COMPASSION FATIGUE PREVALENCE IN AN URBAN TRAUMA CENTER

by

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As members of the DNP Project Committee, we certify that we have read the DNP Project prepared by Kati Wijdenes entitled "Compassion Fatigue Prevalence in an Urban Trauma Center" and recommend that it be accepted as fulfilling the DNP Project requirement for the Degree of Doctor of Nursing Practice.

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Final approval and acceptance of this DNP Project is contingent upon the candidate's submission of the final copies of the DNP Project to the Graduate College.

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DEDICATION

This manuscript is dedicated to my father, Gordon Cluff. He was a brilliant, talented and wise man who I have sought to emulate throughout my life. If ever there was a person who could do the impossible, it was him. I'm still looking for you in everything I do, dad. Thank you for being my greatest example.

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ABSTRACT

Background: Compassion Fatigue (CF) describes the emotional, spiritual, intellectual and physical exhaustion that results from untreated distress among nurses, stemming from exposure to traumatic events and work environment stressors. Comprised of Burnout (BO), Secondary Traumatic Stress (STS) and Compassion Satisfaction (CS), CF results when BO and STS outweigh CS. CF leads to physical and emotional problems including, fatigue, hopelessness, anger, and an increased use of sick days. For hospitals, this means poor morale, increased medication errors and higher turnover.

Objective: The purpose of this study was to determine the prevalence and severity of CF risk among the nursing staff at Maricopa Medical Center (MMC).

Design: Descriptive study completed to determine: 1) What is the prevalence and severity of CF risk among nurses at MMC; and 2) compared to nurses with low CF risk, do nurses with high CF risk have differences in demographic and workplace characteristics?

Setting: Maricopa Medical Center between April 14, 2015 and May 26, 2015

Participants: 315 full-time nurses at MMC in Phoenix.

Measurements: Nurses were surveyed using the Professional Quality of Life Scale-5 (ProQOL-5) measuring the three components of CF: BO, STS and CS.

Results: 46% of nurses reported moderate to high risk of CF. Nurses who worked in Labor and Delivery, Psychiatric Annex/Desert Vista, Emergency Departments, Intensive Care Units and Rapid Response units reported the highest risk. Risk increased significantly after their first year working at MMC. More frequent job changes outside of MMC correlated with lower risk profiles. Lower risk was seen in nurses with advanced degrees. Trends indicated that younger

nurses, Clinical Resource Leaders, and nurses who had taken nine or more sick days in the previous six months were more at risk.

Conclusion: Almost half of nurses were at moderate to high risk of CF. Unique findings were reported, including possible links between CF risk and job changes, and years working at a single facility. These links were previously unstudied. It was determined that the focus of interventions should be on nurses who work in the units most at risk and on new hire nurses, regardless of their years of nursing experience.

INTRODUCTION

Background Knowledge

Compassion fatigue (CF) has been acknowledged for decades as negatively affecting the helping professions who regularly witness secondary trauma (Showalter, 2010). CF is comprised of Secondary Traumatic Stress (STS), Burnout (BO) and Compassion Satisfaction (CS). STS derives from work-related exposure to people who are experiencing extremely traumatic events, or a nurses own fear of death or injury (Sheppard, 2015; Stamm, 2010). Its development is unpredictable and can occur in nurses regardless of their years of experience (Sheppard, 2015). STS can cause intrusive images, hyper-vigilance, hyper-arousal and avoidance of reminders of traumatic experiences (Sheppard, 2015; Stamm, 2010). In a recent qualitative study, the greatest influence on CF was the presence of STS (Sheppard, 2015). BO comes on gradually and stems from high workloads, or unsupportive work environments (Stamm, 2010). BO embodies feelings of hopelessness and that an individual's efforts make no difference (Stamm, 2010). CS is defined as the pleasure that comes from the feeling that work is done well, that it contributes to the work environment, and even to the greater good (Stamm, 2010). An imbalance in favor of STS and BO, when compared to CS, can lead to CF (Stamm, 2010).

Compassion fatigue has an acute onset that can remain undetected, further leading the nurse to give more to their patients until they are left with an inability to give the care they desire (Boyle, 2011). Among nurses, CF progresses through three stages. The first stage is compassion discomfort, which when untreated and unrecognized leads to the second stage of compassion stress. This stage depletes the nurses' coping resources and eventually ends in CF, causing a delay in recovery. Without help nurses will expend more energy than they can restore (Coetzee

& Klopper, 2010). Throughout this process, emotional, physical, intellectual and spiritual concerns arise that increase in intensity as each stage is reached (Coetzee & Klopper, 2010).

Work related risk factors for CF include high exposure to trauma survivors (e.g., abuse victims, physical trauma), insufficient supervision, workplace conflict, high volumes of work and long hours (Emanuel, Ferris, von Gunten, & Von Roenn, 2011; Florida Alcohol and Drug Abuse Association & Florida Council of Community Mental Health, 2013). Compassion Fatigue rates can vary depending on where the nurse works. Those working in higher stress areas such as the intensive care unit (ICU), emergency department (ED) and oncology having the highest rates of CF. Nurses working in the ICU reported CF and secondary traumatic stress (STS) rates of 21% to 44% (Van Mol, Komanje, Bakker, & Nijkamp, 2014). Prevalence rates of 35% to 37% were found among oncology nurses (Berger et al., 2010). Among 49 emergency nurses, 59% were at moderate risk for developing CF and 28.4% were at high risk for CF (Hooper, Craig, Janvrin, Wetsel, & Reimels, 2010).

Individual characteristics of the nurses also place the nurse at risk for CF. One risk factor is age with those under 40 at greater risk than those over 40 years of age (Maslach, Schaufeli, & Leiter, 2001), Another risk factor is inexperience on the job. For example, oncology nurses with 6-10 years of experience reported higher CF rates than those with more than 10 years of experience (Emanuel et al., 2011) A third risk factor is gender with women 1.6 times more likely to report CF then men (Emanuel et al., 2011) Marital status is another risk factor. Nurses who are unmarried have a higher risk for BOS and CF than those who are married/partnered (Ramirez, Graham, Richards, Cull, & Gregory, 1996). Education is also a risk factor. Baccalaureate prepared nurses reported lower risk for CF compared to associate or diploma prepared nurses

(Berger et al., 2010). Full-time nurses also report higher levels of CF when compared to part-time or per diem nurses (Hegney et al., 2013). Together these demographic characteristics place nurses at greater risk for CF. Thus, the characteristics of the typical nurse who may have CF would be female, under 40 years of age, relatively new to the profession, unmarried, have an ADN or diploma degree and work full time. This is the same profile of nurses who often leave the profession within the first few years of working, causing further increases in the nursing shortage (Flinkman, Isopahkala-Bouret, & Salantera, 2013).

Nurses who report CF have a wide range of physical, emotional and work related problems (Table 1) (Lombardo & Eyre, 2011). Physical symptoms include fatigue, chest pain, palpitations and digestive problems (Lombardo & Eyre, 2011). Nurses' emotions are also affected with reports of increasing amounts of anxiety, anger, intrusive thoughts, cynicism and loss of compassion (Lombardo & Eyre, 2011; Najjar, Davis, Beck-Coon, & Doebbeling, 2009). The combination of these symptoms can affect a nurse's work performance and impact their employers. Work related problems include avoidance of certain patients, an increase in sick days, a decrease in productivity, and increased medication errors (Braithwaite, 2008; Lombardo & Eyre, 2011; Najjar et al., 2009). For the employer, this translates into higher turnover, decreasing quality of care by nurses, increased costs related to the higher number of sick calls, and errors in care (Braithwaite, 2008; White, 2006).

TABLE 1. Compassion Fatigue Symptoms.

Physical	Headaches Digestive problems • Diarrhea, constipation, upset stomach Muscle tension Sleep disturbances • Inability to sleep, insomnia, too much sleep Fatigue Cardiac symptoms • Chest pain/pressure, palpitations, tachycardia
Emotional	Mood swings Restlessness Irritability Oversensitivity Anxiety Excessive use of substances • Nicotine, alcohol, illicit drugs Depression Anger and resentment Loss of objectivity Memory issues • Poor concentration, focus, and judgment,
Work Related	Avoidance or dread of working with certain patients Reduced ability to feel empathy towards patients or families Frequent use of sick days Lack of joyfulness

Table derived from Lombardo and Eyre (2011).

The absenteeism rate from illness among Canadian health care workers with CF was two times higher than the national average, costing the system the equivalent of 27,400 full time employees work hours annually (White, 2006). Although the exact cost of CF is not known, job stress itself is costly. It is estimated that 40% of job turnover is stress related, with the average cost of replacing an employee equaling approximately 120% to 200% of the affected position's salary (Center for the Promotion of Health in the New England Workplace, 2010). In the United States, the 2012 median pay for a registered nurse was $65,470 (Bureau of Labor Statistics, 2014), thus costing an employer between $78,564 and $130,940 to replace a single nurse. Depression, a common symptom of CF, is the largest single predictor of absenteeism in the workplace (Center for the Promotion of Health in the New England Workplace, 2010). These are

not minor concerns and show the vast range of problems that stem from unrecognized and untreated CF.

Local Problem

I am currently employed in the emergency department (ED) of Maricopa Medical Center (MMC), the level-one trauma center within the Maricopa Integrated Health System (MIHS), located in Phoenix, AZ. While working at this hospital, I identified that CF was not recognized nor discussed, yet seemed prevalent. No studies had been conducted to measure the prevalence and severity of CF risk at this medical center. This was concerning as the nurses who work at this facility have many of the work and individual risk factors associated with CF, including daily job stress, long shifts, increasing job expectations, heavy patient loads and staffing shortages (Coetzee & Klopper, 2010). This is highlighted by the most recent data showing that MMC is the busiest trauma center in the geographic area, serving over 55,000 patients with roughly 18,000 admissions annually (Maricopa Integrated Health System, 2014).

The characteristics of patients treated at this facility also contribute to the potential risk for development of CF among nurses. Those suffering from traumatic events, including physical trauma, mental, emotional, or physical abuse and acute illness all increase the susceptibility of nurses to develop CF (Schwam, 1998). Compassion fatigue also develops due to the emotional engagement and intensity that arises from nurses witnessing tragedy in their workplace (Boyle, 2011). Maricopa Medical Center currently receives an average of six trauma patients per day, both pediatric and adult. These trauma patients include burn victims through our burn center, as well as many cases of abuse in both elderly and children (Maricopa Integrated Health System, 2012). Moreover, these patients are not confined to the ED and ICUs but are found in all the

hospital's units. It is reasonable to assume that nurses throughout the facility could be affected and potentially develop CF resulting in physical and emotional symptoms, absenteeism, job turnover and lower quality patient care.

Upon recognizing that CF might be a potentially serious concern at MMC, I consulted with the Chief Nursing Officer (major stakeholder) of the hospital about the importance of determining the prevalence and severity of CF risk. If CF was discovered to be a problem for nurses in this facility, then interventions would be developed to address it. My quality improvement project had the potential to provide data regarding the severity and prevalence of CF risk in order to determine whether interventions were needed. From my DNP education, I knew the first step was to conduct a needs assessment to describe the prevalence and severity of CF risk.

Setting

I conducted my project at Maricopa Medical Center (MMC) in Phoenix, Arizona, a part of the Maricopa Integrated Health System (MIHS). Maricopa Medical Center is a level-one trauma center for pediatrics, adults and burn victims. As the only public hospital in Maricopa County, it serves as a health care safety net that focuses on treating the areas underserved, and medically needy populations. This is 515-bed facility (325 acute and 190 psychiatric) that includes medical, surgical, burn, pediatric and neonatal ICUs, pediatric, adult and burn EDs. Also included are an operating room, post anesthesia care unit, surgical/trauma unit, medical/oncology unit, short stay/observation, adult progressive care unit, pediatric unit, labor and delivery, psychiatric units in two locations. MMC is also home to the Arizona Burn Center,

the second largest burn center in North America. Currently there are approximately 900 nurses who work 8, 10 and 12-hour shifts in a full-time, part-time or per diem basis.

Intended Improvement

The purpose of this descriptive study was to describe the prevalence and severity of CF among nurses who work at this large trauma facility. The long-term goal is to establish whether a need exists for the implementation of programs or interventions targeted at prevention and treatment of CF among nursing staff. Further, the findings from this study provide insight into which nurses should be included in interventions and at what point in their career (e.g., when first hired). Theoretically, when such interventions are implemented, CF risk rates and severity will be reduced and the nurse's quality of life will improve. An additional benefit to the system would be a decrease in the cost burden placed on the employer as evidenced through decreased turnover, absenteeism and improved quality of care. Although these system outcomes were not assessed in this DNP project, as this was a descriptive study, such outcomes would be assessed in an intervention study as the next step.

Study Questions

This project answered the following questions:

1. What is the prevalence and severity of CF risk among nurses at Maricopa Medical Center?
2. Compared to nurses with low CF risk, do nurses with higher CF risk have differences in demographic and workplace characteristics?

Summary

The presence of CF among nurses in any facility is concerning due to the many problems associated with it. Currently, the nurses working at MMC have many of the known risk factors linked with the development of CF. Therefore, understanding the prevalence and severity of CF at MMC is an important step to maintaining high quality patient care and the quality of life of the nursing staff.

METHODS

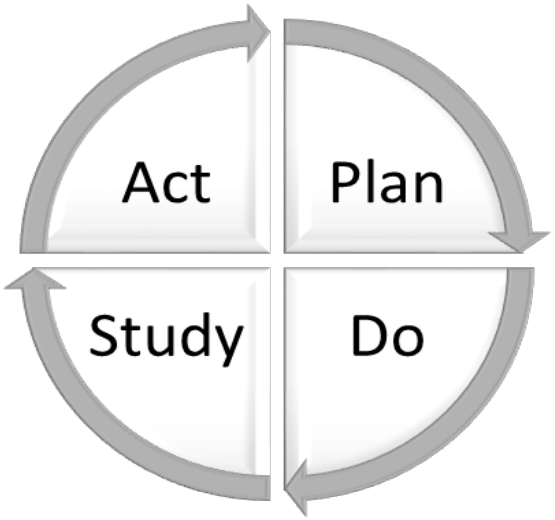
Design

Plan-Do-Study-Act (PDSA)

Quality improvements can be complicated and challenging. Guidance and planning assistance will be provided by the Plan-Do-Study-Act (PDSA) framework (Institute for Healthcare Improvement, 2014). The PDSA offers a real-world approach for testing changes made in complex systems. This is done by promoting small-scale changes first that allow for rapid assessment and adjustment, so that the intervention fits each setting in which it is implemented, and can then be generalized to the larger organization as necessary (Taylor et al., 2014). Paralleling the scientific method, an outcome is predicted and then to ensure that the proper results are achieved (Taylor et al., 2014). As a cycle process the PDSA places emphasis on the need to continue analysis and adjustment into the future, allowing the innovations and improvements to continue to adapt as the system or setting changes.

Consisting of four steps: Plan, Do, Study, Act, the PDSA (Figure 1) starts by making predictions about the outcome of the changes to be implemented and developing a plan for testing and measuring the predictions (Gillam & Siriwardena, 2013). During the second phase

the plan is carried out and the data is collected (Gillam & Siriwardena, 2013). Analysis takes place in the study phase. This includes summarizing results and identifying any problems that arose during the implementation (van Tiel et al., 2006). Finally, the success and problems in the intervention are determined, modifications are designed, and updates are made to address them and prepare for the next PDSA cycle (van Tiel et al., 2006). For the purposes of this project, a description of the severity and prevalence of CF was conducted as part of the 'Plan' phase.



Derived from Institute for Healthcare Improvement (2014)

FIGURE 1. PDSA Cycle.

SQUIRE

Quality improvement focuses on enhancing care in localized, unique settings, and not on adding to the general body of knowledge (Ogrinc et al., 2008). As such, the guidelines for reporting quality improvement projects will differ from other study designs. The Standards for Quality Improvement Reporting Excellence (SQUIRE) are used to report the results for this study.

With the goal of increasing knowledge in improvement science, SQUIRE guidelines ease the process of sharing and publishing improvement studies (Davidoff, Batalden, Stevens, Orgrinc, & Mooney, 2008). These guidelines stand out from other draft guidelines by emphasizing the unique aspects of improvement projects, distinguishing clearly between improvement practice and project evaluation, and specifying the elements needed to minimize bias in order to assess if an improvement has worked and whether the interventions are effective or not (Davidoff et al., 2008). To be effective, the SQUIRE guidelines should be used by authors undertaking original studies with interventions designed to improve clinical outcomes (Davidoff et al., 2008). The guidelines are set up as a 19 item checklist that, when followed, helps to ensure that the reporting is comprehensive enough for readers to fully understand the elements and outcomes of the project (Oermann, 2009).

Intervention

To assess the prevalence and severity of CF risk among the nursing staff at MMC, approximately 900 nurses were surveyed via email. Figure 2 outlines the survey process. The survey was available for completion between April 14, 2015 and May 26, 2015. Inclusion criteria were:

- Employed at MMC, the Behavioral Health Annex or Desert Vista Behavioral Health Center.
- Currently full-time staff registered nurses (defined as working 36 + hours a week)

After receiving IRB approval recruitment began with the start of the survey period. An explanatory email (Appendix A) discussing the purpose of the DNP project was sent to nurses meeting inclusion criteria. The MIHS Human Resource department provided the list of qualified

nurses to the CNOs secretary. She then distributed the survey. Managers were asked to remind staff of the survey and encourage participation during staff meetings. No work related incentive was offered for participating in this survey. The voluntary and confidential nature of the study was emphasized. Participants who complete the survey were eligible for entry into a drawing for one of two $75 Visa gift cards. Upon electronic submission of the survey through Qualtrics, a thank you screen opened where the participant could indicate that they wanted to be entered into this drawing. Incentives such as this have been used to encourage participation in surveys (Laguilles, Williams, & Saunders, 2011).

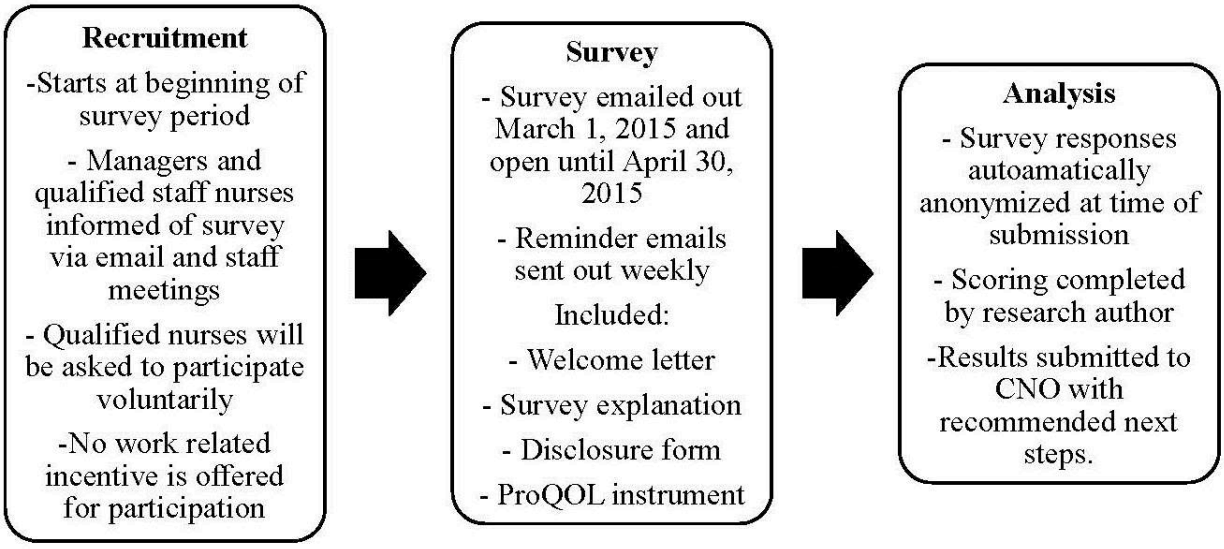


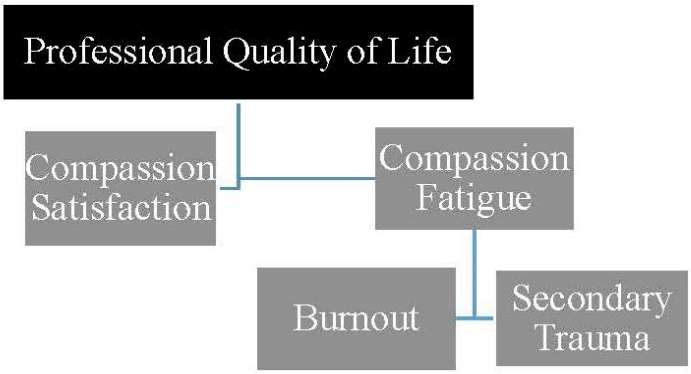
FIGURE 2. Survey Process for Determining CF Rates.

At the start of data collection, the survey was sent to all qualified nurses by the MIHS research department, via the hospital's email system. Email addresses were not given directly to this researcher. The project used Qualtrics (2013) online survey software. In the email sent to the nurses was 1) a welcome letter, 2) the disclaimer form 3) and the Qualtrics link to the

demographic questionnaire and the Professional Quality Of Life Scale-5 (ProQOL-5) (Stamm, 2010). A random identifier was automatically assigned to each participant upon submission of the survey to maintain confidentiality.

1. *Welcome Letter* (Appendix B) provided the reason for the study, it gave an estimated completion time, listed risks and benefits and provided information on confidentiality.
2. *IRB Disclaimer Form* (Appendix B) provided further information on the study and indicated the rights of respondents in the study.
3. *Demographic and Workplace Characteristics* (Appendix C) consisted of the following:
    - Age
    - Gender
    - Marital status
    - Level of education
    - Years working at MIHS
    - Years of experience as a RN
    - Unit currently working on
    - Current position (e.g., Staff RN, Clinical Resource Leader, Manager, Director)
    - Number of sick call days in previous six months
    - Number of job changes within MIHS in the last five years
    - Number of job changes outside MIHS in the last five years
4. *ProQOL-5* (Appendix D), a 30 item self-report Likert-type scale measure, consists of three discrete subscales (Figure 3) to assess the potential for Compassion Satisfaction (CS) and risk for CF, with CF divided into two subscales: burnout and secondary

traumatic stress (STS). The reliability of the ProQOL scale is well documented, having been used in close to half of the published research on CF, STS and vicarious trauma (Stamm, 2010) In previous research Cronbach's alphas ranged from .71 to .88 (Circenis, Millere, & Deklava, 2013; LaFauci Schutt & Marotta, 2011; Samios, Abel, & Rodzik, 2013; Stamm, 2010) demonstrating good internal reliability. For Likert-type scales a Cronbach's alpha coefficient above .70 is considered reliable (Gliem & Gliem, 2003).



Derived from Stamm (2010)

FIGURE 3. ProQOL Diagram.

There are 10 items for each subscale for a total of 30 questions. For each question, the participant is asked to state the frequency with which they have experienced the given situation in the last 30 days, on a five (5) response Likert-type scale with 1 = never, 2 = rarely, 3 = sometimes, 4 = often and 5 = very often. Scale continuous scores are not combined into a total score, and for all scales the average score is 50 with three range groupings of less than 43 (mild for STS/ burnout, severe for CS), 43 to 57 (moderate) and 57 or more (severe for STS/burnout, mild for Compassion Satisfaction). Cut scores used for analysis of this study indicate high CS above 57 and low CS below

44, high BO below 43 and high BO above 56 and high STS below 42 and low STS below 56.

Compassion Satisfaction (CS) scores less than 44 indicate the respondent finds problems with their job or derive satisfaction from activities other than work, indicating low CS (Stamm, 2010). Higher range scores positively correlate with satisfaction with work, colleagues, and contributions to the work setting and higher CS (Stamm, 2010). Scores less than 43 for burnout reflect positive feelings about work abilities and work effectiveness. Scores above 56 indicate higher risk for burnout and feelings of hopelessness, difficulty with work or doing the job effectively. Secondary traumatic stress (STS) scores below 42 show low risk for STS. Scores above 56 can indicate a higher risk for CF and the presence of CF and STS symptoms including; avoidance of certain types of patients, feelings of fear and difficulty sleeping after exposure to secondary trauma (Stamm, 2010). Analyzing the results of each of these scales in combination creates risk profiles that can show CF trends within the units and the hospital as a whole.

Data was collected at a single point in time, but reminder emails were sent throughout the study period (e.g., every other week) to remind nurses to complete the survey. Upon completion of the survey, participants were not asked for any further information. Once all data was compiled and analyzed, results were given to the Chief Nursing Officer of the organization along with recommendations for the next steps (e.g., interventions, mentoring, and additional research). As the data remains confidential, these next steps were based on overall findings, and not

directed toward the individual participants of the study. At the completion of the study, a brown bag session discussing both the results and strategies for preventing CF was offered for all staff.

As part of the PDSA cycle, predictions were made about the outcome of the survey. These predictions were:

- At least a 30% respondent rate to the survey (Laguilles et al., 2011).
- CF rates will be comparable to similar studies reported rates of 28% to 50% (Berger et al., 2010; Hooper et al., 2010; Van Mol et al., 2014).
- CF will have rates of at least 25% in non-designated high stress units (e.g., surgical/trauma, short stay/observation).
- Compared to nurses without CF, nurses with CF will have changed jobs more frequently in the previous five years, and called out sick more often in the previous six months.

Ethical Issues

The purpose of this project was to describe the rate of CF in nursing staff and determine if interventions are needed. Participation in this survey was strictly voluntary with no work related incentive given. Only registered nurses meeting inclusion criteria received the survey and a disclaimer addressing their rights as a participant and their ability to stop participation at any time, for any reason. Data collected in Qualtrics was automatically given a unique identifier at time of submission. The researcher did not collect any information other than age, race, gender, marital status, level of education, years working at MIHS, years of experience as an RN, the unit currently working on, and number of job changes within and outside MIHS in the previous five years. Institutional review board approval was obtained from both Maricopa Integrated Health System and the University of Arizona. Participants received the survey via their work email.

They were able to complete the survey at work or home at their discretion when comfortable doing so. No hard copy of the data was created and all data was stored in a secure electronic format.

Planning the Study of the Intervention

This project assessed whether a need exists for CF interventions among nurses. This was determined by measuring the prevalence and severity of CF through a survey tool. The long-term goal was to improve the quality of life of nursing staff, decrease negative consequences to the system (e.g., turnover, absenteeism) and increase the safety and care of patients. The first step was to conduct a descriptive study to assess the problem. For this hospital wide assessment, the ProQOL-5 was used to determine the rate and level of CF in all units including the two psychiatric facility locations. Data collection was monitored to quickly address issues, but none arose. Potential complications may have included lack of participation and technical difficulties (e.g., links to the survey not working or emails not being received) but were not issues.

Methods of Evaluation

The ProQOL-5 has been shown to be valid in prior studies (Slocum-Gori, Hemsworth, Chan, Carson, & Kazanjian, 2011) and internal consistency reliability was tested. The ProQOL scale has been used extensively in CF literature, and is the most commonly used measure of the effect on quality of life of those caring for people who have experienced extremely stressful events, and evaluating risk for CF (Stamm, 2010). For these reasons, ProQOL-5 was an appropriate tool for use in this quality improvement needs assessment.

By design, a descriptive study does not include an intervention, as it is meant to describe the problem to determine if an intervention is necessary. Therefore, outcomes of this study were

evaluated by the response rate of the qualified nursing staff. Participation was imperative, and ensuring that staff and leadership understood the importance and reasons for the survey was key to the accuracy and success of the study.

Analysis

When the survey period concluded, all collected data was compiled and analyzed using SPSS version 20.0 (IBM Corp, 2011). The internal validity of each subscale within the ProQOL-5 was assessed using Cronbach's Alpha. Cronbach's reliability coefficient showed good internal consistency among the questions used to rate CS ($\alpha = 0.771$), BO ($\alpha = 0.802$) and STS ($\alpha = 0.845$). All returned surveys were used in analysis to maximize the usefulness of the data. If data was not available to calculate a score for a subscale, then the subscale was omitted for that participant. All analyses were considered statistically significant at $p < 0.05$.

Questions to be Answered

1) What is the severity and prevalence of CF risk among nurses working at Maricopa Medical Center? This was answered using descriptive statistics. Participant characteristics were described.

Scores for each of the three subscales in the ProQOL-5 were calculated in three steps: 1) reversing items that are phrased to utilize the Likert scale responses in reverse; 2) summing the items by subscale; and, 3) converting the raw score to a t-score using SPSS. Cut scores were used for analysis. Burnout: less than 43 is high, greater than 56 is low; STS: less than 42 is high, greater than 56 is low; CS: greater than 57 is high, less than 44 is low. All scores in between indicate moderate risk levels. Prevalence was determined by taking the number of nurses at high risk for CF compared to the total number of nurses who participated. The severity was analyzed

using descriptive statistics. The mean and standard deviation of the CF scale for each department was used to show the severity of CF.

2) Compared to nurses with low CF risk, do nurses with higher CF risk have differences in demographic and workplace characteristics?

Pearson Chi-Square and Fisher's Exact Test were used to determine associations among the variables. The data was analyzed to determine whether there were significant positive correlations between the nurse's levels of STS/BO and the number of job changes, and negative correlations between CS and the number of job changes. Additional correlations were done to determine other associations between levels of CF subscales and continuous variable demographic information including age, level of education, and years working for MIHS reported by participants. To compare each unit's risk for CF a MANOVA was used with ProQOL-5 cut-off scores. This showed if the rate of CF risk in one or more units was significantly higher than the rates in the other units. Next, I divided the sample by high (STS below 42 BO below 43) and low (STS/BO above 56) CF scores and using a t-test to determine if there were significant differences between the two groups of any of the variables including job changes.

RESULTS

Description of the Sample

The survey was distributed to 835 nurses at Maricopa Medical Center (MMC) a part of Maricopa Integrated Health System (MIHS). Of those distributed, 315 were returned for an overall response rate of 38%. Table 2 lists characteristics of the sample.

The majority of the participants were female (84%), married (62%) and had their Bachelor's degree in nursing (54.6%). Age was more generally distributed with most falling between the ages of 25 to 54 (74.2%). About 20.1% of participants currently worked within MIHS for two (2) to five (5) years. The majority of the participants (70.4 %) worked as staff registered nurses (RNs). Most participants and had taken no more than one (1) sick day in the previous six (6) months (57.9%). Of those that changed jobs within MIHS in the previous five (5) years, 67.3% had only change jobs within MIHS once. Of those that changed jobs outside MIHS in the previous five (5) years, 57.5% had changed jobs once.

TABLE 2. Demographic Characteristics of Sample (n=315).

Characteristic	Frequency	Valid Percent	Characteristic	Frequency	Valid Percent
Age			**Number of Sick Days in Previous 6 Months**		
18-24	5	1.7	0-1	176	57.9
25-34	67	22.1	2-4	107	35.2
35-44	70	23.1	5-8	16	5.3
45-54	88	29.0	≥ 9	5	1.6
55-64	63	20.8			
65-74	10	3.3			
Gender			**Unit Currently Working On**		
			-Medical-Oncology/Trauma-Surgical /Observation	45	15.1
- Male	46	15.3		100	33.4
- Female	252	84.0	- ICU(All)/Rapid Response/Pediatric and Adult Emergency Departments		
- Prefer not to answer	2	0.7		16	5.4
			- Adult Progressive Care Unit	40	13.4
			- Labor & Delivery	16	5.4
			- Pre-op/Post-op/Operating Room	39	13.0
			- Desert Vista/Psych Annex	34	11.4
			- Clinical Support	9	3.0
			- Angio Suite/Endoscopy/Cath Lab		
Marital Status			**Current Position**		
			- Staff RN	214	70.4
-Married/Domestic Partner	189	62	- Clinical Resource Leader	29	9.5
			- Manager	9	3.0
-Single, never married	56	18.4	- Educator	11	3.6
-Divorced	53	17.4	- Infection Control	3	1.0
-Widowed	7	2.3	- Case Management	8	2.6
			- House Supervisor	5	1.6
			- Other	25	8.2
Level of Education			**Job Changes Within MIHS in Last 5 Years**		
- Diploma/Certificate	9	3.0			
	81	26.6	1	204	67.3
- Associate's	166	54.6	2	69	22.8
- Bachelor's	43	14.1	3	20	6.6
- Master'	5	1.6	4	10	3.3
- Doctorate					
Years Working at MIHS			**Job Changes Outside MIHS in Last 5 Years**		
0-1	8	2.6			
2-5	61	20.1	1	176	57.7
6-10	46	15.2	2	84	27.5
11-15	33	10.9	3	28	9.2
16-20	47	15.5	4	14	4.6
21-25	45	14.9	5	3	1.0
>25	63	20.8			

Table 3 shows the average range scores for burnout (BO), secondary traumatic stress (STS) and compassion satisfaction (CS). CF risk is high with CS scores below 43 and BO and STS scores above 57. Mean scores in Table 2 indicate that nurses in this study were at the cutoff for low CS, and in the low range for BO and STS, according to the ProQOL cutoffs (Stamm, 2010).

TABLE 3. Raw Score Statistics for ProQOL-5 Subscales.

Statistic	Compassion Satisfaction (CS)	Burnout (BO)	Secondary Traumatic Stress (STS)
Mean	44	21.9	20.7
Std. Deviation	9.8	6	6.4

Findings Related to the Research Questions

Table 4 illustrates the relationships among the variables. Level of education was significantly different among groups for CS ($F = 14.865$, $p = .040$). Bachelor's educated nurses (n = 145) showed the greatest percentage of low CS as a group at 39%. In comparison, 53% of the Masters educated nurses (n = 40) reported high CS scores with only 15% showing low CS. No distinguishing trends were noted among the associate and diploma nurses. Those nurses with higher education reported the highest compassion satisfaction.

TABLE 4. Burnout, Compassion Satisfaction and Secondary Traumatic Stress by Individual Characteristics.

Outcome Variables	*p*	Value
Burnout		
• **Years Working at MIHS**	.010	$X^2 = 25.85$
• **Unit Currently Working On**	.001	$X^2 = 36.15$
Compassion Satisfaction		
• **Level of Education**	.040	$F^* = 14.86$
• **Unit Currently Working On**	.030	$X^2 = 25.48$
Secondary Traumatic Stress		
• **Number of Job Changes Outside MIHS**	.029	$F^* = 15.67$

**Fisher's Exact Test*

The number of years working at MIHS was significantly different among groups for risk for burnout (BO) ($X^2 = 25.853$, $p = .011$). The level of high BO doubles in the first year from 13% to 35% by years two (2) to five (5). The rate of moderate to high BO increases stepwise after this. Seventy-five percent of the two (2) to five (5) year group (n = 95) showed moderate to high BO, 77% in the six (6) to ten (10) year group, and the highest rates of BO (85%) were seen in the eleven (11) to fifteen (15) year group (Figure 4).

FIGURE 4. Years Working at MIHS.

Both CS (X^2 = 25.487, p = .030) and BO (X^2 = 36.153, p = .001) were significantly different depending on the unit the nurse was currently working on. CS scores were highest among those who work in Pre-operative, Post Anesthesia Care Unit (APCU) and Operating Room (OR) (n = 16; 88%) with no one reporting low CS scores. Of the nurses who worked in the ICU and ED (n = 91) 40% reported low CS and 33% reported high CS. The nurses in the APCU (n = 13) reported the highest percentage (46%) of low CS scores. This was followed by nurses in the ICU and EDs and then Labor and Delivery (L&D) (n = 35) with 37% of their nurses indicating low CS. Nurses in Medical/Oncology (n = 39) and Desert Vista/Psych Annex (n = 34) had equal percentages across all three levels of CS.

The units with the highest BO scores were reported by nurses who worked at Desert Vista/Psych Annex (42%) and L&D (35%). The ICU and ED nurses reported 55% in the moderate burnout range, 25% in the high burnout range and only 20% had scores indicating low risk for burnout. Lowest levels of BO were found in nurses who worked in Pre-op/PACU/OR with 75% in the low BO range. Of the nurses responding from Desert Vista/Psych Annex only 14% reported low BO scores. Nurses working in Clinical support or Angio/Endoscopy/Cath Laboratory reported similar levels across all levels of BO. Surprisingly, although nurses in Med-Onc/Trauma-Surg were equally distributed across CS, they reported moderate levels of BO at 55%.

There were significant differences between number of jobs changes outside of MIHS within the last five years for Secondary Traumatic Stress (STS) (F = 15.677, p = 0.29). Of those who had changed jobs four or more times (n = 16), only 6% reported high STS and 37% reported low STS. While not statistically significant, nurses working in L&D reported 50% moderate STS

and 28% high STS. ICU/ED nurses showed equal levels of low and high STS (24%) and 52% high STS. Nurses who worked in Desert Vista/Psych Annex showed 59% moderate levels of STS, 17% low and 23% high STS, respectively. Across all units, moderate STS was the overwhelming majority of reported scores.

Figure 5 shows the expected significant relationships between CS, STS and BO. Burnout had a significant inverse relationship (r = -.69; p = .000) to CS where higher levels of burnout were associated with lower levels of CS and vice versa. Secondary Traumatic Stress also had a significant inverse relationship with CS (r = - .16; p = .004). Secondary Traumatic Stress had a significant positive relationship to BO (r = .53; p = .000) where higher levels of STS are associated with higher levels of BO and vice versa.

FIGURE 5. Cross Tabulations of Subscales.

In Summary, 31% of nurses reported low CS, 21% reported high BO and 22% reported high STS. Table 5 gives the percentage of participants who reported being in each combination of scores for CS (Comparison Satisfaction), BO (Burnout) and STS (Secondary Traumatic Stress). Most importantly, this table indicates that 10% of all participants fall into the highest risk profile of low CS, high BO and high STS only 6% are in the lowest risk profile of high CS, low BO and low STS.

TABLE 5. Burnout by Secondary Traumatic Stress by Comparison Satisfaction Cross Tabulation.

Compassion Satisfaction Categorized			Secondary Traumatic Stress			Total
			Low - STS	Moderate	High	
High CS	Low BO	Count	17	29	3	49
		%	34.7%	59.2%	6.1%	100.0%
	Moderate BO	Count	9	27	5	41
		%	22.0%	65.9%	12.2%	100.0%
	High BO	Count	0	0	4	4
		%	0.0%	0.0%	100.0%	100.0%
	Total	Count	26	56	12	94
		%	27.7%	59.6%	12.8%	100.0%
Moderate CS	Low BO	Count	9	10	0	19
		%	47.4%	52.6%	0.0%	100.0%
	Moderate BO	Count	11	22	10	43
		%	25.6%	51.2%	23.3%	100.0%
	High BO	Count	0	1	10	11
		%	0.0%	9.1%	90.9%	100.0%
	Total	Count	20	33	20	73
		%	27.4%	45.2%	27.4%	100.0%
Low CS	Low BO	Count	1	1	0	2
		%	50.0%	50.0%	0.0%	100.0%
	Moderate BO	Count	5	21	5	31
		%	16.1%	67.7%	16.1%	100.0%
	High BO	Count	5	23	24	52
		%	9.6%	44.2%	46.2%	100.0%
	Total	Count	11	45	29	85
		%	12.9%	52.9%	34.1%	100.0%

DISCUSSION

This study answered two questions: 1) What is the severity and prevalence of CF among nurses working at Maricopa Medical Center? and 2) Do nurses with low CF risk have differences in demographic and workplace characteristics compared to those with high CF risk? The results of this study illuminated areas where nurses are at risk and when that risk is greatest.

The profile of those at greatest risk for CF, include those with low CS, moderate to high BO and moderate to high STS. Individual and workplace characteristics of those with high and low risk for CF can assist us to better understand the overall severity and prevalence within MIHS. When examining units where nurses worked, findings documented that CF risk is greatest among the ICU/ED/Rapid Response, Desert Vista/Psych Annex and Labor and Delivery units. The nurses in these units reported significant levels of burnout and low CS. In the majority of these units, STS scores fall in the moderate range. While STS by unit worked did not reach the significance threshold, it does indicate a profile of higher risk for CF when combined with their reported levels of BO and CS.

The findings for nurses working in the ED/ICU are consistent with current literature that shows that emergency and ICU nurses report high levels of CF (Hooper et al., 2010; Dominguez-Gomez & Rutledge, 2009; LaFauci Schutt & Marotta 2011). One important finding of this study was the high BO among nurses working in the psychiatric units (Desert Vista/Psych Annex). This finding had little support in current literature as few studies were found that included psychiatric nurses. One literature review among mental health-care workers determined that there is insufficient research among this population to make an overall determination of risk

(Collins & Long, 2003). Findings from this study of psychiatric nurses at MIHS indicate that the potential for CF is high, indicating need for further research.

Labor and Delivery (L&D) nurses reported high BO scores, low CS and average STS scores, placing them at higher risk for CF. Few, if any other studies have examined these same concepts. One study examined only STS and found 35% of nurses had moderate to high levels of STS. The explanations for this finding were that nurses developed STS due to traumatic births, traumatized patients, and agony over what else could have been done (Beck & Gable, 2012). It is possible that these same reasons contribute to the findings in this study. Nurses in this study treat a similar population to those in the Beck and Gable study, caring for both high risk and pregnant trauma patients. It will take future research to determine if this is the case or if other, as of yet unknown, causes lead to these reported findings.

When examining years working at MIHS, BO was most significantly influenced. In the first year of working, moderate BO was the major finding, with very low levels of both low and high BO. In the 2nd to 5th year, levels of high BO doubled from the first year, with no changes in low BO levels. Instead of improvement with time and experience on the job, BO worsens after the first year. Patterns of elevated levels of high BO and low levels of low BO continue until nurses are in their 21st to 25th years of working. At this time, the nurses experience low BO rates at almost 60%, and high BO rates plummet.

Secondary traumatic stress (STS) and CS (Comparison Satisfaction) follow similar trends with worsening scores during the 2nd to 5th years and no improvement until the 21st to 25th years. CS drops to its lowest scores in the 16th to 20th years of working, rises slightly and then decreases after working more than 25 years. One possible explanation of this finding is that it is

related to work fatigue leading up to the traditional years of retirement and/or having to work past the point of normal retirement, thus leading to symptoms of diminished satisfaction with work and higher levels of BO. It will take further research to determine the exact reason for these stark shifts as this was not the focus of this project nor is this finding discussed in current literature.

The finding that BO and STS increase dramatically from the 1st year to the 2nd through 5th years is exceedingly important. This offers a distinct point for placement of interventions. It is unknown from this current study what the reasons for the increase in BO and STS are, however, previous research has stated that BO is related to high workloads, and unsupportive work environments, with STS being linked with experiencing the trauma of others (Stamm, 2010). Whether this plays a role in these findings cannot be certain, but should be considered when implementing an intervention, as these are established causes.

Findings of high BO and STS are known causes of increases in turnover. Data on turnover rates at MIHS were unavailable at the time of this project, but could be used to determine if a relationship exists between the BO and STS rates and the highest points of turnover. If a correlation is found, then interventions placed to reduce CF risk should also impact nurse turnover. Current literature supports this with findings that show when job satisfaction is low, productivity decreases and turnover rises (Lombardo & Eyre, 2011).

Nurses who have worked between 21-25 years at MIHS reported the lowest levels of BO (~60%) and relatively low STS. Potential reasons for this include: 1) natural predisposition for low CF risk; 2) protective learned coping skills developed over time; and 3) a brighter outlook overall as these nurses are in what traditionally are the years just prior to retirement. As they

prepare for retirement, the effects of stress and work might decrease from knowing retirement is close. Future research will need to be conducted to determine if this hypothesis is supported.

Level of education is significantly associated with CS scores. Highest scores are seen in those with advanced degrees. Of those with Master's degrees, the greatest percentage reported high CS scores. The findings also indicate that advanced degrees are likely protective against BO and STS. The majority of those with Bachelor's degrees reported low CS. Although not statistically significant, this trend does continue across education levels in both the BO and STS categories. This finding is consistent with literature documenting that level of education was associated with job satisfaction, a component of CS (Coomber & Barriball, 2007). However, the literature is mixed, as other studies have indicated that higher levels of education might increase the risk for BO and CF (Potter, 2010). Najjar et al. (2009), when examining oncology nurses, found that higher education levels (specifically advanced degrees) might characterize persons who have "increased expectations for work satisfaction." Other researchers have suggested that greater research is needed about the role that education plays in the development of CF (Lombardo & Eyre, 2011).

A trend of increased burnout and low CS was found among younger nurses. Lowest scores were seen in nurses aged 26-34 years, with scores increasing in those aged 45-64 years. This was most prevalent in CS, but also seen to a lesser extent in BO. While these findings did not meet the level of statistical significance, it is a pattern that has been documented in previous research where those under 40 were at greater risk for CF (Maslach, Schaufeli, & Leiter, 2001). Maslach, Schaugeli and Leiter (2001) caution about a possible survival bias in findings of this nature, as those with BO or CF might leave the career field earlier, leaving behind only those

with low BO. There is not enough data from this study, or current research, to be able to determine the exact cause for this trend among these nurses. However, it does give an additional indication of where interventions should be placed in order to halt an increase in CF risk. Focusing resources on younger nurses should help to keep them in the career longer, boosting retention and job satisfaction.

Although years of nursing experience has been associated with higher CF in other research (Emanuel et al., 2011), this finding was not found in this study. The greater determinate in this population for CF risk appears to be how long they have worked for MIHS and not how long they have been a nurse. A qualitative study focused on the specifics gleaned from this study might help identify what characteristics in the work environment, patient population, or nurses, lead to these findings.

The number of times a nurse has changed jobs outside of MIHS in the last five years appears protective for STS, with the more job changes leading to lower levels of STS. Among the 13 nurses who had changed jobs four times, none had high STS and the level of low STS rises consistently after three or more job changes. This non-significance trend was also present for both CS and BO. Number of job changes within MIHS was not significantly associated with CS, STS or BO. These findings are unique in that I found no studies examining the association between number of job changes and CF rates. This could indicate that job changes should have increased acceptance and nurses should be encouraged to find a work environment with the "right fit".

From the literature (Sung, Seo, & Kim, 2012), high CF was found to lead to an increase in turnover. Nurses who are experiencing CF symptoms may leave their current job and find that

their symptoms are alleviated upon starting a new job. This could lead to increased job changes as a way of decreasing CF symptoms on a more long-term basis. In future research it would be beneficial to compare these nurses to those who leave the field, in order to finds ways to retain more nurses overall. It is unclear at this time why changing jobs outside MIHS impacts CF risk and changes within the facility does not. This could be a sample dependent finding; linked to aspects of the general work environment; or representative of different characteristics among nurses who choose to leave a facility as opposed to switching roles within the hospital. Additional research, specifically qualitative studies of this population of nurses, could yield a clearer understanding of the relationship between changing jobs or organizations and CF risk.

Number of sick days in the previous six months was not significantly associated with levels of CF. This is in contrast to findings of Lombardo and Eyre (2011) who found that increased use of sick days was a symptom of CF. Among those who had taken nine or more days off sick in the present study, the majority were found to have low CS, and moderate to high BO and STS. This indicates that CF symptoms might play a role when this number of sick days is used. Further analysis is required, but these findings suggest that a more in-depth discussion and assessment of CF might be appropriate when nurses take greater than nine sick days per year.

No significant findings were found based on gender, marital status, current position, or years of RN experience. Modest trends were present based on the current position of the nurse. Managers were more likely to have high CS and low BO and STS. This was also found for nurses who worked in case management, indicating that CF risk is low overall among these nurses. Case management may be sufficiently rewarding that CF risk is lower. Clinical Resource Leaders and House Supervisors, in contrast, were more likely to have low CS and moderate to

high BO and STS, indicating a greater risk for CF. These are groups of nurses that have classically been overlooked in CF studies. As such, there is a dearth of research to either refute or confirm these findings. Given this evidence though, it would be appropriate to provide interventions for these groups, as the risk/reward ratio favors treatment and prevention over delay inherent in the need for surety.

CS appears low in those who have worked 15 years or less, and is more likely to be high in those who have worked more than 15 years. This trend is seen in reverse in BO, where nurses with less than 15 years are more likely to have moderate to high burnout and those who have worked more than 15 years are more likely to have moderate to low BO. Emanuel et al. (2011) also found similar findings.

With the individual characteristics addressed, a more comprehensive picture of the severity and prevalence of CF within MIHS can be described. Overall, almost a third of nurses reported low CS, with just under a quarter indicating high BO and STS. When describing the profile of CF in this sample, 43% reported being at risk for moderate to high CF, while approximately 10% of all participants were in the highest risk profile of low CS and high BO and STS. For comparison, only 6% of participants were in the lowest risk profile of high CS and low BO and STS. The findings are unique and not comparable to the literature because no other published studies were found that examined CF across an entire hospital system.

The overall findings were expected with STS, BO and CS significantly associated with each other (Stamm, 2010). This indicates that as a whole, those nurses who scored low on CS also scored high on STS and BO and were at risk for CF. On a personal level this meant that a nurse who has low CS is not likely to have this finding in isolation. These three areas are closely

linked in this facility, and a nurse who suffers the symptoms and consequences of high BO, high STS, or low CS is likely to be suffering the burden of them all.

Summary

Many nurses working at MIHS were determined to be at high risk of developing CF. Almost one in two report scores that align with at least moderate risk for developing CF. Almost half of the nurses, regardless of educational level or where they are working, potentially struggle with physical, emotional and/or work related symptoms ranging from upset stomachs and chest pain to depression, anger, poor concentration and lack of joyfulness. These symptoms can be affecting their individual work performance and impacting the care provided to patients at MIHS. CF is not an isolated problem. When nurses experience CF, it touches every aspect of a hospital organization, from morale and retention to medication errors and patient satisfaction.

The nurses who are at overall significantly greatest risk of reporting CF in this population are nurses who have worked between two (2) and five (5) years at MIHS, have a bachelor's degree, have changed jobs infrequently, and work in L&D, ICU/ED/Rapid Response or Desert Vista/Psych Annex. Trends indicate that these nurses are also more likely to be between the ages of 25 and 45 and have less than 16 years' experience. Outside of this, nurses who have been with MIHS 16-20 years or work as CRLs or House Supervisors also show trends toward high CF and should be considered when implementing interventions.

Study Strengths

The aim of this project was to describe the severity and prevalence of CF at MIHS. The cross-sectional design of this study accomplished this goal, giving clear data on the current risk for CF among nurses in this hospital system. This study had a large sample size taken across the

entire inpatient hospital system. There is currently no published studies with this large a sample size surveying an entire hospital system; most studies focus on specific types of units (e.g., ICUs or Oncology). The data obtained provides a baseline for where to focus interventions. These findings provide implications for future research with targeted interventions to reduce CF.

Study Limitations

The major limitation of this study may be response bias. While the response rate was above the generally accepted 30%, nurse's responses may not be representative of the nurses who did not respond within the hospital. Those who did not respond may have even higher CF than those who responded. The sample may also not be representative of nurses working in the surrounding geographic area or other states due to differences in patient population and other operational factors not taken into consideration in this study.

RECOMMENDATIONS FOR PRACTICE

Based on the prevalence of CF risk at MIHS, prevention and improvement interventions should be enacted. Resilience training has been shown to improve the effects of stress and trauma in the workplace (Robertson, Cooper, Sarkar, & Curran, 2015). Resilience is defined as "the ability to thrive despite stress and adversity" (Loprinzi, Prasad, Schreoder, & Sood, 2011, p. 365). Resilience enhances relationships, builds emotional insight and increases the ability to withstand adverse effects in work environments (Sabo, 2011). Multiple studies have determined that higher resilience leads to a stronger sense of well-being and the ability to adapt to the highs and lows common when providing patient care (Gillespie et al., 2007; Mealer et al., 2011). Along with this, short-term self-help programs, with face-to-face instruction and support are effective at increasing well-being and lessening depressive symptoms (Bolier et al., 2013).

Importantly, resilience is not a static trait, but a one that can be learned (McAllister & McKinnon, 2009). One program that has been shown to reduce BO and the effects of stress in medical staff is the Stress Management and Resilience Training (SMART) program.

This program is targeted for use in fast-paced hospital settings, and was first piloted in Department of Medicine faculty (Sood, Prasad, Schroeder, & Varkey, 2011). It was chosen due to the short length of time it takes to complete, which has been shown to decrease workflow disruptions and reduce the resources needed to implement it (Sood, Prasad, Schroeder, & Varkey, 2011). SMART is built on Attention and Interpretation Therapy (AIT). Research indicates that humans instinctively focus on threats and imperfections (Sood, Prasad, Schroeder, & Varkey, 2011). The past and future, in this context, are considered to have a great deal of threat that takes up a significant amount of attention. This then predisposes a person to excessive thinking in relation to these perceived threats, leading to time consuming thought suppression and avoidant response (Sood. Prasad, Schroeder, & Varkey, 2011). To combat this, SMART focuses on delaying judgment and paying attention more to novelty in the world, and less on perceived threats. Along with this, participants are taught to build more flexible and adaptable conclusions, moving away from fixed prejudices and thoughts. The goal is to adopt skills such as "gratitude, compassion, acceptance, forgiveness, and higher meaning" (Sood, Prasad, Schroeder, & Varkey, 2011). Along with this, participants learn paced breathing, a relaxation technique that helps them cope with immediate stressors, decreasing their emotional intensity. Boundary training specific to nursing will be incorporated into this program as well, as it has been shown to help decrease the negative effects of care giving. SMART accomplishes this in a single, short 90-

minute session followed by an optional 30-60 minute session later if participants feel it necessary.

My recommendation to the CNO will be that this intervention, along with education about CF cause and symptoms, be given to every new hired nurse by end of their first year to promote increased resilience and lower CF risk. Also, every nurse who works in high-risk areas (ED/ICU/Rapid Response, L&D, Desert Vista/Psych Annex) should be offered this program at regular intervals. CRLs, House Supervisors and those who have worked 16-20 years are also identified as being at risk and should be targets of this intervention. Consideration for CF risk should also be given for nurses who have called out sick nine times or more in the previous six months. After discussion with these nurses, a determination should be made on an individual basis as to whether this intervention would be of benefit if offered.

Implementation Recommendation

The Doctor of Nursing Practice (DNP) degree prepares nurse practitioners to be both highly qualified providers, and creators and utilizers of nursing and medical knowledge. This makes them uniquely qualified to implement needed interventions into a healthcare environment. As a doctorally prepared Nurse Practitioner, this education gives this PI the ability to first conduct this needs assessment research and then translate it into practice. Following the Plan-Do-Study-Act (PDSA) framework, this research study was conducted in the 'Plan' phase. Implementing the recommended intervention would be part of the 'Do' phase. To assist with this, the Ottawa Model of Research Use (OMRU) should be followed (Graham & Logan, 2004). This model is based on six elements: practice environment, potential adopters, evidence based innovation, transfer strategies, adoption, and outcomes (Graham & Logan, 2004). The OMRU allows the

user to understand and plan for all the needed steps when bringing research into practice. It does this by incorporating a process of assessment, monitoring and evaluation (AME) (Graham & Logan, 2004). This allows the user to make process changes, update practices and address barriers without having to start the models steps over. The OMRU is focused on interdisciplinary

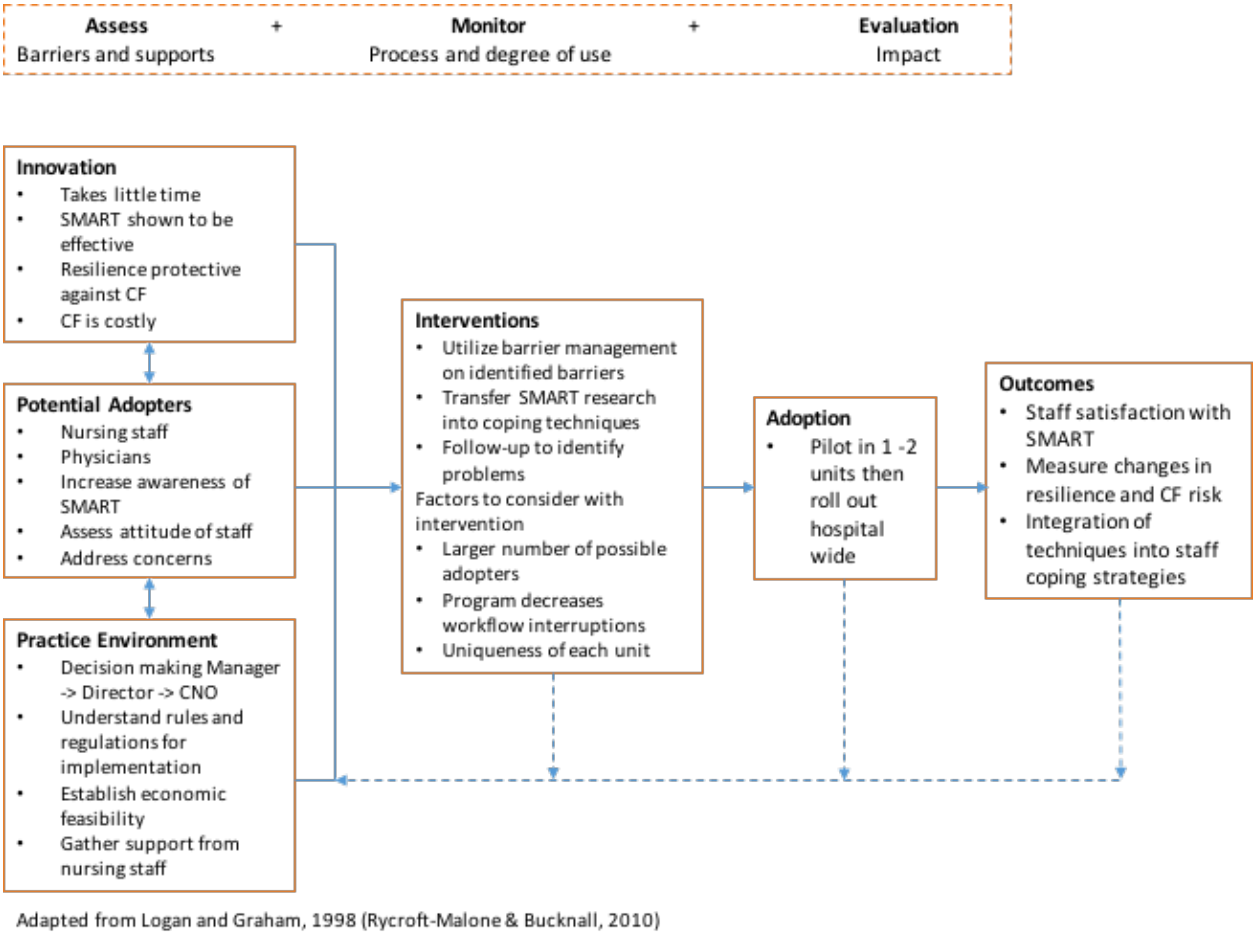


FIGURE 6. Ottawa Model of Research Use for MIHS

collaboration and flexible, so that it works on any level, from a single unit, to the whole organization (Rycroft-Malone & Bucknall, 2010). This PI recommends first piloting the SMART program in higher need units identified as the ICU, ED, Rapid Response, Psychiatric Annex and

Desert Vista. Upon success, SMART can then be used among the other identified high-risk areas (i.e., new hire nurses, young nurses, CRLs, and those who take nine or more sick days). An overview of the implementation steps using the OMRU can be seen in Figure 6.

FIGURE 6. Ottawa Model of Research Use for MIHS.

There are many barriers that need to be addressed in order to implement this intervention. These include cost, workflow disruptions, total time of implementation, and resistance to the program. A complete list of anticipated barriers is found in Table 6.

TABLE 6. Anticipated Barriers and Mitigating Strategies and Evaluation.

Anticipated Barriers	Facilitators/Mitigation Strategies	Evaluation
Cost	Cost of program Cost of staff time Cost of time for champions Cost of materials Cost of staff education	Evaluate costs before and during implementation Make changes necessary to keep costs controlled
Resistance to Program	Champions – staff members who buy in Emails Utilize staff meetings to give clear reasons for need of innovation Gain support of managers and leadership teams	Evaluate attitudes prior to intervention and again during intervention Final assessment after intervention
Complex Innovation	Keeps steps simple and transparent Have committee oversight to do follow-ups, monitoring and evaluation	

Potential costs of implementing the SMART program include cost of the program instructors, staff participation, training and utilization of champions, staff education and materials. As this is a complex innovation, it has many working parts that require groups to work together. Therefore, steps to simplify the process can be taken. It is recommended that a

committee of members from participating units be formed to ensure transparency and accountability, and plan ways to overcome the identified barriers. The committee will also be able to address unforeseen problems and challenges as they arise. The assessment, monitoring and evaluation (AME) process will assist the committee in identifying, addressing and overcoming these barriers. Overall, following the OMRU guidelines will lead to smoother implementation, keeping cost and interruptions to a minimum, and get the SMART program to the at risk nurses in the fastest timeline possible. This ensures the nursing staff gains the maximum benefit from the program and that the high prevalence of CF risk is addressed and reduced.

Conclusion

In conclusion, almost one in two nurses working at MMC are at moderate to high risk for CF. This can lead to increased turnover, poor morale and lower patient satisfaction and safety. There are associations between CF risk and job changes, as well as years working at a single facility. Both of these areas have been previously unstudied. This study determined that resilience interventions to reduce CF risk are needed at this organization. Focus should be placed on the units most at risk and on new hire nurses, regardless of their years of nursing experience, to decrease CF and turnover and improve job satisfaction and quality care.

APPENDIX A:

WELCOME LETTER

Nursing Staff:

My name is Kati Wijdenes. I work in the emergency department as an RN here at Maricopa Medical Center and I am a graduate student at the University of Arizona's Doctorate of Nursing Practice (DNP) Program. I am conducting this needs assessment project as part of my requirements for my DNP. I am studying the rates and prevalence of compassion fatigue among our registered nursing staff. Compassion fatigue is similar to burnout and displays emotional, physical and work related concerns that may go unrecognized and untreated. High risk for compassion fatigue can lead to more sick days, feelings of being overwhelmed and job turnover. Because of the serious nature of compassion fatigue, it is important for us as nurses to understand our overall risk here in our hospital. This survey, the Professional Quality of Life Scale (ProQOL-5), is a screening tool that provides a measure of your compassion satisfaction level and risk for compassion fatigue.

If you are receiving this letter then I am inviting you to participate in this study, which can be accessed by clicking on the provided link. The questionnaire will take approximately 15 minutes to complete. For your participation, you will be given an opportunity at the end of the survey to be entered into a drawing for one of two **$75 Visa gift cards**. There is no known risk associated with participation. Your participation is strictly voluntary and you may decline to participate or stop participation at any time. Information gathered during this study will remain confidential. Names will not be collected in this study and any other identifying details will remain confidential and will not be published in the results of the study.

Thank you for taking the time to help further my research on the risk for compassion fatigue that we, as nurses at this hospital, uniquely face.

Sincerely,

Kati Wijdenes, BSN, RN, DNP Student
kwijdenes@email.arizona.edu
Kati.Wijdenes@mihs.org

APPENDIX B:

IRB DISCLAIMER FORM

Compassion Fatigue in an Urban Trauma Center

Kati Wijdenes

The purpose of this study is to determine the prevalence and severity of Compassion Fatigue among the registered nursing staff at Maricopa Medical Center, Desert Vista and the Psychiatric Annex.

If you choose to participate in this study, you will be asked to complete the ProQOL-5 scale. It will take approximately 15 minutes to complete this survey. There will be no follow-up surveys needed. There are no foreseeable risks associated with participating in this research and you will be given the opportunity to enter to win one of two $75 Visa gift cards at the completion of the survey. The results of this study will help us to better understand compassion fatigue within this hospital potentially leading to better programs to cope with the stressors of working in healthcare.

If you choose to take part in the study, you may discontinue participation at any time without penalty. Also, you may skip any question that you feel you do not wish to answer. By participating, you do not give up any legal rights you may have as a participant. An Institutional Review Board responsible for human subjects' research at The University of Arizona, and here at Maricopa Medical Center reviewed this research project and found it to be acceptable, according to applicable state and federal regulations and the University and hospital policies designed to protect the rights and welfare of participants in research. For questions about your rights as a participant in this study, or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact the Human Subjects Protection Program at 520-626-6721 or online at http://orcr.arizona.edu/hspp

For questions, concerns, or complaints about the study you may contact Kati Wijdenes at kwijdenes@email.arizona.edu, Kati.Wijdenes@mihs.org, or 480-244-7972.

By taking this survey you agree to have your responses used for research purposes.

APPENDIX C:

DEMOGRAPHIC AND WORKPLACE CHARACTERISTICS

Demographic and Workplace Characteristics
For reference only, will be formatted in Qualtrics

Age

- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65-74 years old
- 75 years or older

Gender

- Female
- Male
- Transgender
- Prefer not to respond

Marital status

- Single, never married
- Married or domestic partnership
- Widowed
- Divorced
- Separated

Level of education

- Diploma or certificate
- Associate degree
- Bachelor's degree
- Master's degree
- Doctorate degree

Years working at MIHS

- 0-1 year
- 2-5 years
- 5-10 years
- 10-15 years
- 15-20 years
- 20-25 years
- 25 years or more

Years of experience as a RN

- 0-1 year
- 2-5 years
- 6-10 years
- 10-15 years
- 15-20 years
- 20-25 years
- 25 years or more

Unit currently working on

- Adult ED
- Pediatric ED
- Burn Center ICU
- Burn Center 7th floor
- Medical/Oncology
- Surgical/Trauma
- APCU
- Endoscopy
- OR
- PACU
- Pre-Op
- Surgical ICU
- Medical ICU
- Pediatrics
- Pediatric ICU
- Neonatal ICU
- Labor and Delivery
- Short-stay/Observation

Current position

- Staff RN
- Clinical Resource Leader
- Manager
- Director
- Educator

Number of sick call days in previous 6 months

- 0-1 sick days
- 1-4 sick days
- 4-8 sick days
- 8 or more sick days

Number of job changes within MIHS in the last 5 years

- None
- 1
- 2
- 3
- 4 or more

Number of job changes outside MIHS in the last 5 years

- None
- 1
- 2
- 3
- 4 or more

APPENDIX D:

ProQOL-5

Likert-style responses will be added in Qualtrics

Compassion Satisfaction and Compassion Fatigue (ProQOL) Version 5 (2009)

When you *[help]* people you have direct contact with their lives. As you may have found, your compassion for those you *[help]* can affect you in positive and negative ways. Below are some questions about your experiences, both positive and negative, as a *[helper]*. Consider each of the following questions about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the *last 30 days*.

1. I am happy.
2. I am preoccupied with more than one person I *[help]*.
3. I get satisfaction from being able to *[help]* people.
4. I feel connected to others.
5. I jump or am startled by unexpected sounds.
6. I feel invigorated after working with those I *[help]*.
7. I find it difficult to separate my personal life from my life as a *[helper]*.
8. I am not as productive at work because I am losing sleep over traumatic experiences of a person I *[help]*.
9. I think that I might have been affected by the traumatic stress of those I *[help]*.
10. I feel trapped by my job as a *[helper]*.
11. Because of my *[helping]*, I have felt "on edge" about various things.
12. I like my work as a *[helper]*.
13. I feel depressed because of the traumatic experiences of the people I *[help]*.
14. I feel as though I am experiencing the trauma of someone I have *[helped]*.
15. I have beliefs that sustain me.
16. I am pleased with how I am able to keep up with *[helping]* techniques and protocols.
17. I am the person I always wanted to be.
18. My work makes me feel satisfied.
19. I feel worn out because of my work as a *[helper]*.
20. I have happy thoughts and feelings about those I *[help]* and how I could help them.
21. I feel overwhelmed because my case [work] load seems endless.
22. I believe I can make a difference through my work.
23. I avoid certain activities or situations because they remind me of frightening experiences of the people I *[help]*.
24. I am proud of what I can do to *[help]*.
25. As a result of my *[helping]*, I have intrusive, frightening thoughts.
26. I feel "bogged down" by the system.
27. I have thoughts that I am a "success" as a *[helper]*.
28. I can't recall important parts of my work with trauma victims.
29. I am a very caring person.
30. I am happy that I chose to do this work.

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