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An evidence based application of Guided Imagery and Its Impact on Resilience and Stress in Military/DOD nurses at risk for PTSD-A Pilot Project

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An evidence based application of Guided Imagery (GI) and Its Impact on Resilience and Stress in Military/DOD nurses at risk for PTSD-A Pilot Project

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Purpose: The purpose of this EBP pilot project was to implement GI in a population of military nurses who care for wounded or ill service members and to determine the feasibility of implementation at a large military treatment facility.

Design: The study design for this evidence based practice pilot project was a pretest/post-test intervention feasibility study.

Methods: Each participant completed a perceived stress scale (PSS)-10, the RS10 and the PTSD 7-item screen before and after the GI intervention. Upon completion of the PSS, the RS10 and the PTSD Scale, each participant participated in three GI sessions. Each guided imagery session lasted no more than 30 minutes and was administered from a pre-recorded compact disc. The sessions were administered by the PI at a location on each unit. Each session was separated by no less than one day and not more than 72 hours since the previous GI session. All GI sessions were completed in one month by each participant. Nurse participants were asked to refrain from practice of the GI technique between sessions.

Results: A Wilcoxon Signed Rank Sum Test revealed a statistical improvement in resilience ($z=-2.938$, $p<0.003$, $r=0.54$) and perceived stress ($z=-2.990$, $p<0.003$, $r=0.54$) and a reduction in PTSD symptoms ($z=-3.219$, $p=0.001$, $r=0.59$) following the participation in the GI sessions.

Conclusion: GI can be translated into an intervention for improved resilience, improved stress management and deceased risk for PTSD symptoms for military nurses in the occupational setting.

Key Words: post-traumatic stress disorder, resilience, guided imagery, stress and nurses

This evidence-based project by Margo Youngberg Jenkins fulfills the requirements for the doctoral degree in Doctor of Nursing practice approved by Janice Agazio, PhD, CRNP, RN as Director, and by Janet Merritt, RN, PhD, CNS-BC, and Susanne W. Gibbons, PhD, C-ANP, C-GNP as readers.

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Dedication

There are many people who have helped me through this process. All deserve distinctive thanks, but some merit special appreciation. My utmost gratitude is extended to my husband Tim for his unwavering support and encouragement. Also, a special thanks to the bravest woman I know, my mother Catherine, who is always supportive.

TABLE OF CONTENTS

CHAPTER ONE: NATURE OF THE PROJECT

Introduction

Since the terrorist attacks on September 11, 2001, the United States (US) military has been engaged in various combat theaters and its members have experienced multiple mobilizations. Nurses caring for wounded warriors are exposed to unprecedented injuries/acuity. In addition to combat-related experiences and exposures, nurses caring for military members are exposed to environmental hazards as an inherent risk of caring for those injured during and after deployment. The environmental hazards include stressors related to an increased operations tempo, increased patient acuity, increased needs of family in attendance for long periods of time, and adjustment of patients to significant lifestyle changes associated with injury (Smith et al., 2011). While the prolonged military operations have resulted in a myriad of long-term consequences, one significant result is the growing ranks of those healthcare providers at risk for Post-Traumatic Stress Disorder (PTSD) (Dickstein, Suvak, Litz, & Adler, 2010).

Scope of the Problem

Evaluating the stress phenomenon for nurses is a demanding endeavor in the modern dynamic healthcare setting (McVicar, 2003). Stress can be examined from a perspective that integrates demands, perception of stress, and the response to stress (Lazarus & Folkman, 1984) into a broadly acknowledged cognitive theory of stress applicable in the occupational setting (Lehrer, Woolfolk, & Sine, 2007; Rick & Perrewe, 1984). In high acuity patient care settings with prolonged assignment to the same or similar patients, nurses are at extremely high risk for the development of PTSD

symptoms due to a stress/coping disparity, in addition to the concern that many nurses may lack the capability to adapt as seen in other similar populations (Selye, 1956, Selye 1979) without an intervention. Symptoms of stress and distress vary greatly from one individual to the next with discernible psychological and physiologic indicators of stress (McVicar, 2003). Military nurses face unique occupational stressors as healthcare providers in military healthcare settings. In the shadow of war, nurses face prolonged exposure to extremely demanding high acuity patients in a stressful environment. As with any healthcare setting, military nurses deliver care during times of conflict, high emotions, and periods of uncertainty and are often confronted with the death of patients despite prolonged investment in their care (McVicar, 2003).

Key to the management of stress in nurses on high acuity units are several traditionally known interventions such as workload management, staffing management, implementation of a participative management approach, and constructive mentorship to improve coping and stress management (Smith & Gray, 2001). Economic reimbursement (Duffin, 2001; Holyoake, Singleton, & Wheatley, 2002) and strain related to shift work also continue to be elements that contribute to perceptions of real and perceived stress in the workplace (Efinger, Nelson, & Starr, 1995). The social impact of occupational stress on nurses is immense. It can affect job satisfaction, employee retention, and the ability of individuals to provide sound patient care, challenging even the most resilient nurses.

Significance

In view of the individuality associated with the perceptions of stress, it is important to identify coping strategies that enable nurses to manage stress while

increasing their resilience and decreasing the symptoms that can lead to development of PTSD indicators in high acuity environments (McVicar, 2003). Benner (1984) makes the case that nurses and caregivers must find ways to care for themselves and to meet their personal needs before the stressors become overwhelming as a primary prevention tool. Caregivers develop strength and comfort through engagement rather than disengagement, supporting the need for strong social networks. Nurses with greater resilience experience less stress, less workplace burnout (Collins, 1996) and an enhanced ability to resist stressors that are perceived to be outside individual control (Pearlin, Lieberman, Menaghan, & Mullan, 1981). According to Hobfall and Leiberman (1987) provision of a resource to an individual experiencing stress will show positive benefit in the area of stress resistance. Interventions and training to achieve increased resilience should be taught and provides a lasting effect (Collins et al., 1996).

Despite profound personal or family stressors there are many individuals who remain remarkably without symptomatology and this can likely be attributed to resilience. It is in this population group that further investigation is warranted to identify characteristics and/or behaviors that lend themselves to a greater degree of resilience and to better understand the elements that strengthen personal resilience. Nurses as a population sample have received little attention in the area of personal resilience development despite the highly emotional and physically challenging environment in which they work. It is timely that nurses as a population receive attention to improve resilience. Research findings in a variety of populations suggest that guided imagery is an intervention may prove to be beneficial in a nursing population.

The Psychiatric Mental Health Nurse Practitioner (PMHNP) in the Army Medical Department (AMEDD) system is in an exceptional position within the AMEDD. The PMHNP is available to create an environment that supports the individual nurse while assisting the leadership in meeting organizational goals in an increasingly complex healthcare environment. Guided imagery (GI) is a tool that could be utilized by the PMHNP to assist staff nurses to empower and bolster themselves against stressors that threaten resilience. The PMHNP is able to teach, educate, and bolster the staff nurses ability to adapt, evolve and to overcome threats to resilience as the needs of the military patient evolve. In order to implement guided imagery into practice it requires the PMHNP educated in the technique of using guided imagery without other technology or financial resources. Guided Imagery is a cost effective way to enhance and support nursing staff to improve resilience, to improve job satisfaction and likely ward off attrition of nursing staff at little or no additional cost to the organization.

Project Objectives

The purpose of this EBP pilot project was to implement GI in a population of military nurses who care for wounded or ill service members and to determine the feasibility of implementation at a large military treatment facility. The specific aims of this evidence based synthesis were to:

1) Examine the impact of GI on stress levels in military/DOD nurses on high acuity units.

2) Examine the impact of GI on resilience in military/DOD nurses on high acuity units.

3) Examine the impact of GI on PTSD symptoms in military/DOD nurses on high acuity units.

Definition of terms

- Guided imagery (GI) is a simple, noninvasive therapy (Weydert et al., 2006) directed at use of the imagination to bring healing to the mind and body.
- Resilience is defined as the qualities that an individual possesses allowing one to flourish in a time of adversity and can be understood as a measure of coping ability (Connor & Davidson, 2003).
- Stress as defined by Selye (1979) "the non-specific response of the body to any demand placed upon it."
- PTSD is a draining and often chronic anxiety disorder resulting from trauma that can produce symptomatology to include re-experiencing of the disturbing events, emotional numbing or avoidance, nightmares and exaggerated emotional or physiologic activation (Frans, Rimmo, Aberg, & Fredrikson, 2005).

Organizational assessment

Walter Reed National Military Medical Center (WRNMMC) is a very large military medical center located in Bethesda Maryland. It is a military medical center that has recently gone through an organizational realignment to include Army, Navy and Air Force personnel. Reorganization can be a challenging time for all staff members of a healthcare organization. Those who are less satisfied with their jobs maybe more ready for organizational changes (Christl et al., 2010) despite other recent changes associated with organizational merger.

WRNMMC has significant interest in the identified purpose of this EBP project. Nurses at WRNMMC face tremendous stressors as they continue to work on high acuity units caring for military members who in many cases have catastrophic injuries. Organizationally, the institution has an interest in the well-being of the nursing staff, their resilience and the ability to provide quality patient care.

In order to conduct this evidence based project both legal and ethical permission was sought from both WRNMMC and from The Catholic University of America (CUA). Cultural values in a military institution include authority based on rank and position. All measures were taken to ensure that there will be no influence related to rank or authority placed on project participants. Human resources include both the pilot program manager and the participants. Technological resources include computers, software, and printers available at both the project site and the academic institution with unlimited statistical capability.

Historically, the U.S. Military Health System (MHS) continues to represent one of the largest health systems in the world and change in such a large system can be challenging. Currently, the MHS cares for 9.1 million members that are made up of active duty, retired, and their family members (Patrician, Shang, & Lake, 2010). The MHS consists of three departments caring for Army, Navy, and Air Forces members with the Army branch known as AMEDD serving 5 million beneficiaries in care facilities across the world (Patrician et al., 2010). For organizations with such size and volume of patients, change comes as part of a strategic renewal plan, as both learning at the

organizational level and at level of the individual provider (Crossan, Lane, & White, 1999).

Military nurses are a mixture of active duty RN's, LPN's, and federally employed civilian nurses. The nursing staff can be supplemented with both contract nurses and reservists. Military nurses in the Army and Navy have a unique environment to work in that requires proficiency in clinical skills along with military skills that must be maintained. The military nurse officers also have the responsibility to seek out new experiences that broaden their clinical skills, leadership abilities, and depth of knowledge. The military nurse also faces the demands of mobility which requires relocation to a new environment every three or so years.

Culturally, the WRNMMC has deep roots throughout the organization that are passed down through time to the individual. In more recent years with demands for improved productivity, transformational leaders are working to change ingrained cultural patterns in support of evidence based change and improved practice. Vision and values at WRNMMC are slowly changed with articulation of issues and solutions for improvement based on evidence. Change for WRNMMC has both micro and macro implications especially in a new Tri-Service arena with Army, Navy, and Air Force all working in the same hospital environment. Productivity of the entire military nursing system requires analysis at the macro level. Those nurses who, due to the challenges of a high demand environment face tremendous challenges to their resilience require an approach that supports organizational productivity while addressing the needs of the individual nurse at the micro level.

Central to implementation of any organizational change is the ability of that organization to understand who the consumers or customers are that will benefit from change. While this determination can be complex, it is not insurmountable. Clearly, through the implementation of guided imagery for nursing staff, the nurse is first and foremost the primary beneficiary. Depending on where the nurse works in the MHS also determines who the other secondary consumers are that would benefit from having a more resilient nurse. One can easily identify the patient and their families as benefitting from the nurse who has learned the guided imagery intervention. Additionally, hospital staff co-workers, and even the nurse's family benefits from having a family member who is more resilient to occupational stressors.

In order to support and build resilience in the AMEDD nursing team transformational change must be a goal. Resilience in the staff nurses must be addressed and enhanced in order to sustain and preserve human resources, and to facilitate the best care possible for patients. Transformational change through leadership is vital to obtainment of staff resilience, sustained productivity, and staff effectiveness (Botting, 2011). Strong leadership allows translation of tools such as guided imagery and its impact on resilience to be utilized for the empowerment of the staff nurse, warding off PTSD symptoms that threaten the ability of the nurse to complete tasks, to function as part of a team and to thrive as individual (Botting, 2011). According to Hooper and Potter (2001) organizational change requires the leadership to address three unique echelons. The unique areas include the strategic level, organizational level, and the team/individual level (Botting, 2011). At the organizational level the robust leader

recognizes that there are threats to nursing resilience and that change and implementation of measures to enhance resilience requires intervention at the individual level. The transformational leader builds, enhances and produces a sustained nursing teams and teamwork through open communication, morale building, and through interventions that improve resilience.

CHAPTER TWO: EBP MODEL

The Stetler Model

The use of an evidence-based model for this project allows incorporation of multiple sources of data to identify possible sources of practice-based problems (Stetler et al., 1998). The purpose of using an EBP project is to de-emphasize the use of tradition as basis for practice, and stresses the importance of using evidence-based research in clinical decision making (Stetler, 2001). The Stetler Model provides a framework whereby scholars can transform knowledge gained through published research reports and other documents, and utilize that information to improve and enhance evidence-based practice (Figure A). The Stetler Model was chosen for this evidence based practice project because it is a practitioner-oriented model that is adaptable at the level of clinical practice or at the organizational level (Romp & Kiehl, 2009). Stetler's procedural steps include: preparation, validation, comparative evaluation, translation/application and evaluation of the project data. The entire model is outlined in Table A with both conceptual and operational definitions.

Table A: Stetler Procedures, Adapted from Stetler, (2001). Updating the Stetler model of research utilization to facilitate evidence-based practice.

Evidenced based phase	Conceptual Definition	Operational Definitions
Phase 1: Preparation	Form a team Define problem, purpose and outcomes of the review Identify internal and external factors significant to problem Search, sort and select sources of evidence	Develop search algorithm and review templates Develop evidence template and synthesis table Pilot and refine key words , search algorithm Complete systematic search and data collection Consolidate evidence documents
Phase 2: Validation	Perform utilization focused critique and synopsis Identify and record key study details , qualifiers, disqualifiers for the evidence sources found in the search	Critique systematic search results using review template that enables incorporation of key concepts (list key concepts) for evaluating policy and practice related to resiliency
Phase 3: Comparative evaluation and decision making	Comparative: Substantiation of evidence Fit and feasibility of using evidence with health setting Concerns with current policy and/or practice Decision: To use research, consider using, or not use the research evidence	Evaluate each piece of data collected for consideration or rejection Use content analysis to identify and organize descriptive information on policy, practice for key concepts, and information relevant to the resiliency and risk for PTSD development in the military
Phase 4: Translation/application	Planning for and actually using the EBP evidence Determine which findings will be utilized and how	Utilize Guided Imagery with the sample population group Analyze, interpret, and decision making Compile synopsis of evidence based documents Synthesize data into usable applicable forms Interpret results
Phase 5: Evaluation	Evaluate the impact of the evidence based change on health care agency, personnel and patients	Evaluate the impact of the guided imagery technique Summative evaluation PSS-10, RS10, PTSD scale Recommendations for policy, practice and future EBP projects Publication with STTI, poster, research symposium

Literature review

A review of literature was completed using the Cumulative Index of Nursing and Allied Health Literature (CINAHL) with full text and PubMed databases to find information that examined the use of GI to increase resilience and to lessen the symptoms of stress and PTSD. The search terms included were post-traumatic stress disorder, resilience, guided imagery, stress and nurses. The terms were included in various combinations and included the Boolean word "AND". Literature was selected if it met the aims of the review, met the inclusions criteria and was available in English. Additional material was identified outside the original literature search through examination of reference lists of published works.

Related Research

Guided Imagery

Stress levels can vary greatly from minor nagging worries to anguish. GI can be taught and tailored to meet the challenges nurses face every day through the imagination and development of sensory impression of touch, taste, smells, and sights (Naparstek, 1994) and allows for communication with the subliminal part of the mind to enable transformation and resolution of stress (Weydert et al., 2006). Multiple studies have demonstrated positive stress reduction, and no adverse effects after one or more administrations of 14 to 25 minute guided imagery sessions (Kwekkeboom, Hau, Wanta, & Bumpus, 2008; Krespi et al., 2009; van Tilburg et al., 2009; Weydert et al., 2006). In one study involving young people, chronic pain was relieved in 89% of the participants through the use of GI with less missed days of school and improved activity levels

(Youssef et al., 2004). A large amount of evidence suggests that cortisol response decreases with the perception that individuals have from being able to cope with stress through the use of GI (Manyande, Berg, Gettins, & Stanford, 1995; Weigensberg et al., 2009). Krakow and colleagues (2001) were able to demonstrate significant improvements in disturbed sleep and symptoms of posttraumatic stress symptoms through GI.

In a 2007 study, guided imagery was employed in a randomized study examining relaxation in gynecologic/breast cancer patients undergoing brachytherapy (Leon-Pizarro et al., 2007). Sixty-six patients were randomly assigned to both a control and a study group. Only the study group received the GI intervention, and both groups received education in brachytherapy (Leon-Pizarro et al., 2007). In the analysis of the research, the study group exhibited a statistically significant decrease in anxiety ($p=0.008$) as compared to the control group who did not received guided imagery intervention. Several other studies have examined guided imagery as a means to stress reduction and positive outcomes (Ip, Tang, & Goggins, 2009; Rees, 1995; Tusek, Cwynar & Cosgrove, 1999). GI provides nurses with a holistic method to decrease stressors, and can be incorporated into a holistic self-care plan (Beggs, Shields, & Janiszewski, 2011).

Resilience

While there are a number of biological, psychological, and social factors that put an individual at increased risk for the development of PTSD symptoms in the face of trauma, there are a number of protective factors that can be implemented to foster

resilience (Jones and Johnston, 2000). Resilience is defined as the qualities that an individual possesses allowing one to flourish in a time of adversity and can be understood as a measure of coping ability (Connor & Davidson, 2003). There are data to suggest that both cognitive skills and emotional management skills can be supported and that the enhancement in these areas improve resilience (Pickering, Hammermeister, Ohlson, Holliday, & Ulmer, 2010). Resilience is not a constant attribute, it is dynamic and can be managed to develop an individual's emotional hardiness. Resilience or hardiness has been shown to offer protection from the development of PTSD (King et al., 1998; Waysman, Schwarzwald, & Solomon, 2001).

It has been greater than 20 years since resilience was identified as a protective factor (Garmezy, 1983; Rutter, 1987; Werner & Smith, 1982;). Luthar, Cicchetti, and Becker (2000) presented an inclusive definition of resilience stating it is not only a dynamic progression, but also a positive adjustment in the face of considerable hardship. Ungar (2005) suggests that the ability for an individual to become resilient is derived less from one's biological make-up than by social development. Ungar (2005) supports the concept of using techniques to nurture individual resiliency behaviors allowing nurses to be more elastic to daily stressors.

There are longitudinal research studies which demonstrate the idea that individuals cannot be grouped into strictly or exceptionally resilient or as exceptionally un-resilient groups (Phelps et al., 2007; Schoon, 2006; Werner & Smith, 2001). Interventions such as guided imagery employed to enhance resiliency must be individualized to the person seeking to improve coping over time and as they move from

one environment to the next (i.e., work, home, unit to unit) in the face of adversity (Schoon, 2006; Werner, & Smith, 2001). Adversity for the purpose of this review is viewed as any negative, stressful, distressing, or difficult circumstances or episode of difficulty encountered in the work-related setting (Jackson, Firtko, & Edenborough, 2007).

While there are a variety of interventions available to enhance resilience, guided imagery, as an intervention has shown promise and can be adapted to the individual and facilitates one's ability to harness strength during a time of adversity (Kim-Cohen, 2007; Lerner, 2006; Rutter, 2005; Ungar, 2005).

Post-Traumatic Stress Disorder

The costs of PTSD both in monetary and human costs are immense. The effect of caring for patients with catastrophic injuries for prolonged periods of time puts the nurse at risk for unrelenting stress and burnout effects and can lead to the development of PTSD symptoms. It is estimated that the cost of treatment for anxiety disorders in the United States in 1990 was $46.6 billion (Rice, & Miller, 1998) and the costs have continued to grow as a result of both treatment and absenteeism from work to approximately $300 billion in 2003 (Reeves et al., 2011). High acuity patient care units in military healthcare settings can lead to military healthcare providers with more issues associated with profound emotional distress, lead to more medical visits and healthcare system utilization including both outpatient visits and greater utilization of mental health assets (Chan, Cheadle, Reiber, Unutzer, & Chaney, 2009; Garvey Wilson, Messer, &

Hoge, 2009). At present PTSD rates are estimated to be as high as 19% and are expected to rise further (Chan et al., 2009).

PTSD is characterized by three main symptom categories or clusters (American Psychiatric Association, 1994).

- Avoidance is exhibited as unfeeling, apprehension and depression characteristics.
- Hyper arousal is manifested as irritability, inability to concentrate, hypervigiligence, and increased startle to anything that would not have previously been startling.
- Re-experiencing elements of the trauma with occurrences of dissociation, flashbacks, and nightmares.

Individuals with symptoms of PTSD additionally experience greater rates of behavioral wellbeing issues, to include social dysfunction, difficulty with interpersonal connections, and impaired capacity to carry out role expectations (Brunello et al., 2001). While both males and females report symptoms of stress, females are more likely to suffer anxiety, somatic disorders and other co-morbid illnesses (Natvik et al., 2011). Quality of life outcomes are worse for females who also experience advanced onset of psychological morbidity more so than male subjects exposed to equal trauma (Holbrook & Hoyt, 2004).

CHAPTER THREE: PROJECT METHODS

The purpose of this EBP pilot project was to implement GI in a population of military nurses who care for wounded or ill service members and to determine the feasibility of implementation at a large military treatment facility.

Project Design

The first goal of this project was to examine the impact of GI on stress levels in military/DOD nurses on high acuity units. The perceived stress scale (PSS)-10 (Appendix B) was utilized to evaluate the impact of GI on participant stress levels. The PSS10 was administered to each project participant before and after the three GI sessions.

The second goal of this project was to examine the impact of GI on resilience in military/DOD nurses on high acuity units. The RS10 (Appendix C) scale was employed to measure the impact that GI had on participant resilience both before and after the three guided imagery interventions.

The final goal was to examine the impact of GI on PTSD symptoms in military/DOD nurses on high acuity units. The PTSD 7-item screen (Appendix D) was utilized to evaluate the impact of GI on PTSD symptoms in participants before and after the third GI intervention.

Methods

Each participant completed a perceived stress scale (PSS)-10 (Appendix B), the RS10 (Appendix C) and the PTSD 7-item screen (Appendix D). Upon completion of the PSS, the RS10 and the PTSD7, each participant received three guided imagery sessions. Each guided imagery session lasted no more than 30 minutes and was

administered from a pre-recorded compact disc prepared by the pilot program manager to ensure standard presentation (See Figure B). The sessions were administered by the pilot program manager via a previously prepared compact disc to ensure project fidelity. The compact disc consisted of initial guided relaxation which offers head to toe muscle relaxation tasks followed by guided imagery suggestions where participants are presented verbal images of sitting on a beach with a description of the water moving up their legs and relaxing them while reducing stress. Each session was separated by no less than one day and not more than seven days since the previous GI session. All GI sessions were completed in one month. Upon completion of the three guided imagery sessions the PSS, the RS10, and the PTSD scale were completed a second time. Nurse participants were asked to refrain from practice of the GI technique between sessions.

Human Subjects Considerations

In the interest of proper ethical and scholarly behavior, this project was presented for approval from the Institutional Review Boards of both Walter Reed National Military Medical Center and to The Catholic University of America. The pilot program manager did not appear in uniform to conduct either unit presentations for recruiting purposes or during the conduct of the GI sessions to protect project participants from any rank related pressures. Written consent was not required for the conduction of this evidence based pilot project, however verbal consent was obtained from each project participant after formal re-explanation of the project was provided. Advertisement handouts, and project abstracts were provided to the each of the units where participants were recruited.

Sampling Plan

Once IRB approval was obtained, participants working on high acuity units at Walter Reed National Military Medical Center (WRNMMC) were invited to participate through presentations by the PI at staff meetings/presentations, and posted flyers on units. A total of 15 nurses were recruited from WRNMMC units 4E, 4C, 4W and the TBI clinic.

Subjects were eligible for inclusion in the evidence based practice project if they met the following criteria: (a) are currently a nurse (LPN, RN, ARNP); (b) are currently active duty military, activated reservist, activated guard, or department of defense; and (c) are currently working on the designated units. Contract nurses were excluded from this project. Demographic data forms (Appendix A) were completed by each participant prior to any assessment tools or guided imagery sessions.

Perceived Stress Scale

The Perceived Stress Scale (PSS) is an extensively utilized assessment tool for the measurement of stress. The PSS-10 is a tool that quantifies the degree to which an individual considers life events as stressful. The PSS perceived stress scale (PSS)-10 has a reliability 0.85 Cronbach's alphas and has established construct validity (Cohen, & Williamson, 1988). Cohen and Williamson (1988) also note that construct and convergent validity of the PSS-10 was manifested by correlating with other methods of stress and self-reported health measurements. Each of the items included in the scale are rated in relation to frequency on a 5 point Likert scale with 0 equivalent to never and 4 equivalent to very often. The higher the score indicates a higher level of stress. The

separate questions are universal in nature and are considered to be free from content specific to any sub-population or group and are a reflection of perceptions over the last month. For each question the project participants are to respond how often they felt the identified stressors in the last month. A score of 20 or greater indicates a stressed participant, whereas a score of 19 or less indicates a non-stressed participant.

Resilience Scale

The Resilience Scale (RS) 10 measures temperament and attributes of resilience: self-reliance, purposeful life, equanimity, perseverance, and existential aloneness (Wagnild, 2009). The RS10 is quick and easy to complete, quick to score and focuses on positive psychological qualities versus focusing on negative attributes or deficits. There are ten questions with answer choices on a Likert scale which ranges from one to seven with one being the choice of disagreement with the statement and seven indicating agreement with the statement. The RS10 resilience scale has a reliability (0.83) and construct validity (0.73) (Resnick, Galick, Dorsey, Scheve & Gutkin, 2011). The RS 10 has been used with a variety of populations, with a variety of age groups and with a variety of socioeconomic and educational experiences. Additionally the RS10 has repeatedly performed as a valid tool to measure resilience in a variety of populations.

PTSD 7 Item Screen

The PTSD 7 item screening tool was designed for anyone who has endured trauma. The scale contains five items associated with avoidance and numbing. The remaining two items associated with hyper arousal category of symptoms. Project participants rate each question or item as a “yes” or “no” response and the score is then

obtained by the number of "yes" responses. The screen when scored positively identifies symptoms of PTSD with a score of four or more with a sensitivity of 80%, specificity of 97%, positive predictive value (PPV) of 71%, and negative predictive value (NPV) of 98%. PTSD 7-item screen has test-retest reliability and unspecified type of validity (.084) indicating that the PTSD 7-item screen does evaluates for the symptoms of PTSD (Breslau, Peterson, Kessler, & Schultz, 1999).

Summary

Each participant (N=15) completed a perceived stress scale (PSS)-10 (Appendix B), the RS10 (Appendix C) and the PTSD 7-item screen (Appendix D) once before the GI intervention and once after three GI sessions. Each GI session lasted no more than 30 minutes and was administered from a pre-recorded compact disc prepared by the pilot program manager. The PSS-10, the RS10, and the PTSD 7 item screening scales were all scored before and after the GI sessions for comparison. All 15 participants that began the GI sessions were able to complete the GI sessions within the specified time patterns, and all participants completed the pre and post assessment scales.

CHAPTER FOUR: PROJECT IMPLEMENTATION

The purpose of this EBP pilot project was to implement GI in a population of military nurses who care for wounded or ill service members and to determine the feasibility of implementation at a large military treatment facility. The specific aims of this evidence based synthesis were to: Examine the impact of GI on stress levels in military/DOD nurses on high acuity units, examine the impact of GI on resilience in military/DOD nurses on high acuity units, and to examine the impact of GI on PTSD symptoms in military/DOD nurses on high acuity units.

Demographics

Fifteen project participants started and finished the project by completing the pre and posttest scales and the three GI sessions. Of the 15 participants, thirteen were female (87%) and two were male (13%), seven of which were married (47%). The remaining participants were single without a history of divorce. There were ten active duty Army (67%) and three active duty Navy (20%), and two DOD nurse participants (13%). Four of the participants (27%) had one or more deployments. Lastly, there were officer participants with the ranks of O1 to O2 (73%), Army Specialists (13%) and civilian participants (13%). All participants completed the GI imagery sessions over a period of six days once the GI had been initiated.

Data Analysis

Data were analyzed statistically using SPSS software (Pallant, 2007). The goals of this evidence based project were to examine the impact of GI on stress, resilience and PTSD. The Wilcoxon signed-rank sum test was utilized to compare the data.

The Wilcoxon signed-rank sum test is a non-parametric statistical test that is used as alternative to the paired Student's t-test for the analysis of each of the three tools (Lowry, 2012). This test is appropriate for small sample sizes, as is the case in this evidence based pilot project. Additionally, additive scale analysis was used to examine data in the analysis of each of the three tools. Additive scale analysis is a non-parametric statistical test appropriate for analysis data which includes small sample sizes (Knol et al., 2007). The PSS, the RS10, and the PTSD7 were individually scored.

Results

The PSS scale score indicates stressed at the level of 20 or more and non-stressed when scored at 19 or less (Cohen, & Williamson, 1988). In the evaluation of participants in the pre-test group four individuals scored >20 indicating a measurable amount of stress. In the post test evaluation for stress, the four respondents that scored at a level >20, all scored < 19 in the post-test evaluation indicating non-stressed demeanors. Additionally, 100 % of respondents had decreased levels of stress after the three GI sessions. The Wilcoxon Signed Rank Sum Test and additive scale analysis revealed a positive improvement in perceived stress ($z=-2.990$, $p<0.003$, $r=0.54$), and the PSS10 median score decreased on pre-GI assessment (Md=14) compared to post GI (Md=11). (See Table B).

The RS10 scores were evaluated based on High = 60-70, Moderate High = 40-59, Moderate = 30-39, Moderate Low = 10-20 and Low = 1- 9 (Wagnild, 2009). The RS10 scores indicated participants scoring High = 6, Moderate High = 8, Moderate = 1, Moderate Low = 0, and Low = 0. The Posttest RS 10 scores indicated scores of High =

10, Moderate High = 5, and Moderate = 0, Moderate Low = 0, and Low = 0. The Wilcoxon Signed Rank Sum Test and additive scale analysis revealed a statistical improvement in the measure of resilience ($z=-2.938$, $p<0.003$, $r=0.54$). The median score on the RS10 increased from pre-GI (Md=58) to post GI (Md=62). (See Table B).

The PTSD 7 item screen ranked anyone with a score of four or more with PTSD symptoms (Breslau et al., 1999). On the PTSD 7 item screen two individuals indicated a score of four or more indicating a positive screen for PTSD symptoms. The Wilcoxon Signed Rank Sum Test and additive scale analysis revealed a statistical improvement a reduction in PTSD symptoms ($z=-3.219$, $p=0.001$, $r=0.59$) following the participation in three GI sessions and the PTSD 7 also decreased when comparing pre GI (Md=2) to post GI (Md=0.00) intervention. (See Table B).

Perceived stress and PTSD scores all decreased as indicated in the individual results after the GI intervention. The resilience scores all improved indicating a positive benefit or impact of GI on military and DOD nurses stress levels who are working in high acuity settings.

Table B: Results Table

Scale	Before GI		After GI	
Perceived Stress Scale	Mean SD Range	15.27 6.584 20	Mean SD Range	11.20 4.632 15
Resilience Scale	Mean SD Range	57.40 8.667 31	Mean SD Range	62.27 6.954 24
PTSD Scale	Mean SD Range	2.13 1.187 4	Mean SD Range	0 .47 1.246 4

Limitations

Several limitations should be distinguished. First, the data relied upon the self-reporting by the nurse participants. The participants each experienced a unique response to the GI intervention. Findings may be limited by the relatively small sample size. It is unclear what effect the presence of the project manager had on the participants responses to the pre-prepared GI compact disc. GI was delivered individually and in small group settings which may be a further limitation. Lastly, it is also unknown whether the Hawthorne effect impacted the participant responses or whether there is an extermination of effect after a certain number of GI sessions. Stated goals of this project were to examine the impact of GI on military and DOD nurses working in high acuity settings.

CHAPTER FIVE

EVIDENCE BASED PRATICE EXAMINING THE APPLICATION OF GUIDED IMAGERY AND ITS IMPACT ON RESILIENCE AND STRESS IN MILITARY/DOD NURSES AT RISK FOR PTSD: OUTCOMES, EVALUATION, IMPLICAITONS AND CONCLUSIONS

Discussion

Occupational stress is a risk factor for the development of PTSD symptoms and leading to the decreased resilience in the occupational setting (Lazarus & Folkman, 1984; (Lehrer & Woolfolk, 2007; Rick & Perrewe, 1984). In a more recent study, occupational stressors were identified as having a negative impact on psychological and psychosocial function of military members affecting their professional military careers, their family interactions and their marital relationships (Hickling, Gibbons, Barnett, & Watts, 2011). Clearly, through the use of the PSS10, the RS10, and the PTSD7, stress and decreased resilience and the risk for the development of PTSD symptoms is demonstrated as an occupational risk for military nurses working in high acuity settings. GI affords military nurses the enabling opportunity to foster stress management, both with guidance and through self-care, while increasing their resilience and decreasing the symptoms that can lead to development of PTSD indicators in high acuity environments (McVicar, 2003). This evidence based practice project demonstrated that three GI sessions can have a positive impact on stress reduction and positive outcomes for military nurses as is demonstrated in various other GI studies (Ip, Tang, & Goggins, 2009; Rees, 1995; Tusek, Cwynar & Cosgrove, 1999).

Implications

The use of GI to decrease perceived stress, to decrease the potential risk for development of PTSD symptoms and to improve resilience can be supported by the analysis of this evidence based project. In practice the advanced practice provider is the most appropriate provider of GI and can be taught the GI methodology with low cost to an institution. GI has a positive participant impact and in turn, a positive institutional impact can be appreciated through the retention of more resilient and satisfied military nurses able to perform at occupationally optimum levels.

The implications for practice include the recommendation that GI be offered to military nurses as a means to develop their resilience, while experiencing occupational stress that puts them at greater risk for the development of PTSD symptoms. The GI compact disc, prepared by this pilot program manager, can be delivered to military healthcare providers to utilize and put into practice a self-care technique that can aid in enhanced resilience and improved occupational performance. The feasibility of implementation both in the deployed and non-deployed setting would require buy in by those occupying command and leadership positions. Operationalization and employment of the GI technique in any setting is further supported by its ability to be delivered in person or video recorded, compact disc, and mp3 formats.

Educational implications include education and training for Advanced Practice Nurses to ensure proficient performance of the GI technique in the professional practice setting. The GI technique could be incorporated into the curriculum at the Uniformed Services University of the Health Sciences (USUHS) for Advanced Practice Psychiatric

Mental Health Practitioners benefiting all branches of the military. Proficiency in the administration and performance of the GI technique can be easily accomplished through mentorship in the supervised practicum setting. For those advanced practice providers who do not attend USUHS, on-the-job training and education with return demonstration can accomplish the same goals.

It can be concluded that after as few as three GI sessions of less than 30 minutes, fifteen military nurses did experience positive benefits. The military nurses in the sample group experienced improved resilience, decreased perceived stress, and decreased symptoms of PTSD. Each of the comparisons demonstrated positive impact of GI on resilience, perceived stress and PTSD symptoms in military/DOD nurses on high acuity units which were the aims of this evidence based practice project. GI can be translated into an intervention for improved resilience, improved stress management and deceased risk for PTSD symptoms for military nurses that can be performed in any occupational setting.

While this EBP project is the first to examine the relationship of GI on military nurses, further research would be recommended to examine the impact of GI on military members in deployed settings. A 2007 study noted that there was a difference between the rates of PTSD when comparing military healthcare providers to combat soldiers and civilian first responders (Kolkow, Spira, Morse, & Grieger, 2007). In view of this information it would be prudent to examine the impact of GI on a variety of military members and a variety of healthcare providers could be used to ratify and expand on the

results of this present study. Additional research should be directed at exploration of the differences between delivery of GI via a therapist versus delivery via a compact disc.

Conclusion

Military and DOD nurses who care for wounded or ill service members are facing occupational pressures that affect their stress levels, and resilience which can lead to the development of PTSD symptoms. GI, as demonstrated in this evidence based pilot project revealed improved measurement of resilience while reducing perceived stress and symptoms of PTSD in military nurses. Through the use of GI, military nurses working in stressful environments, can achieve improved resilience, decreased stress and lessened PTSD symptoms. The introduction of GI to lessen occupational stressors in high acuity military settings is a cost effective, simple, sustainable and low risk method to improve occupational stressors challenging the modern military nurse and can be performed in any setting.

Appendix A

Demographic Information (Page One)

Number_____

Age_____

Address_____

_____

Phone _____ Cell _____Email_____

Unit Name _____

Please check which branch of the military you are associated with?

Army _____ Air Force _____ Navy_____ U.S. Public Health Service

_____ Civilian _____

What is your current military status?

Active duty _____ Reservist _____ National Guard _____ Other _____ (please specify)

Location of recent deployment

Iraq _____ Afghanistan _____ Qatar _____ Kuwait _____ Bosnia/Kosovo _____

Other _____(please specify)

Date of arrival in Theater: (MM/YYYY) _____

Date of departure from Theater: (MM/YYYY) _____

What are your racial and ethnicity backgrounds? (Select any that apply)

Asian _____ American Indian/Alaska Native _____ Black/African American _____

Hispanic/Latino _____ Native Hawaiian/Pacific Islander _____ White _____

Other _____(Please specify)

What is your gender? Male _____ Female _____

What is you military rank? _____

What is you marital status?

Single _____ Married _____ Divorced _____ Widowed _____

Separated _____ Unmarried living with partner _____

What is your highest level of education completed?

Some high school (not graduated) _____ High school graduate or GED _____

Vocational/trade school _____ Some college/no degree _____

Associate's degree _____ Bachelor's degree _____

Graduate Degree _____

Appendix B

Perceived Stress Scale- 10 Item

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, please indicate with a check how often you felt or thought a certain way.

1. In the last month, how often have you been upset because of something that happened unexpectedly?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

2. In the last month, how often have you felt that you were unable to control the important things in your life?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

3. In the last month, how often have you felt nervous and "stressed"?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

4. In the last month, how often have you felt confident about your ability to handle your personal problems?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

5. In the last month, how often have you felt that things were going your way?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

6. In the last month, how often have you found that you could not cope with all the things that you had to do?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

7. In the last month, how often have you been able to control irritations in your life?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

8. In the last month, how often have you felt that you were on top of things?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

9. In the last month, how often have you been angered because of things that were outside of your control?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

This scale can be found in:

Cohen, S., Kamarck, T., Mermelstein, R. (1983). A global measure of perceived stress. Journal of Health and Social Behavior, 24, 385-396. Link to full-text (pdf)

Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the United States. In S. Spacapam & S. Oskamp (Eds.), The social psychology of health: Claremont Symposium on applied social psychology. Newbury Park, CA: Sage. Link to full-text (pdf)

Appendix C RS10

Please circle a number indicating how much you disagree or agree with each statement.

Disagree Agree

1. I usually manage one way or another.

1 2 3 4 5 6 7

2.I feel proud that I have accomplished things in my life.

1 2 3 4 5 6 7

3.I usually take things in my stride.

1 2 3 4 5 6 7

4. I am friends with myself.

1 2 3 4 5 6 7

5. I am determined.

1 2 3 4 5 6 7

6. I keep interested in things.

1 2 3 4 5 6 7

7. My belief in myself gets me through hard times.

1 2 3 4 5 6 7

8. My life has meaning.

1 2 3 4 5 6 7

9. When I am in a difficult situation, I can usually find my way out of it.

1 2 3 4 5 6 7

10.I have enough energy to do what I have to do.

1 2 3 4 5 6 7

Appendix D

Short Screening Scale for PTSD

In your life, have you ever had any experience that was so frightening, horrible, or upsetting that, in the past month…

1. Did you avoid being reminded of this experience by staying away from certain places, people, or activities?
2. Did you lose interest in activities that were once important or enjoyable?
3. Did you begin to feel more isolated or distant from other people?
4. Did you find it hard to have love or affection for other people?
5. Did you begin to feel that there was no point in planning for the future?
6. After this experience were you having more trouble than usual falling asleep or staying asleep?
7. Did you become jumpy or get easily startled by ordinary noises or movements?

Responses are YES=1 or NO=0. The scale is scored by summing all responses. Scale scores may range from 0 to 7.PTSD, posttraumatic stress disorder.

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Permission for the Perceived Stress Scale

Copyright of the Perceived Stress Scale is held by Sheldon Cohen. Copyright holder has granted permission for it to be used for educational, research, and academic purposes.

Permission for the Short Screening Scale for PTSD

Beth Fisher bfisher@epi.msu.edu, May 23

Dear Ms. Jenkins,

Here is the short screening scale for PTSD as well as a paper by Drs. Bohnert and Breslau discussing the validity of the scale. Enjoy!

Sincerely,

Beth Fisher; bfisher@epi.msu.edu

2 attachments — Download all attachments; 7-Item Short Scrn. Scale & Comm.doc

2011 (Bohnert) Assessing the performance of the short screening scale for PTSD in a large nationally representative survey.pdf

Margo Jenkins, May 23, 2012

Beth,

Is this scale ok for me to use as open access from Dr. Breslau?

From: Beth Fisher <bfisher@epi.msu.edu>; Date: Wed, 23 May 2012 16:14:25 -0400

To: 90jenkins@cardinalmail.cua.edu<90jenkins@cardinalmail.cua.edu>

Subject: Short Screening Scale for PTSD

Dear Ms. Jenkins,

Here is the short screening scale for PTSD as well as a paper by Drs. Bohnert and Breslau discussing the validity of the scale. Enjoy!

Sincerely,

Beth Fisher; bfisher@epi.msu.edu

Reply

Beth Fisher bfisher@epi.msu.edu

May 23

yes, it is okay.

Resilience Center

30 May 2012

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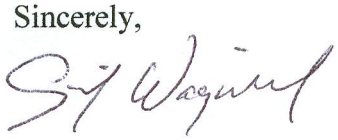
Margo Jenkins
The Catholic University of America

To Margo Jenkins' Committee:

Margo Jenkins, who is a doctoral student at The Catholic University of America, has permission to use either the 25-item RS, the RS-14, in her dissertation research entitled: "An evidence-based application of Guided Imagery and its impact on resilience and stress in military/DOD nurses at risk for PTSD-A Pilot Project." Her population of interest is military nurses. She has completed the 'Permission to Use' form on the Resilience Scale website (www.resiliencescale.com) and has agreed to comply with all requirements set forth on the website. She also has written permission from me to use the scale.

If you have any questions, I encourage you to contact me directly.

Sincerely,



Gail Wagnild, RN, PhD
gwagnild@resiliencecenter.com

INTELLECTUAL PROPERTY LICENSE AGREEMENT
Students & Residents of Developing Countries

This Intellectual Property License Agreement ("Agreement") is made and effective this 1 June 2012 ("Effective Date") by and between The Resilience Center, PLLP ("Licensor") and Margo Jenkins ("Licensee").

Licensor has developed and licenses to users its Intellectual Property, marketed under the names "the Resilience Scale", "RS", "the 14-Item Resilience Scale", and "the RS-14" (the "Intellectual Property").

Licensee desires to use the Intellectual Property.

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    Licensor agrees to provide limited, e-mail-only support for issues and questions raised by the Licensee that are not answered in the current version of the , available on www.resiliencescale.com, limited to the Term of this Agreement. Licensor will determine which issues and questions are or are not answered in the current .
13. Notice.
    Any notice required by this Agreement or given in connection with it, shall be in writing and shall be given to the appropriate party by personal delivery or by certified mail, postage prepaid, or recognized overnight delivery services.
    If to Licensor:
    The Resilience Center, PLLC
    PO Box 313
    Worden, MT 59088-0313
    If to Licensee:
    Name: Margo Jenkins
    Address: 2501 McMahon Rd
    Wheaton, MD 20902
    United States

14. Governing Law.
    This Agreement shall be construed and enforced in accordance with the laws of the United States and the state of Montana. Licensee expressly consents to the exclusive forum, jurisdiction, and venue of the Courts of the State of Montana and the United States District Court for the District of Montana in any and all actions, disputes, or controversies relating to this Agreement.
15. No Assignment.
    Neither this Agreement nor any interest in this Agreement may be assigned by Licensee without the prior express written approval of Licensor.
16. Final Agreement.
    This Agreement terminates and supersedes all prior understandings or agreements on the subject matter hereof. This Agreement may be modified only by a further writing that is duly executed by both Parties.
17. Severability.
    If any term of this Agreement is held by a court of competent jurisdiction to be invalid or unenforceable, then this Agreement, including all of the remaining terms, will remain in full force and effect as if such invalid or unenforceable term had never been included.
18. Headings.
    Headings used in this Agreement are provided for convenience only and shall not be used to construe meaning or intent.

IN WITNESS WHEREOF, the Parties hereto have duly caused this Agreement to be executed in its name on its behalf, all as of the day and year first above written.

Licensee	**The Resilience Center, PLLP**
Signature: Margo S Jenkins	
Printed Name: Margo Jenkins	Gail M. Wagnild, PhD
Title: Student	Senior Consultant
Date: 29 May 2012	29 May 2012