

LIMITING EMERGENCY NURSE PRACTITIONER COMPASSION FATIGUE
USING MOBILE SELF-CARE REMINDERS

by

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As members of the DNP Project Committee, we certify that we have read the DNP project prepared by Johnna Marie Carrig, titled Limiting Emergency Nurse Practitioner Compassion Fatigue Using Mobile Self-Care Reminders and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.

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DEDICATION

This project is dedicated to my grandmother, who was my greatest inspiration and will always be my guiding light. Thank you Grandma, for teaching me to believe in myself and for exuberating all that I wanted to become. I miss you every day.

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ABSTRACT

Purpose: The purpose of this quality improvement project was to: 1) assess compassion fatigue (CF) of emergency nurse practitioners (ENPs) working in a level-one trauma center, 2) determine the effectiveness, 3) feasibility and, 4) usability of a mobile application designed to reduce CF.

Background: CF is a hazard for all members of the emergency department (ED) team, especially providers. There is a gap in the literature regarding prevalence of CF in ENPs. Additionally, the number of ED visits is continuously rising. The resulting demand and time-pressure on ED providers has led to CF with debilitating effects, causing some providers to quit. To limit further provider shortages, the well-being of our providers must be addressed. Self-care has been recognized as the most significant protective measure for CF. With the success of smartphone applications in reducing provider CF, a mobile self-care application serves as a modernized, feasible approach to combat CF in the underrepresented ENP population.

Methods: Professional Quality of Life (ProQOL) scores, indicative of CF, were measured surrounding the 30-day use of a self-care mobile application, *Provider Resilience*. After consenting and completing a demographic questionnaire, participants received an application overview. This included guidance with downloading the application on their mobile device, completing the initial ProQOL, and setting a preferred time for self-assessment reminders. Following 30 days of application use, a repeat ProQOL was administered along with the End User Experience Survey. Repeat ProQOLs were administered at one- and three-weeks post-implementation to measure sustainability.

Outcomes: After 30 days of application use, ProQOL scores improved, specifically in the burnout subscale. Participants' mean burnout decreased by 1.0 from baseline to the three-week sustainability measure. Participants' mean compassion satisfaction improved by 0.9 from baseline to the three-week sustainability measure, while secondary traumatic stress returned to baseline. In regards to mobile application feasibility and usability, all participants used the mobile application at least one to two times per week and 88% of the participants rated the ProQOL ratings as 'Easy to Use/Beneficial.'

Clinical Implication: This project employs a feasible, user-friendly, effective strategy to limit ENP CF, further promoting provider self-regulation, retention, and high-quality patient care delivery.

INTRODUCTION

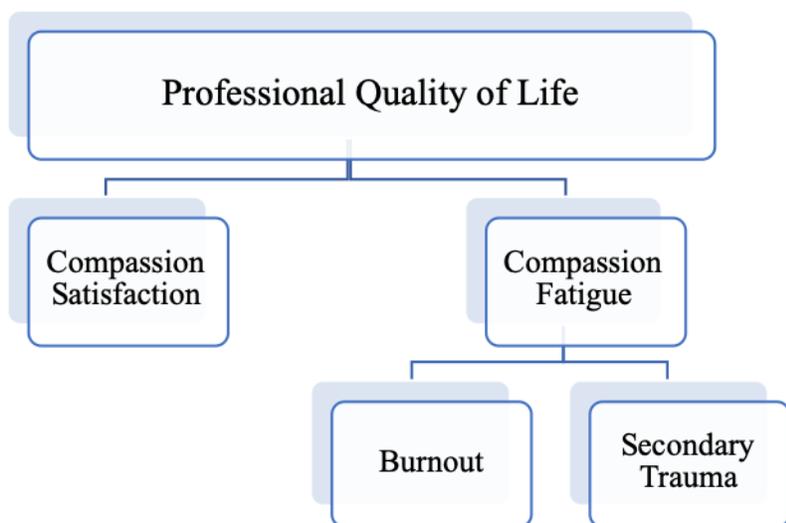
Background Knowledge

Compassion fatigue (CF) has been recognized as a hazard for all members of the emergency care team and has been identified in providers, nurses, medical technicians, and health information technicians (Fortney, Luchterhand, Zakletskaia, Zgierska, & Rakel, 2013; Schooley, Hikmet, Tarcan, & Yorgancioglu, 2016; Sorenson, Bolick, Wright, & Hamilton, 2016). Providers are especially at risk. In a study comparing CF across these occupations, providers were the only group with a zero score for high personal accomplishment (Schooley et al., 2016). Low personal accomplishment is just one of the many deleterious effects of CF, the healthcare phenomenon also referred to as the cost of caring (Schooley et al., 2016; Stamm, 2010). There are various workplace challenges associated with emergency medicine including work-time pressures, need for rapid decision-making, repeated exposure to life-threatening events, and high patient volumes with rising acuity (Schooley et al., 2016). Patient volumes have been steadily increasing over the last decade. In 2016, the total number of emergency department (ED) visits nationally was a staggering 144,842,742 (Healthcare Cost and Utilization Project [HCUP], 2018). The resulting increased demand, complexity of care delivery, and subsequent time pressure on emergency providers (physicians and nurse practitioners) has led to increasing job dissatisfaction and provider CF, often conflated with the term burnout (Sorenson et al., 2016).

The term compassion fatigue (CF) was first introduced in 1992 by Carla Joinson while investigating the nature of burnout in emergency nurses. Joinson observed emergency nurses performing daily work and noticed that they seemed to have lost their “ability to nurture”

(Joinson, 1992, p. 119). Joinson’s observations did not develop a formal definition for CF and the term was later adopted by Figley in 1995 as a more user-friendly term for secondary traumatic stress disorder (STSD; Coetzee & Klopper, 2010; Figley, 1995). Continued research on this phenomenon in nursing practice has been ongoing over the last two decades in the attempts to define, identify, and combat its effects.

In 2010, a pioneer in CF research, Beth Stamm, PhD, published her accumulation of two decades of work in *The Concise ProQOL Manual: The Concise Manual for the Professional Quality of Life Scale*. ‘Professional Quality of Life (ProQOL)’ has been coined by Stamm (2010) as “the quality one feels in relation to their work as a helper” (p. 8). CF has been further defined as the negative effects of providing care to those who have experienced traumatic stressors (Sorenson et al., 2016; Stamm, 2010). Stamm’s (2010) ‘ProQOL Model’ illustrates CF as a continuum, with CF at the negative end and compassion satisfaction (CS) at the positive end (Figure 1).



Adapted from the Center for Victims of Torture (2019)

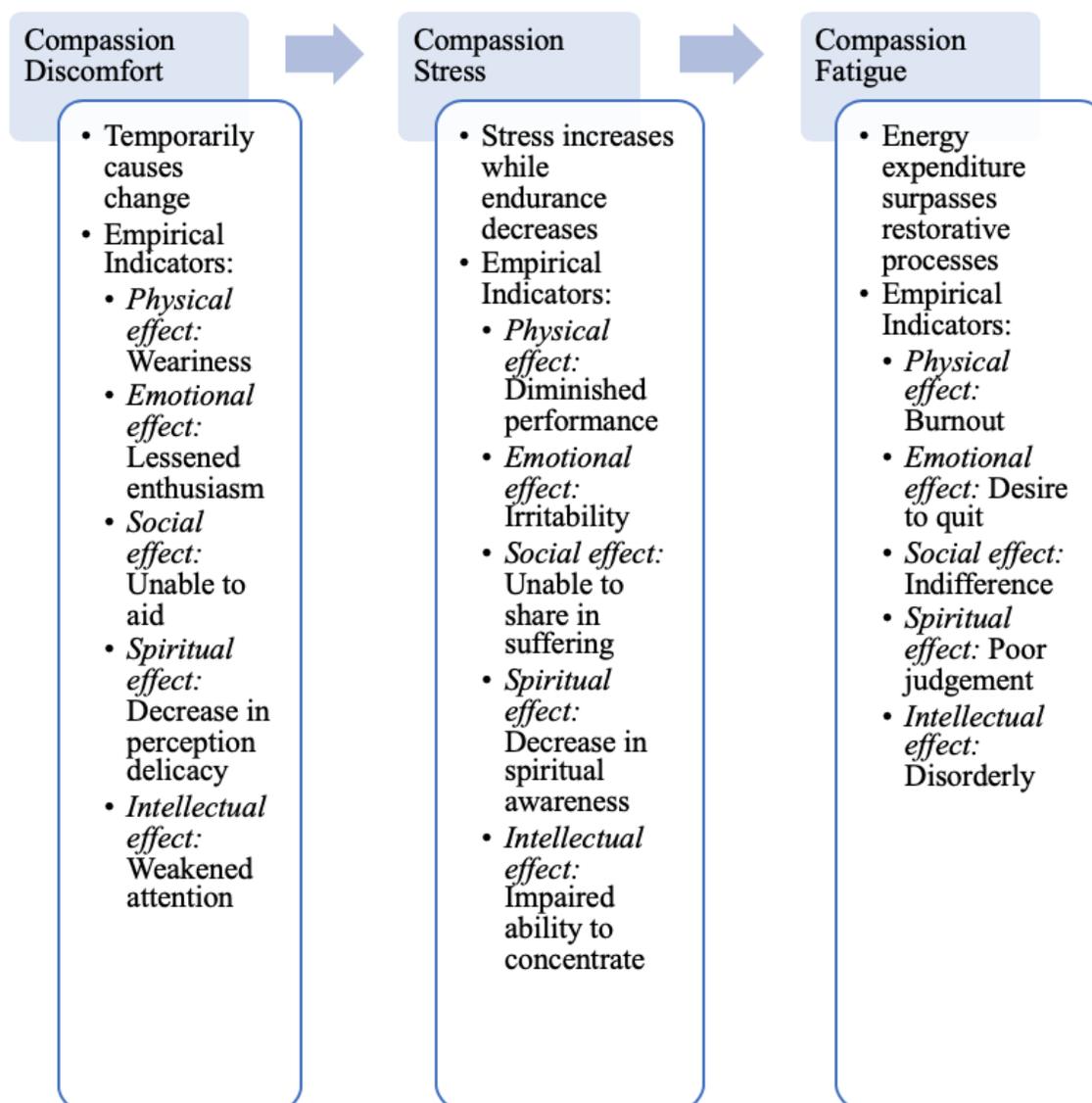
FIGURE 1. ProQOL model.

CS is defined as the pleasure derived from well-performed work (Stamm, 2010). Looking at the negative end of this continuum, CF can be further divided into two parts: secondary traumatic stress (STS) and burnout (Stamm, 2010). STS is defined as a state of dysfunction that results from exposure to secondary stress, characterized by a heavy burden of responsibility for the sufferer (Coetzee & Klopper, 2010; Stamm, 2010). Burnout is defined as “feelings of hopelessness and difficulties in dealing with work or in doing your job effectively” (Stamm, 2010, p. 13). Burnout has been associated with heavy workloads and non-supportive work environments (Stamm, 2010). It is when CF occurs in the form of burnout and/or STS that the scale is tipped and CF outweighs CS, thus resulting in negative side effects for the individual helper- the cost of caring (Stamm, 2010).

Problem and Significance

Often referred to as the cost of caring, CF has been associated with various negative health outcomes for the provider (Coetzee & Klopper, 2010; Sorenson et al., 2016). As described earlier, CF is a continuum. Coetzee and Klopper (2010) describe CF as a three-phase process that begins with compassion discomfort, progresses to compassion stress, and further cumulates to CF (Figure 2). Within each phase of CF, there are associated physical, emotional, social, spiritual, and intellectual effects that occur (Coetzee & Klopper, 2010). Phase one, compassion discomfort, is characterized by weariness, lessened enthusiasm, and weakening attention, among others (Coetzee & Klopper, 2010). Phase two, compassion stress, is characterized by diminished performance and loss of endurance, among others (Coetzee & Klopper, 2010). When an individual’s energy expenditure surpasses their restorative processes, they have officially entered the final phase of the continuum, CF (Coetzee & Klopper, 2010). The physical effects of burnout

are an indicative sign of CF, along with loss of energy, poor judgement, and a desire to quit (Coetzee & Klopper, 2010).



Adapted from Coetzee and Klopper (2010)

FIGURE 2. CF continuum.

The effects of CF are debilitating, causing some providers to leave the profession (Agency for Healthcare Research and Quality [AHRQ], 2017; Coetzee & Klopper, 2010).

Providers who leave the profession because of CF exacerbate the provider shortage and further

increase the industry demand, resulting in a vicious cycle that is becoming increasingly difficult to combat (AHRQ, 2017). In addition to turnover rates, CF effects also lead to a higher frequency of medical errors (Williams, Simmons, & Tanabe, 2015). This compromises patient safety and quality of care delivery. Patient satisfaction scores have already eluded to this clinical issue as well, with quality of care scores being lower among patients receiving care from providers who have reported higher levels of burnout (Williams et al., 2015). This is a growing issue that has now been recognized at the organization, provider, and patient levels- action is needed.

Frontline patient care specialties are known to be at the greatest risk for CF, putting emergency providers in a vulnerable position (Fortney et al., 2013). Studies have suggested the risk of CF is directly relatable to the intensity of the patient setting (Sorenson et al., 2016). Caring for distressed or traumatized individuals, partaking in conflicting patient and family interactions, and delivering bad or uncertain news to patients are only a few of the chief stressors that predispose emergency providers to CF (Sorenson et al., 2016). In addition to these stressors, the increasing acuity of care and ever-evolving clinical practice guidelines now require more complicated and time-restrained intervention, including emergent management of strokes and myocardial infarctions (American College of Cardiology and American Heart Association Task Force, 2017; American Heart Association Stroke Council, 2018). Unfortunately, emergency providers are all too familiar with the pressure of these time-sensitive measured outcomes, as they are part of the daily practice in the ED.

The healthcare professional's duty is to render high-quality care to the patient, and with the growing industry demands, one can begin to imagine how the well-being of the healthcare

professional may often go unnoticed or unattended to. Organizations, providers, and patients have recognized CF as a prominent and pervasive issue (Fortney et al., 2013; Sorenson et al., 2016; Williams et al., 2015). It is time for the well-being of the healthcare professional to be assessed and tended to.

Local Problem

The emergency nurse practitioner (ENP) role was established at a level-one trauma center in southern Arizona in 2014. Since then, the level-one center's ED has experienced a rapid expansion from three full-time employees (FTEs) to 15 FTEs, resulting in increasing ENP coverage of patient care. Over the last two years, these ENPs have not only had to adapt to an increasing volume of patients, they have also had to adapt to changes in the electronic medical record and building layout changes, which have affected their designated patient care areas. A high turnover rate has been observed in this population of ENPs, with multiple stressors placing them at risk for developing CF.

While exploring CF resources available to this vulnerable population, it was discovered that the ENPs at this site had not received any training on CF, its detection, or ideas for prevention or intervention. Though the ENPs have newly-presented resources for well-being available through their healthcare organization, in the form of an employee wellness program and a mobile application for health tracking, these resources are not aimed specifically at assessing and combating CF.

Intended Improvement

The available knowledge indicates that self-care is the most significant protective measure for CF (Sorenson et al., 2016). The lasting benefits of mindfulness-based stress

reduction (MBSR) strategies, including self-awareness and compassion for self, are also well documented (Fortney et al., 2013; Williams et al., 2015). Due to increasing utilization of nurse practitioners in high-volume, high-stress settings such as the ED, this project focused on this population. The literature supporting MBSR was applied through mobile self-care reminders. The emergence of smartphones and smartwatches has equipped Americans with access to portable information technology and resources unlike ever before. Mobile self-care reminders, a modernized, feasible, time-efficient, and cost-effective strategy, were employed in the underrepresented and vulnerable population of ENPs to attempt to limit CF.

Purpose and Aims

The purpose of this quality improvement (QI) project was to: 1) assess CF of ENPs working in a level-one trauma center, 2) measure the effectiveness, 3) feasibility and, 4) usability of a mobile application designed to reduce CF. Limiting ENP CF and promoting resilience can ultimately result in increased ENP retention and the consistent delivery of high-quality patient care (Fortney et al., 2013; Sorenson et al., 2016; Williams et al., 2015). The ProQOL is a widely-used scale to measure the presence of CF, reflecting on the last 30 days, especially applicable in the nursing profession (Sheppard, 2015; Stamm, 2010). The aims of this project were to improve ENP ProQOL scores after 30 days of mobile application use, and to sustain ProQOL score improvement after one and three weeks following the implementation period.

Key stakeholders identified for this QI project included the hospital management, the ENPs, and their patients. The support of the ENP supervisor helped influence ENP buy-in. Additionally, her insight of ENP workload helped guide timing of project implementation. The ENP educator helped coordinate a time to present the project details to the potential ENP

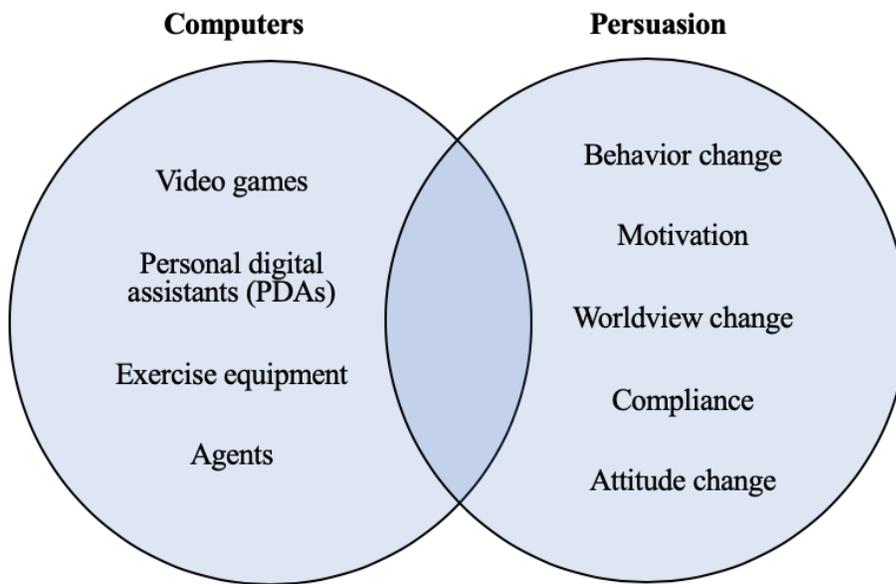
participants. Project details including downloading the mobile application, completing the ProQOL assessments in the mobile application, setting a preferred time for self-assessment reminders, and completing CF self-assessments in the mobile application were presented to the potential ENP participants via a PowerPoint presentation. Potential ENP participants were presented the instruction to employ their choice of CF tool in the mobile application following self-assessments indicative of CF. They were additionally presented the project plan to obtain repeat ProQOL assessments after 30 days of application use, and again one week and three weeks following the implementation period to measure sustainability.

Project Question

Will the use of self-care mobile reminders help to improve Professional Quality of Life (ProQOL) scores among ENPs?

Conceptual Framework

The persuasion of technology, referred to as *captology*, is a framework that helped guide the intervention of self-care mobile reminders. Fogg (1998) coined a persuasive computer as “an interactive technology that attempts to change attitudes or behaviors in some way” (p. 225). He went on to explain that this persuasion requires a form of intentionality to change (Fogg, 1998). In other words, because computers are not human and do not have intentions, a computer can only be a persuasive technology “when those who create, distribute, or adopt the technology do so with an intent to affect human attitudes or behaviors” (Fogg, 1998, p. 225). Figure 3 illustrates captology as the overlapping region between computers and persuasion (Fogg, 1998).



Adapted from Fogg (1998)

FIGURE 3. Captology diagram.

Persuasive Intent

Fogg (1998) proposed three kinds of persuasive intent: endogenous, exogenous, and autogenous. Endogenous intent is employed through a computer when a producer creates technology with the intent to persuade users in some way (Fogg, 1998). A computer technology may inherit exogenous intent when the technology is given to an individual by another individual to change the receiving individual's attitude or behavior (Fogg, 1998). Autogenous intent is exercised when an individual chooses to adopt or use a technology in order to change their own attitude or behavior (Fogg, 1998). Fogg (1998) explains that a technology may fall into more than one category, and that these three categories are simply delineated for better understanding of persuasive intent.

Functionality

As proposed by Fogg (1998), computers function in three basic ways: as tools, as media, and as social actors. These are the basic ways that humans view and respond to computer technologies (Fogg, 1998). Computers can provide humans with new abilities, allowing them to do things they could not do before or allowing them to do things they previously could more easily (Fogg, 1998). This is the way the computer functions as a tool (Fogg, 1998). More apparent in recent years is the ability of computers to function as media and convey symbolic and sensory content, such as text, video, and virtual worlds (Fogg, 1998). Computers also have the capability to function as social actors, taking on animate characteristics and playing animate roles such as coach, assistant, or opponent (Fogg, 1998). When the computer technology functions as a tool, it can reduce barriers, increase self-efficacy, provide information for better decision-making, and change mental models (Fogg, 1998). When the computer technology functions as a social medium, it provides first-hand learning, insight, and visualization and motivates through experience (Fogg, 1998). When the computer technology functions as a social actor, it can establish social norms and provide social support or sanction (Fogg, 1998).

Level of Analysis

The interaction between the user and the computer is often analyzed at the level of the individual, or by the effect the technology has on the individual. Fogg (1998) emphasizes the ability of computer technology use and benefit to be conceptualized on levels other than individual, including: family, organizational, and community. For example, a home video game system can increase family interactions and decrease the amount of time individual family members passively watch television (Fogg, 1998). On the community level, a ride-sharing

system can limit the community's use of private cars, traffic congestion, and pollution (Fogg, 1998). It is an important component of captology for the technology to be analyzed on more than just the individual level (Fogg, 1998).

Identifying Domains and Issues

Most existing computer technologies exist to change attitudes or behaviors in common categories including health, mental health, and education, with health as a central domain (Fogg, 1998). To effectively employ captology, Fogg (1998) suggests following the two-step method: 1) identifying the domain or issue to be addressed and, 2) selecting a captology framework. This framework is selected by exploring the intentionality, functionality, and level of analyses that could be employed (Fogg, 1998).

Applicability of Captology to Mobile Reminders

Following Fogg's (1998) aforementioned two-step method of employing captology, the author selected the issue of CF in ENPs, which falls under the health domain. The next step is to explore intentionality. For this project, the author exercised exogenous intent, the intent of those who give access to the interactive technology, with the goal for the ENPs to exercise autogenous intent, the adoption and utilization of the technology (Fogg, 1998). The computer technology of the selected mobile application functioned as a tool to: 1) remind the ENPs to self-assess their CF and, 2) prompt them to self-care with built-in application tools. The mobile application embodied two functions, that of a tool, and that of a social actor, as it provided the ENP with support and sanction in times of CF. For levels of analyses, both the individual and organizational level were analyzed. By reducing the individual ENPs' CF levels and improving their well-being, a domino effect likely occurred and improved the organizational environment

(Fogg, 1998; Fortney et al., 2013; Sorenson et al., 2016; Williams et al., 2015). Through the utilization of mobile self-care reminders as a tool and social actor, the author's intent was that the ENPs would begin to develop habitual self-assessment and self-care, even without the mobile reminders. The end goals of this persuasive intent were reduced CF and ENP self-regulation.

Self-Regulation Theory

The level of function of habitual self-assessment and self-care is best explained by the theory of self-regulation. Self-regulation theory (SRT) broadly refers to efforts made by humans to alter their thoughts, feelings, and actions in their striving towards higher goals (Ridder & Wit, 2006). This theory conceptualizes the human as an active agent making conscious efforts to influence their own thoughts, feelings, and behaviors to ultimately reach a pre-set goal (Bandura, 1991).

Self-Regulation Sub-Functions

As a self-governing system, self-regulation operates through three sub-functions: self-monitoring, self-evaluation, and self-reactions (Bandura, 1991). Self-monitoring refers to the audit of one's performances coupled with personal competence and self-esteem (Bandura, 1991). Successes observed during self-monitoring increase desired behavior (Bandura, 1991). Self-evaluation refers to the individual comparing their own performance to their personal index of merit (Bandura, 1991). Self-evaluation, thus gives direction to behavior and creates motivators and self-incentives for the desired performance (Bandura, 1991). Self-reactions refer to the reaction one has in response to their evaluation of their own performance (Bandura, 1991). Self-reactions can provide positive motivation, as in the case of self-satisfaction for personal accomplishment, or negative motivation, as in the case of discontent with suboptimal

performance (Bandura, 1991). After setting a goal, the self-regulatory individual self-monitors for progress towards the goal, self-evaluates their behaviors against their standards, and then self-reacts to one's critiqued performance (Bandura, 1991). An effective self-regulatory individual will perform this cycle continuously, striving for self-satisfaction from personal accomplishment (Bandura, 1991).

Using Captology to Create Self-Regulation

Utilizing mobile self-care reminders as a tool and social actor, the author intended to help the ENPs develop habitual self-assessment and self-care, even without the mobile reminders. Exercising the exogenous and autogenous persuasive intents of captology, the author employed daily mobile self-care reminders that prompted self-monitoring, self-evaluation, and self-reaction (Bandura, 1991; Fogg, 1998). Through repeated use of the mobile application, CF can be limited, promoting CS and self-satisfaction from personal accomplishment (Bandura, 1991; Wood et al., 2017). This can create positive motivation for the ENPs that will encourage them to sustain the self-care behavior, thus generating self-regulation from the underpinnings of captology (Bandura, 1991; Fogg, 1998).

Synthesis of Evidence

To explore the current literature on CF in ENPs, a literature review was conducted in CINAHL, PubMed, and the project site's corporation library. Search terms included combinations of: "compassion fatigue," "burnout, professional," "nurse practitioners," "emergency nurse practitioners," "emergency nursing," "emergency medicine," "emergency services, hospital," "emergency services, psychiatric," "emergency medical services," and

“pediatric emergency medicine.” The following filters were applied: full text availability, English language, and Human population.

The initial search yielded 37 articles, three of which specifically addressed nurse practitioners and were critically appraised to determine level of evidence, strengths, limitations, and implications for clinical practice. See Appendix A for the defined levels of evidence and the evidence appraisal table in which 10 selected studies were reviewed.

Prevalence of CF in ENPs

The literature is saturated on the prevalence of CF in the physician and nurse populations (Cocker & Joss, 2016; Rotenstein et al., 2018; Sorenson et al., 2016). There is, however, a gap in the literature regarding the prevalence of CF among nurse practitioners (Sorenson et al., 2016). The literature search yielded one result specific to CF in nurse practitioners. This result was a systematic review of the literature conducted by Sorenson et al. (2016) in the PubMed and CINAHL databases, encompassing publications from 2005 to 2015. One advanced practice registered nurse (APRN) group was represented in the review, and that group was midwives (Sorenson et al., 2016). Midwives present during traumatic births reported experiencing emotional distress attributable to a sense of responsibility to their patients and their babies (Rice & Warland, 2013). The highest CF scores were present among midwives in cases in which they aborted a fetus that they believed was viable or in procedures in which they had difficulty controlling emotions (Mizuno, Kinefuchi, Kimura, & Tsuda, 2013).

Two other relevant studies surfaced in the literature review. Bowen (2018) explored ENP experiences with managing acutely unwell patients in minor injury units (MIUs). This small qualitative study collected data through in-person interviews with six ENPs (Bowen, 2018). The

study found that the ENPs often had to manage acutely unwell patients with limited resources, which was described as stressful by the ENPs (Bowen, 2018). Bowen (2018) concluded that ENPs are predisposed to burnout and post-traumatic stress disorder (PTSD). As outlined by Stamm's (2010) ProQOL Model, burnout is one of the branches that leads to CF. It can therefore be deduced that the ENPs in this study are predisposed to CF (Stamm, 2010). Trautmann, Epstein, Rovnyak, and Snyder (2015) utilized a survey-based correlational design to explore the presence of moral distress, level of practice independence, and intent to leave in a sample of 207 ENPs. It was discovered that moral distress was present in this population and that 25% of participants had left their positions due to this distress (Trautmann et al., 2015). Although not directly related to CF, the symptoms of moral distress resemble those of CF (Stamm, 2010; Trautmann et al., 2015). The study also found that situations resulting in moral distress were different for ENPs when compared with physicians and nurses, illuminating the vulnerability of this unique population (Hamric & Blackhall, 2007; Hamric, Borchers, & Epstein, 2012; Trautmann et al., 2015).

Self-Care Intervention

The available literature illustrates that self-care is the most significant protective measure for CF (Sorenson et al., 2016). The lasting benefits of mindfulness-based stress reduction (MBSR) strategies, including self-awareness and compassion for self, are also well illustrated (Fortney et al., 2013; Williams et al., 2015). A quasi-experimental study conducted by Fortney et al. (2013) discovered an abbreviated mindfulness training decreased indicators of burnout ($p = .009$), depression ($p = .001$), anxiety ($p = .006$), and stress ($p = .002$), and increased personal accomplishment ($p < .001$) up to nine months following the training. Among 30 primary care

clinicians who participated in this study, one was a nurse practitioner (Fortney et al., 2013). Although inclusive of the nurse practitioner role, this study also illustrates the underrepresentation of nurse practitioners in the phenomenon of concern. A review of MBSR literature by Williams et al. (2015) found four underlying fundamental concepts, including awareness, attention, acceptance, and re-perceiving. It was discovered that participation in MBSR by physicians and nurses decreased stress and burnout, and increased life satisfaction, empathy, and self-compassion (Williams et al., 2015).

Mobile Self-Care

In recent years, research has explored the effectiveness of various mobile applications for mental health (Carissoli, Villani, & Riva, 2015; Villani et al., 2013; Wood et al., 2017). These applications have shown significant positive effects in the general population as well as the nurse and provider populations, specifically in oncology nurses and mental health providers (Carissoli et al., 2015; Villani et al., 2013; Wood et al., 2017). A study conducted by Carissoli et al. (2015) explored the effect of a three-week mindfulness protocol utilizing the mobile application *It's Time to Relax!* Use of this mobile application was shown to reduce hyperactivity, accelerated behaviors ($p=0.01$), and average heart rate of adult Italian workers of various educations and careers (Carissoli et al., 2015).

A similar study explored the effectiveness of a self-help management training supported by mobile tools in a sample of 30 oncology nurses (Villani et al., 2013). Participants in the experimental group watched eight video clips with narration on a mobile device applying concepts from stress inoculation training (SIT) methodology twice a week for four weeks (Villani et al., 2013). The use of mobile SIT reduced anxiety among participants in the

experimental group and improved active coping capabilities, while reducing denial style of coping (Villani et al., 2013). Wood et al. (2017) explored the effectiveness of a mobile application, *Provider Resilience*, in a sample of 30 mental health providers. Designed to help reduce CF among providers, this application includes the ProQOL scale and Burnout Visual Analog Scale for self-assessment of CF along with several tools to utilize in real-time to combat the presence of CF (Wood et al., 2017). After one month of use, this application significantly reduced burnout ($p < .001$) and CF ($p < .001$; Wood et al., 2017). The providers also rated this application in the highest quartile for usability (Wood et al., 2017).

Strengths, Limitations and Gaps

The literature review illuminated a gap in the literature regarding the prevalence of CF among nurse practitioners (Sorenson et al., 2016). Although the Sorenson et al. (2016) review included only a few studies that specifically addressed the validity of their results, it consisted of a total of 43 studies with a wide variety of research designs, including randomized controlled trials. This literature review led to a comprehensive collection of CF symptoms, prevalence, risk factors, and prevention measures (Sorenson et al., 2016). Sorenson et al. (2016) concluded that APRNs, including nurse practitioners, are underrepresented in the current CF literature.

Collectively, Bowen's (2018), Sorenson et al.'s (2016), and Trautmann et al.'s (2015) studies illustrate the negative effects that ENPs experience in their line of work. These studies also illuminate the difficulty around defining CF and delineating CF from other related concepts (Bowen, 2018; Sorenson et al., 2016; Trautmann et al., 2015). Sorenson et al. uses the phrase "CF and related concepts" in her review to encompass the variety of existing terms (2016, p. 456). Sorenson et al. (2016) also discuss the need for a well-constructed concept analysis to

define and depict CF and related concepts individually. For the purposes of this project, Stamm's (2010) ProQOL Model is used to conceptualize this prevalent phenomenon.

Although Fortney et al.'s (2013) study lacked a control group and had a small sample size, the study employed five validated tools to measure CF and had a high survey response rate with low attrition. Additionally, Fortney et al. (2013) acknowledged these limitations and stated the need for a randomized controlled trial to further support the findings. The review by Williams et al. (2015), although lacking a guiding review methodology or a standardized appraisal tool, successfully collected a variety of designs of seminal and pertinent studies from a review of six databases over a span of 30 years. Collectively, these studies illustrate an effective intervention for provider CF (Fortney et al., 2013; Williams et al., 2015).

Carissoli et al.'s (2015) and Villani et al.'s (2013) studies, although having limited generalizability due to small sample sizes and short duration of interventions, used validated measures to obtain perceived stress and anxiety scores, which illustrated stress and anxiety reduction. Additionally, the authors included study gaps and limitations in their discussions and outlined implications for future research (Carissoli et al., 2015; Villani et al., 2013). Wood et al.'s (2017) study also had a small sample size and lacked a control group, limiting the generalizability of their findings. However, validated tools were used and statistical corrections were made to compensate and strengthen the findings (Wood et al., 2017). All three of these studies state the need for future trials with larger samples to verify the efficacy discovered in the current samples (Carissoli et al., 2015; Villani et al., 2013; Wood et al., 2017).

Summary of Evidence

Collectively, all of these studies illustrate that ENPs are a vulnerable and underrepresented sample that could benefit from a self-care intervention (Bowen, 2018; Fortney et al., 2013; Sorenson et al., 2016; Trautmann et al., 2015). The benefits of mobile self-care applications and their ability to reduce stress, anxiety, average heart rate, burnout, and CF are outlined in these studies (Carissoli et al., 2015; Villani et al., 2013; Wood et al., 2017). As 77% of the current U.S. adult population owns a smartphone, mobile applications are at the fingertips of more than three-quarters of the population (Poushter, Bishop, & Chwe, 2018). Mobile self-care applications provide a feasible, low-cost, convenient, and effective solution, which can reach overburdened providers anywhere, at any time (Carissoli et al., 2015; Villani et al., 2013; Wood et al., 2017).

METHODS

Design

This QI project employed a one-group pretest-posttest design. This design was appropriate for this project as it allowed the project investigator to assess change surrounding an intervention (Polit & Beck, 2017). A pretest-posttest quantitative design allowed the project investigator to determine if ProQOL scores improved after 30 days of mobile application use.

Setting

This QI project was conducted at a level-one trauma center in southern Arizona, equipped to care for adult and pediatric trauma patients. This ED currently employs eight full-time advanced practice providers, seven nurse practitioners and one physician assistant (PA), who care for approximately 20% of the patient population. Between October 2018 and February

2019, the ED census was 32,939 patients, 5,470 (16.6%) of which were seen by the advanced practice providers (A. Selsor, personal communication, March 12, 2019).

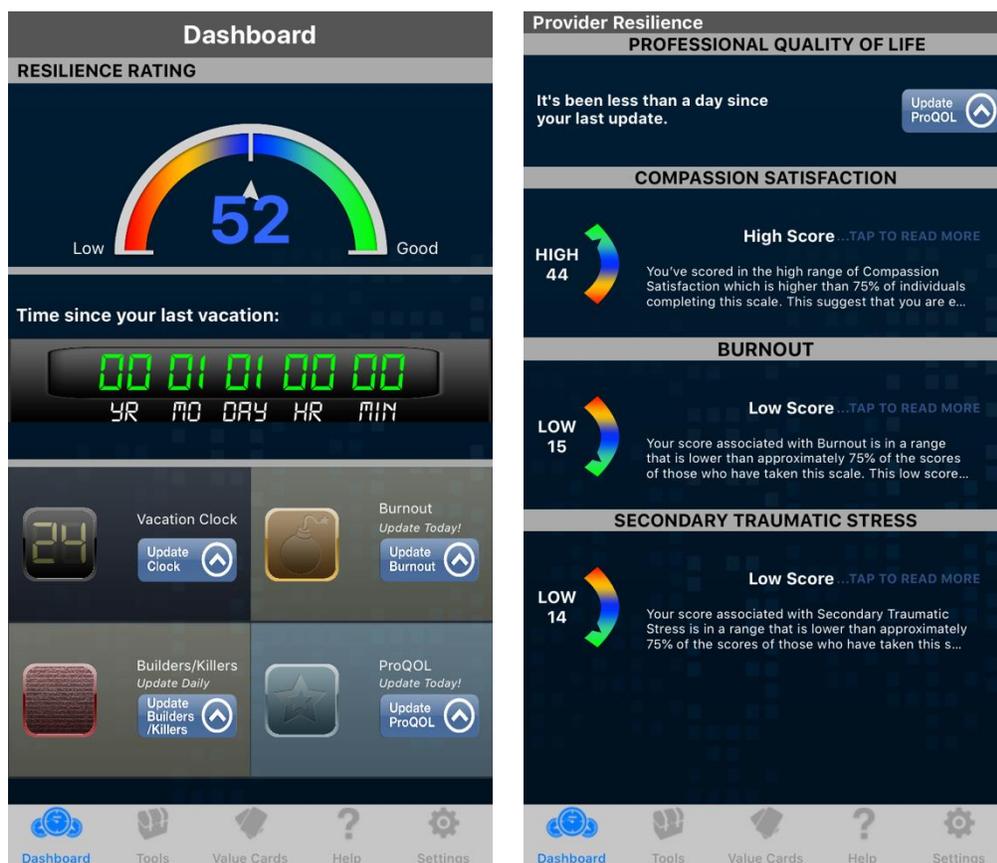
Participants

Participants for this QI project were advanced practice providers, seven ENPs and one PA, employed in the ED. Recruitment occurred during an ENP educational meeting hosted by the ENP educator. Participants were excluded if they were already participating in any other program to limit CF. A presentation on project purpose and aims and a brief overview of the *Provider Resilience* application was delivered in person by the project investigator at the routine ENP educational meeting. Willing participants were guided through the consent process, completing the demographic questionnaire (Appendix B), downloading the mobile application, and completing the initial CF assessment in the application, the ProQOL (Appendix C). Orientation to the mobile application included education on setting a preferred time for daily reminders and completing subsequent CF assessments, using the Burnout Visual Analog Scale (Appendix D), when prompted. Participants were instructed to use the application at minimum once a shift, when the pre-set reminders prompted them to do so. Participants were informed that repeat ProQOL assessments would be administered immediately after 30 days of application use along with the End User Experience Survey (Appendix E). They were also informed that repeat ProQOL assessments would occur at one- and three-weeks post-implementation period to further measure effectiveness and sustainability.

Intervention

Mobile reminders for self-assessment and self-care were employed through the mobile application *Provider Resilience*. Developed by the Defense Health Agency, *Provider Resilience*

is an application designed to regularly assess and combat CF (Military Health System, 2018; Wood et al., 2017). To increase self-awareness of CF, the application includes two self-assessment tools: The Professional Quality of Life (ProQOL) Scale and the Burnout Visual Analog Scale (Wood et al., 2017). A composite rating of the user's ProQOL and burnout scores comprises the user's current "Resilience Rating," which is displayed at the top of the home screen (Figure 4). Represented by a color spectrum of red, blue, and green, this composite score reflects low, medium, and high resilience scores, respectively. The home screen also displays a "Vacation Clock," which counts the days since the user last had a break from work, and resilience "Builders" and "Killers" that enable users to become aware of factors that enhance resilience and exacerbate burnout (Wood et al., 2017). Along the bottom of the home screen are various CF tools including: "Videos" (containing education on CF), "Physical Exercise" (that can be done at a desk), "Remind Me Why I Do This" (success videos from health consumers), and "Value Cards" (motivational quotes). The application has a feature that allows users to receive reminders to assess their CF. Completed self-assessments are logged in the application and graphed for the user to easily observe trends in their CF levels.



Adapted from the Defense Health Agency (2019)

FIGURE 4. Provider Resilience application.

Provider Resilience was first developed in 2013 to support military health professionals with CF, burnout, and STS (Lester, Taylor, Hawkins, & Landry, 2015). It was the first application of its kind to be used in wide-scale military efforts (Lester et al., 2015). It has since been piloted in a sample of 30 mental health providers and proven to significantly decrease burnout ($p < .001$) and CF ($p < .001$) after one month of use (Wood et al., 2017). The application was also rated by the participants in the top quartile for usability (Wood et al., 2017). Due to these study findings, this application was selected for this QI project. *Provider Resilience* is available for free download on the iOS and Android platforms, enabling feasible implementation for this project.

After downloading *Provider Resilience* to their mobile devices, the providers completed an initial ProQOL assessment. The assessment scores were logged in the mobile application as a design feature. The mobile application then sent daily reminders to the providers to assess their CF at their preferred pre-set time during the day. When prompted by the mobile reminders, the providers were instructed to complete the Burnout Visual Analog Scale within the application (Appendix D). The mobile application used these daily burnout scores to generate a daily composite “Resilience Rating” (Figure 4). Providers were instructed that when their resilience rating fell in the red or blue range of the color spectrum, they were to use at least one of the aforementioned CF tools immediately following their self-assessment. After 30 days of daily mobile reminders, repeat ProQOL assessments were completed by the providers within the application. These scores were compared to the baseline scores and evaluated for improvement. Repeat ProQOL assessments at one- and three-weeks post-implementation period were also compared to the baseline scores and evaluated for improvement to further assess effectiveness and sustainability.

Data Collection

Following approval from the University of Arizona Institutional Review Board (Appendix F), data collection began. The demographic questionnaire was administered at baseline along with the ProQOL Revision IV. The ProQOL Revision IV is a 30-item self-report measure with a 5-point Likert scale including three subscales of measure, all of which have shown good internal consistency: burnout (Cronbach’s alpha 0.90), CF (Cronbach’s alpha 0.97), and CS (Cronbach’s alpha 0.87; Stamm, 2010; Wood et al., 2017). The ProQOL is a widely-used scale to measure the presence of CF reflecting on the last 30 days, especially applicable in the

nursing profession (Sheppard, 2015; Stamm, 2010). The ProQOL has also been used in previous studies to measure the effectiveness of programs designed to reduce CF in healthcare providers (Weidlich & Ugarriza, 2015; Wood et al., 2017). The ProQOL was administered four separate times to evaluate effectiveness of the *Provider Resilience* application, once at baseline, immediately following 30 days of application use, and again one and three weeks following the 30-day implementation period.

To evaluate end user experience of the mobile application, a 4-point Likert scale adapted from the Wood et al. (2017) study was employed after 30 days of application use: Easy to Use/Beneficial, Neutral, Not Easy to Use/Not Beneficial, and Not Used. The advanced practice providers were asked to use the Likert scale to rate each component of the *Provider Resilience* application: “Dashboard,” “Resilience Ratings,” “ProQOL Ratings,” “Countdown Clock,” “CF Videos,” “Physical Exercise,” “Why I Do This Videos,” “ProQOL Helper Pocket Cards,” “Value Cards,” “ProQOL Graph,” and “Burnout Graph.” Additionally, providers were asked to indicate how often they used the *Provider Resilience* application in the last 30 days: daily, five to six days per week, three to four days per week, or one to two days per week. This helped determine feasibility of the mobile application.

Data Analysis

To evaluate effectiveness of the *Provider Resilience* application, baseline ProQOL scores were compared with ProQOL scores obtained after 30 days of application use. ProQOL scores obtained at one- and three-weeks post-implementation period were compared to ProQOL scores obtained at the 30-day mark for further effectiveness and sustainability measurement. To evaluate usability of the mobile application, provider End User Experience Survey ratings of

each application component using the aforementioned 4-point Likert scale were tallied and summarized using descriptive statistics. Feasibility was determined by analyzing participant responses of frequency of application use.

Ethical Considerations

When human subjects are involved in a study or QI project, three ethical principles must be ensured: respect for persons, beneficence, and justice (Polit & Beck, 2017).

Respect for Persons

Respect for persons comprises the participants' right to self-determination, or autonomy, and full disclosure (Polit & Beck, 2017). To ensure respect for persons, consent was obtained through voluntary participation and the lack of risk in refusing to participate was explained (Polit & Beck, 2017). Protection of participants was also ensured through a review and approval of this project by the University of Arizona College of Nursing Departmental Review Committee and University of Arizona Institutional Review Board (Appendix F).

Beneficence

Beneficence lies in the responsibility of the project investigator to avoid, prevent, or minimize harm to the best of their ability while maximizing benefits (Polit & Beck, 2017). The benefit the participants would gain was explained, including increased self-awareness and a hand-held method to assess, track, and combat their CF. It was explained that this project may ultimately lead to increased provider retention and the consistent delivery of high-quality patient care (Fortney et al., 2013; Sorenson et al., 2016; Williams et al., 2015). As this population of providers is considered vulnerable, careful attention to presence of CF was ensured (Bowen, 2018; Fortney et al., 2013; Sorenson et al., 2016; Trautmann et al., 2015). Counseling resources

offered through the hospital organization were provided to all participants regardless of presence of CF. There was no experimental procedure in this project, and the mobile application was available for free download on the iOS and Android platforms. Thus, there were no anticipated physical, social, or financial risks to the participants.

Justice

Justice comprises participants' right to fair treatment and privacy (Polit & Beck, 2017). Justice was ensured by treating all participants with equal respect and fairness, ensuring their privacy and confidentiality through unidentifiable data, and including all advanced practice providers, seven ENPs and one PA, of varying education and experience. Additionally, this project's ultimate goal of limiting provider CF promoted justice for patients under their care in the form of consistent, high-quality care delivery.

RESULTS

Demographics

Eight out of eight (8:8) advanced practice providers, seven ENPs and one PA, at the project site agreed to participate and submitted responses to the demographic questionnaire. The response rate rendered was 100%. Demographics are presented in Table 1.

TABLE 1. *Demographics.*

	# of Responses	Percentage
Other CF Program Participation		
Yes	0	0.0%
No	8	100%
Age		
0-25	0	0.0%
26-30	1	12.5%
31-35	4	50%
36-40	3	37.5%
41-45	0	0.0%
46-50	0	0.0%
51-55	0	0.0%
56+	0	0.0%
Gender		
Male	2	25%
Female	6	75%
Years in Medical Field		
0-3	0	0.0%
4-6	1	12.5%
7-9	1	12.5%
10-12	3	37.5%
13+	3	37.5%
Years in BUMC ED		
0-3	4	50%
4-6	2	25%
7-9	1	12.5%
10-12	1	12.5%
13+	0	0.0%
Years as NP/PA		
0-3	4	50%
4-6	4	50%
7-9	0	0.0%
10-12	0	0.0%
13+	0	0.0%
Marital Status		
Married	7	87.5%
Never married	1	12.5%
Living with partner	0	0.0%
Divorced	0	0.0%

All participants were not participating in any other CF program. Six participants were female and two were male. Age of participants ranged from 26 to 40 years old, with 50% of

participants being in the age range of 31 to 35 years old. Years in the medical field ranged from 4 to over 13 years, with 75% of participants having 10 or more years of experience. Years spent working in the project site's ED ranged from 0 to 12 years. Years spent working as a nurse practitioner (NP) or PA ranged from 0 to 6 years, with 50% of participants ranging from 0 to 3 years and 50% of participants ranging from 4 to 6 years. Seven participants were married, and one was never married.

ProQOL Scores

Eight out of eight (8:8) advanced practice providers completed the ProQOL Revision IV as directed at four timepoints: baseline, immediately following 30 days of application use, one week following the 30-day implementation period, and three weeks following the 30-day implementation period. The ProQOL response rate was 100%. ProQOL scores are presented by the three subscales of CS, burnout (BO), and STS in Tables 2, 3, and 4 respectively.

TABLE 2. *CS scores.*

Participants	Baseline	Post-Imp	Sus 1 wk	Sus 3 wk
1	41	38	37	33
2	30	30	30	30
3	41	40	40	39
4	41	41	45	45
5	40	41	36	42
6	38	40	37	41
7	45	46	48	47
8	43	39	46	49
Mean	39.8	39.3	39.8	40.7
Median	42	38.5	41.5	41
SD	4.5	4.5	6.1	6.6

Note. Post-Imp = Post-implementation; Sus = Sustainability; wk = week; SD = Standard deviation

TABLE 3. *BO scores.*

Participants	Baseline	Post-Imp	Sus 1 wk	Sus 3 wk
1	22	17	18	19
2	32	30	33	31
3	22	25	30	27
4	23	24	20	20
5	23	21	19	23
6	22	20	20	20
7	17	18	16	19
8	20	22	19	14
Mean	22.6	22.1	21.8	21.6
Median	21	19.5	18.5	16.5
SD	4.3	4.2	6.1	5.3

Note. Post-Imp = Post-implementation; Sus = Sustainability; wk = week; SD = Standard deviation

TABLE 4. *STS scores.*

Participants	Baseline	Post-Imp	Sus 1 wk	Sus 3 wk
1	19	20	17	12
2	29	22	24	23
3	29	27	40	42
4	13	26	15	22
5	27	28	27	26
6	20	12	11	12
7	13	13	12	13
8	13	22	22	13
Mean	20.3	21.2	21	20.3
Median	16	21	19.5	12.5
SD	7.2	6.0	9.6	10.4

Note. Post-Imp = Post-implementation; Sus = Sustainability; wk = week; SD = Standard deviation

At baseline, CS scores ranged from 30 to 45. Participants' baseline mean CS score of 39.8 is lower than the average CS score of 50 (Stamm, 2010). CS scores of 57 or greater signify a great deal of professional satisfaction with one's position, while CS scores below 43 are indicative of low professional satisfaction with one's position (Stamm, 2010). Participants' baseline mean CS score remained stable through the implementation period then increased to

40.7 three-weeks post-implementation. At three-weeks post-implementation, 63% of participants had an improvement in their baseline CS score, while 25% of participants' scores worsened and 13% remained unchanged.

At baseline, BO scores ranged from 17 to 32. Participants' baseline mean BO score of 22.6 is lower than the average BO score of 50 (Stamm, 2010). The average BO score is 50, with BO scores greater than 57 indicative of high BO, and BO scores less than 43 indicative of low BO and feelings of effectiveness with one's work (Stamm, 2010). Participants' baseline mean BO score remained stable through the implementation period then decreased to 21.6 three-weeks post-implementation. At three-weeks post-implementation, 63% of participants had an improvement in their baseline BO score, while 25% of participants' scores worsened and 13% remained unchanged.

Baseline STS scores ranged from 13 to 29. Participants' baseline mean STS score of 20.3 is lower than the average STS score of 50 (Stamm, 2010). According to Stamm (2010), the average STS score is also 50, with STS scores greater than 57 indicative of high STS and scores less than 43 indicative of low STS. Participants' baseline mean STS score increased to 21.2 during the implementation period then returned to 20.3 three-weeks post-implementation.

At three-weeks post-implementation, 50% of participants had an improvement in their STS score from baseline, while 25% of participants' scores worsened and 25% remained unchanged.

Effectiveness and Sustainability

To further evaluate effectiveness and sustainability of the mobile application, repeat ProQOLs were obtained at one-week and three-weeks post-implementation period. As detailed in

the tables above, at the three-week post-implementation measure, there was 1) a one-point increase in participants' mean CS scores, 2) a one-point decrease in participants' mean BO scores, and 3) no change in participants' mean STS scores.

Feasibility and Usability

Feasibility was assessed through willingness of participants to use the application and complete the ProQOLs and surveys. The ProQOLs were administered at baseline, 30 days after application use, one-week post-implementation, and three-weeks post-implementation. Two surveys were administered, the demographic questionnaire at baseline and the End User Experience Survey after 30 days of application use. Participants completed all ProQOLs and submitted responses for both surveys, rendering a 100% response rate in all time periods and avenues of measurement. Usability was assessed through participant report of ease of use, user interface, and perceived benefit.

Application Use

Eight out of eight (8:8) advanced practice providers submitted responses to the End User Experience Survey, rendering a 100% response rate. The first question on the End User Experience Survey asked participants to report how often they used the mobile application in the last 30 days. Survey responses are presented in Table 5.

TABLE 5. *End user experience survey.*

	# of Responses	Percentage
App Use in Last 30 Days		
1-2 days	6	75%
3-4 days	0	0.0%
5-6 days	1	12.5%
Daily	1	12.5%
Dashboard		
Not Used	0	0.0%
Not Easy/ Not Beneficial	0	0.0%
Neutral	2	25%
Easy to Use/ Beneficial	6	75%
Resilience Ratings		
Not Used	0	0.0%
Not Easy/ Not Beneficial	0	0.0%
Neutral	1	12.5%
Easy to Use/ Beneficial	7	87.5%
ProQOL Ratings		
Not Used	0	0.0%
Not Easy/ Not Beneficial	0	0.0%
Neutral	1	12.5%
Easy to Use/ Beneficial	7	87.5%
Countdown Clock		
Not Used	2	25%
Not Easy/ Not Beneficial	0	0.0%
Neutral	1	12.5%
Easy to Use/ Beneficial	5	62.5%
CF Videos		
Not Used	5	62.5%
Not Easy/Not Beneficial	0	0.0%
Neutral	2	25%
Easy to Use/Beneficial	1	12.5%
Physical Exercise		
Not Used	4	50%
Not Easy/Not Beneficial	0	0.0%
Neutral	0	0.0%
Easy to Use/Beneficial	4	50%
“Why I Do This” Video		
Not Used	4	50%
Not Easy/Not Beneficial	0	0.0%
Neutral	3	37.5%
Easy to Use/Beneficial	1	12.5%

TABLE 5 – *Continued*

	# of Responses	Percentage
ProQOL Helper Pocket Cards		
Not Used	5	62.5%
Not Easy/ Not Beneficial	0	0.0%
Neutral	2	25%
Easy to Use/ Beneficial	1	12.5%
Value Cards		
Not Used	3	37.5%
Not Easy/ Not Beneficial	0	0.0%
Neutral	3	37.5%
Easy to Use/ Beneficial	2	25%
ProQOL Graph		
Not Used	1	12.5%
Not Easy/ Not Beneficial	0	0.0%
Neutral	2	25%
Easy to Use/ Beneficial	5	62.5%
Burnout Graph		
Not Used	1	12.5%
Not Easy/ Not Beneficial	1	12.5%
Neutral	2	25%
Easy to Use/ Beneficial	4	50%

Participants were asked to use the *Provider Resilience* mobile application when they were prompted by their pre-set daily reminders. All providers utilized the mobile application at least once or twice per week, illuminating the feasibility of this implementation. A number (75%) of participants reported that they used the application one to two days per week. Some (13%) reported that they used the application five to six days per week. The remaining 13% reported that they used the application daily.

Application Usability

To evaluate usability of the mobile application, participants were asked to rate each component of the application using the following 4-point Likert scale: Easy to Use/Beneficial, Neutral, Not Easy to Use/Not Beneficial, and Not Used. Most (88%) of participants rated the

“Resilience Ratings” and “ProQOL Ratings” as ‘Easy to Use/Beneficial,’ with the remaining ratings as ‘Neutral.’ The “Dashboard,” also considered as the application’s home screen, was rated by 75% of participants as ‘Easy to Use/Beneficial,’ with the remaining ratings as ‘Neutral.’ The “Countdown Clock,” located on the application’s home screen, was rated by 63% of participants as ‘Easy to Use/ Beneficial,’ with the remaining ratings as ‘Neutral’ and ‘Not Used.’ The “CF Videos” were rated by 63% of participants as ‘Not Used,’ along with the “ProQOL Helper Pocket Cards.” The “ProQOL Graph” was rated by 63% of participants as ‘Easy to Use/ Beneficial,’ while the “Burnout Graph” had no majority consensus. The remaining CF tools were rated across the Likert scale with no majority consensus.

DISCUSSION

Summary of Results

The purpose of this QI project was to: 1) assess CF of ENPs working in a level-one trauma center, 2) measure the effectiveness, 3) feasibility and, 4) usability of a mobile application designed to reduce CF. Utilizing the *Provider Resilience* mobile application and the embedded ProQOL assessment tool, ENP CF was assessed. Through analysis of the ENP ProQOL scores surrounding the 30-day use of *Provider Resilience*, effectiveness of the application was measured. After 30 days of mobile application use, ProQOL scores improved in 88% of participants. At three-weeks post-implementation, CS increased in 63% of participants, while BO decreased in 63% of participants. Additionally, STS decreased in 50% of participants. Feasibility and usability of the application were measured with the End User Experience Survey, employing self-report and a 4-point Likert scale. One of the greatest discoveries of this project was the observed feasibility and positive participant ratings of the mobile application’s usability.

Most (88%) of the participants rated the “ProQOL Ratings” as ‘Easy to Use/ Beneficial.’ This was also evidenced by all participants utilizing the application at least once or twice per week.

The aims of this QI project were to improve ENP ProQOL scores after 30 days of mobile application use, and to sustain improvement in ProQOL scores after one and three weeks following the implementation period. With only eight participants, the results are not generalizable. However, the adoption and use of the application, along with a small increase in CS scores and a decrease in BO scores, are encouraging. Although STS remained relatively unchanged, it should be noted that both STS and BO scores (ranging from 20 to 22) were significantly lower than the average score of 50 and may have had little room for improvement (Stamm, 2010). CS scores (ranging from 39 to 40) were relatively lower than the average score of 50 (Stamm, 2010). These findings may have been related to the relatively young group of providers with relatively few years of provider experience and ED practice.

Correlation of Findings to Literature

As illuminated in the literature review (Appendix A), there is a current gap in the literature regarding the prevalence of CF in nurse practitioners. Therefore, it is not possible to correlate findings of this project with those in the literature. This project supports the literature illustrating self-care, specifically self-awareness and compassion for self, as an effective intervention for CF (Fortney et al., 2013; Williams et al., 2015). This project contributes to the current literature gap, uncovering an intervention that was readily-adopted, user-friendly, and effective in improving CF in advanced practice providers. Similar to Wood et al.’s (2017) study employing the mobile application *Provider Resilience* in a sample of mental health providers, this project illustrates the mobile application’s effectiveness and usability- in the sample of

ENPs. Similar strengths and limitations discovered in the literature review were identified in this QI project.

Strengths

One of the foremost strengths of this project was the use of validated and reliable tools for measurement of outcomes (Stamm, 2010; Wood et al., 2017). A remarkable strength was the rate of adoption amongst the providers who each utilized the application at least once or twice per week. It also must be noted that this project rendered a 100% response rate at all timepoints and avenues of measurement: pre-test (including the demographic questionnaire and initial ProQOL), post-test (including the repeat ProQOL and End User Experience Survey), one-week post-implementation (including the repeat ProQOL), and three-weeks post-implementation (including the repeat ProQOL). A crowning strength of this project is its contribution to the current gap in the literature regarding prevalence of CF in nurse practitioners: an effective, feasible, and user-friendly intervention to limit CF.

Limitations

Several limitations may have impacted the results of this study. A small convenience sample of only eight providers, all relatively psychologically healthy, limits generalizability of the results (Polit & Beck, 2017). With low baseline BO and STS scores, it was a challenge to attempt to further lower scores. Additionally, this was a relatively young sample with six or less years of experience working as an advanced practice provider. The stigma surrounding CF could have influenced some participants to not answer questions truthfully, even though surveys were anonymous and confidential. There is also potential for inaccuracy with self-reported data, which could have influenced the measures of frequency of application use (Polit & Beck, 2017).

Furthermore, the author of this QI project is a nurse in the project site's ED, therefore, participants may have been motivated to answer questions how they thought the author would want them to be answered, again despite assurance of anonymity and confidentiality.

Future Implications and Dissemination

The findings from this QI project support current literature, contribute to the current gap in the literature, and illuminate avenues for further research. Future studies could explore the implementation of the *Provider Resilience* mobile application in other healthcare specialties including primary care, inpatient care, and other outpatient care settings. The implementation of this mobile application among additional healthcare professions should also be explored, including physicians, nurses, and patient care technicians. The observed markedly successful adoption rate could be further examined to determine acceptability amongst a broader age range of providers. Feedback should be collected from participants regarding application usability and barriers, to be combined with findings from this project and used to design an application that will address specific identified needs. Additionally, frequency of application use should be measured at each testing point following baseline (including 30 days after application use, one-week post-implementation, and three-weeks post-implementation). This measure was not obtained at one- and three-weeks post-implementation in this project and should be included in future projects to allow more correlation between frequency of application use and CF scores.

The introduction and methods sections of this QI project were disseminated to conference attendees via poster presentations at the Western Institute of Nursing's 52nd Annual Communicating Nursing Research Conference and the 2019 American Academy of Nurse Practitioners National Conference. Future implications of this QI project are to disseminate the

completed project and results to both conferences in order to close the loop and pioneer implementation of similar projects. This project has also been recognized by the project site as fulfilling of the ANCC's magnet criteria of 'New Knowledge' and will be utilized in the hospital application to achieve magnet status. With support of the hospital's Director of Professional Practice, this project will be rolled out hospital-wide. Publication of this project will be pursued as well.

Conclusion

In conclusion, this QI project assessed CF in ENPs and determined the effectiveness, feasibility, and usability of a mobile application designed to reduce CF, *Provider Resilience*. The results of this project illuminated the prevalence of CF in a sample of ENPs, which is absent in the literature, and the proven effectiveness and adoption of the *Provider Resilience* mobile application. Following 30 days of application use, participant CF decreased and sustained over three weeks. Additionally, a majority of participants rated the CF ratings as 'Easy to Use/Beneficial.' This project pioneered an effective, feasible, and user-friendly intervention to limit CF in ENPs. Further implementation in other healthcare settings and populations is encouraged to further promote provider self-regulation, retention, and the consistent delivery of high-quality patient care.

APPENDIX A:
EVIDENCE APPRAISAL TABLES

Levels of Evidence Defined

Level of Evidence	Definition
Level I	<p>a. Evidence from a systematic review or meta-analysis that includes relevant randomized controlled trials (RCTs), or an evidence-based clinical practice guideline based on a systematic review of RCTs</p> <p>b. Evidence from a systematic review or meta-analysis that includes relevant <u>non-randomized</u> trials, or an evidence-based clinical practice guideline based on a systematic review of <u>non-randomized</u> trials</p>
Level II	<p>a. Evidence from a single RCT</p> <p>b. Evidence from a single <u>non-randomized</u> trial</p>
Level III	Evidence from a systematic review of correlational/ observational studies
Level IV	Evidence from a single correlational/ observational study
Level V	Evidence from a systematic review of descriptive or qualitative studies
Level VI	Evidence from a single descriptive or qualitative study
Level VII	Evidence from the opinions of authorities and/or reports of expert committees.

Project Question: Will the use of self-care mobile reminders help to improve Professional Quality of Life (ProQOL) scores among ENPs?

Author / Year / Article	Qual: Concepts or phenomena Quan: Key Variables Hypothesis Research Question	Theoretical Framework	Design / Level of Evidence	Sample (N)	Data Collection (Instruments/Tools)	Findings
Bowen, A. B. (2018). How do emergency nurse practitioners experience managing acutely unwell patients in minor injury units? An interpretative phenomenological analysis.	<p>Study objective: To explore emergency nurse practitioners' (ENPs) experiences of managing acutely unwell patients in minor injury units (MIUs).</p> <p>One-to-one in-person interviews were conducted using semi-structured questions.</p> <p>“Acutely unwell” was not defined by the researcher, allowing the ENPs to interpret their own meaning.</p>	Heidegger and Husserl’s interpretative phenomenological analysis (IPA; Smith, Flower, & Larkin, 2009)	Single descriptive qualitative study Level VI	<p>N=6 ENPs from seven MIUs from a county in England</p> <p>Four females Two males Range of NP experience: 2-17 years All had formal ENP training at a university</p> <p>The first ENP to respond from each MIU was selected for inclusion to ensure each MIU was represented.</p> <p>Exclusion criteria: ENPs working less than one year due to need for experience to</p>	<p>Interviews were audiotaped and transcribed verbatim for analysis.</p> <p>Analysis: Following IPA, transcripts were read and re-read, and exploratory notes were written that illustrated emerging themes. Subthemes and superordinate themes were discovered. Numbering and color-coding allowed for audit trails and transparency. The authors describe this analysis process as cyclical and reflexive, not linear.</p> <p>The final themes were reviewed by the researcher’s academic supervisor and final themes were agreed upon.</p>	<p>Three main superordinate themes with subthemes:</p> <p>Emotional resilience - Subthemes: Coping & Emotional responses -ENPs varied in their responses to caring for acutely unwell patients. One ENP described how managing these patients led to feelings of anxiety, while another ENP reported being able to emotionally release and move on. -ENPs with increased stress and anxiety are more likely to develop burnout & post-traumatic stress disorder (PTSD) -Strong emphasis on the positive effects of getting feedback</p>

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				participate in in-depth discussion.		<p>through informal debriefing with colleagues. -ENPs interpret resilience differently and have different preferences for coping</p> <p>ENP identity - Subthemes: Clinical competence & Who is the MIU ENP? -ENPs expressed concerns with acquired advanced training that they could not exercise due to limited resources. This led to feelings of frustration about performing under their potential. -Each ENP held differing beliefs about their scope of practice in the MIU. If the ENP is confused, patients and other healthcare professionals will be similarly confused.</p>

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						<p>External factors - Subthemes: Environmental limitations & “Why didn’t you call 999?” -ENPs reported feeling isolated and vulnerable in MIUs that were further away from larger acute hospitals -ENPs felt safer working in larger teams -ENPs felt that acutely unwell patients attended MIUs rather than the nearest ED or calling 999 due to lack of education of where to go for what. Patients have expressed not wanting to bother EMS. -ENPs expressed frustration with managing patients who should have gone to the ED or called 999 but also that it is an inevitable part of their role.</p>

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						<p>Implications for Clinical Practice:</p> <ul style="list-style-type: none"> -This study illuminates the difficulties that ENPs working in MIUs face, resulting in anxiety and a predisposition to burnout and PTSD. -Illustrates the vulnerability of ENPs and need for support, especially in smaller MIUs located further away from larger acute hospitals. -Explains the need for clear roles and scopes of practice for ENPs to allow for more confident identities and patient care. -Describes the need for public education on urgent and emergency services and when they should be accessed. <p>Strengths:</p> <ul style="list-style-type: none"> -Grounded theory, reflective thinking, and

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						<p>peer-debriefing were used to ensure rigor in data analysis.</p> <p>-Independent coding of data was used to control for bias data analysis. Both authors are midwives and both arrived at same broad themes.</p> <p>-The researcher is an ENP who works in a MIU included in this study. An insider's view may have strengthened data collection and interpretation.</p> <p>-To limit bias data collection, the researcher used a reflective diary throughout the process.</p> <p>-Limitations are outlined along with implications for future research.</p> <p>-Due to potential for distress as repercussion to sharing traumatic experiences, referrals</p>

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						<p>for professional counseling were offered to the participants</p> <p>Limitations:</p> <ul style="list-style-type: none"> -“Acutely unwell” was not defined by the researcher, allowing the ENPs to interpret their own meaning. This may have caused over or underreporting. -Limited generalizability due to small sample size and uniqueness of participant experiences -Bias data collection is a possibility as the researcher is an ENP who works alongside participants in this study -Unable to make comparisons between how midwives with existing patient relationships experience traumatic birth compared to those

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						who first met the woman in the birth suite.
<p>Carissoli, C., Villani, D., & Riva, G. (2015). Does a meditation protocol supported by a mobile application help people reduce stress? Suggestions from a controlled pragmatic trial.</p>	<p>Study objective: To examine the efficacy of a three-week mindfulness inspired protocol, delivered by an Android application for smartphones, in reducing stress in the adult population.</p> <p>A self-help intervention group of meditators was compared with a typical control group listening to relaxing music and a waiting list group.</p> <p>The app “It’s time to relax!” was</p>	<p>No theoretical framework specified.</p>	<p>Single randomized controlled trial</p> <p>Level II</p>	<p>N=56 Italian workers</p> <p>Inclusion criteria: >18 years old, employed, and a native Italian speaker.</p> <p>Mean age: 38 Education level: -Degree: 66.1% -High school diploma: 32.1% -Other: 1.8% Job: -White-collar workers: 66.1% -Consultants: 7.1% -Salespeople: 17.9% -Entrepreneurs: 3.6% -Other: 5.3%</p> <p>Randomly</p>	<p>Mesure du Stress Psychologique questionnaire (MSP) -Italian validated version (Cronbach’s alpha 0.95) -49-item tool that evaluates perceived stress within the preceeding 3 months considering six dimensions: -Loss of control and irritability -Psychophysiological feelings -Sense of effort and confusion -Depressive anxiety -Pain and physical problems -Hyperactivity and accelerated behaviors -Administered before and three weeks after intervention.</p> <p>Heart rate: -Participants were asked to</p>	<p>MSP: -No significant differences were found between groups -Both the meditation and music group participants reported a stress reduction. -Meditation group participants reported a reduction in hyperactivity and accelerated behaviors (p=0.01) -Music group participants reported a reduction in pain and physical problems (p=0.026) -The waiting list group showed a constant increase in all MSP dimensions</p> <p>Heart rate: -No significant differences were found</p>

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	<p>employed in the intervention group.</p> <ul style="list-style-type: none"> -Guided meditations -Breathe: Guided mindful breathing focusing on belly-breathing. -Mountain: participant focuses on a mountain and observes that it remains steadfast in front of all the weather changes that take place around it. -Brief: 3-minute meditation of mindful breathing (focus on belly-breathing). <p>Meditation participants had to practice two meditations per day, lasting 15 minutes each, by</p>			<p>assigned to:</p> <ul style="list-style-type: none"> -Self-help intervention (meditation) group: 20 -Control group (music): 18 -Waiting list group: 18 	<p>track their beats per minute (BPM) before and after each session and include this data on the daily activities form.</p> <p>Difficulty:</p> <ul style="list-style-type: none"> -Using 5-point Likert scale (1= very difficult, 5= very easy) -How did you find the tasks required by the testing? -How did you find the detection of heartbeats? -The sum of the two items was averaged for a mean score. <p>Usefulness:</p> <ul style="list-style-type: none"> -Using 5-point Likert scale (1= strongly disagree, 5= strongly agree) -Did you find the trial useful? -Would you suggest this type of practice for stress management? -The sum of the two items was averaged for a mean score. 	<p>between groups</p> <ul style="list-style-type: none"> -A decrease in the average BPM in both the meditation and music groups was observed. <p>Difficulty:</p> <ul style="list-style-type: none"> -Both groups evaluated the interventions as simple -Meditation: 2.43 -Music: 2.08 <p>Usefulness:</p> <ul style="list-style-type: none"> -Both groups evaluated the interventions as useful -Meditation: 3.65 -Music: 3.61 <p>Implications for Clinical Practice:</p> <ul style="list-style-type: none"> -The use of the mobile meditation app reduced stress and average BPM among all participants in the intervention and control group. -Those who did not use

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	<p>listening to the guided meditations.</p> <p>The music group (control group) had to use their mobile device to listen to two pieces of relaxing music (chosen from a proposed list) per day, lasting about 15 minutes each, while doing nothing else.</p>				<p>Analysis:</p> <ul style="list-style-type: none"> -Baseline stress levels (using MSP) were compared. -Gain score variables were created: -The difference between values of the original variable of stress at the two times of the intervention (end and beginning) -The average daily BPM assessed before and after each of the two sessions. -A one-way analysis of variance was conducted on gain scores. 	<p>the app (the waitlist group) demonstrated increases in perceived stress when compared to the intervention and control group.</p> <ul style="list-style-type: none"> -Both music and meditation were perceived as undemanding and participants felt they had learned useful strategies. -These discovered perceptions support that mobile well-being apps are a promising approach to promote a healthy lifestyle anywhere, at any time. <p>Strengths:</p> <ul style="list-style-type: none"> -100% attrition rate, with 100% of questionnaires completed before and after intervention -A validated measure was used to score perceived stress. -Gaps and limitations

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						<p>of the included literature are thoroughly described.</p> <p>Limitations: -Small sample size limits generalizability. -Short duration of intervention limits findings that would have otherwise surfaced in more time.</p>
<p>Fortney, L., Luchterhand, C., Zakletskaia, L., Zgierska, A. & Rakel, D. (2013). Abbreviated mindfulness intervention for job satisfaction, quality of life, and compassion in primary care clinicians: A pilot study.</p>	<p>Study Objective: To investigate whether an abbreviated mindfulness intervention could increase job satisfaction, quality of life, and compassion among primary care clinicians.</p> <p>Mindfulness Training: A group-based didactic program carried out three</p>	<p>No theoretical framework specified.</p>	<p>Quasi-experimental study (one group with pretest/posttest design)</p> <p>Level II</p>	<p>N=30 primary care clinicians from the departments of family medicine, internal medicine, and pediatrics.</p> <p>Women: 18 Men: 12 Mean age: 40.5 years 97% White 3% Hispanic Mean years in practice: 9.8</p>	<p>Measured outcomes: Job satisfaction: -Maslach Burnout Inventory (MBI): measures emotional exhaustion, depersonalization, and personal accomplishment.</p> <p>Quality of Life: -Depression Anxiety Stress Scales-21 (DASS-21) -Perceived Stress Scale (PSS) -14-item Resilience Scale (RS-14)</p>	<p>Job satisfaction: Significantly improved. -Emotional exhaustion: Decreased from 31.9 (baseline) to 26 (9 months) (mean change score: -5.9; p=0.009) -Depersonalization: Decreased from 12.6 (baseline) to 9.1 (9 months) (mean change score: -3.51; p=0.005) -Personal accomplishment: Increased from 38.5 (baseline) to 42.3 (9 months) (mean change score: 3.76; p<0.001)</p>

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	<p>times per week for a total of 14 hours per week with two two-hour follow-up sessions. Measures were obtained at baseline, one day, eight weeks, and nine months.</p> <p>Training Content: Training in mindfulness practices (sitting, movement, speaking, listening, and compassion for self and others) and application to practicing medicine and everyday life</p>				<p>Compassion: -Santa Clara Brief Compassion Scale (SCBC)</p> <p>Analysis: -Descriptive analysis conducted before formal testing -Outcome data were analyzed with linear mixed effects models -SAS version 9.1 for Linux was used for all analyses</p>	<p>Quality of Life: DASS-21: Scores significantly improved. -Depression: Decreased from 7.6 (baseline) to 3.4 (9 months) (mean change score: -4.16; p=0.001) -Anxiety: Decreased from 4.4 (baseline) to 1.9 (9 months) (mean change score: -2.51; p=0.006) -Stress: Decreased from 14.2 (baseline) to 9 (9 months) (mean change score: -5.2; p=0.002)</p> <p>PSS: Scores significantly improved. -Perceived stress decreased from 19 (baseline) to 14.7 (9 months) (mean change score: -4.29; p=0.002)</p> <p>Compassion: No significant changes observed</p>

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						<p>Implications for Clinical Practice: -This is a relatively low-cost, collegial, time-efficient intervention to manage burnout symptoms and improve well-being of clinicians. -This could positively impact patient care as it could increase clinician attrition and decrease costs for healthcare organizations. It would also promote the deliverance of thorough, high-quality healthcare to patients.</p> <p>Strengths: -Survey questionnaires included five validated tools to measure CF -Low participant attrition and high survey response rates -Gaps and limitations of the included literature are thoroughly described</p>

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						and include implications for future research Limitations: -Lack of a control group -Small sample size -Limited generalizability due to self-selection of participants -Potential group effect of mindfulness intervention
Mizuno, M., Kinefuchi, E., Kimura, R., & Tsuda, A. (2013). Professional quality of life of Japanese nurses/midwives providing abortion/childbirth care.	Study objective: To explore the relationship between professional quality of life (ProQOL) and emotion work and stress factors related to abortion care in Japanese obstetric and gynecologic nurses and midwives.	No theoretical framework specified.	Single correlational study with cross-sectional survey design Level IV	N=255 RNs, LPNs, and midwives from maternity units of 341 Japanese hospitals of similar size and geographical location RNs: 73 LPNs: 96 Midwives: 86 All women Mean age: 42.9	Measured outcomes: Compassion fatigue: ProQOL scale: Three subscale measures: -Compassion satisfaction (Cronbach's alpha 0.90) -Burnout (Cronbach's alpha 0.73) -Compassion fatigue (Cronbach's alpha 0.81) Emotion work: Frankfurt Emotional Work Scale (FEWS): Three subscale measures:	Compassion fatigue: ProQOL scale: -No significant differences observed between midwives, RNs, & LPNs. -Mean scores: -Satisfaction: 33.6 -Burnout: 26.9 -Fatigue: 21.3 -No high-risk cases (scores >42) of compassion fatigue observed -The number of first-

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				years No religion: 70% Mean years in abortion services: 13.8	<p>-Emotions display (positive & negative; (Cronbach's alpha 0.77 & 0.91 respectively)</p> <p>-Emotional dissonance (Cronbach's alpha 0.7)</p> <p>-Sensitivity requirements (Cronbach's alpha 0.72)</p> <p>Stress Factors: Eight stress factors pulled from published surveys on abortion care and measured using Likert scale: 1 (never) to 5 (always).</p> <p>-Thinking aborted fetus deserved to live</p> <p>-Touching aborted fetus for purpose of measurement</p> <p>-Providing abortion care despite disagreeing with reason for abortion</p> <p>-Difficulty in supporting patients' behavior while providing abortion care</p> <p>-Inability to accept abortion care as a job</p> <p>-Inability to provide good abortion care</p>	<p>trimester abortion cases handled was positively correlated with burnout (p=0.046)</p> <p>-The number of childbirth cases handled was positively correlated with compassion satisfaction (p=0.041).</p> <p>Emotion work: FEWS: -Midwives exhibited significantly higher positive emotions display and emotional dissonance compared to RNs & LPNs</p> <p>Stress factors: -"Difficulty in controlling emotions during abortion care," "thinking that the aborted fetus deserved to live," and "difficulty in supporting patient behavior while providing abortion care" had significantly</p>

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					<p>-Inability to refuse involvement in abortion care -Difficulty in controlling emotions during abortion care</p> <p>Analysis: Conducted using JMP version 9.0 for Windows. Comparisons achieved by one-way analysis of variance test combined with Tukey-Kramer method. Spearman's rank used for correlation coefficients. Hierarchical regression analysis used to determine significant predictors. P values <0.05 were considered significant.</p>	<p>positive relationships with ProQOL scores for compassion fatigue.</p> <p>Implications for Clinical Practice: -Midwives are a vulnerable population, predisposed to burnout and CF from the nature of their work. -Midwives are a population that could benefit from interventions aimed to reduce burnout and CF.</p> <p>Strengths: -Large sample among many hospitals -Used validated tools for measurement of findings -Ethics committee approved the study and participants' rights for anonymity and confidentiality were ensured. -Limitations are outlined along with</p>

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						<p>implications for future research.</p> <p>Limitations:</p> <ul style="list-style-type: none"> -Surveys relied on self-reported measures, could impact results. -Due to cross-sectional design, there is no gathered understanding of prevalence of burnout and compassion fatigue over time. -Varying levels of educational background may affect professional confusion and ethical dilemmas.
Rice, H., & Warland, J. (2012). Bearing witness: Midwives experiences of witnessing traumatic birth.	Study Objective: to enable midwives to describe their experiences and to determine if they are at risk of negative psychological sequelae	No theoretical framework specified.	Single descriptive qualitative study Level VI	N=10 current or previously registered midwives who had worked with birthing women Exclusion criteria: Non-English speakers and those	Interviews were audiotaped and transcribed verbatim for analysis. Analysis: Data was coded between interviews based on key issues that arose. Key issues were analyzed for common themes. Concept maps were used to	Three main themes with subthemes: “Stuck between two philosophies” -Subtheme: “There’s nothing you can do about it” - Subtheme: “Is this really midwifery?” - Subtheme: “We

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	<p>Study Question: What are midwives' experiences of witnessing traumatic birth?</p> <p>One-to-one in-person interviews were conducted using semi-structured questions: -Describe your midwifery background and current work situation -Describe your experiences of witnessing traumatic birth</p> <p>-Trauma was defined for the purpose of this study as 'in the eye of the beholder.' If the participant described the</p>			<p>diagnosed with AXIS 1 mental disorders (due to possible exacerbations of illness by this study)</p> <p>All women Ages not specified Range of years of midwifery experience: 1-23 years</p>	<p>illustrate thematic networks that were cross-compared by the second author.</p>	<p>were like a couple of naughty girls” -The midwives reported it was traumatic to work between two philosophies of care: medical and midwifery.</p> <p>“What could I have done differently?” - Subtheme: “You feel like you are responsible” - Subtheme: “You need to learn from things going wrong” -Feelings of guilt and responsibility were reported by the midwives.</p> <p>“Feeling for the woman” - Subtheme: “To see her upset by the experience, makes me upset by her experience” - Subtheme: You don't see them</p>

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	experience as traumatic, then it was considered traumatic.					<p>postnatally and you don't know what's happened - Subtheme: "You have to find a way to deal with it" -The investigators identified compassion fatigue and vulnerability to emotional distress in the midwives.</p> <p>Implications for Clinical Practice: -This study illuminates the difficulties that midwives face when attempting to work between two models of care with repeated exposure to traumatic experiences.</p> <p>Strengths: -Grounded theory, reflective thinking, and peer-debriefing were used to ensure rigor in data analysis. -Independent coding of</p>

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						<p>data was used to control for bias data analysis. Both authors are midwives and both arrived as same broad themes.</p> <p>-Limitations are outlined along with implications for future research.</p> <p>-Due to potential for distress as repercussion to sharing traumatic experiences, referrals for professional counseling were offered to the participants</p> <p>Limitations:</p> <p>-Limited generalizability due to small sample size, self-referral to study, and snowball sampling</p> <p>-Unable to make comparisons between how midwives with existing patient relationships experience traumatic</p>

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						birth compared to those who first met the woman in the birth suite.
Sorenson, C., Bolick, B., Wright, K., & Hamilton, R. (2016). Understanding compassion fatigue in healthcare providers: A review of current literature.	Review Questions: (a) What does the recent literature report regarding compassion fatigue and related concepts (CF and RCs) in healthcare providers (HCPs), and (b) Are there any gaps in the current literature related to specific HCP roles?	Whittemore and Knafl's (2005) integrative review methodology	A review of randomized controlled trials and correlational/observational studies Level III	N/A	Literature search spanned 2005-2015 Databases searched: CINAHL & PubMed Search terms: compassion fatigue, compassion satisfaction, secondary traumatic stress, burnout, healthcare providers, and bad news Priori inclusion criteria: published within last 10 years, written in English, and included only formal HCPs. Exclusion criteria: if not primary source of information or original research Analysis: Existing literature was grouped and	Preliminary search yielded 307 articles, 43 of which met inclusion criteria. CF and RC's are pervasive and affect a wide variety of HCPs in many clinical settings. Advanced practice registered nurses (APRNs), respiratory therapists, physical therapists, and occupational therapists were not well represented. The literature provided information regarding symptoms, prevalence, risk factors, and prevention measures CF and RCs.

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					<p>presented based on professional group:</p> <ul style="list-style-type: none"> -Mixed -Staff nurses -Genetic workers -Trauma workers -Physicians -Midwives -Child protective workers -Students 	<p>Symptoms:</p> <ul style="list-style-type: none"> -Physical (headache, gastrointestinal issues, sleep disturbances) -Emotional (mood swings, irritability, depression, poor concentration, judgment) -Work-related (avoidance of particular situations or patients, decreased ability to feel empathy, lack of meaning in work) -Affect patient care and relationships with coworkers and patients -Emotional exhaustion and its effects on personal life were the most commonly cited results -Leads to thoughts about leaving profession <p>Prevalence: CF and RCs were discovered among all professional</p>

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						<p>groups analyzed, except for midwifery students who were concerned for burnout later in their careers.</p> <p>Risk factors:</p> <ul style="list-style-type: none"> -The intensity of the patient setting -Conflicting family and patient interactions -Delivering bad or uncertain news to patients and families -Lack of perceived managerial support <p>Prevention:</p> <ul style="list-style-type: none"> -Self-care is the most significant preventative measure -Followed by education and teamwork -Self-efficacy was shown to decrease risk -Workplace environments that reduce risk of CF and RCs: professional, promotes teamwork and positive working

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						<p>relationships</p> <p>Implications for Clinical Practice:</p> <ul style="list-style-type: none"> -This review illuminates: -The need for more research on APRNs -The challenges surrounding defining and delineating CF and RCs -Solutions to help reduce CF, including self-care. <p>Strengths:</p> <ul style="list-style-type: none"> -Employed an integrative review methodology -Prior inclusion criteria increased quality of data included -Included a wide variety of research designs -Controlled for publication bias by including unpublished materials that met inclusion criteria

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						<p>-Gaps and limitations of the included literature are thoroughly described and include implications for future research</p> <p>Limitations:</p> <p>-Lack of well-constructed concept analysis for CF and related terms. Thus, CF and RC's umbrella term was used to encompass the variety of concepts</p> <p>-Only a few studies specifically discussed validity of their results</p>
<p>Trautmann, J., Epstein, E., Rovnyak, V., & Snyder, A. (2015). Relationships among moral distress, level of practice independence, and intent to leave of nurse practitioners in</p>	<p>Study objective: To investigate moral distress among ED nurse practitioners (NPs) and examine relationships between moral distress and level</p>	<p>No theoretical framework specified.</p>	<p>Single correlational study with cross-sectional survey design</p> <p>Level IV</p>	<p>N=207 ED NPs were identified using convenience sampling from the Emergency Nurses Association (ENA) master mailing list by</p>	<p>Moral Distress: Moral Distress Scale-Revised (MDS-R): -21-item Likert scale assessing both frequency (0 = never; 4 = very frequently) and level of disturbance (0 = not disturbing; 4 = very disturbing) of common</p>	<p>Moral Distress: -MDS-R scores ranged from 0-224 (mean score: 74.4) -There was a significant difference between female (77.7) and male (59.2) MDS-R scores. -The most common</p>

Author / Year / Article	Qual: Concepts or phenomena Quan: Key Variables Hypothesis Research Question	Theoretical Framework	Design / Level of Evidence	Sample (N)	Data Collection (Instruments/Tools)	Findings
emergency departments: Results from a national survey.	of practice independence as well as intent to leave a position.			<p>credential and position description.</p> <p>Inclusion criteria: NPs currently working or have worked in an ED setting, civilian or military installation ED.</p> <p>81% female 19% male Mean age: 49.8 years 97% non-Hispanic 3% Hispanic or Latino 95% White 2% Asian 69% FNP 16% ACNP 3% CNS 12% other Mean years as a NP: 9.5 years Mean years in ED: 7.8 years</p>	<p>morally distressing events.</p> <p>-Total MDS-R scores obtained by multiplying frequency and disturbance scores for each item and summing the products (range 0-336).</p> <p>-Higher scores indicate higher levels of moral distress</p> <p>-Cronbach's alpha 0.88</p> <p>Level of practice independence: Dempster Practice Behavior Scale (DPBS): -30-item survey with 5-point Likert scale measuring four aspects of level of practice independence of NPs: -Readiness -Empowerment -Actualization -Valuation -Total scores range from 30-150 with higher scores indicated a higher level of practice independence -Cronbach's alpha 0.95</p>	<p>causes of moral distress among ED NPs were:</p> <p>-Witnessing diminished patient care quality due to poor communication (MDS-R mean: 6.4) -Working with nurses or providers not as competent (MDS-R mean: 6.2) -Working with levels of nurse or provider that the participant considered unsafe (MDS-R mean: 5.9)</p> <p>Level of practice independence: -DPBS scores ranged from 81-149. -There was no significant difference between females and males</p> <p>Intent to leave: -27% reported they had considered leaving their position -25% reported they did</p>

Author / Year / Article	Qual: Concepts or phenomena Quan: Key Variables Hypothesis Research Question	Theoretical Framework	Design / Level of Evidence	Sample (N)	Data Collection (Instruments/Tools)	Findings
					<p>Intent to leave: -Self-report of yes or no answers to two questions: 1. Have you ever considered leaving your position due to moral distress? 2. Are you considering leaving your position now due to moral distress?</p> <p>Analysis: Utilized IBM SPSS 21.0</p>	<p>leave a position -There was a notable difference between males who never considered leaving a position (63%) and women (43%) -Among those who had considered leaving or had left a position, higher MDS-R scores were observed.</p> <p>Implications for Clinical Practice: This study illuminates: -The fact that moral distress is present in ED NPs, causing some (25% reported) to leave their position. -The unique vulnerabilities of ED NPs when compared to the nurse and physician populations. -The need for ENP support and retention strategies.</p>

Author / Year / Article	Qual: Concepts or phenomena Quan: Key Variables Hypothesis Research Question	Theoretical Framework	Design / Level of Evidence	Sample (N)	Data Collection (Instruments/Tools)	Findings
						<p>Strengths: -Large sample spanning the nation -IRB and ENA research committees approved the study -Used validated tools for measurement of findings -Limitations are outlined along with implications for future research.</p> <p>Limitations: -Study sample only consisted of ENA members, so limited generalizability. -Low survey response rate (31%), so results may not reflect even the majority of ED NPs who are ENA members. -Due to cross-sectional design, there is no determination of causal relationships among the variables.</p>

Author / Year / Article	Qual: Concepts or phenomena Quan: Key Variables Hypothesis Research Question	Theoretical Framework	Design / Level of Evidence	Sample (N)	Data Collection (Instruments/Tools)	Findings
<p>Villani, D., Grassi, A., Cognetta, C., Toniolo, D., Cipresso, P., & Riva, G. (2013). Self-help stress management training through mobile phones: An experience with oncology nurses.</p>	<p>Study objective: To test the short-term effects of a self-help management training supported by mobile tools in oncology nurses.</p> <p>Hypotheses: 1. Expected improvement of the emotional state (state anxiety reduction) of the experimental group by the end of each session of the protocol. 2. Expected improvement of the affective state (trait anxiety reduction and acquisition of coping skills) of the experimental group by the end of the protocol.</p>	<p>No theoretical framework specified for study design.</p> <p>Stress inoculation training (SIT) methodology served as the basis for the training (Meichenbaum, 1977)</p>	<p>Single randomized controlled trial</p> <p>Level II</p>	<p>N=30 oncology nurses in with permanent employee status among six oncology hospitals in Milan, Italy.</p> <p>Inclusion criteria: Current oncology nurses with a minimum of 5 years' experience in the oncology ward and permanent employment status.</p> <p>Mean age: 43 years Average years of nursing experience: 22 years Average years of oncology experience: 9 years</p>	<p>Outcome measures: Perceived stress: Mesure du Stress Psychologique questionnaire (MSP) -Italian validated version (Cronbach's alpha 0.95) -49-item tool that evaluates perceived stress within the preceeding 3 months considering six dimensions: -Loss of control and irritability -Psycho-physiological feelings -Sense of effort and confusion -Depressive anxiety -Pain and physical problems -Hyperactivity and accelerated behaviors -Administered before the intervention to select nurses for inclusion in study with a level of stress in the high quartile.</p> <p>Anxiety level: State Trait Anxiety</p>	<p>Perceived stress: -Those with MSP scores in the high quartile for stress were selected for participation in this study.</p> <p>Anxiety level: -Significant reductions were observed between pre- and post-session anxiety scores in the experimental group ($p=0.000-0.19$). -This was not observed in the control group.</p> <p>Coping skills: -Active coping increased while denial decreased.</p> <p>Work components: JCQ responses: -PJD: perceived as high (mean score: 30.3) -Job DL: perceived as low (mean score: 25) -SSW: perceived as high (mean score:</p>

Author / Year / Article	Qual: Concepts or phenomena Quan: Key Variables Hypothesis Research Question	Theoretical Framework	Design / Level of Evidence	Sample (N)	Data Collection (Instruments/Tools)	Findings
	<p>Intervention: Experimental group: -Participants watched eight video clips with a narrative according to stress inoculation training (SIT) methodology twice a week for four weeks. -Relaxation techniques: progressive muscular relaxation and autogenic training -Each session lasted approximately 15 minutes.</p> <p>Control group: -Participants watched eight validated neutral video clips without narrative twice a week for</p>			<p>Participants were randomly assigned to two groups: -15 in the experimental group -15 in the control group</p>	<p>Inventory (STAI): -40-item self-report tool -Broken into two sections: -State (current) anxiety -Trait (characteristic or chronic) anxiety -Cronbach's alpha: 0.83-0.92 -Administered at baseline and before and after each session.</p> <p>Coping skills: Brief Coping Orientation to Problems Experienced (COPE) questionnaire -Active coping, following two questions used: 1. "I've been concentrating my efforts on doing something about the situation I'm in" 2. "I've been taking action to try and make the situation better" -Denial coping, following two questions used: 1. "I've been saying to myself 'this isn't real'" 2. "I've been refusing to believe that it has</p>	<p>12.31)</p> <p>Implications for Clinical Practice: -The use of the mobile SIT reduced anxiety among participants in the experimental group and increased active coping capabilities, while reducing denial. -These results support that self-help stress-management interventions can be affective for those in the healthcare profession. -Mobile self-management training offers a solution to the demand for efficient, low-cost, stigma-reducing interventions for stress.</p> <p>Strengths: -Validated measures were used to obtain scores on participants'</p>

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	<p>four weeks. -Each session lasted approximately 15 minutes.</p>				<p>happened” -Administered at baseline</p> <p>Work components: Job Content Questionnaire (JCQ): -35-item tool evaluating job content in terms of: -Psychological job demands (PJD): workload, job demand, and gap between personal skills and job challenges. -Job decision latitude (DL): individual’s perception of autonomous decision making at work. -Social support at work (SSW): the relationship among colleagues and with their boss. -Cronbach’s alpha: 0.72-0.88 -Administered at baseline</p> <p>Analysis: -Utilized SPSS version 18 -A descriptive analysis of the job content was conducted, followed by a two-way multivariate</p>	<p>perceived stress, anxiety levels, coping skills, and work components. -Gaps and limitations of the included literature are thoroughly described and include implications for future research.</p> <p>Limitations: -Small sample size limits generalizability. -Although validated tools, emotional and affective states were measured using self-report questionnaires.</p>

Author / Year / Article	Qual: Concepts or phenomena Quan: Key Variables Hypothesis Research Question	Theoretical Framework	Design / Level of Evidence	Sample (N)	Data Collection (Instruments/Tools)	Findings
					analysis of variance with one between-subjects factor (condition) and one within-subjects factor (time). Changes in trait anxiety and coping skills were analyzed by comparing t-tests to initial and final scores.	
Williams, H., Simmons, L. A., & Tanabe, P. (2015). Mindfulness-based stress reduction in advanced nursing practice: A nonpharmacologic approach to health promotion, chronic disease management, and symptom control.	Review Purpose: to discuss (1) the theory and mechanisms underlying MBSR; (2) the use of MBSR for disease prevention, chronic disease management, and symptom management; (3) how APNs can use MBSR to promote personal wellbeing; and (4) how nurses can refer patients for these interventions, and	No theoretical framework specified for literature review. Theories underlying MBSR: -Intentionally attending with openness and nonjudgmental awareness (IAA; Brown, Ryan, & Creswell, 2007) -Four fundamental concepts: awareness, attention, acceptance, & reperiencing (White, 2014)	A review of correlational/ observational studies Level III	N/A	Search conducted on existing MBSR literature from 1982-2013 Databases searched: CINAHL, PubMed, PsychInfo, PsychArticles, Google Scholar, and EBSCO online Keywords: mindfulness-based stress reduction, MBSR, mindfulness, meditation, and mindfulness-based intervention. Inclusion criteria: -Written in English -Seminal and most recent	Strong evidence supports that MBSR can improve a range of biologic and psychological outcomes in a variety of medical illnesses including: -Neurocognitive pathways -Addictive substances and behaviors -Dietary behaviors, including those with eating disorders -Self-efficacy in lifestyle management -Chronic diseases including hypertension, type II diabetes, & HIV/AIDS

Author / Year / Article	Qual: Concepts or phenomena Quan: Key Variables Hypothesis Research Question	Theoretical Framework	Design / Level of Evidence	Sample (N)	Data Collection (Instruments/Tools)	Findings
	if desired, become MBSR certified to incorporate mindfulness into their own clinical care of patients.				works that discussed biological health outcomes Analysis: Existing literature was classified by clinical applications: (1) preventive health and health enhancement, (2) chronic disease management, and (3) symptom management. The role of MBSR in supporting clinician well-being as it relates to enhanced clinical care was discussed as well.	-Depression -Pain (acute & chronic) -Insomnia -Provider development & self-care Nurses and physicians who have participated in MBSR have demonstrated: -Decreased stress & burnout -Increased life satisfaction, empathy, and self-compassion Implications for Clinical Practice: -MBSR can enhance the patient-provider relationship, improve cognitive processes involved in decision-making, and promote resilience. -Current and future APRNs should be familiar with the benefits of MBSR for both their patients and themselves.

Author / Year / Article	Qual: Concepts or phenomena Quan: Key Variables Hypothesis Research Question	Theoretical Framework	Design / Level of Evidence	Sample (N)	Data Collection (Instruments/Tools)	Findings
						<p>Strengths: -Six databases searched over a span of 30 years -Included a wide variety of research designs -Included only seminal and pertinent works to the review purpose -Included first publication of MBSR in review</p> <p>Limitations: -Lack of a guiding review methodology or standard evaluative tool for appraisal of selected studies -No mention of any study limitations in article</p>
Wood, A. E., Prins, A., Bush, N. E., Hsia, J. F., Bourn, L. E., Earley, M. D., ... & Ruzek, J. (2017). Reduction of burnout in mental health care providers using the	Study objective: To examine the usability, acceptability, and effectiveness of a free Provider Resilience (PR) mobile	No theoretical framework specified.	Mixed methods Level IV	N= 30 outpatient mental health providers from the Veteran's Affairs Puget Sound Health Care System	Measured outcomes: Usability: System Usability Scale (SUS): -10-item questionnaire with 5-point Likert scale -Cronbach's alpha 0.91 -Administered at end of	Usability: -Participants reported using the app with 40% using it once or twice a week, 33% 2-4 times per week, and 27% reported daily use. -There was no

Author / Year / Article	Qual: Concepts or phenomena Quan: Key Variables Hypothesis Research Question	Theoretical Framework	Design / Level of Evidence	Sample (N)	Data Collection (Instruments/Tools)	Findings
provider resilience mobile application.	<p>application designed by the National Center for Telehealth and Technology to reduce provider burnout.</p> <p>Hypothesis: Mental health providers would find the app easy to use, acceptable and beneficial, and effective in reducing burnout and compassion fatigue.</p>			<p>Exclusion criteria: current participation in any other program to reduce burnout Mean age: 42.5 years Mean years working in mental health: 12.5 years Mean years working at VA: 5.6 years</p> <p>Roles: -43% psychologists -30% social workers -13% psychiatric nurses -7% psychiatrists -7% other</p> <p>Race/ethnicity: -80% Caucasian -7% Asian -7% African American</p>	<p>study</p> <p>Acceptability: Provider Resilience Questionnaire (PRQ): -Designed to capture both quantitative and qualitative data. -29-item, closed and open-ended questionnaire to obtain app user feedback on: -How difficult or easy it was to use each feature of app -Perceived benefit of each feature -Open-ended comment section for each feature of app -Administered at end of study</p> <p>Effectiveness: ProQOL- Revision IV: 30-item self-report with a 5-point Likert scale, resulting in three subscales: -Burnout (Cronbach's alpha 0.90)</p>	<p>association between frequency of use and ProQOL scores. -Usability of app rated by participants on SUS average score: 79.7 (top quartile for usability).</p> <p>Acceptability: -97% of respondents reported the CF Tools were easy to use. -67% of participants were likely to recommend the app to a fellow provider.</p> <p>Effectiveness: -ProQOL baseline mean scores: -Burnout: 16.97 -CF/ST: 11.62 -CS: 39.41 -ProQOL post-intervention mean scores: -Burnout: 14.19 (p<0.001) -CF/ST: 8.90 (p<0.001) -CS: 38.59</p>

Author / Year / Article	Qual: Concepts or phenomena Quan: Key Variables Hypothesis Research Question	Theoretical Framework	Design / Level of Evidence	Sample (N)	Data Collection (Instruments/Tools)	Findings
				-3% Hispanic -3% multiethnic Marital status: -61% married -19% never married -13% living with partner -3% divorced	-Compassion fatigue/ Secondary trauma (ST; Cronbach's alpha 0.97) -Compassion satisfaction (CS; Cronbach's alpha 0.87) -Administered twice, at baseline and after one month of app use Additional exploratory measures of symptom distress, interpersonal functioning, and social role functioning: Outcome Questionnaire 45 (OQ-45): -45-item self-report measure that captures functioning in three domains: -Symptom distress (anxiety & depression; Cronbach's alpha 0.91) -Interpersonal functioning (Cronbach's alpha 0.74) -Social role functioning (Cronbach's alpha 0.71) -Administered twice, at baseline and after one month of app use	-Significant decreases in burnout and CF/ST were observed. -There was no significant difference in CS. Additional exploratory measures: -OQ-45 baseline mean scores: -Symptom distress: 23.23 -Interpersonal: 8.53 -Social role: 8.97 -Total: 40.73 -OQ-45 post- intervention mean scores: -Symptom distress: 22.87 -Interpersonal: 9.53 (p=0.04) -Social role: 9.07 -Total: 41.47 -No significance in scores -CD-RISC baseline mean score: 76.47

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					<p>Connor-Davidson-Resilience Scale (CD-RISC): -25-item self-report measure using 5-point Likert scale to evaluate overall resilience (Cronbach's alpha 0.89) -Administered twice, at baseline and after one month of app use</p> <p>Analysis: Usability: Participant responses tallied and mean score of SUS compared to national norms.</p> <p>Acceptability: Participant responses tallied. PQR Likert scales divided into four categories (easy to use/ beneficial, neutral, not easy/ not beneficial, and not used). Subjective comments were also categorized and summarized.</p>	<p>-CD-RISC post-intervention mean score: 75.33 -No significance in scores</p> <p>Implications for Clinical Practice: -Use of the app for one month was shown to significantly decrease burnout and CF/ST in mental health providers. -This suggests that the app could be implemented in similar populations to reduce CF and burnout. -The app can provide consistent availability, accessibility, and convenience which can reach overburdened providers who would most benefit from the app.</p> <p>Strengths: -Various validated tools were used for</p>

Author / Year / Article	Qual: Concepts or phenomena Quan: Key Variables Hypothesis Research Question	Theoretical Framework	Design / Level of Evidence	Sample (N)	Data Collection (Instruments/Tools)	Findings
					Effectiveness: Paired-sample t-tests were conducted using SPSS-19 on the ProQOL, OQ-45, and CD-RISC.	<p>measurement of outcomes.</p> <ul style="list-style-type: none"> -Bonferroni corrections were used to compensate for using multiple analyses. -Gaps and limitations of the included literature are thoroughly described and include implications for future research <p>Limitations:</p> <ul style="list-style-type: none"> -Small sample size, lack of control group, and relatively psychologically healthy sample limit generalizability.

APPENDIX B:
DEMOGRAPHIC QUESTIONNAIRE

Demographic Questionnaire

Study Information

Completion of this questionnaire implies your consent to participate in the project: Limiting Emergency Nurse Practitioner Compassion Fatigue Using Mobile Self-Care Reminders. This questionnaire is voluntary and anonymous. Participation or non-participation will not affect your employment.

Launching the mobile application and completing the daily self-assessment of compassion fatigue takes one to two minutes. This self-assessment will update your overall Resilience Rating. When your Resilience Rating falls within the red or blue areas of the color spectrum, please use your preferred compassion fatigue tool embedded within the mobile application. After 30 days of application use, you will complete a repeat Professional Quality of Life (ProQOL) assessment to measure effectiveness of the application and an end user experience survey to measure usability of the application.

Inclusion Criteria Verification

Are you currently participating in any other program to limit compassion fatigue?

- Yes
 No

Age

- 0-25
 26-30
 31-35
 36-40
 41-45
 46-50
 51-55
 56+

Gender

- Male
 Female

Years working in the medical field

- 0-3
- 4-6
- 7-9
- 10-12
- 13+

Years working in BUMC/ ED

- 0-3
- 4-6
- 7-9
- 10-12
- 13+

Years working as a NP/ PA

- 0-3
- 4-6
- 7-9
- 10-12
- 13+

Marital status

- Married
- Never married
- Living with partner
- Divorced

APPENDIX C:
PROVIDER RESILIENCE PROQOL ASSESSMENT

Provider Resilience ProQOL Assessment

Provider Resilience	Provider Resilience	Provider Resilience
<p>PROFESSIONAL QUALITY OF LIFE</p> <p>When you work with people you have direct contact with their lives. As you may have found, your compassion for those you treat can affect you in positive and negative ways.</p> <p>Following are statements about your experiences as a therapist/health care provider, both positive and negative.</p> <p>Consider each of the statements about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>This should take about 5 minutes.</p> <p>Continue</p>	<p>1 of 30</p> <p>I am happy.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p>	<p>2 of 30</p> <p>I am preoccupied with more than one person I treat.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p>
<p>Dashboard Tools Value Cards Help Settings</p>	<p>Dashboard Tools Value Cards Help Settings</p>	<p>Dashboard Tools Value Cards Help Settings</p>

Provider Resilience	Provider Resilience	Provider Resilience
<p>PROFESSIONAL QUALITY OF LIFE</p> <p>3 of 30</p> <p>I get satisfaction from being able to help people.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p>	<p>4 of 30</p> <p>I feel connected to others.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p>	<p>5 of 30</p> <p>I jump or am startled by unexpected sounds.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p>
<p>Dashboard Tools Value Cards Help Settings</p>	<p>Dashboard Tools Value Cards Help Settings</p>	<p>Dashboard Tools Value Cards Help Settings</p>

<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>6 of 30</p> <p>I feel invigorated after working with those I treat.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>	<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>7 of 30</p> <p>I find it difficult to separate my personal life from my life as a therapist/health care provider.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>	<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>8 of 30</p> <p>I am not as productive at work because I am losing sleep over traumatic experiences of a person I treat.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>
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<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>9 of 30</p> <p>I think I might have been affected by the traumatic stress of those I treat.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>	<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>10 of 30</p> <p>I feel trapped by my job as a therapist/health care provider.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>	<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>11 of 30</p> <p>Because of my work, I have felt "on edge" about various things.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>
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Provider Resilience	Provider Resilience	Provider Resilience
PROFESSIONAL QUALITY OF LIFE	PROFESSIONAL QUALITY OF LIFE	PROFESSIONAL QUALITY OF LIFE
12 of 30	13 of 30	14 of 30
I like my work as a therapist/health care provider.	I feel depressed because of the traumatic experiences of the people I treat.	I feel as though I am experiencing the trauma of someone I have treated.
<div style="display: flex; justify-content: space-around;"> 1 2 3 4 5 </div> <div style="display: flex; justify-content: space-around; font-size: small;"> Never Rarely Sometimes Often Very Often </div>	<div style="display: flex; justify-content: space-around;"> 1 2 3 4 5 </div> <div style="display: flex; justify-content: space-around; font-size: small;"> Never Rarely Sometimes Often Very Often </div>	<div style="display: flex; justify-content: space-around;"> 1 2 3 4 5 </div> <div style="display: flex; justify-content: space-around; font-size: small;"> Never Rarely Sometimes Often Very Often </div>
Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i> .	Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i> .	Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i> .

Provider Resilience	Provider Resilience	Provider Resilience
PROFESSIONAL QUALITY OF LIFE	PROFESSIONAL QUALITY OF LIFE	PROFESSIONAL QUALITY OF LIFE
15 of 30	16 of 30	17 of 30
I have beliefs that sustain me.	I am pleased with how I am able to keep up with treatment techniques and protocols.	I am the person I always wanted to be.
<div style="display: flex; justify-content: space-around;"> 1 2 3 4 5 </div> <div style="display: flex; justify-content: space-around; font-size: small;"> Never Rarely Sometimes Often Very Often </div>	<div style="display: flex; justify-content: space-around;"> 1 2 3 4 5 </div> <div style="display: flex; justify-content: space-around; font-size: small;"> Never Rarely Sometimes Often Very Often </div>	<div style="display: flex; justify-content: space-around;"> 1 2 3 4 5 </div> <div style="display: flex; justify-content: space-around; font-size: small;"> Never Rarely Sometimes Often Very Often </div>
Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i> .	Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i> .	Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i> .

<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>18 of 30</p> <p>My work makes me feel satisfied.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>	<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>19 of 30</p> <p>I feel worn out because of my work as a therapist/health care provider.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>	<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>20 of 30</p> <p>I have happy thoughts and feelings about those I treat and how I could help them.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>
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<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>21 of 30</p> <p>I feel overwhelmed because my case load seems endless.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>	<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>22 of 30</p> <p>I believe I can make a difference through my work.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>	<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>23 of 30</p> <p>I avoid certain activities or situations because they remind me of frightening experiences of the people I treat.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>
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<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>24 of 30</p> <p>I am proud of what I can do to help.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>	<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>25 of 30</p> <p>As a result of my work, I have intrusive, frightening thoughts.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>	<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>26 of 30</p> <p>I feel "bogged down" by the system.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>
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<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>27 of 30</p> <p>I have thoughts that I am a "success" as a therapist/health care provider.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>	<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>28 of 30</p> <p>I can't recall important parts of my work with trauma victims.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>	<p>Provider Resilience</p> <p>PROFESSIONAL QUALITY OF LIFE</p> <p>29 of 30</p> <p>I am a very caring person.</p> <p>1 2 3 4 5 Never Rarely Sometime Often Very Often</p> <p>Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the <i>last 30 days</i>.</p> <p>Dashboard Tools Value Cards Help Settings</p>
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Provider Resilience

PROFESSIONAL QUALITY OF LIFE

30 of 30

I am happy that I chose to do this work.

1 2 3 4 5

Never Rarely Sometime
s Often Very
Often

Consider the above statement about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the *last 30 days*.

Dashboard Tools Value Cards Help Settings

APPENDIX D:
BURNOUT VISUAL ANALOG SCALE

Burnout Visual Analog Scale

Provider Resilience

Burnout Survey

How would you describe yourself as you approach your work today?

Not at All **Happy** Very Much So

Not at All **Trapped** Very Much So

Not at All **Satisfied** Very Much So

Not at All **Preoccupied** Very Much So

Not at All **Connected** Very Much So

Not at All **Worn Out** Very Much So

Provider Resilience

Burnout Survey

How would you describe yourself as you approach your work today?

Not at All **Worn Out** Very Much So

Not at All **Caring** Very Much So

Not at All **On Edge** Very Much So

Not at All **Valuable** Very Much So

Not at All **Traumatized** Very Much So

Submit

Dashboard Tools Value Cards Help Settings

Dashboard Tools Value Cards Help Settings

APPENDIX E:
END USER EXPERIENCE SURVEY

End User Experience Survey

Please indicate how often you used the *Provider Resilience* application in the last 30 days below:

1-2 days per week 1	3-4 days per week 2	5-6 days per week 3	Daily 4
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Please rate each component of the *Provider Resilience* application below:

Dashboard

Not Used 1	Not Easy to Use/Not Beneficial 2	Neutral 3	Easy to Use/Beneficial 4
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Resilience Ratings

Not Used 1	Not Easy to Use/Not Beneficial 2	Neutral 3	Easy to Use/Beneficial 4
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ProQOL Ratings

Not Used 1	Not Easy to Use/Not Beneficial 2	Neutral 3	Easy to Use/Beneficial 4
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Countdown clock

Not Used 1	Not Easy to Use/Not Beneficial 2	Neutral 3	Easy to Use/Beneficial 4
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CF videos

Not Used 1	Not Easy to Use/Not Beneficial 2	Neutral 3	Easy to Use/Beneficial 4
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Physical exercise

Not Used 1	Not Easy to Use/Not Beneficial 2	Neutral 3	Easy to Use/Beneficial 4
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“Why I do this” videos

Not Used 1	Not Easy to Use/Not Beneficial 2	Neutral 3	Easy to Use/Beneficial 4
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ProQOL Helper Pocket Cards

Not Used 1	Not Easy to Use/Not Beneficial 2	Neutral 3	Easy to Use/Beneficial 4
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Value Cards

Not Used	Not Easy to Use/Not Beneficial	Neutral	Easy to Use/Beneficial
1	2	3	4

ProQOL graph

Not Used	Not Easy to Use/Not Beneficial	Neutral	Easy to Use/Beneficial
1	2	3	4

Burnout graph

Not Used	Not Easy to Use/Not Beneficial	Neutral	Easy to Use/Beneficial
1	2	3	4

APPENDIX F:
THE UNIVERSITY OF ARIZONA INSTITUTIONAL REVIEW BOARD APPROVAL
LETTER



Human Subjects
Protection Program

1618 E. Helen St.
P.O. Box 245137
Tucson, AZ 85724-5137
Tel: (520) 626-6721
<http://hgw.arizona.edu/compliance/home>

Date: May 16, 2019
Principal Investigator: Johnna Marie Carrig
Protocol Number: 1905619281
Protocol Title: Limiting Emergency Nurse Practitioner Compassion Fatigue Using Mobile Self-Care Reminders
Determination: Human Subjects Review not Required

Documents Reviewed Concurrently:

HSPF Forms/Correspondence: *Carrig_IRB Form (Revision 2).pdf*

Regulatory Determinations/Comments:

- Not Research as defined by 45 CFR 46.102(l): As presented, the activities described above do not meet the definition of research cited in the regulations issued by U.S. Department of Health and Human Services which state that "Research means a systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to generalizable knowledge. Activities that meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program that is considered research for other purposes. For example, some demonstration and service programs may include research activities. For purposes of this part, the following activities are deemed not to be research."

The project listed above does not require oversight by the University of Arizona.

If the nature of the project changes, submit a new determination form to the Human Subjects Protection Program (HSPP) for reassessment. Changes include addition of research with children, specimen collection, participant observation, prospective collection of data when the study was previously retrospective in nature, and broadening the scope or nature of the study activity. Please contact the HSPP to consult on whether the proposed changes need further review.

The University of Arizona maintains a Federalwide Assurance with the Office for Human Research Protections (FWA #00004218).

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