ORIGINAL RESEARCH

Longitudinal study of a compassion fatigue resiliency intervention in nurse residents

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ABSTRACT

Nurse residents are at greater risk of compassion fatigue compared to more experienced nurses. The amended 2015 Commission on Collegiate Nursing Education Standards of Entry-To-Practice Accreditation of Nurse Residency Programs require that residency programs include approaches to prevent compassion fatigue in their education experiences. This manuscript reports 6-month follow-up results of a longitudinal study in new graduate nurses that evaluated the influence of a four-hour resiliency intervention for compassion fatigue in two hospitals with nurse residency programs within an academic medical center system. We previously reported a statistically significant decrease in mean STS from baseline to 2-months ($p < .001$). Using a paired t-test, compassion satisfaction (CS) and the two elements of compassion fatigue (CF), secondary traumatic stress (STS) and burnout (BO), were measured against 6-month post-intervention. Prevalence and changes in mean scores were reported, suggesting that the results found at 2-month follow-up (n = 94) were sustained at 6-month follow-up (n = 34). The mean STS showed a statistically significant decrease from 2-months and 6-months ($p < .001$). A decrease in BO and mean increase in CS were not statistically significant, but were trending in a positive direction. As theorized, both STS and BO decreased from baseline to 2-months and 6-months after the-intervention, and CS increased. These results indicate that early compassion fatigue resiliency education may be helpful in increasing CS and lowering the symptoms of CF in nurse residents.

Key Words: Compassion fatigue, Resiliency, Nurse residents, Nurse residency program, Burnout, Secondary traumatic stress, Resiliency, Compassion satisfaction, Intervention

1. INTRODUCTION

Of all healthcare providers, nurses are the most numerous, perform the most direct care with patients, and routinely bear witness to human suffering.[1] This and other aspects of their profession such as staffing issues, high patient acuity, and unrealistic patient expectations put nurses at risk for compassion fatigue.[2,3] Compassion fatigue has a negative effect on nurses and the institutions they work for. CF has been linked to decreased patient safety, increased employee turnover, increased errors, decreased performance, absenteeism, impaired professionalism, decreased staff and patient satisfaction, and substance abuse.[4–8] Compassion fatigue prevalence among RNs in the United States, ranges from 16% to 39%.[6,9] New graduates account for the highest number of nurses entering the profession.[10] New graduate nurses, the majority of whom are members of the millennial generation, are at higher risk of experiencing compassion fatigue compared to more experienced nurses.[11,12] Over a quarter (28.9%) of all new graduate nurses leave their jobs within the first year, and more than half or 56.4% of the

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nurses who left had less than two years of service.[13] In a 2017 AHA workplace resilience survey, millennials (age 18-36) indicated the highest interest (96%) of any generation in workplace resiliency.[14]

The amended 2015 Commission on Collegiate Nursing Education Standards (CCNE) addressing Nurse Residency Program accreditation require nurse residency programs to incorporate strategies to minimize compassion fatigue in their curriculum.[15] Organizational resiliency training has become increasingly imperative to improve employee well-being, health, satisfaction and provide optimal patient care.

1.1 Background & operational definitions

Compassion fatigue (CF) may result from caregivers repeated exposure to patients' and families' misery, pain and from providing sustained empathic care. It can be a causative factor in caregiver burnout.[8, 16] CF leads to emotional, physical, and professional related symptoms that negatively impact patient care and personal and professional relations.[17–19] Compassion fatigue may develop as a result of the work nurse residents perform and may affect their ability to endure in the profession.[3, 16, 20–22]

Due to the significance of CF both personally and professionally, it is theorized that resiliency interventions might offer protective factors to mitigate the negative effects of their work.[16–18, 20, 23–25] Compassion fatigue is cumulative, it is often not the most horrific patient cared for, it is proving empathetic caring for hundreds of patients. The collective effects of witnessing pain and suffering (secondary trauma) and challenging practice environment may cause nurse residents to experience physical symptoms (e.g. headaches, gastrointestinal issues, sleep disturbances), emotional withdrawal, or empathy blunting.[2, 26, 27] Compassion fatigue often mirrors post-traumatic stress disorder but is typically more insidious in presentation. Caregivers suffering the most are often unaware they have CF.[1, 18] Symptoms and distress are often related to intrusions, avoidance, traumatic memories, rumination, hyperarousal, and exhaustion.[2, 3, 27, 28] Exposure to chronic stress such as nursing may provoke sustained physiological perceived stress arousal and is associated with shortened telomeres (caps at the end of each strand of DNA that protect the chromosomes) and may also affect premature aging.[29, 30]

1.2 Definitions

Compassion satisfaction (CS) is described as the fulfillment and enjoyment one derives from doing their job well and contributing to the well-being of others.[2, 3, 24, 27, 31] It is the powerful experience of emotional engagement and compassionate caring of others; despite the cost of caring.[31, 32]

Resiliency is an individual's resources and strengths (external and internal) which provide the capability to endure, recover and thrive despite life stressors and challenging demands.[14, 27, 33]

Compassion fatigue consists of two components: burnout (BO) and secondary traumatic stress (STS).[16–18, 24, 31, 34]

STS refers to the caregiver ill effects from witnessing the pain and suffering of others. STS can be instigated by caring for patients affected by trauma, awareness of the trauma of others, fear, or feelings of professional inadequacy.[2, 3, 27]

Maslach (1976) described a multidimensional model of BO which includes: depersonalization, emotional exhaustion, and diminished personal accomplishment in those in the helping profession. BO has further evolved in health care and is linked with the occupational stressors such as staffing, high patient acuity, work overload, organizational dysfunction, lack of control, unrealistic patient expectations, and lack of organizational and/or leadership support. BO may include feeling hopelessness, exhaustion, depression, frustration, and resentment, causing some nurses to feel that their work does not matter.[2, 3, 16, 18, 24, 31]

1.3 Synthesis of the evidence

Although the prevalence of CF in nurses has been well documented, very few studies have been published regarding interventions for CF resiliency, and only one interventional study has been conducted with nurse residents by Flarity, Jones and Reckard, 2016. Their study reported the influence of a resiliency intervention for CF in graduate nurse residents. The authors found a decrease in mean STS that was statistically significant ($p < .001$) from the baseline to post-intervention and mean BO and mean CS were not statistically significant but trending in a positive direction. The results of their study suggested that CF resiliency may be favorable to nurse residents in increasing CS and minimizing symptoms of CF in the early stages of their career. The present results are an extension of Flarity et al. (2016), now reporting data from 6-month post-intervention.

Although not conducted in nurse residents, Thimmapuram et al.'s (2017) study on the effect of meditation on telomere length, emotional wellness, and burnout in health care providers found that participants who participated in the 12-week meditation had statistically significant improvement in burnout compared to the control group. They also found relative telomere length increased with statistical significance in the younger subset of participants who were in the intervention group.[30]

2. METHOD RESEARCH DESIGN

The study used an intervention-only research design measuring changes in participants over time. This study was conducted at two hospitals with nurse residency programs within an academic medical system, a 500-bed academic medical center and a 448-bed urban hospital in the southwestern United States. Institutional Review Board approval was obtained prior to the study. All nurse residents received a 4-hour CF resiliency intervention with the lead author as part of their yearlong nurse residency program. Those who self-selected to participate in the study provided demographic data and submitted pre-intervention, 2-month and 6-month post-intervention questionnaires. Participants created their own unique identifier for their individual data, in order to maintain confidentiality. Responses were matched using a paired *t*-test at baseline, 2-month and 6-month post-intervention. This manuscript reports the 6-month follow-up results, baseline and 2-month results have been previously published.[2]

2.1 Intervention

The lead author (KF) a certified CF Specialist conducted a four-hour resiliency seminar. The seminar content was modified with permission from Dr. J. Eric Gentry and is described in previous work.[2] Content included: historical perspective of CF, symptoms of CF, negative physiological effects, as well as dynamics of being a novice nurse that may contribute to CF. The interactive seminar included multiple activities; group and individual exercises; videos, didactic lecture and collaborative discussions.

The curriculum included the effects of chronic and prolonged stimulation of the sympathetic nervous system on cognitive function, critical thinking, and behavior, which provided the groundwork for understanding the significance of stress mitigation in CF resiliency.[35,36]

The individual and group activities provided the participants an opportunity to apply the various intervention techniques. Through demonstration and return demonstration of self-regulation skills, the participants were trained on parasympathetic dominance as a technique to reduce the negative impact of stressors. Learning and applying immediate actionable relaxation techniques while in highly stressful situations such as caring for critically ill, injured or in emotionally charged situations helps nurse residents to reduce sympathetic nervous system influence in the moment. The sympathetic nervous system is responsible for the fight or flight response (release of catecholamine, neurotransmitters, and cortisol). The participants also practiced methods of perceptual maturation, self-regulation, and the importance of social connection. These exercises were designed to build critical skills of self-regulation to maintain a calm focus, critical thinking and peak performance during high stress situations, stabilizing the wide bio-chemical swings produced by acutely stressful events. Aside from maintaining mental and physical fitness, there is early evidence to suggest that practice with these tools can provide extra protection against the later development of post-traumatic stress and CF.[18,23] This is due to the way the tools train the body to settle its biochemistry back down after intense, stressful or chaotic events. These exercises teach simple but powerful relaxation skills, including self-regulation through conscious breathing, word and phrase repetition, and progressive body relaxation. Participants also experienced guided imaging for deep relaxation.[23]

The intervention included training on living with intentionality and application for nurse residents, as well as the importance and methods of social connectedness and sharing of personal trauma narratives for mitigating professional stress. The nurse residents' explored self-care actions necessary for reenergizing, renewing, recharging which included: healthy diet, exercise, optimal sleep and stress mitigation strategies.[3,6,26] Participants were provided seminar resources which included; guided imaging CD used in the seminar, seminar workbook and handouts.[23]

2.2 Instrument

The Professional Quality of Life Test (ProQOL) V5[31] was utilized to measure CS and CF at three time points, immediately before the intervention, at 2-month and 6-month after the intervention. The tool contains 30 self-reported items using a five point scale. The tool divides the questions into three subscales which characterize distinct although associated constructs: BO, STS and CS.[31] The validity and reliability of the tool was previously reported as well as construct validity. For the subscales, the tool provides an alpha reliability of 0.84-0.90 and a structural reliability coefficient of 0.91. The scale is widely used to identify both the negative and positive effects of providing care.[31] In addition, the nurse residents completed a questionnaire reporting which of the techniques taught in the intervention they used and how often they used it at two data points; 2-month and 6-month assessment. Qualitative data was also obtained as part of the nurse residency program.

3. RESULTS

One hundred-seventy-six nurse residents returned the baseline questionnaires. At 2-month post-intervention, 96 questionnaires were matched with 94 considered eligible. At 6-months post-intervention, 37 questionnaires were returned and 34 were deemed eligible (36.2% of eligible participants

from 2-month follow-up). Nurse residents were predominantly female (85%) and 20 to 30 years of age (85%). Most had 1-3 years of health care experience (77%) and most had a bachelor's degree as their highest educational attainment (97%) (see Table 1).

Most nurse residents reported moderate STS at baseline (73%), while most reported low burnout at 6-month post-intervention. Significantly lower STS was observed at 6-month post-intervention ($p < .001$). At baseline, most nurse residents had moderate CS (74%), with 27% reporting high CS. At 6-month post-intervention, CS rates were relatively similar, with 29% having high CS and 71% with moderate CS. None had low CS at baseline or follow-up. Burnout rates were similar between baseline and post-interventions, with slightly lower burnout at 6-month post-intervention (50% with low burnout at 6 month, compared to 47% at baseline) (see Tables 2 and 3).

The most frequently used techniques reported by the nurse residents were perceptual maturation/self-validation (53% reporting daily use), followed by intentionality (50%), connection and support (35%), self-regulation (30%), self-care and personal refueling (29%). The nurse residents reported at least weekly implementation of self-care and personal refueling (91%), social connection and support (85%), intentionality (77%), perceptual maturation/self-validation (74%), and self-regulation (71%) (see Table 4).

Table 1. Nurse resident demographics

Demographics (n = 34)	Category	n (%)
Age	20-25	16 (47%)
	26-30	13 (38%)
	31-35	1 (3%)
	36-40	2 (6%)
	41+	2 (6%)
	Missing	0 (0%)
Gender	Male	5 (15%)
	Female	29 (85%)
	Missing	0 (0%)
Years worked in Health Care*	1-3	26 (77%)
	4-7	6 (18%)
	8-11	1 (3%)
	12-15	0 (0%)
	16+	1 (3%)
	Missing	0 (0%)
Years worked as RN	1-3	34 (100%)
	Missing	0 (0%)
Highest degree held	Bachelor's	33 (97%)
	Master's	1 (3%)
	Missing	0 (0%)

*Some nurse residents may have worked in healthcare previously as technicians or nursing assistants

Table 2. Nurse resident prevalence of compassion satisfaction, burnout and secondary traumatic stress–baseline, 2-month and 6-month post-intervention

(N = 34)		Pre-intervention n (%)	2 months post-intervention** n (%)	6 months post-intervention n (%)
Compassion Satisfaction (CS)	High*	9 (27%)	11 (38%)	10 (29%)
	Moderate	25 (74%)	18 (62%)	24 (71%)
	Low	0 (0%)	0 (0%)	0 (0%)
	Missing	0 (0%)	5 (15%)	0 (0%)
Burnout (BO)	Low*	16 (47%)	20 (69%)	17 (50%)
	Moderate	18 (53%)	9 (31%)	17 (50%)
	High	0 (0%)	0 (0%)	0 (0%)
	Missing	0 (0%)	5 (15%)	0 (0%)
Secondary Traumatic Stress (STS)	Low*	9 (27%)	16 (55%)	21 (62%)
	Moderate	25 (73%)	13 (45%)	13 (38%)
	High	0 (0%)	0 (0%)	0 (0%)
	Missing	0 (0%)	5 (15%)	0 (0%)

*Denotes optimal score for each subscale. **Results from 2 months post intervention are reported only for residents who completed the 6-month follow-up.

4. Discussion

Findings from this longitudinal study indicate that nurse resident CF resiliency education may be helpful. Estimates of nurse turnover in the U.S. typically approach 20%; yet higher rates are reported in specific groups, such as new graduate nurses.[37–39] Initial evidence suggests that the nurses from the millennial generation are more willing to leave their jobs, and may be more vulnerable to poor work environments, early career burnout, and may leave nursing.[37,39,40]

Table 3. Nurse resident pre-post compassion satisfaction, burnout and secondary traumatic stress scores

Prevalence (N = 34)		Pre-intervention	6 months Post-intervention	*p*-value (baseline and 6 months)
Compassion Satisfaction (CS)	Mean (s.d.)	38.6 (5.8)	39.4 (5.2)	
	Median	38.5	38.5	NS (.15)
	Range	26-50	30-50	
Burnout (BO)	Mean (s.d.)	22.3 (5.3)	22.0 (4.6)	
	Median	23	22.5	NS (.69)
	Range	13-35	12-30	
Secondary Traumatic Stress (STS)	Mean (s.d.)	25.5 (6.7)	21.2 (4.7)	
	Median	26	21	$p < .001$
	Range	11-36	13-31	

Table 4. Nurse resident use of resiliency techniques taught in intervention (Frequency in descending order of daily use)

Frequency of Use at 6 months (N = 34)	Daily (1 time or more)	Weekly	Monthly	Never	Missing
Perceptual Maturation & Self-Validation	18 (53%)	7 (21%)	6 (17%)	3 (9%)	0 (0%)
Intentionality	17 (50%)	9 (27%)	4 (12%)	4 (11%)	0 (0%)
Social Connectedness & Support	12 (35%)	17 (50%)	5 (15%)	0 (0%)	0 (0%)
Self-regulation	10 (30%)	14 (41%)	6 (18%)	4 (11%)	0 (0%)
Self-Care & Refueling	10 (29%)	21 (62%)	1 (3%)	2 (6%)	0 (0%)
Guided Imagery	0 (0%)	3 (9%)	8 (23%)	23 (68%)	0 (0%)

In a 2016 National Healthcare Retention Report, the estimated rate of nurse turnover was 17.2%.[13] The average cost of nurse turnover reported in that study was $37,000 to $58,400 per registered nurse (RN). In other studies, estimates of total hospital costs reach nearly $90,000 per nurse.[41] Additional studies are needed to explore organizational impact of CF interventions related to nurse turnover and adverse events associated with burnout. Building a workplace culture of resiliency to help nurse residents manage workplace stressors and reduce the associated negative health effects is an important consideration for organizations. One of the tools shared in this intervention was sharing their trauma narrative, this technique has shown benefit in graduate nurses.[42]

The results of this study at 6-month post-intervention were consistent with findings at 2-month post-intervention published elsewhere.[1] At both 2-month and 6-month post-intervention, STS was statistically significant and lower at baseline ($p < .001$) (see Table 3). While changes in CS and BO were not significant, they were trending in a positive direction indicating that this intervention provides protective resiliency factors in nurse residents. There might be generational differences not measured in this study. The nurse residents in this study, most of which are members of the millennial generation seemed to prefer the faster self-regulation techniques; (i.e breathing techniques) over the longer techniques taught (guided imaging for deep relaxation) (see Table 4). The potential improved well-being of nurse residents lends itself to explore the effects on patient care, patient outcomes and retention rates within organizations.

Limitations

The sample size is relatively small and comprised of nurse residents from only one organization. Additionally, a smaller proportion of participants completed 6-month follow-up compared to the previously published 2-month follow-up. It is important to note that there may be differences between those who completed the 2-month and 6-month post-intervention and those who did not. The authors also cannot exclude the possibility that some of the participants might have previously engaged in some of the components of the intervention prior to the study (i.e., self-regulation, meditation, guided imagery). Regardless, significant differences between STS at baseline held at both 2-month and 6-month post-intervention suggesting that the results have remained consistent at two longitudinal time points. Only using one measurement tool may be considered a limitation to this study. Additional studies are needed to determine types of interventions, ideal timing of training, and if the 2-month and 6-month results are an indication of long-term impact.

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CONFLICTS OF INTEREST DISCLOSURE

No conflict of interest.

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