101 was obtained. Therefore the final response rate was 28.9% (n = 101) for this study.

Participant characteristics. Of the participants in this study, 32.7% were male (n = 33) and 67.3% (n = 68) were female. Participants (n = 100) ages ranged from 24 to 58

years, with an average age of 39 years ($M = 39.46$; $SD = 7.32$), yet one participant did not provide this information. On average the participants were experienced nurses ($n = 100$; $M = 14.91$; $SD = 7.56$; range = 3-38), with approximately 7 years of experience as a flight RN ($n = 96$; $M = 6.94$; $SD = 5.73$; range = 0.3 - 24).

Almost half (46.5%; $n = 47$) of the participants indicated that their primary area of flight nursing practice was rotor wing only, 4% ($n = 4$) identified fixed wing only, and 49.5% ($n = 50$) indicated a combination of time spent practicing in rotor wing, fixed wing, or ground transports as their primary area of practice. Of those 50 individuals, the mean percent of time spent in the area of rotor wing flight practice was 76.03% ($SD = 31.88$), while the average percent of time for fixed wing was 14.71% ($SD = 26.94$), and 9.16% ($SD = 18.75$) for ground transport.

Instrumentation

For this study, three data collection instruments were used: (a) a self-designed, demographic questionnaire (Appendix B), (b) the Impact of Events Scale - Revised (Appendix C), and (c) the Ways of Coping Scale - Revised (Appendix D). The latter of these are standardized questionnaires and are available in the public domain.

Demographic questionnaire. Participants in the study were asked to complete a demographic information questionnaire, which included information on gender, age, and years of experience in the field of flight nursing. In addition, participants were asked to identify the primary practice area of flight nursing, meaning rotor or fixed wing, in which they operate.

The Impact of Events Scale – Revised (IES-R). A non-standard, modified version of the IES-R was constructed for use in this study. Because a non-standard modified

version of the IES-R was used, no reliability or validity data for this version of the IES-R exists (Appendix E). However, the standard version of the IES-R (Weiss & Marmar, 1997) consists of 22 items, divided into three subscales or domains. Seven of the items (4, 10, 14, 15, 18, 19, 21) measure hyperarousal, seven items (1, 2, 3, 6, 9, 16, 20) measure intrusion, and eight items (5, 7, 8, 11, 12, 13, 17, 22) measure avoidance. Participants' responses are measured on a 5-point scale. The mean of each subscale is calculated and then summed to give an overall score (Deville, 2001).

Internal consistency for the IES-R was reported to range from .87 to .92 for intrusion, .84 to .86 for avoidance, and .79 to .90 for hyperarousal (Weiss & Marmar, 1997). In addition, Weiss and Marmar reported test-retest correlation coefficients as .57 to .94 for intrusion, .51 to .89 for avoidance, and .59 to .92 for hyperarousal. From this study, a reliability analysis produced a Cronbach alpha (α) of .89 for intrusion, .83 for avoidance, and .84 for hyperarousal. According to Polit and Hungler (1999), a coefficient of .70 is sufficient to make group level comparisons. However, they also state that coefficients of .80 or greater are highly desirable as were the case for this study. A comparison of the reliability coefficients obtained in this study is presented in Table 2.

Weiss and Marmar (1997) also describe the instrument as having good predictive validity and have examined construct validity of the instrument. Using an item-to-subscale correlation technique, they concluded that only 1 item showed a stronger relationship between it and a different subscale, 19 items showed a correlation with their assigned subscale, and 2 items showed a correlation that was equal.

Table 2

Comparison of Reliability Coefficients for the IES-R

Subscale	Weiss & Marmar, 1997	Olsen, 2004
Hyperarousal	.79 to .90	.84
Intrusion	.87 to .92	.89
Avoidance	.84 to .86	.83

Ways of Coping Scale (WCS). The WCS (Lazarus & Folkman, 1984) was selected for use in this study. The WCS consists of 67 items divided into eight subscales. Sixty-six of the items were developed by Lazarus and Folkman (1984) to broadly evaluate emotion- and problem-focused coping. One item is open-ended, giving the respondent the opportunity to describe a method of coping that is preferred by them in relation to the previous items. Only 50 of the items are scaled and rated. The eight subscales that are measured are planful problem solving (items 1, 26, 39, 48, 49, 52), seeking social support (items 8, 18, 22, 31, 42, 45), self-controlling (10, 14, 35, 43, 54, 63, 64), positive reappraisal (items 20, 23, 30, 36, 38, 56, 60), confrontive coping (items 6, 7, 17, 28, 34, 46), distancing (items 12, 13, 15, 21, 41, 44), accepting responsibility (items 9, 25, 29, 51), and escape-avoidance (items 11, 16, 33, 40, 47, 50, 58, 59). The remaining 17 items are presented by rank order. Participants' responses are measured on a 4-point scale.

Internal consistency coefficients for the eight subscales have been reported to range from .61 to .79 (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). In this study, the Cronbach alphas ranged from .60 to .81 and are summarized in Table 3.

Procedure. Each potential study participant was sent a questionnaire packet. The packet included a cover letter (Appendix F), the questionnaires, and a postage-paid return

Table 3

Comparison of Reliability Coefficients for the WCS

Subscale	Folkman et al., 1986	Olsen, 2004
Planful Problem Solving	.68	.74
Seeking Social Support	.76	.81
Self-controlling	.70	.60
Positive Reappraisal	.79	.73
Confrontive Coping	.70	.68
Distancing	.61	.63
Accepting Responsibility	.66	.69
Escape-Avoidance	.72	.75

envelope. The cover letter introduced the study to potential participants and requested their voluntary participation in the study. In particular, the cover letter was used to explain to potential study participants the purpose, potential time involvement, benefits, and risks. The cover letter also included contact information for the potential participants to direct their questions about the study. Potential participants were informed that their understanding of the study and desire to be included in the study was presumed if they completed the questionnaire and returned it to the researcher as instructed.

Additionally, potential participants were informed of the researcher's commitment to confidentiality. That is, no identifiable data were requested on the questionnaire and anonymity of the data was maintained. Furthermore, the potential respondents were informed that only the researcher would receive the completed questionnaires; all data would be kept in a secure location; and data would be reported only as an aggregate.

The participants were asked to return the completed questionnaire within four weeks of the receipt of the questionnaire packet in order to be included in the study. In addition to the original mailing, a reminder post-card was mailed two weeks after the original mailing date (Appendix G). Additionally, respondents were instructed to contact the researcher in a separate request should they desire a copy of the results.

Human Subjects Considerations

Approval to conduct this study was obtained from the Grand Valley Human Research Review Committee (Appendix H). There were minimal risks to the participants of this study. The most identifiable risk that a participant may encounter is the risk that they may identify symptoms of PTSD in themselves as they complete the questionnaire. Although the questionnaire does not lend itself to self-diagnosis, the tool may allow participants to begin to conceptualize that the symptoms which they are experiencing could be construed as being a basis for a diagnosis of PTSD. Therefore, the participants were reminded in the cover letter to contact their local community mental health agency if they believe that they are suffering from symptoms of PTSD upon completion of the questionnaire. Additionally, participants were informed in the cover letter that neither the

researcher nor Grand Valley State University would be legally responsible for any expense that might result from these services.

Other risks associated with this study, such as lack of confidentiality and anonymity, are primarily procedural in nature. In addition, some participants may perceive or have concerns that by completing the questionnaire that their job may be in jeopardy. Using anonymous, non-identifiable, questionnaires and instructing participants in the data collection process minimized these risks.

The perceived benefit of an individual nurse participating in a research study to advance nursing knowledge can vary greatly. However, the benefit of this research to the profession of nursing as a whole can be far reaching. The presence of PTSD symptoms in the nursing population can lend itself to many negative consequences, such as nurses leaving the profession or long-term psychological sequelae for the nurse. This study will lend support to the notion that nurses who perform their duties while being witnesses to tragic events on a frequent basis must have access to timely assessment and treatment. In addition, the study may help to clarify coping mechanisms that some nurses utilize to minimize the effects and symptoms of PTSD within themselves.

Threats to Validity

Polit and Hungler (1999) explain that all investigators must be concerned with managing both internal and external threats to validity. They recommend that by utilizing several strategies, the researcher can anticipate and control for threats. Through careful study design, the researcher acknowledged these threats and attempted to control for them.

The greatest threat to internal validity for this study has been identified as history. The researcher acknowledges that certain events could have occurred, such as a terrorist attack or an especially disturbing patient transport that could have influenced the participants' responses on the questionnaires. In addition, if the participants had previously completed a similar questionnaire, the familiarity of the participants with the research tool could have affected their responses. The participants' beliefs surrounding PTSD, gained through prior experience or treatment for PTSD, and their perception that by acknowledging that they may suffer symptoms of PTSD and that their job could be in jeopardy because of it, could have also affected their responses on the questionnaire. As much as possible, attempts to minimize these threats were incorporated into the study design.

The threat to external validity that exists for this study centers on generalizability of the results. A low questionnaire response rate could impact the ability to generalize the results to the flight nurse population. This risk was minimized by using a national random sample and by sending reminder post-cards to maximize the response rate. In addition, it was recognized that there are flight nurses who are not members of ASTNA but who are actively working in the field. Therefore, the results are not generalizable beyond the study sample.

The participants could have responded to the questionnaire based on their beliefs surrounding PTSD and whether they perceive that it could exist within flight nurses. Polit and Hungler (1999) recommend that researchers using self-report measures be cognizant of response bias, especially, social desirability response bias (i.e. the risk that participants will respond to the questionnaire in a manner that they believe is acceptable

and consistent with social mores) (Polit & Hungler, 1999). To minimize the risk of response bias, the participants were reminded in the instructions to answer each question as openly and honestly as possible. It is also hoped that the study design, which includes random selection of the sample and anonymous self-report questionnaires, minimized these effects.

CHAPTER 4

RESULTS

The purpose of this research was to examine for the presence of symptoms associated with PTSD in a sample of flight nurses. Specifically, the research aims were to identify what symptoms of PTSD were present in the sample, ascertain what coping mechanisms were used by the sample to ameliorate the stressors associated with performing the role of the flight nurse, and to examine the relationship between the symptoms and the coping mechanisms identified by flight nurses. In order to answer these questions, data generated from the questionnaires were analyzed using the Statistical Package for the Social Sciences. The level of significance was set at $p < .05$.

Exposure to Stressful Events

Prior to completing the IES-R and WCS, participants ($n = 100$) were asked to indicate a range of unusually stressful events that had occurred to them in the past year. While the majority (54.5%; $n = 55$) identified that less than 5 events were considered unusually stressful to them, another 32.7% ($n = 33$) identified that 5-10 events had occurred that they considered unusually disturbing. Surprisingly, only 7.9% ($n = 8$) identified 11-15 events, 2% ($n = 2$) identified 16-20 events, and 2% ($n = 2$) identified more than 20 events. One participant did not respond to this question. Additionally, the participants ($n = 100$) were asked if any particularly stressful event had occurred in the

past 7 days. The majority (74.3%; $n = 75$) answered that none had occurred, yet 24.8% ($n = 25$) identified that indeed one had.

When given the opportunity to describe these events in detail, 33.7% ($n = 34$) responded, with many of the respondents describing several events simultaneously. From these responses, six overall themes emerged. Patient care issues were described 17 times. These included scenarios that involved extreme difficulties in securing an airway on a patient or a particular severely injured patient who may have expired during the course of transport. An additional 14 descriptions were made related to issues with the mission itself and included information about aircraft mechanical problems, crashes, or flying in extreme weather conditions. These types of events might be of significance when compared to the *DSM-IV-TR* (2000) description of the types of traumatic stressors that may lead to the development of characteristic symptoms of PTSD.

The participants also identified five other themes as being extremely stressful, but those themes would not be included in the *DSM-IV-TR* (2000) description of stressors that may lead to PTSD symptoms. Departmental conflicts or politics were described on eight different occasions and staffing or compensation issues were discussed four times. Events outside of work were described twice and centered on family relationships and issues. Only one mention was made concerning a lack of recognition by supervisors for job performance.

Impact of Events Scale – Revised

Because a non-standard modified version of the IES-R was used in this study, no overall score on the IES-R (Appendix E) was computed as requested by the instrument author. Instead, each individual subscale was analyzed in detail and the subscales were

ranked according to the mean item scores for each subscale. Symptoms of intrusion were found to have occurred the most and were present in mild to moderate degrees ($n = 101$; $M = 1.13$; $SD = .85$; range = 0-3.86). One-fifth (20.8%) of those responding to this subscale had mean item scores that were equal to or greater than 2.00 suggesting a moderate to extreme degree of intrusive thoughts.

Of the individual items within the subscale, item 1 ($n = 39$, 38.7%) was found to be moderately distressing or greater to the highest number of participants, indicating that any reminder of the event brought about recurrent feelings of the event (Table 4). Three additional items (3, 9, 16) were also found to be quite distressing to the respondents and also concerned having memories of the event when not intended. Sleep difficulties and flashbacks of the event were a source of distress for almost one-quarter of the participants (24.7%), with 5.9% identifying these issues as extremely distressing.

In succession, the statements comprising the avoidance subscale ($n = 101$; $M = .72$; $SD = .64$; range = 0-3) were only found to be slightly bothersome within the sample. Only six (5.9%) of the respondents mean item scores exceeded 2.13. This may suggest that a proportion of the respondents were experiencing symptoms of avoidance in moderate degrees or more.

Of particular interest, item 11 with regards to trying not to think about the event was cited by almost one-third ($n = 32$) of the respondents as being a source of distress. This is consistent with issues of avoidance. However, the item that was identified as most distressing in the largest (33.7) percent of the sample (Table 5) was the inability to suppress feelings regarding the event and to avoid becoming upset about those feelings. Other items such as blocking the memories from one's mind, feeling numb about the

event, and believing that the event was not real were also acknowledged by the respondents as stressors.

Table 4

Difficulties Experienced in the Intrusion Subscale

Item	Moderately Distressing		Quite a bit Distressing		Extremely Distressing		Total %
	n	%	n	%	n	%	
1. Any reminder brought back feelings about those events.	25	24.8	10	9.9	4	4.0	38.7
3. Other things kept making me think about them.	20	19.8	14	13.9	1	1.0	34.7
9. Pictures about them popped into my mind.	14	13.9	12	11.9	6	5.9	31.7
16. I had waves of strong feelings about them.	17	16.8	7	6.9	6	5.9	29.6
6. I thought about those events when I didn't mean to.	15	14.9	10	9.9	2	2.0	26.8
20. I had dreams about them.	16	15.8	9	8.9	1	1.0	25.7
2. I had trouble staying asleep.	13	12.9	6	5.9	6	5.9	24.7

Finally, the mean score for the hyperarousal subscale ($n = 101$; $M = .63$; $SD = .66$; range = 0-3.43) showed that these difficulties were present in the smallest degree. Only one-twentieth (5%) of respondents reported having experienced behaviors associated with hyperarousal to a moderate to extreme amount with scores greater than 2.00. Of importance however, is item 4, which concerns feelings of irritability and anger.

These feelings were most frequently (32.7%) associated with causing a moderate to extreme degree of distress for the flight nurse participants. Also, similar to the responses for item 2 of the intrusion subscale with regards to the impact the event had on the participants' sleep, item 15 was identified as being either quite or extremely distressing for 12 participants (Table 6).

Table 5

Difficulties Experienced in the Avoidance Subscale

Item	Moderately Distressing		Quite a bit Distressing		Extremely Distressing		Total %
	n	%	n	%	n	%	
5. I avoided letting myself get upset when I thought about them or was reminded of them.	22	21.8	11	10.9	1	1.0	33.7
11. I tried not to think about them.	15	14.9	14	13.9	3	3.0	31.8
13. My feelings about them were kind of numb.	10	9.9	10	9.9	2	2.0	21.8
17. I tried to remove them from my memory.	10	9.9	4	4.0	1	1.0	14.9
7. I felt as if they hadn't happened or they weren't real.	7	6.9	5	5.0	1	1.0	12.9
12. I was aware that I still had a lot of feelings about them, but I didn't deal with them.	6	5.9	3	3.0	2	2.0	10.9
8. I stayed away from reminders about them.	5	5.0	3	3.0	2	2.0	10.0
22. I tried not to talk about them.	7	6.9	1	1.0	1	1.0	8.9

Table 6

Difficulties Experienced in the Hyperarousal Subscale

Item	Moderately Distressing		Quite a bit Distressing		Extremely Distressing		Total %
	n	%	n	%	n	%	
4. I felt irritable and angry.	26	25.7	5	5.0	2	2.0	32.7
15. I had difficulty falling asleep.	11	10.9	7	6.9	5	5.0	22.8
21. I felt watchful and on guard.	17	16.8	5	5.0	0	0.0	21.8
18. I had trouble concentrating.	9	8.9	4	4.0	4	4.0	16.9
10. I was jumpy and easily startled.	4	4.0	2	2.0	2	2.0	8.0
14. I found myself acting or feeling like I was back at that time.	2	2.0	3	3.0	1	1.0	6.0
19. Reminders of them caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart.	2	2.0	1	1.0	2	2.0	5.0

Ways of Coping Questionnaire

A standardized version of the Ways of Coping Questionnaire was used. From this, eight subscales were evaluated for the types of coping mechanisms that were used by the sample participants. The eight subscales were planful problem solving, seeking social support, self-controlling, positive reappraisal, confrontive coping, distancing, accepting responsibility, and escape-avoidance. Additionally, the data were analyzed to find the most and least frequently used coping item within each subscale for the sample.

Of the subscales, the mean scores for planful problem solving ($n = 101$; $M = 1.34$; $SD = .65$; range = 0-2.83) demonstrate that this coping strategy was used the most by the sample. Similarly, seeking social support ($n = 101$; $M = 1.21$; $SD = .70$; range = 0-3.00) and positive reappraisal ($n = 101$; $M = 1.21$; $SD = .68$; range = 0-3.00) were frequently used. Finally, of the top four coping strategies implemented by the flight nurse sample, self-controlling ($n = 101$; $M = 1.14$; $SD = .51$; range = 0-2.14) was used in the least amount.

Strategies used to a lesser extent were accepting responsibility ($n = 101$; $M = .82$; $SD = .66$; range = 0-3.00) and distancing ($n = 101$; $M = .69$; $SD = .48$; range = 0-2.17). Confrontive coping ($n = 101$; $M = .68$; $SD = .51$; range = 0-2.33) and escape-avoidance ($n = 101$; $M = .46$; $SD = .47$; range = 0-2.38) were the least used coping mechanisms recognized by the sample.

Table 7 describes the most frequently used individual items contained within each of the eight subscales. Of particular interest is that the majority of participants chose prayer, a positive reappraisal technique, more frequently than they selected concentrating on the next task, a planful problem solving strategy. A concern was noted as an examination of the coping items identified as not being frequently used by the sample (Table 8) was completed. This examination revealed that the majority of the respondents ($n = 85$) rarely sought professional help as a coping mechanism.

Table 7

Most Frequently Used Item for Each Subscale

Items	Subscale	n	Percent
60. I prayed.	Positive Reappraisal	29	28.7
8. Talked to someone to find out more about the situation.	Seeking Social Support	25	24.8
1. Just concentrated on what I had to do next – the next step.	Planful Problem Solving	24	23.8
64. I tried to see things from the other person's point of view.	Self-Controlling	17	16.8
51. I made a promise to myself that things would be different next time.	Accepting Responsibility	17	16.8
28. I let my feelings out somehow.	Confrontive Coping	15	14.9
58. Wished the situation would go away or somehow be over with.	Escape-Avoidance	12	11.9
15. Looked for the silver lining, so to speak; tried to look on the bright side of things.	Distancing	6	5.9

Table 8

Least Frequently Used Item for Each Subscale

Items	Subscale	n	Percent
50. Refused to believe that it had happened.	Escape-Avoidance	88	87.1
22. I got professional help.	Seeking Social Support	85	84.2
34. Took a big chance or did something risky.	Confrontive Coping	84	83.2
29. Realized I brought the problem on myself.	Accepting Responsibility	73	72.3
13. Went on as if nothing had happened.	Distancing	72	71.3
20. I was inspired to do something creative.	Positive Reappraisal	56	55.4
43. Kept others from knowing how bad things were.	Self-Controlling	48	47.5
39. Changed something so things would turn out all right.	Planful Problem Solving	47	46.5

In addition to the 50 items included within the eight subscales, an analysis of the remaining 17 items was done to rank order additional coping strategies being used by the sample (Table 9). The data indicated that although these items are not contained within one of the defined coping processes of a subscale, they are nevertheless strategies that are used quite a bit or greater by the participants. Furthermore, these coping strategies were mechanisms used to analyze, understand or negotiate the stressor. One-fifth (20.8%) of the participants also identified the use of “negotiation” with themselves as a way to cope.

Table 9

Other Coping Strategies

Items	n	Percent
2. I tried to analyze the problem in order to understand it better.	68	67.4
62. I went over in my mind what I would say or do.	54	53.5
55. Wished that I could change what had happened or how I felt.	46	45.6
61. I prepared myself for the worst.	42	41.6
65. I reminded myself how much worse things could be.	41	40.6
66. I jogged or exercised.	38	37.6
3. Turned to work or substitute activity to take my mind off things.	41	40.6
37. Maintained my pride and kept a stiff upper lip.	37	36.6
4. I felt that time would make a difference – the only thing to do was to wait.	34	33.7
19. I told myself things that helped me to feel better.	34	33.7
53. Accepted it, since nothing could be done.	26	25.7
5. Bargained or compromised to get something positive from the situation.	21	20.8
24. I waited to see what would happen before doing anything.	17	16.8
27. I accepted the next best thing to what I wanted.	15	14.9
57. I daydreamed or imagined a better time or place than the one I was in.	13	12.9
32. Got away from it for a while; tried to rest or take a vacation.	12	11.9
67. I tried something entirely different from any of the above (please describe)...	6	6

Relationships Between IES-R Subscales and WCS Subscales

Further data analysis was conducted to ascertain the relationships between the subscales of each of the instruments to identify what styles of coping the respondents were using in relationship to symptoms of PTSD. Table 10 presents the intercorrelational data in its entirety. As expected, only positive relationships were found between the symptoms of PTSD and the ways of coping.

Of significance however, was that almost all of the subscales demonstrated a low to moderate relationship. The most significant relationship was found between the escape-avoidance subscale and each of the three subscales of the IES-R. This seems to indicate that among the sample, the coping mechanism escape-avoidance tends to lend itself the most to someone experiencing more symptoms of PTSD.

Table 10

Correlations Between the WCS Subscales and the IES-R Subscales

	Avoidance	Intrusion	Hyperarousal
Planful Problem Solving	.279**	.204*	.244*
Seeking Social Support	.296**	.449**	.525**
Self-Controlling	.477**	.406**	.402**
Positive Reappraisal	.322**	.375**	.350**
Confrontive Coping	.205*	.345**	.379**
Distancing	.420**	.091	.173
Accepting Responsibility	.173	.211*	.257**
Escape-Avoidance	.548**	.546**	.656**

Note. ** Correlation is significant at the $p < .01$ level (2-tailed).

* Correlation is significant at the $p < .05$ level (2-tailed).

CHAPTER 5

DISCUSSION AND IMPLICATIONS

This research was conducted with the purpose of examining for the presence of symptoms associated with PTSD in a sample of flight nurses. Specifically, the study had three goals. First, the study identified symptoms of PTSD that were present in the sample. Second, the study ascertained the coping mechanisms used by the sample to ameliorate the stressors associated with performing the role of the flight nurse. Third, an examination of the relationship between the symptoms of PTSD and the coping mechanisms used was performed. The study goals were achieved using Lazarus and Folkman's (1984) transactional model as its conceptual guide.

The findings of this study suggest that flight nurses are experiencing some of the symptoms that have been associated with the development of PTSD. However, the results of the study do not indicate that there are alarming rates of PTSD symptoms present within the sample. Despite this fact, what remains concerning is that some symptoms of this illness do indeed exist within a portion of the sample, and seemingly go untreated. Of surprise to the researcher was that the majority of flight nurses did not report that a larger proportion of unusually stressful events had occurred to them within the past year. The experiences of the author would seem to contradict this finding given the environment where these nurses practice. It seems perplexing that the majority of nurses in the sample did not identify more events as unusually stressful. Perhaps the

classifier “unusual” should not have been used since stress is perceived on an individual basis (Lazarus, 2000).

What remains problematic however is that when compared with previous reports of PTSD symptomatology within various EMS personnel, there is no consistency amongst the data with the underlying assumption that flight nurses witness similar events as other EMS workers. It would appear that the coping strategies that are being used by these individuals might indeed ameliorate the effects of these stressful events.

It is not surprising that flight nurses use planful problem solving and seeking social support as their primary coping mechanisms, as flight nurses are tasked with using critical thinking abilities on a daily basis. The majority of them are also experienced emergency or critical care nurses, many of which have previously established coping mechanisms. In addition, most air medical programs utilize a post-mission debriefing session of some sort so that the stressors of the mission can be discussed and resolved in a timely fashion. This research also supports the notion that flight nurses use problem-focused coping techniques more than emotion-focused techniques. Again, this finding is not surprising considering the patient population and the critical care nursing skills required to practice in this area.

Discussion of Findings in Relationship to Previous Studies

The results of this study suggest that symptoms of PTSD exist within the nursing profession, particularly within flight nursing. In this study, it was found that one-fifth (20.8%) of the respondents indicated that they had experienced intrusive thoughts in a moderate to extreme amount. Additionally, 5% (n = 5) of the sample experienced

moderate to extreme degrees of hyperarousal and 5.9% (n = 6) experienced symptoms of avoidance in a moderate amount or more.

Comparatively, within previous studies conducted on military nurses, Paul (1985) found adverse reaction rates of 39% and Norman (1988) described 22% of study participants as having intrusive thoughts and 14% of the participants as still exhibiting avoidance behaviors years later. Of the studies reviewed on civilian nurses, Kerasiotis (2001) could not find clear statistical support for the hypotheses regarding symptoms of PTSD amongst nurses, but cautioned that this may be due to the extensive training that nurses receive while working in high acuity areas. Powell (1996) on the other hand, was able to conclude that 42.1% of the sample exhibited a moderate to high number of symptoms of PTSD.

In studies conducted on firefighters, Wagner et al. (1998) were able to conclude that 18.2% of their sample met diagnostic criteria for PTSD and 46.2% were determined to have subsyndromal PTSD. Corneil et al. (1999), in their international study, found that moderate and severe symptoms of PTSD were present in 22% of the United States sample and 17% of the Canadian sample. Studies that have been conducted on police officers have had strikingly similar results. For instance, Gershon et al. (2002) concluded that within their sample symptoms of PTSD were frequent. They reported that 27% had recurrent thoughts, memories, or dreams about traumatic events, 26% avoided anything related to the events, and 26% demonstrated detachment behaviors related to the event.

From these comparisons, it is apparent that symptoms of PTSD exist among persons in disciplines considered to be “helping” or service oriented and who witness a variety of traumatic events. The difficulty remains however, that the degree to which

PTSD exists within each discipline has not been consistent. Additionally, there is no consistency between each of the disciplines themselves.

Discussion of Findings in Relationship to the Conceptual Model

In this study, the framework of Lazarus and Folkman (1984) was used for conceptual guidance. The transactional model includes five major variables: stress, appraisal, coping, person and environment antecedents of stress and coping, and short- and long-term adaptational outcomes. The model asserts that together, a person and the environment interact to arrive at new meanings through the use of appraisal. This study focused on the two processes that Lazarus and Folkman (1984) believed to have been mediators of this relationship – cognitive appraisal and coping.

Cognitive appraisal was defined as an evaluative process that determines how and why a transaction is stressful to the person, and primarily consists of two types: primary appraisal and secondary appraisal. Primary appraisal is the judgment that an encounter is irrelevant, benign-positive, or stressful. In order for an event to be perceived as stressful, the person, in this case the flight nurse, must perceive harm or loss, threat, or a challenge. For the purpose of this study, it was assumed that the flight nurse made a primary appraisal when they first encountered a patient care situation. Secondary appraisal of an event is a judgment of what might and can be done, and involves the techniques or resources available within the person to act. This would include an evaluation by the flight nurse about which coping strategy one could use, if it would be effective, and what the consequences of its use would be. Finally, a reappraisal or tertiary process could have occurred to help the flight nurse change a previous appraisal based on new information received from the environment.

The model defined coping as the process that individuals use to manage the events that the person has appraised as stressful. Two forms of coping exist: emotion-focused and problem-focused. Emotion-focused coping strategies can be used to increase or decrease emotional distress, such as self-blame or avoidance. Problem-focused coping strategies are used when a more problem solving approach is needed to better understand the event. These two processes, appraisal and coping, work together to affect adaptational outcomes. In other words, how flight nurses appraised the event and what coping process or resource they selected to deal with it would have had an impact on the outcome of the stressful event. Of the three basic kinds of outcomes identified by the model, this study was most concerned with the long-term adaptational outcomes, such as social functioning, morale and somatic health. The transactional model also discusses how appraisal and coping efforts affect health over the long term and thus, provided an adaptable framework in this study for application to the possible development of PTSD in flight nurses.

The following example is how this study applied the model (Figure 2). The flight nurse was witness to a stressful event, such as a patient encounter. The flight nurse performed a cognitive appraisal of the event by using primary and secondary means. The flight nurse then applied coping mechanisms to alleviate the stress. This study revealed that flight nurses use planful problem solving, seeking social support, self-controlling, and positive reappraisal to the greatest extent in order to cope in stressful situations. To a lesser extent, the group also used confrontive coping, distancing, accepting responsibility and escape-avoidance when coping with stressful events. Participants also identified using coping strategies that were similar in nature to those outlined within the subscales,

Figure 2. Application of the phenomenon of PTSD in flight nurses into the transactional model.

but were not contained in them. For instance, “I tried to analyze the problem in order to understand it better” could be considered a planful problem solving strategy, but it was not contained within the planful problem solving subscale. As a seemingly large proportion of flight nurses possess a variety of these alternative coping strategies, this could help explain the rates found for symptoms of intrusion, avoidance, and hyperarousal in the study. If these coping mechanisms were effective, than adaptational outcome was successful. However, if the coping mechanisms were ineffective or inadequate, long term somatic health problems, such as symptoms of PTSD, could have developed. This study demonstrated that symptoms suggestive of PTSD were present in more than 20% of the participants indicating that flight nurses use of selected coping mechanisms to ameliorate the stressful encounters they witness do little to protect them from some of the symptoms associated with the development of PTSD.

Strengths and Limitations

This study has several strengths. First, this study examined an area within nursing where there has been little research. Few studies were found that examined the long-term psychological sequelae of performing nursing roles in extremely stressful situations such as flight nursing. Second, the study lends support to the notion that nurses who perform their duties while being witnesses to tragic events on a frequent basis must have access to timely assessment and treatment. Third, the study helps clarify coping mechanisms that some nurses may utilize to minimize the effects and symptoms of PTSD within themselves so that these coping strategies can be encouraged and supported by others.

This study was limited in that it used a non-standardized version of the IES-R, and thus, the results are not generalizable to flight nursing as a whole. The IES-R was

not designed to measure symptoms of PTSD in a broad sense; it was designed to measure responses within a 7 day time period (Appendix E). The researcher was cognizant of this during the design phase of the study and elected to modify the instrument given its previous use in other studies (Corneil et al., 1999; Norman, 1988; Powell, 1996). In addition, reliability coefficients for this study were consistent with those previously reported in the literature.

Another limitation of this study was that it was conducted during a time when the United States of America was involved in the War with Iraq. It is unknown how this action could have affected the participants in the study and their responses to the questionnaires as some respondents may have had close family and friends serving in active military service. However, Polit and Hungler (1999) advise that this is an unlikely threat to the study in that both the participants in the study and those who are not included in the study would be affected in the same degree. The use of a random sample to decrease selection bias may have further addressed this issue.

Implications and Recommendations

This study has significance to many aspects of the nursing profession. First, nurse educators should provide student nurses with formal education with regards to coping with extremely stressful situations that a nurse might expect to encounter on a daily basis. It would seem that few nursing students enter their formal nursing education programs equipped with tools on how to deal with the effects of being witness to tragic events of other persons on an almost daily basis. As a whole, the nursing profession would only benefit from inclusion of critical incident stress debriefing into its practice. Second, nurses who are currently practicing in areas that may expose the nurse to more traumatic

stressors than areas must be aware of the potential for PTSD to develop, recognize symptoms within themselves and others, and seek/support treatment as necessary.

Third, nurse administrators must be aware of and support treatment for nurses who may have suffered psychological insult while performing their duties. Nurse administrators must commit and provide timely access to mental health practitioners who are able to assist staff that may be having difficulties in coping with the effects of work place stress. Additionally, nurse administrators must cultivate a culture in the workplace that allows nurses to express their need to obtain mental health counseling without fear of repercussion. This notion is supported by the national health initiative, Healthy People 2010, which identifies mental health as a leading health indicator (www.healthypeople.gov) for our nation. Finally, nurse researchers must continue to examine the effects of exposure to stressful situations on a daily basis and its sequelae on the health of the nurse on a long-term basis.

Replication of this study within a larger, diverse population of nurses is recommended. The researcher would recommend that prior to any type of replication, that a different instrument, i.e. one that has been validated to assess for symptoms of PTSD in a more general, broad sense, be selected. Once this instrument is selected, the researcher would recommend that one begin to identify more specific types of situations that may perhaps lend themselves to the development of PTSD symptoms to a greater extent. For example, if the death of a child or a scene of multiple casualties were found to be associated with the development of PTSD symptoms more than the day-to-day witnessing of an accident scene, then one could work toward providing some sort of

mandatory debriefing at the time of the event rather than waiting for symptoms of distress to appear in the nurse, hopefully preventing long-term somatic health problems.

Additionally, once selection of a more applicable instrument is accomplished, other researchers could then use a similar study design to expand this area of research to include other service-oriented professions such as police officers, fire fighters, and emergency service personnel. In doing so, not only would a greater breadth of knowledge be developed with regards to the development of symptoms of PTSD within our service professionals and its impact into their daily lives, but support for the commitment of resources to help ameliorate its effects on those individuals would also be gained. By accomplishing this, not only would the victims of a tragic event be cared for, but the caregivers would be as well.

Appendices

Appendix A

Air and Surface Transport Nurses Association Approval Letter

**AIR & SURFACE
TRANSPORT
NURSES
ASSOCIATION**

May 7, 2003

Gene Olsen
338 Richard Terrace SE
Grand Rapids, MI 49506

Dear Gene;

This letter is in response to your request for the Air & Surface Transport Nurses Association (ASTNA) mailing list for use with your research entitled: "Responses of Flight Nurses to Catastrophic Events". Your request was discussed at the ASTNA board meeting and I am happy to report that we will provide you with the ASTNA mailing list free of charge for this one time use on the conditions that your research is shared with ASTNA and we are credited with support of the work.

Please contact Debbie Cloud or Karen Wojdyla at the ASTNA office, and they will assist you with obtaining the mailing list.

Good luck with your project and your Masters degree!

Sincerely,

Heather McLellan RN, BN, CFRN
Air & Surface Transport Nurses Association
9101 E. Kenyon
Suite 3000
Denver, CO 80237
Phone: (750) 488-0492
Fax: (303) 770-1812
Web site: www.astna.org

HM/jo

9101 E. Kenyon,
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Phone: (720) 488-0492
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Appendix B

Demographic Questionnaire

Demographic Questionnaire

Instructions: Please indicate your response to each item by placing a mark next to the answer that describes you best. This information will only be used to describe the study participants as a whole.

1. Gender ☐ Male ☐ Female
2. Age
3. Do you identify flight nursing as your primary area of practice? ☐ Yes ☐ No
4. Years as a RN Years as a Flight Nurse
5. How many hours do you work a pay-period as a flight nurse?
 Greater than 32 hours
 Less than 32 hours
6. Primary Area of Flight Nursing Practice
 ☐ Rotor Wing Only
 ☐ Fixed Wing Only
 ☐ Combination of Rotor, Fixed Wing, or Ground Transport (during a typical pay-period)
 Please indicate your approximate percent of time working in each area
 (For example 70% Rotor Wing; 25% Fixed Wing; 5% Ground Transport).
 Rotor Wing Fixed Wing Ground Transport
7. Please indicate the number of events you perceived as **unusually** stressful in the past year.
 <5 5-10 11-15 16-20 >20
8. Did any particularly stressful event occur in the last 7 days? ☐ Yes ☐ No
 If you answered yes, would you like to describe it?

Appendix C

Impact of Events Scale - Revised

Impact of Events Scale - Revised

Instructions: The following is a list of difficulties people sometimes have after stressful life events. Please read each item, and then indicate how distressing each difficulty has been for you when considering an unusually stressful event(s) with respect to performing your job role. How much were you distressed or bothered by these difficulties?

	Not At All	A Little Bit	Mod- erately	Quite A Bit	Ex- tremely
1. Any reminder brought back feelings about those events.	0	1	2	3	4
2. I had trouble staying asleep.	0	1	2	3	4
3. Others things kept making me think about them.	0	1	2	3	4
4. I felt irritable and angry.	0	1	2	3	4
5. I avoided letting myself get upset when I thought about them or was reminded of them.	0	1	2	3	4
6. I thought about those events when I didn't mean to.	0	1	2	3	4
7. I felt as if they hadn't happened or they weren't real.	0	1	2	3	4
8. I stayed away from reminders about them.	0	1	2	3	4
9. Pictures about them popped into my mind.	0	1	2	3	4
10. I was jumpy and easily startled.	0	1	2	3	4
11. I tried not to think about them.	0	1	2	3	4
12. I was aware that I still had a lot of feelings about them, but I didn't deal with them.	0	1	2	3	4
13. My feelings about them were kind of numb.	0	1	2	3	4
14. I found myself acting or feeling like I was back at that time.	0	1	2	3	4
15. I had difficulty falling asleep.	0	1	2	3	4
16. I had waves of strong feelings about them.	0	1	2	3	4
17. I tried to remove them from my memory.	0	1	2	3	4
18. I had trouble concentrating.	0	1	2	3	4
19. Reminders of them caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart.	0	1	2	3	4
20. I had dreams about them.	0	1	2	3	4
21. I felt watchful and on guard.	0	1	2	3	4
22. I tried not to talk about them.	0	1	2	3	4

Appendix D

Ways of Coping Scale - Revised

Ways of Coping Questionnaire

Instructions: Please read each item below and indicate, by circling the appropriate category, to what extent you used it *in the situation you had just described*.

		Not used	Used somewhat	Used quite a bit	Used a great deal
1.	Just concentrated on what I had to do next - the next step.	0	1	2	3
2.	I tried to analyze the problem in order to understand it better.	0	1	2	3
3.	Turned to work or substitute activity to take my mind off things.	0	1	2	3
4.	I felt that time would make a difference - the only thing to do was to wait.	0	1	2	3
5.	Bargained or compromised to get something positive from the situation.	0	1	2	3
6.	I did something which I didn't think would work, but at least I was doing something.	0	1	2	3
7.	Tried to get the person responsible to change his or her mind.	0	1	2	3
8.	Talked to someone to find out more about the situation.	0	1	2	3
9.	Criticized or lectured myself.	0	1	2	3
10.	Tried not to burn my bridges, but leave things open somewhat.	0	1	2	3
11.	Hoped a miracle would happen.	0	1	2	3
12.	Went along with fate; sometimes I just have bad luck.	0	1	2	3
13.	Went on as if nothing had happened.	0	1	2	3
14.	I tried to keep my feelings to myself.	0	1	2	3
15.	Looked for the silver lining, so to speak; tried to look on the bright side of things.	0	1	2	3
16.	Slept more than usual.	0	1	2	3
17.	I expressed anger to the person(s) who caused the problem.	0	1	2	3

		Not used	Used somewhat	Used quite a bit	Used a great deal
18.	Accepted sympathy and understanding from someone.	0	1	2	3
19.	I told myself things that helped me to feel better.	0	1	2	3
20.	I was inspired to do something creative.	0	1	2	3
21.	Tried to forget the whole thing.	0	1	2	3
22.	I got professional help.	0	1	2	3
23.	Changed or grew as a person in a good way.	0	1	2	3
24.	I waited to see what would happen before doing anything.	0	1	2	3
25.	I apologized or did something to make up.	0	1	2	3
26.	I made a plan of action and followed it.	0	1	2	3
27.	I accepted the next best thing to what I wanted.	0	1	2	3
28.	I let my feelings out somehow.	0	1	2	3
29.	Realized I brought the problem on myself.	0	1	2	3
30.	I came out of the experience better than when I went in.	0	1	2	3
31.	Talked to someone who could do something concrete about the problem.	0	1	2	3
32.	Got away from it for a while; tried to rest or take a vacation.	0	1	2	3
33.	Tried to make myself feel better by eating, drinking, smoking, using drugs or medication, etc.	0	1	2	3
34.	Took a big chance or did something risky.	0	1	2	3
35.	I tried not to act too hastily or follow my first hunch.	0	1	2	3
36.	Found new faith.	0	1	2	3
37.	Maintained my pride and kept a stiff upper lip.	0	1	2	3
38.	Rediscovered what is important in life.	0	1	2	3
39.	Changed something so things would turn out all right.	0	1	2	3
40.	Avoided being with people in general.	0	1	2	3

	Not used	Used somewhat	Used quite a bit	Used a great deal
41. Didn't let it get to me; refused to think too much about it.	0	1	2	3
42. I asked a relative or friend I respected for advice.	0	1	2	3
43. Kept others from knowing how bad things were.	0	1	2	3
44. Made light of the situation; refused to get too serious about it.	0	1	2	3
45. Talked to someone about how I was feeling.	0	1	2	3
46. Stood my ground and fought for what I wanted.	0	1	2	3
47. Took it out on other people.	0	1	2	3
48. Drew on my past experiences; I was in a similar situation before.	0	1	2	3
49. I knew what had to be done, so I doubled my efforts to make things work.	0	1	2	3
50. Refused to believe that it had happened.	0	1	2	3
51. I made a promise to myself that things would be different next time.	0	1	2	3
52. Came up with a couple of different solutions to the problem.	0	1	2	3
53. Accepted it, since nothing could be done.	0	1	2	3
54. I tried to keep my feeling from interfering with other things too much.	0	1	2	3
55. Wished that I could change what had happened or how I felt.	0	1	2	3
56. I changed something about myself.	0	1	2	3
57. I daydreamed or imagined a better time or place than the one I was in.	0	1	2	3
58. Wished that the situation would go away or somehow be over with.	0	1	2	3
59. Had fantasies or wishes about how things might turn out.	0	1	2	3
60. I prayed.	0	1	2	3

	Not used	Used somewhat	Used quite a bit	Used a great deal
61. I prepared myself for the worst.	0	1	2	3
62. I went over in my mind what I would say or do.	0	1	2	3
63. I thought about how a person I admire would handle this situation and used that as a model.	0	1	2	3
64. I tried to see things from the other person's point of view.	0	1	2	3
65. I reminded myself how much worse things could be.	0	1	2	3
66. I jogged or exercised.	0	1	2	3
67. I tried something entirely different from any of the above (please describe) _____	0	1	2	3

PLEASE PLACE THE COMPLETED QUESTIONNAIRE IN THE RETURN ENVELOPE AND

MAIL BY MAY 29, 2003.

THANK YOU FOR YOUR PARTICIPATION!

Appendix E

Issues Using the Impact of Events Scale - Revised

Issues in Using the Impact of Event Scale-Revised (IES-R)

Permissions and Costs

The IES-R is available for use without cost, and the author will grant permission to use the measure to anyone with the appropriate training and context to administer the measure.

Event

The IES-R was designed and validated using a **specific** traumatic event as the reference in the directions to individuals completing the measure. Any use of the measure requires that this issue be made explicit by the person administering the measure, and that respondents are clear about what specific event they are reporting on. Events like "the automobile accident," "the earthquake," "the sexual assault," "the rescue effort at the WTC on 9/11," are all appropriate events. It is **not** appropriate to use the IES-R to measure things like "stress on the job," "my divorce," "my boss's criticism," and the like. For specific questions on this issue refer to the discussion in the DSM-IV on the event on page 424 and the specific language of the "A" criterion of Posttraumatic Stress Disorder on pp. 427-428 and p. 431 for Acute Stress Disorder.

There is some controversy about whether events like receiving a diagnosis of breast cancer or finding out one is HIV positive is an example of a traumatic event. Individual researchers need to make their own decision about this and be able to provide a rationale for how it fits the description in the DSM. As well, many researchers desire to broaden the referent from a **specific** event to a **class** of events: e.g., "my abuse as a child", "my service in Vietnam", "my being beaten by my husband". This is a trickier issue, and one that must be decided by the point of the study, but a guiding principle could be this: If the referent for the IES-R would not qualify as an event for DSM-IV because it is too broad, then the referent is **not** appropriate for the IES-R. Researchers should also be aware of the conundrum created and the difficulties for respondents when some but not other symptoms are present for one instance of a class of events but the others are present for a different instance. The DSM is not specific about this issue, but the vast majority of the data using the IES-R are in reference to a specific incident, so if a class is used as the referent (a strategy that I do **not** advise), the data collected will not be comparable to other data in a potentially important way.

Modifications in Time Frame

The IES-R was designed and validated using a specific time frame of the past seven days. Any change in this interval likely makes the data collected not comparable to those collected with the standard time frame. Thus, such a version is not endorsed or recommended. Should a researcher decide to do so anyway, she or he should be aware that any write-up of the research **must**

disclose that a non-standard, modified version of the measure was used and that **no** reliability or validity data exist for this new, non-standard measure in the standard IES-R literature. If there are other data in papers that used the identical modification, the researcher is, of course, to cite those papers as evidence in support of the characteristics of this **modified** measure.

Modifications of the Items

Any modification to the item wording, order, content, punctuation, etc. renders comparisons of the data collected using such a version immediately problematic and therefore is not endorsed or recommended. Should a researcher decide to do so anyway, she or he should be aware that any write-up of the research **must** disclose that a non-standard modified version of the measure was used and that **no** reliability or validity data exist for this new, non-standard measure. If there are other data in papers that used the identical modification, the researcher is, of course, to cite those papers as evidence in support of the characteristics of this modified measure.

Cut-offs

There are no "cut-off" points for the IES-R, nor do I expect to propose them. The IES-R is intended to give an assessment of symptomatic status over the last 7 days with respect to the 3 domains of PTSD symptoms stemming from exposure to a traumatic stressor. Neither the IES-R, nor the original IES was intended to be used as a proxy for a diagnosis of PTSD. I do not use it that way, I do not recommend using it that way, nor do I believe it is valid to use it that way. Issues such as the time elapsed since the traumatic event, the severity of the traumatic event, and other issues all mitigate against suggesting cut-off scores. Moreover, the base rate of stress reactions will vary dramatically depending upon the sample being studied (firefighters versus women who have been beaten during a sexual assault) and variation in base rates tends to undercut the validity of any fixed cut-off.

Until a norms paper appears, (which is in the works), I recommend using the anchor points as references for interpreting scores. For example, if an individual's score or a group's mean on Intrusion was 1.89, that would indicate that for intrusion, for this person (group) in the last week their distress from intrusive symptoms was close to, but not quite moderate. For individuals similar statements regarding the other two subscales can be made. For groups, using the SD will help immensely in making the pattern of scores meaningful.

Appendix F

Cover Letter

May 1, 2003

Dear Fellow ASTNA Member:

The experience of being a flight nurse is often very demanding and stressful. I am interested in finding out more about your experiences as a flight nurse and how you have handled the stressors that you have encountered. Therefore, your participation in this research study is vital. While you may not receive direct benefit, your participation in this research project entitled Responses of Flight Nurses to Catastrophic Events will benefit many generations of nurses to come. This study will help to identify factors affecting the well-being of flight nurses and their practice.

You were randomly selected from the ASTNA membership list to participate in this study. I respectfully request that you take approximately 20 minutes and complete the enclosed questionnaires. Your voluntary participation is very important to me. Completing and returning the questionnaire will assume your understanding and desire to be included in the study.

Your risk as a participant is minimal. However, if after completion of the questionnaire you feel as though you might not be managing your response to catastrophic events you've experienced on your job, I urge you to contact your local community mental health agency. Neither the researcher nor Grand Valley State University will be legally responsible for any expenses that might result from these services.

The questionnaire asks for no identifiable data. This is to ensure confidentiality of each participant's responses and to protect your anonymity. Please do not include any information on the questionnaire or return envelope that has not been requested. Once the data have been analyzed as an aggregate, the results may be presented either verbally or in writing. If you would like to receive a copy of the results, please contact me separately at the address below.

If you have any questions regarding participation in the study, I may be reached at (800) 862-0921 or 338 Richard Terrace SE, Grand Rapids, MI 49506. In addition, this study has received approval by the Human Research Review Committee of Grand Valley State University. Questions regarding approval or your rights as a participant may be directed to Professor Paul Huizenga, Chairperson of the Human Research Review Committee, at (616) 331-2472.

Please follow the directions on each questionnaire. Once completed, please place the questionnaire in the enclosed postage-paid return envelope and return to me by **May 29, 2003**. Thank you in advance for your participation.

Sincerely,

Gene L. Olsen, BSN RN, EMT-P
Flight Nurse

Appendix G

Reminder Postcard

Reminder:

Approximately 2 weeks ago you were mailed a questionnaire packet for the study entitled "Responses of Flight Nurses to Catastrophic Events." If you have completed the questionnaire, thank you. If you have not yet completed the questionnaire, please consider doing so as soon as possible and return it in the prepaid envelope.

Thank you
Gene L. Olsen, BSN RN

Appendix H

Grand Valley Human Research Review Committee

GRAND VALLEY
STATE UNIVERSITY

1 CAMPUS DRIVE • ALLENDALE, MICHIGAN 49401-9403 • 616/895-6611

April 22, 2003

Gene Olsen
338 Richard Terrace SE
Grand Rapids, MI 49506

RE: Proposal #03-192-H

Dear Gene:

Your proposed project entitled **Responses of Flight Nurses to Catastrophic Events** has been reviewed. It is exempt from the regulations by section 46.101 of the Federal Register 46(16):8336, January 26, 1981.

Sincerely,

[Redacted Signature]

Paul Huizenga, Chair
Human Research Review Committee

List of References

List of References

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