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Predictors Of Professional Quality Of Life In Rural Nurses

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PREDICTORS OF PROFESSIONAL QUALITY OF LIFE IN RURAL NURSES

by

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Abstract

Worldwide nursing shortages have led to an increased burden on healthcare systems, and this is especially true in already underserved, remote, and rural areas, where access to healthcare is limited and the loss of highly-skilled nursing professionals is deeply-felt. Professional quality of life (ProQOL) has been studied as a major influence on nurses' wellbeing, job satisfaction, burnout rates, turnover rates, and quality of care. While certain job-related factors that impact nurses' ProQOL outcomes have been identified – excessive workload, exposure to trauma, financial strain due to low wages, lack of or over-emotional engagement in the workplace, individual disposition – certain social factors that impact nurses' ProQOL have been less well-researched, especially from a systems-change perspective. The current study aims to investigate social predictors of ProQOL outcomes in rural nurses using data from a 2019 study (currently in-progress) on nurse intent to stay in their current positions/geographic locations. Confirmatory factor analysis was used to test ProQOL model fitness and covariance-based SEM was used to test proposed hypotheses.

Keywords: professional quality of life, nurse turnover, burnout, compassion satisfaction, compassion fatigue, rural nursing, rurality

Predictors of Professional Quality of Life in Rural Nurses

Turnover rates in nursing professions have been a major concern for healthcare systems for more than a decade. Researchers have investigated the factors that may contribute to this critical issue – from retention and recruitment practices to generational differences in nursing personnel, to the shifting and conflicting values of employees and employers (Hayes et al., 2012) – and have discovered a layered and complicated network of problems (and some best practices) at both individual and systems levels, with major consequences in terms of both quality of care and economic strain. According to the Advisory Committee on Interdisciplinary, Community-Based Linkages (ACICBL)'s 2008 report to the Secretary of the US DHHS and Congress on healthcare workforce issues in rural America, these shortages are most severe in rural communities, where healthcare systems suffer from a lack of health specialty providers in addition to shortage in providers and non-physicians in general, where poor access to healthcare further limits patient-provider contact.

Given the changing and growing healthcare needs of the nation thanks to population growth and aging, addressing the national nursing shortage is critical. Most research currently targets issues within the immediate workplace environment/culture that impact professional quality of life (burnout, stress, and fatigue, which influences intent to leave an employer). In response to these research efforts, new policies have been developed and trialed in various settings and have addressed issues such as workplace violence and bullying, assertive communication, best management practices, employee self-care, loan repayment and improvements in employee pay and benefits, and mentor- and preceptorships to better prepare entry-level nurses. Still, nurse turnover rates in geographically remote places remain high, with many new young, motivated, and highly-skilled nurses seeking employment in more

metropolitan or metropolitan-adjacent areas and reporting poor quality of life in rural

employment. The present study aims to investigate the potential driving factors that influence

rural nurses' professional quality of life and, thus, turnover intention.

Factors that Contribute to Nurse Turnover

A review of research literature on nurse turnover reveals some common themes related to

nurses' intent to stay or leave their employers worldwide, including issues of workplace culture

(Ceravolo et al., 2012; Leong & Crossman, 2016; Trepanier et al., 2015), group cohesion and

communication (Brunetto et al.,2013; Ceravolo et al., 2012), and complaints of inadequate pay,

high workload, and low job satisfaction. According to an editorial review of nursing workforce

shortages:

> "The working conditions of nurses always have been recognized as difficult, but higher
>
> levels of acuity and shortened lengths of stay, for example, are believed to be at least
>
> partially responsible for the increase in attrition. […] not only does this create vacancies
>
> that are hard to fill, but nursing students are often first exposed to the practice of nursing
>
> in a highly stressed environment, far from an ideal introduction to our potential future
>
> workforce." (Happell, 2009)

This initial exposure to nursing in high-stress environments has, indeed, impacted new

nurses' outlook on their careers. Data on the relationship between nursing workplace culture and

nurse turnover is of particular importance as healthcare systems seek to reduce nurse attrition and

improve quality of care for patients. Lateral violence between coworkers (including bullying,

disrespectfulness, and overt verbal, emotional, and physical abuse) is a widespread and troubling

issue faced by nurses, impacting both workforce retention and quality of care provided (Ceravolo

et al., 2012). Collaborators on an international study used confirmatory factor analysis to

examine a model of nurse turnover in Australia and the US and found that nurse well-being was often overlooked by nurse managers in both countries, and that this factor had the greatest impact on nurse turnover (Brunetto et al., 2013). Engagement and commitment, as well as supervisory-subordinate relationships, also influenced turnover intention and rates in Australia, but less so in the US, which the the authors hypothesized could be due to American nurse supervisors' relatively limited power within the greater healthcare system and thus their decisions have minimal impact on nurses' wellbeing. According to Roberts et al. (2009), these sorts of issues have led to oppressed group behavior in nurses, which have been observed for quite some time; nurses (the oppressed group, in this instance) feel ignored and undervalued by nurse leaders and healthcare systems administrators (the dominant group), which leads to less self-advocacy, lowered team cohesion and trust in administrators, poor self-efficacy, lateral violence, and decreased care quality.

This creates a pattern of mistrust and miscommunication, leading to a toxic and intolerable work environment. For example, when it comes to recruitment and retainment of new nurses into the workforce, bullying from senior nurses in the form of "tough love" is often, in effect, detrimental. One study examining the effects of what senior nurses and higher-ranking healthcare workers (e.g., MDs) would consider to be "tough love" on new nurses found that, contrary to the seniors' intentions – placing high expectations on novices so as to improve their skills and prepare them for a long career of caring for patients – new nurses reported feeling attacked, mocked, ridiculed, and unable to please their superiors or feel confident in their work (Leong & Crossman, 2016). Another study yielded similar results, with workplace bullying among nurses leading to greater burnout and turnover intent after 12 months (Trepanier, 2015). Nurses who feel unempowered, unsupported, and unappreciated are then more likely to leave

their employers, further straining the already-troubled system (Roberts et al., 2009). In contrast, when nurses' basic needs in the workplace are being met, turnover intent is curbed and job satisfaction improves (Trepanier, 2015).

Rurality appears to exacerbate these issues. Some common challenges faced by nurses working in rural areas include occupational stress (Kulig et al., 2018; Stewart et al., 2011; Opie et al., 2010), dissatisfaction with pay and working conditions (Delobelle et al., 2011; Meyer et al., 2014; Opie, et al., 2010; Stewart, et al., 2011), low engagement in the workplace (Havens et al., 2013; Sawatzky & Enns, 2012) and the community (Kulig, et al., 2018) or, in contrast, over-engagement in the workplace (Opie, et al.,, 2010) and lack of support for new nurses (Lea & Cruickshank, 2015; Opie, et al., 2011). In regions with a paucity of advanced healthcare practitioners, nurses are often required to take on extra professional duties, sometimes without needed training (Hegney, 1996, cited in Albion et al., 2005).

In a national survey of Australian healthcare workers in geographically remote locations, nurses were found to have significantly poorer outcomes on measures of perceived organizational climate, reported greater strain and lower morale, job satisfaction, and quality of life than other healthcare professionals, along with a relatively high intent to leave compared to some healthcare professionals (Albion et al., 2005). Furthermore, nurses working in large regional hospitals – perhaps the only source of healthcare in an underserved region – reported even greater levels of high workload and low levels of appraisal and recognition from administrators and other leaders. Hunsberger et al. (2009) found that nurses in rural Canada frequently faced resource shortages – whether it be equipment or social and administrative support – and this created feelings of powerlessness and frustration and increased work dissatisfaction. Nurses additionally report having little autonomy or say-so when it comes to

managing patient care or affecting workplace policies that could improve care delivery, which worsens dissatisfaction and leads to stronger desires to leave their employer(s).

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Professional Quality of Life

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The challenges – dissatisfaction, low engagement, excessive workload – and benefits – connection to community, team cohesion, sense of safety – experienced by nurses, including those in rural settings, can be conceptualized as professional quality of life. This concept, as defined by Stamm (2010), is "the quality one feels in relation to their work as a helper [and includes] both the negative and positive aspects of doing one's job…" and their impact on one's overall sense of satisfaction and wellbeing related to their professional role. When measured using the Professional Quality of Life Scales (the ProQOL-5 is the most recent edition), the construct is further broken down into 3 factors: Burnout, Secondary Traumatic Stress, and Compassion Satisfaction. Researchers have measured the professional quality of life in those in caring professions such as healthcare providers, mental healthcare providers, social workers, and other professionals whose jobs require empathy and empathetic behaviors (i.e., compassion), and have discovered the three factors of ProQOL can predict certain emotional and behavioral outcomes in such professionals, including turnover potential and quality of care. ProQOL may also be a useful way to objectively identify caregiving professionals who may be struggling and could benefit from intervention/assistance from leaders, coworkers, and staff, as maximizing the amount of compassion satisfaction (see page 14) one gains through their work is both a protective factor for the employee and, from an employer's perspective, aids in reducing turnover intent.

The Importance of Compassion

The Centre for Compassion and Altruism Research and Education operationalized the term "compassion" as "a process that unfolds in response to suffering [beginning] with the recognition of suffering, which gives rise to thoughts and feelings of empathy and concern. This, in turn, motivates action to relieve that suffering." (Cited in Ledoux, 2015) To be a professional caregiver, such as a nurse – someone who is dedicated to relieving suffering – requires an exceptional degree of compassion for others. Indeed, nurses and other caregivers are typically the first to see individuals on their worst days and in extreme physical, emotional, and mental distress. As such, nurses are often exposed to the "ugly side" of humanity, since highly distressed people are rarely polite, respectful, coherent, receptive, or even amenable to treatment. Many times, nurses are the first to greet patients who have experienced significant trauma, and these nurses are required to remain calm, to problem-solve/triage, and ensure the preservation of life while bearing close witness to extreme forms of human suffering. Nursing professionals, including educators, place great emphasis on providing compassionate care to those in need, as evidenced by the wide body of research conducted on such concepts.

McCaffrey and McConnell (2015) conducted a review of nursing literature published between 1952 and 2013 to capture a broad overview of compassion's role in the field of nursing. Their search revealed four major themes within the literature: (1) compassion as practice, (2) compassion as a moral virtue, (3) compassion and professionalism, and (4) the influence of institutionalized care on compassion expression. (McCaffrey & McConnell, 2015) Most, if not all, professionals seem to be in consensus that "compassion" in caregiving is an *action* word, implying nurses, helpers, and caregivers have empathy for their patients' suffering, and this empathy prompts them to act in such a way as to relieve the suffering. Many authors consider compassion to be a virtue of character (Armstrong et al., 2000; von Dietze & Orb, 2000; Jull,

2001; Schantz, 2007; Bradshaw, 2009; Burnell, 2009; cited in McCaffrey & McConnell, 2015),

which must be either a pre-existing trait in prospective nurses or be fostered through proper

training and guidance from mentors. Authors expressed concerns that a focus on hyper-

professionalism – driven by efficiency, calculability, predictability, and control – is threatening

to undermine the role of compassion in caregiving and the necessary emotional experience

needed to provide quality care to others.

Perhaps the most provocative theme found by McCaffrey and McConnell (2015) is this

emerging discourse on the effects of institutionalized care, bureaucracy, and political pressures

on nurses' ability to express compassion or provide compassionate care. In particular, they noted

one study (Crawford et al., 2013; cited in McCaffrey & McConnell, 2015) which examined

mental health clinicians' attitudes and conceptualizations of what compassion means to the field,

but instead revealed a "preoccupation with [hitting] targets, managerial processes, and resource

shortages." They concluded that bureaucratic pressure from institutions may be shifting nurses'

focus away from virtues such as compassion and altruism and introducing undue pressure to

perform along company guidelines. Other authors expressed similar concern and frustration with

increased political and corporate involvement in caregiving, declaring that rising emphasis on the

forces driving the healthcare market along with "uncritical application of evidence" (Georges,

2011; cited in McCaffrey & McConnell, 2015) in the name of frugality and maximized

efficiency have been detrimental to facilitating a compassionate caregiving environment.

Institutional pressures to be productive and efficient combined with high demands for

empathy have placed nurses in a challenging position: they must perform their duties as outlined

by the facility in which they work, provide seemingly boundless compassion to others, and still

care for themselves. As the Baby Boomer generation continues to enter long-term care in droves,

market demand for skilled nursing staff increases. This has presented challenges for compassion maintenance in nurses who report feeling overworked, underpaid, and underappreciated by the healthcare systems they sustain.

Burnout, Secondary Traumatic Stress, and Compassion Fatigue

Burnout, as it pertains to work performance, has been defined as a state of exhaustion, depersonalization, and lowered sense of accomplishment that can occur due to a mix of heightened work demands, personal disposition, and accumulation of stress (Freudenberger, 1974; Maslach & Jackson, 1986; Schaufeli & Buunk, 1996). This phenomenon has been widely researched and well-documented for over 40 years and has been applied as a concept to a variety of work environments. Health professions in particular have been examined for burnout rates and factors that contribute to clinical worker burnout. As expected, burnout can negatively affect nurses' capacity to behave compassionately and, as such, understanding factors that contribute to such mental exhaustion is necessary for instructors and trainers to effectively prepare new nurses for the workforce, and for employers to actively protect their nursing staff against harm, thereby protecting their clients. Subjective workload, individual attitudes toward work (highly-committed nurses are more sensitive to stressors than others), job satisfaction, level of autonomy, role conflict and ambiguity, lack of social support, hostile work environment, and low resilience have all shown strong positive relationships to burnout development in professionals (Schaufeli & Buunk, 1996). Further, burnout is not limited to work environments; "spillover" effects from work burnout into school or family life and from school and family burnout into work have recently been studied, and findings suggest that inter-stressor interactions occur and produce a multiplicative effect on overall occupational burnout (Hakanen & Bakker, 2017). In one diary study in which teachers were asked to record their day-to-day levels of job satisfaction, stress,

and burnout, Xanthopoulou and Meier (2014) found that job burnout varied with both stressors, such as conflicts with parents/principals, and available respite periods, such as vacation days or time allowed for self-care.

Researchers have pointed out that, despite actions taken by the federal government to mandate the provision of person-centered compassionate care – for example, the Patient Protection and Affordable Care Act of 2010 – funding cuts, bureaucratic red tape, and mismanagement have stripped administrators' ability to provide the sort of high-quality care that patients need (Luther et al., 2017). Pressure to trim costs and work within a budget results in understaffing and scarce resources (another contributor to burnout, according to Xanthopoulou & Meier, 2014), leading to increased workload for direct care professionals and heightened stress derived from demands of their own position as well as trickledown stress from superiors (Luther et al., 2017). In many cases, nursing staff are asked to work overtime to make up for drops in overall staff positions and this practice has been connected to reduced work satisfaction, care quality, patient safety, and patient satisfaction (Griffiths, 2014; Stimpfel & Aiken, 2013; Stimpfel et al., 2012; cited in Luther et al., 2017).

A related but separate phenomenon known as secondary traumatic stress (STS) has likewise been shown to impact healthcare professionals' work performance. Secondary traumatic stress is a vicarious form of acute stress and post-traumatic stress which affects people who work closely with trauma sufferers or people who are required to learn extensively – through research or readings – about trauma (Ludick & Figley, 2017). The current body of research on STS, spearheaded by Charles Figley in 1982 (he then termed it "secondary victimization"), has focused mainly on professionals involved in direct work with traumatized or institutionalized persons – in hospitals, nursing or rehabilitation facilities, or mental health facilities – and for

good reason; STS is associated not only with worker dissatisfaction, stress, and mental health

deterioration, but also with self-reported decreases in quality of care delivery (Luther et al.,

2017) which may impact patients' overall recovery, satisfaction, and wellbeing, though this sort

of transference has not yet been thoroughly examined.

A last important and well-documented phenomenon which impacts nurses' capacity for

caregiving is compassion fatigue (CF). The term appears to have been first used by Carol Joinson

(1992) to specifically explain an observed drop in nurse and physician altruism over time. She

postulated that otherwise compassionate nurses may begin to over-empathize with traumatized

patients, experience secondary trauma from interacting with said patients, and become

empathetically burned out and unable to provide adequate care. Since then, confusion

surrounding the term has resulted in varying operational definitions of "compassion fatigue;"

while some use it interchangeably with STS and burnout (Valent, 2002; Keidel, 2002; Yoder,

2010; cited in Ledoux, 2015), other authors believe that it either arises from a combination of

STS and burnout (Meadors & Lamson, 2008; Yoder, 2010; cited in Ledoux, 2015) or that it is a

natural progression from STS alone (Abendroth & Flannery, 2006, Alkema et al., 2008; Robins

et al., 2009; Burtson & Stichler, 2010; Hooper et al., 2010, Potter et al., 2010; cited in Ledoux,

2015).

For purposes of this study, CF will be defined using Coatzee and Klopper's (2010)

conceptualization as "the final result of a progressive and cumulative process that is caused by

prolonged, continuous, and intense contact with patients, the use of self, and exposure to stress."

Nurses may often experience a normal level of compassion discomfort – a sort of emotional

exhaustion – that can typically be relieved through some form of rest or self-care. If unable to

rest, however, the nurse's discomfort may progress to compassion stress that overwhelms their

resiliency, resulting in overt compassion fatigue. This fatigue appears to drain nurses physically,

mentally, and socially, and it markedly diminishes their ability to empathize with and behave

altruistically toward patients (Coatzee & Klopper, 2010; Gleichgerrcht & Decety, 2013). As

previously stated, researchers have typically used a variation of Figley & Stamm's (1988)

Professional Quality of Life (ProQOL) measure (then called the Compassion Fatigue Self-

Report) to assess overall level of empathetic functioning based on three contributing factors:

compassion satisfaction, burnout, and secondary traumatic stress (Stamm, 2010).

    Researchers in Australia used the ProQOL inventory to assess compassion satisfaction,

STS, and burnout in enrolled and registered nurses working in a hospital. They found that

burnout and STS were associated with higher anxiety and depression, and that higher anxiety

levels in general were correlated with younger nurses who worked full-time, without

postgraduate training (Hegney et al., 2014). Later, a similar study in Australia examined the

relationship between dispositional factors – in this case, trait-negative affect (TNA) – and

compassion satisfaction and compassion fatigue. People who have typically TNA are more likely

to experience negative emotions such as guilt, general distress, nervousness, and frustration,

especially when they are challenged in some way. According to nurses' responses to self-report

questionnaires regarding ProQOL and state/trait anxiety, nurses who reported more TNA

experienced more compassion fatigue, STS, and burnout. Nurses who reported less TNA

experienced more compassion satisfaction and less burnout and, while this did not necessarily

protect them from experiencing STS, they appeared to be better-equipped to cope with its effects

(Craigie et al., 2016). They indicated that facilitating compassion satisfaction in nurses would

likely be key to protecting them from overall compassion fatigue.

Ludick and Figley's (2017) recently-proposed model of STS's driving mechanisms breaks down the contributing factors into three main "sectors:" (1) the empathic stance/response, which consists of workers' exposure to suffering, empathic *concern* for others, empathic *abilities*, and empathic *response* (i.e., compassionate behavior); (2) secondary traumatic stress, referring to the state of vicarious trauma experienced by workers in contact with traumatized or ailing persons and including individual traumatic memories and other life stressors/demands; and (3) compassion fatigue resilience (CFR), what Ludick and Figley (2017) refer to as "the salutogenic opposite of STS," a protective factor that professionals can reach through the "positive pathways" of the model. Fostering CFR purportedly requires a certain sense of job and compassion satisfaction, reliance on good social supports, detachment/compartmentalization of work-related emotionally-taxing matters, and committing to self-care. This three-sector model offers a clear picture of contributing factors to compassion fatigue and its effects on nurse wellbeing and service delivery and goes further by suggesting methods to combat fatigue and help nurses maintain their compassionate behaviors.

Compassion Satisfaction

If compassionate feelings and behavior exist on a spectrum, the opposite of compassion fatigue is compassion satisfaction (CS), defined by Stamm (2010) as the positive aspects of helping others. Compassion satisfaction, much like compassion fatigue, has been shown to be influenced by work environment, client/patient environment, and the personal/social environment of the helping individual (Kulkarni et al., 2013; Li et al., 2014; Stamm, 2010). Compassion satisfaction has an additional protective quality according to a wide body of research, helping nurses and others in helping professions stave off symptoms of CF, STS, and BO (Butler et al., 2017; Cicognani et al., 2009; Delaney, 2018; Duarte et al., 2016; Kularni, et

al., 2013; Li et al., 2014; Samios et al., 2013). For example, one team of researchers found that among social work trainees, higher stress and trauma exposure were related to increased BO and STS and declining health status, and higher levels of self-care among trainees were related to more CS, which then acted to *mitigate* the harmful effects of BO and STS, improving overall quality of life and enhancing trainees' ability to cope with traumatic field work (Butler et al., 2017).

Regarding the potential mechanisms of action underlying CS's apparent buffering effect of poor quality of life outcomes, Samios et al. (2013) conducted a study based on the broaden-and-build theory of positive emotions, which states that positive emotionality widens one's attentional focus and allows for the building of stronger emotional resources (i.e., resilience) with which to handle stress. Their research suggested a direct pathway between positive emotions and compassion satisfaction, such that mental healthcare providers who experienced greater positive emotionality were more likely to feel compassion satisfaction than those with lower positive emotionality. It seems to be important, then, that nurses (and other helping professionals) be able to feel and expand on positive emotions in the workplace to help protect them from the effects of chronic stress exposure while performing their work duties.

The protective nature of CS and its relationship to workplace culture are of particular interest as healthcare systems have an opportunity to prevent turnover by supporting staff wellbeing. Researchers found that certain organizational factors contribute to healthcare providers' quality of life and noted that mismatch between employee and employer values were a major detriment to compassion satisfaction and increased reported burnout symptoms (Kulkarni et al., 2013). Additionally, this research team found that leisure time alone was not an effective self-care strategy for relieving burnout and increasing compassion satisfaction. In other words,

giving providers time away from their jobs and lessening their workloads is not, on its own,

enough to protect those providers from feeling overwhelmed, dissatisfied, and fatigued by their

compassion. Rather, employers may find more success through the development of programs and

policies that improve working conditions and culture (i.e., addressing the problem rather than the

symptoms).

It appears that providing coping strategies and fostering a work environment that is

protective of nurses' compassion stores is crucial to increasing their sense of satisfaction and

efficacy. For example, a pilot study in Scotland demonstrated improvements in nurses'

experience of compassion fatigue/satisfaction and increased resiliency following implementation

of an 8-week Mindful Self-Compassion program (Delaney, 2018). Group cohesion and

organizational commitment among a sample of nurse residents was examined by Li et al. (2014)

and the team found that both were protective against compassion fatigue and job dissatisfaction,

and that organizational commitment was further related to the *maintenance* of compassion

satisfaction as well as being fatigue-preventative. Further, Cicognani et al. (2009) examined

broad professional quality of life outcomes in emergency workers and found their degrees of

reported compassion satisfaction were positively correlated with senses of self-efficacy and

community efficacy as well as active coping strategies rather than avoidance when dealing with

post-traumatic or secondary traumatic experiences, indicating a sense of connectedness with and

confidence in the workplace community is crucial to the quality of life of healthcare

professionals.

Predictors of ProQOL

Nurse ProQOL may be additionally determined, in part, by individual socioemotional

functioning. Given the importance of nurses' ability to demonstrate compassionate behavior in

long-term care facilities, employers, instructors, and researchers in the field are understandably interested in the roles individual disposition or personality traits in emerging nurses may play in care delivery. The interactions between nurse disposition, compassionate behaviors and motivations, and compassion fatigue add further layers to the complex task of determining which nurses are ready for caregiving work as well as for developing training programs that foster growth of adaptive skills which protect against burnout, stress, and fatigue.

Gleichgerrcht and Decety (2013) used preceding research suggesting that increased burnout and compassion fatigue symptoms could be indicative of higher anxiety in nurses as well as less altruistic behavior toward patients, to investigate the manifestations of empathy in clinical practice. Using Stamm's model of CF, they surveyed 1000s of doctors using measures of altruism, empathy, professional quality of life (Stamm's ProQOL), and alexithymia (an inability to identify and describe emotions in the self) to determine the effect of empathy on caregiving and burnout. They found that gender played a major role in doctors' experiences, with females reporting more overall empathic sensitivity and distress, and males feeling more valued by their patients, colleagues, and loved ones. Years of experience in the field appeared to have little-to-no effect on empathy, disposition, or patient interaction, but the interaction between professional quality of life and doctor disposition was strong (Gleichgerrcht, & Decety, 2013). Other studies have also demonstrated a connection between gender and ProQOL outcomes and/or intent to leave a position (Cicognani, et al., 2009; Stewart et al., 2016), with women being more at-risk of STS symptoms and low compassion satisfaction than men.

Conversely, positive affect and conscientiousness protect against job strain in nurses; researchers interested in the potential benefits of positive affect in stressful work environments sent questionnaires to 380 nurses in a metropolitan hospital and found that positive affect is

negatively associated with experienced stress, and trait conscientiousness further strengthens this negative association (Zellars et al., 2006). Another study recruited nurses in Portugal for participation in a cross-sectional study examining the relationship between self-compassion and compassion fatigue/satisfaction (Duarte et al., 2016). This research team found that self-compassion was protective against fatigue and bolstered compassion satisfaction, while self-oriented affective empathy (subjective feelings of distress when others are experiencing distress) was related to increased compassion fatigue. Understanding how nurse disposition interplays with job-related stressors and protects against or exacerbates potential compassion fatigue can help guide employee selection and training programs.

Other potential predictors of nurse ProQOL may be individual demographics. In one study, Canadian nurses working in rural areas tended to report lower psychological senses of community and lower community engagement if they were raised in more urban areas and single/divorced (Kulig et al., 2018). Other studies have yielded similar results, with further evidence that gender, parenthood/familial ties, level of education, perceived stress, job satisfaction, and length of time employed in a position all impacted nurse intent to leave the remote area in which they practiced (Butler et al., 2017; Cicognani et al., 2009; Stewart, et al., 2011). In one study specifically, men were more likely than women to be dissatisfied with rural nursing jobs, nurses with no children/dependents or family nearby were more likely to consider moving, more educated nurses were more likely to seek positions not typically available in rural locations, and nurses who were relatively new to their position and who reported more stress and dissatisfaction with working conditions were more likely to want to leave their rural positions (Stewart et al., 2011). Another found that age and experience of the trainees was related to STS, BO, and CS outcomes, with older trainees reporting greater CS and better self-care practices than

their younger counterparts (Butler, et al., 2017). Finally, nurses working rurally who were raised

and trained in rural settings tended to fare better, with higher job satisfaction and lower intent to

leave, than nurses from urban backgrounds (Molinari & Monserud, 2009). This finding was

especially disheartening, as urban-raised nurses tended to report higher efficacies when dealing

with culturally, ethnically, or racially diverse populations, and populations with varied health

backgrounds and preferences for care, and loss of such nurses to position turnover further

weakens rural healthcare systems' capacity to provide culturally-competent care.

   As community and workplace engagement data suggest, healthcare workers, especially

nurses, have a greater need for social support to mitigate the effects of chronic stress exposure at

work. The current study will use data from research conducted by the North Dakota Center for

Nursing in partnership with UND to evaluate practicing nurses' intent to stay or leave their

current employers/geographic area. Demographic data from said study will be used to predict

ProQOL-5 outcomes based on rural nurses' lives outside of work, with hypotheses being:

   H_1: The ProQOL-5 will successfully fit the measurement model

   H_2: Given previous research on rural and urban healthcare workers, there will be no

configural or metric invariance

   H_{3a}: There is a negative relationship between childhood hometown population and CS

   H_{3b}: There is a positive relationship between childhood hometown population and BO

   H_{3c}: There is a positive relationship between childhood hometown population and STS

   H_{4a}: There is a positive relationship between marital status and CS

   H_{4b}: There is a negative relationship between marital status and BO

   H_{4c}: There is a negative relationship between marital status and STS

   H_{5a}: There is a negative relationship between number of children under age 6 and CS

H$_{5b}$: There is a positive relationship between number of children under age 6 and BO

H$_{5c}$: There is a positive relationship between number of children under age 6 and STS

H$_{6a}$: There is a positive relationship between nurse age and CS

H$_{6b}$: There is a negative relationship between nurse age and BO

H$_{6c}$: There is a negative relationship between nurse age and STS

Methods

The dataset used for the present study was collected as part of a grant-funded study conducted by the North Dakota Center for Nursing in partnership with the University of North Dakota. At the request of Governor Doug Burgum's Task Force on Workplace Culture, the research team (Owens et al., 2020) designed a mixed methods study to examine factors that influence nurses' intent to stay or leave either their employers or the state of North Dakota. Grant funding was awarded by the National Council of State Boards of Nursing's (NCSBN) Center for Regulatory Excellence. The study included focus groups with nursing students in their final year of study as well as already-practicing nurses to gauge general attitudes about their work experiences and elicit feedback about possible incentives to reduce nurse attrition in the state. The team additionally created an online survey instrument comprised of components of the North Dakota Nursing Needs Student Survey (NDNNSS) (Moulton et al., 2009), the Intent to Stay instrument (Price, 2001), the Index of Work Satisfaction (IWS) (Stamps, 1997), and the ProQOL5 (Stamm, 2005). Nurses and student nurses were recruited via postcard and online nursing newsletters. Demographic data was collected through the National Forum of State Nursing Workforce Centers' Minimum Dataset. The final 287-item survey instrument was distributed via Survey Monkey and was open from 09/17/2019-12/12/2019. For the present

study, demographic data including childhood hometown population, marital status, parenthood, and age will be used to predict ProQOL-5 outcomes for practicing nurses.

Participants

Participants were 763 practicing nurses at various stages in their careers, all working in the Midwest. Participants ranged in age from 20-82 years old and were on average about 48 years old ($M = 47.89$, $SD = 13.62$, $Mdn = 48$). The majority were female (93%, 7% male). About 95% of participants were White, while Asian/Asian American participants ($n = 16$), American Indian/Alaskan Native participants ($n = 7$), Black/African American participants ($n = 7$), Native Hawaiian/Pacific Islander participants ($n = 1$), and participants who identified their race as "Other" ($n = 7$) made up about 5% of the sample, collectively. Participants were predominately non-Latinx (99%, 1% Latinx). Most participants were either married/in a domestic partnership (73%), widowed (3%), or divorced/separated (10%), with around 14% having never been married. About 78% of participants had at least one child ($M = 2.79$, $SD = 1.14$) and 22% reported having no children. Most participants who are parents ($n = 585$) reported all their children were over six years old (78%), with 12% reporting one child under six, 7% reporting two children under six, and 3% reporting three or more children under six years old. In final analyses, data cases that were missing > 5% of ProQOL-5 data (2 items or more unanswered) and that contained no current county and state information were removed from the dataset, resulting in $N = 574$. The demographic makeup of this sub-sample is proportionally equivalent to that of the larger sample, except in age range (23-82).

Instruments

The Professional Quality of Life Measure 5. The ProQOL-5 is a 30-item questionnaire using a 5-point Likert scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Very, 5 = Often) used to measure three aspects of professional quality of life – burnout (BO), compassion satisfaction (CS), and secondary

traumatic stress (STS). Stamm's ProQOL measure has been in use since 1995 and is the most-commonly used measure of the negative and positive effects of providing care to those who experience suffering and trauma. The ProQOL-5 is the most current version and will be used to assess overall compassion satisfaction (CS), burnout (BO), and secondary traumatic stress (STS) experienced by nurses pre- and post-intervention. The ProQOL has generally good reliability for each scale (Compassion Satisfaction alpha = .87, Burnout alpha = .72 and Compassion Fatigue alpha = .80) and validity is similarly good with shared variance between CF and STS at 2%, CS and BO at 5%, and STS/CF and BO at 23% (Stamm, 2005).

National Center for Health Statistics' Urban-Rural Classification Scheme for Counties (2013). The most recent model of Urban-Rural county classification from the NCHS classifies rurality on a six-point scale: (1) large central metro counties with a population of 1 million or more that either contain the entire population of the largest city in the metropolitan statistical area (MSA), are completely contained in the largest city of the MSA, or contain at least 250,000 residents of any major city in the MSA; (2) large fringe metro counties in an MSA of 1 million or more; (3) medium metro counties in a MSA of 250,000 to 999,999; (4) small metro counties in MSAs of less than 250,000; (5) micropolitan counties in micropolitan statistical areas (MISA), which contains at least one urban cluster (population of 10,000-49,999); and (6) noncore counties not in a MISA (population less than 10,000). The NCHSUR will be used to classify nurses based on whether they work in a metropolitan (1, 2, 3, 4) or micropolitan/noncore (5, 6) area.

Procedure

Researchers recruited participants electronically and via postcard by accessing several state Nurse Licensing Databases to reach as many nurses practicing within ND or in out-of-state

counties bordering ND. The survey was made available on Survey Monkey and participants were able to freely access and complete the survey whenever time allowed. Upon accessing the survey, subjects were directed to an informed consent page explaining the purpose of the research. Completion of the survey confirmed the participants' informed consent to complete the study.
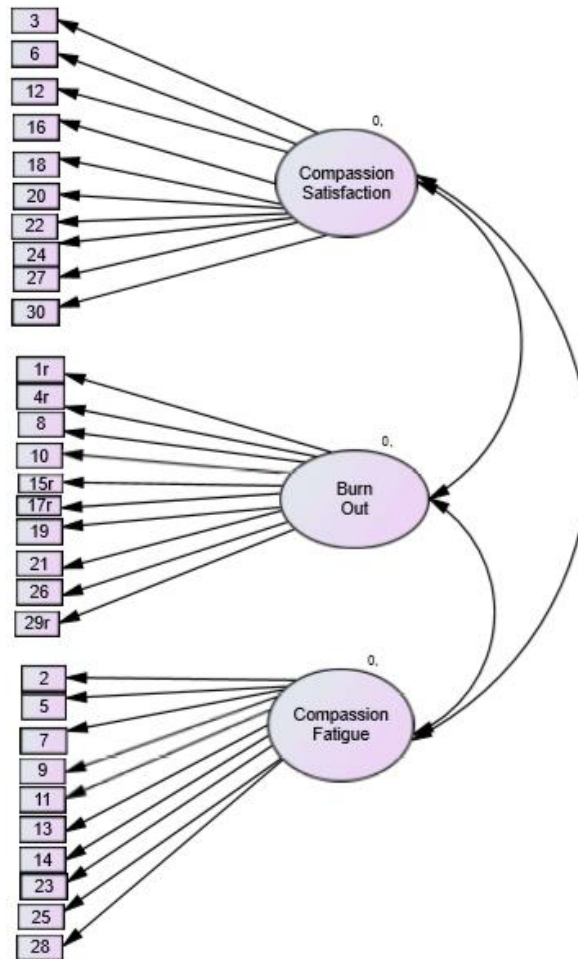
Results

H$_1$

Confirmatory factor analysis was conducted to test ProQOL-5 model fitness. Results suggested that the 3-factor model of professional quality of life proposed by Stamm (2010) as seen in Figure 1, measuring Compassion Satisfaction, Burnout, and Secondary Traumatic Stress, did not fit the data (χ^2 = 2.193.89, $p < .001$, *CFI* = .792, *TLI* = .759, *RMSEA* = .088).

Figure 1

ProQOL-5 Model

As such, Exploratory Factor Analyses – specifically, Principal Axis Factoring – were conducted to ascertain any underlying latent variables measured by the ProQOL-5. After an initial analysis indicated multiple cross-factor loadings for items with factor loading coefficients under 0.5 (seen in Table 1), a total of three PAF configurations were conducted, retaining factors with eigenvalues greater than 1.0 and suppressing coefficients under .5. Bartlett's test of sphericity was significant (χ^2 (435) = 8752.28, $p<.001$) and Kaiser-Meyer-Olkin (KMO = .945) measure of sampling adequacy indicated relationship strength among the tested variables was high, suggesting that proceeding with the analyses would be appropriate. Four factors were initially extruded and subsequent PAFs were conducted which eliminated items with weak

loadings (items 2, 5, 6, 15, 28, and 29) or cross-factor loadings (item 7) indicated a 3-factor

model with similar structure to the ProQOL-5 was sufficient for interpreting the solutions.

   A subjective examination of the removed items indicated (1) strong conceptual overlap

with both the "Burnout" and "Secondary Traumatic Stress" scale items, (2) equally-strong yet

opposing item loading on "Compassion Satisfaction" and "Burnout" scales, and (3) conceptual

irrelevance of some items may have contributed to the weakness of the initial model, in this

instance. A Principal Component Analysis was conducted using the retained 23 items to explore

further ways to reduce item overlap/cross-loading, which resulted in the removal of item 1 (Table

2). The final PCA retained 22 items, resulting in a more concise 3-factor model of Professional

Quality of Life with a significant Bartlett's test of sphericity (χ^2 (2535) = 6815.87, $p<.001$) and

good sampling adequacy (KMO = .930), and accounted for 60.31% of the variance measured.

See Table 3 for further results from each PFA and the final CPA.

Table 1

Initial EFA of ProQOL-5 items

Items	Factor			
	1	**2**	**3**	**4**
24	0.744	-0.128		-0.17
22	0.724	-0.107	-0.16	
18	0.721	-0.109	-0.432	
20	0.701	-0.123	-0.108	
4	0.682	-0.133		
3	0.676	-0.116		
12	0.665		-0.219	
30	0.662	-0.157	-0.353	-0.146
6	0.656		-0.212	
17	0.647	-0.202	-0.229	
27	0.638	-0.112	-0.19	
1	0.553	-0.151	-0.499	
16	0.54		-0.168	
29	0.466			-0.135
15	0.411			
25	-0.225	0.765	0.126	
9		0.742	0.288	0.219
14	-0.129	0.72	0.204	
13	-0.156	0.661	0.345	0.184
8		0.655	0.312	0.241
23		0.636		-0.206
28		0.512		-0.218
5		0.337	0.195	
21	-0.159	0.169	0.755	-0.163
19	-0.267	0.189	0.711	
26	-0.298	0.205	0.665	-0.144
10	-0.347	0.382	0.612	

Note. Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser
Normalization. Coefficients < .1 suppressed.

Table 2

PCA of ProQOL-5 items excluding items 1, 2, 5, 7, 11, 15, 28, and 29

Items	Factor			Construct
	1	**2**	**3**	
24	0.745			
18	0.731			
22	0.721			
20	0.69			
3	0.687			
4	0.684			Compassion
6	0.661			Satisfaction
12	0.652			
17	0.648			
27	0.647			
30	0.645			
16	0.542			
9		0.793		
25		0.745		
14		0.744		Secondary
13		0.718		Traumatic
8		0.69		Stress
23		0.565		
21			0.77	
26			0.69	
19			0.682	Burnout
10			0.55	

Note. Extraction Method: Principal Component Factoring. Rotation Method: Varimax with Kaiser Normalization.

Coefficients < .5 suppressed

Table 3
Model fit and variance explained

Models	KMO	$\chi 2$	df	p	Variance Explained
4-factor	.945	8752.28	435	<.001	50.29%
3-factor*	.945	7420.95	276	<.001	53.50%
3-factor**	.945	7306.32	253	<.001	54.81%
3-factor***	.939	6815.87	253	<.001	60.31%

Note. KMO: Keiser-Meyer-Olkin Measure of Sampling Adequacy. First three models were explored through Principal Axis Factoring.
*Items 2, 5, 7, 15, and 29 removed due to coefficients < .5, and item 11 removed due to similar loadings on factors 2 (.513) and 3 (.564).
**Item 28 removed due to coefficient < .5.
***Item 1 removed after performing Principal Component Analysis using model "3-factor**" and was found to load similarly on factors 1 (.546) and 3 (-.551).

H$_2$

The adjusted ProQOL model (Figure 2) was tested for measurement invariance across

two groups, Rural Nurses (n = 337) and Urban Nurses (n = 237) to ensure the model, items, and

scales were measured in similar ways regardless of respondent culture. Results are seen in Table

4. In general, the reconstructed model had good fit (χ^2 = 764.88, p<.001, *CFI* = .921, *TLI* = .903,

RMSEA = .067), and both configural and metric invariance in the model structure were

confirmed, indicating the measurement model was appropriate for both groups and that all items

were interpreted in similar ways by both groups. Non-invariance was found at the scalar level,

and stepwise constraining and releasing of parameters indicated that measurement intercepts for

items 8, 17, and 26 should be freely estimated. This implies that, for rural and urban nurses, these

items have differing levels of impact on the factor they load to. Once parameter constraints were

adjusted and partial invariance achieved at the scalar level, residual non-invariance was

discovered at the level of item error terms. Again, constraint and release of parameters indicated

residual errors for items 4, 8, 14, 20, 23, 25, and 30 differed between groups and should be freely

estimated. Partial residual invariance was achieved after parameter constraints were adjusted.

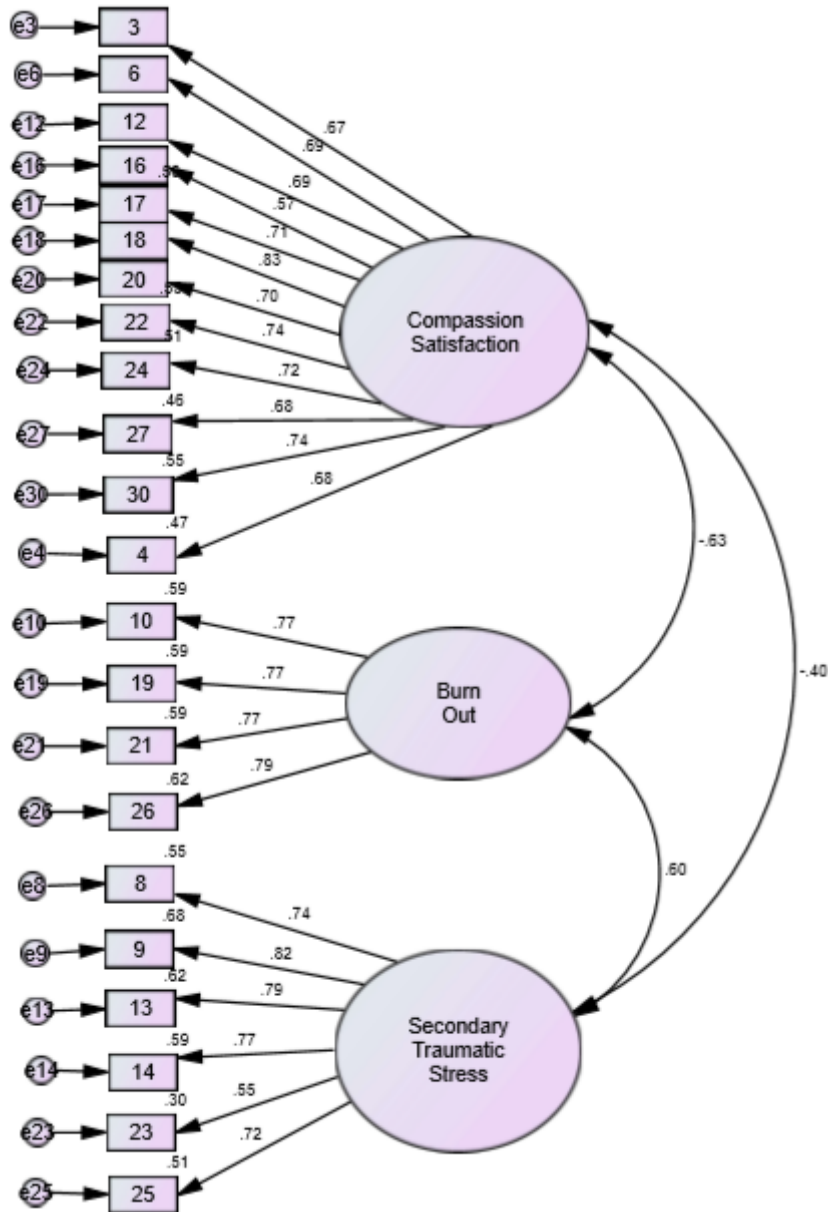Figure 2
Restructured ProQOL-5 model

Table 4

Tests of measurement invariance for adjusted ProQOL-5

Model	χ2 (df)	CFI	TLI	RMSEA	Δχ2 (df)	Decision
M1: Configural Invariance	997.02 (412)**	.914	.894	.505	--	--
M2: Metric Invariance	1011.33 (431)**	.914	.899	.049	14.31 (19)	Accept
M3: Scalar Invariance	1051.67 (453)**	.912	.901	.048	40.34 (22)*	Reject
M3a: Partial Scalar Invariance	1035.77 (450)**	.913	.903	.048	24.43 (19)	Accept
M4: Residual Invariance	1115.47 (481)**	.906	.901	.048	60.20 (2)**	Reject
M4a: Partial Residual Invariance	1058.52 (471)**	.913	.907	.047	19.201 (15)	Accept

Note. $N = 574$; group 1 (Rural Nurses) $n = 337$; group 2 (Urban Nurses) $n = 237$

*$p \leq .05$

** $p \leq .01$

CFI: Comparative Fit Index

TLI: Tucker-Lewis Index

RMSEA: Root Mean Square Error of Approximation

H$_{3a}$-H$_{6c}$

Once the restructured ProQOL measure was confirmed, scoring for each of the scales was adjusted (re-summed) to reflect that rather than each scale containing 10 items, the CS scale contains 12, the BO scale contains 4, and the STS scale contains 6. The hypothesized path analysis was created and examined for fitness (Figure 3).

Figure 3
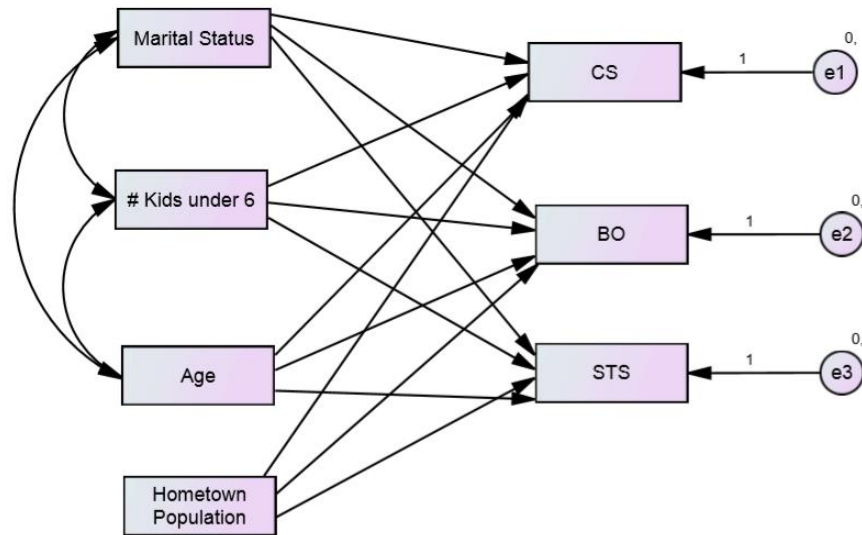
Fitness indicators suggested the proposed model did not fit the data (χ^2 = 153.68, *p*<.001, *CFI* = .208, *TLI* = -2.698, *RMSEA* = .321). The search specification function of AMOSv25 was used to assess for any potential better-fitting path structures. A total of 199,140 path models were estimated by the program, with a proposed best fit in the path model shown in Figure 4.

Figure 4
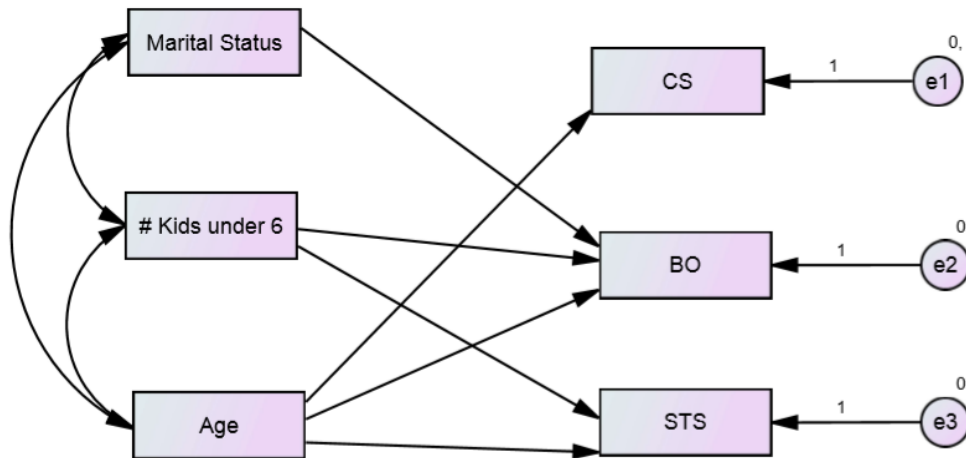
The new model eliminated the proposed relationships between childhood hometown population and CS, BO, and STS, the proposed relationships between marital status and CS and STS, and the proposed relationship between number of children under 6 in the home and CS. However, this model also demonstrated very poor fit (χ^2 = 148.76, p<.001, CFI = .229, TLI = -1.698, $RMSEA$ = .316). Thus, the hypothesized model and relationship pathways were rejected.

Discussion/Conclusion

Nursing workforce turnover and retention has been examined extensively, and certain themes regarding workplace factors that prompt nurses to leave their positions have been discovered. Specifically, unsupportive management and coworkers, excessive caseloads, inadequate pay/salary and benefits, and over-bureaucratization of healthcare systems are among the most frequently reported contributors to new nurse turnover. These issues are exacerbated in rural settings due to limited access to advanced or specialty healthcare, resource scarcity and, for some, social isolation.

The present study aimed to examine social and individual factors that may affect nurses in rural regions. Based on prior research indicating nurses who were raised in more metropolitan areas reported poor adjustment to rural settings (Kulig et al., 2018; Molinari & Monserud, 2009), rural nurses with more urban upbringings were expected to report higher levels of BO and STS and lower levels of CS. Likewise, rural nurses who were single, divorced, or widowed/widowered were expected to report higher BO and STS and lower CS, as were nurses with young children, as research suggesting nurses in rural settings with little-to-no family connections or with multiple dependents tend to report poorer professional quality of life (Butler et al., 2017; Cicognani et al., 2009; Stewart, et al., 2011). Finally, older nurses with more experience were expected to report higher CS and lower BO and STS, as research suggests mid-

to-late career nurses may have more well-developed self-care strategies and have remained committed to their workplace for longer (Butler, et al., 2017).

A confirmatory factor analysis was first conducted to ensure the measurement tool, the ProQOL-5, fit the data. Fitness indicators suggested the model proposed by the tool did not have acceptable fit, and a series of exploratory factor analyses (principal axis factoring and principal component analysis) yielded a 3-factor model of professional quality of life similar in structure to the ProQOL-5 with fewer items (22 instead of 30) and eliminating items with no apparent relevance to either factors, labeled Compassion Satisfaction, Burnout, and Secondary Traumatic Stress. Once established, the new model of ProQOL was found to have no configural or metric invariance between two subgroups of the nurse sample – urban and rural – indicating the model pathways fit both group cultures and that groups interpreted scale items similarly. While non-invariance was found at the scalar and residual level, partial invariance was achieved by constraining certain item parameters and the restructured measurement tool was accepted. Finally, a path analysis was conducted to test the proposed hypotheses (H_{3a}-H_{6c}) using the restructured ProQOL scale outcomes. Fitness indices suggested a very ill-fitting model, and exploratory analyses resulted in no alternative, optimized model with better fit. Thus, the hypothesized path model was rejected and pathways between exogenous and endogenous variables were uninterpretable.

This study has multiple limitations, including its use of archival data from prior research rather than data collected from a newly designed study, which would have allowed for more control over recorded variables. As the principal investigator of the current study is a member of the research team that designed and collected the source data, hypotheses were developed with the intent of the source study in mind (examining predictors of turnover intent) so as not to create

issues of plagiarism. As a result, the research question ("what personal factors might predict rural nurse professional quality of life?") is much more narrow in scope than would be ideal. Additionally, the dataset is significantly skewed toward White, non-Latinx, married/partnered, female nurses with children. While this demographic makeup is typical for the region in which the data was derived, perhaps a more diverse sample taken with nurses at a national or international level rather than a regional one would have yielded nurses with a wider variety of cultural backgrounds, allowing for the nuances of effects of lived experiences on professional development and wellbeing to be more fully examined.

Furthermore, the tool used to measure professional quality of life did not fit the data. The author of the measure reports in the manual (Stamm, 2010) that the ProQOL-5 has "good construct validity," despite there being 34% shared variance between the Burnout and Secondary Traumatic Stress Scales. She claims the scales "both measure negative affect but are clearly different; the BO scale does not address fear while the STS scale does." However, this shared variance proved to be detrimental to the model's fitness, as demonstrated by this study. In fact, EFAs revealed that two STS scale items which Stamm (2010) supposes addresses "fear" in a conceptually distinct way from BO scale items – Item 5: I jump or am startled by unexpected sounds, and Item 11: Because of my helping, I have felt "on edge" about various things – were found to strongly cross-load on both Factors 2 and 3 (STS and BO, respectively).

When it comes to the BO scale, five items that are intended to be reverse-scored – Item 1: I am happy, Item 4: I feel connected to others, Item 15: I have beliefs that sustain me, Item 17: I am the person I always wanted to be, and Item 29: I am a very caring person – were either eliminated due to low factor loading coefficients (items 1, 15, and 29) or proved to be better measures of CS, without reverse scoring (items 4 and 17). As such, problems with ProQOL-5

structure appear to be too much conceptual overlap between BO and STS scales, item irrelevancy, and the unnecessary inclusion of reverse-scored items. While there is evidence that a majority (22 of 30) of the ProQOL-5 items do distinctly measure the constructs of Compassion Satisfaction, Secondary Traumatic Stress, and Burnout and constitute a good-fitting measurement model, six items needed to be eliminated and two which were originally intended to measure BO were shown to better assess CS. The restructured measure resulted in uneven scales with CS having 12 items, STS having 6, and BO having 4, and an item-structure that has not been validated in other populations. The next iteration of the ProQOL measurement tool should take these issues into consideration to improve its structure with items that more accurately measure the constructs it purports to measure.

As noted in this study, the ProQOL-5 and its preceding iterations have been used to examine burnout, secondary traumatic stress, and compassion satisfaction in nurses since the 1990s. According to a database of articles which used the ProQOL measure, at least 100 studies have been conducted and published using the tool with nursing populations. Only one of these studies used EFA to examine the factor structure of the ProQOL (Sprang & Craig, 2016). However, the researchers used the ProQOL-IV, rather than the ProQOL-5, and only used two of its scales (Compassion Fatigue, which doesn't exist in the ProQOL-5, and Burnout) in conjunction with the Impact of Events Scale-Revised (IES-R) to determine the measures' clinical utility for examining the effects of secondary traumatic stress or vicarious trauma, and did not examine the overall proposed factor structure of ProQOL-5. Also according to the database, only one study used the ProQOL model for studying rural nurses (Hegney et al., 2014) in Australia, and while the authors reported good internal consistency among the three ProQOL scales (CS, BO, STS), they did not report on any other measures of validity or reliability. More research is

needed to determine if this measurement tool does, in fact, measure its proposed latent constructs in nurses, specifically rural nurses, or if this study's nurse sample is an outlier.

Nevertheless, examining the connections between nurses' available social supports and individual histories and their professional wellbeing and turnover intent remains a crucial mission for healthcare researchers. For example, facilities may find it useful to screen oncoming staff during hiring processes to learn about any social supports new nurses may or not have at home, if they're accustomed to living in rural or urban locations, and what extra supports and training they may need to make the adjustment to working in their new positions. Mentorship programs have been shown to be effective for improving new nurses' efficacy and reducing intent to leave a position. Some facilities have found success in reducing incidences of interpersonal violence, thereby improving workplace culture, and reducing intent to leave, through the implementation of training programs on assertive communication and lateral violence awareness (Ceravolo et al., 2012). Healthcare facilities in rural areas may consider policies that foster group cohesion and collegiality among nursing teams with the goal of helping new nurses feel connected to and engaged with their community through crucial social supports. They may also consider further incentivizing work in rural healthcare through loan repayments and increased pay/salary, especially targeting nurses who are single and/or those with dependents.

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