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EDITORIAL

From Where I Sit

Nursing science has grown tremendously over the past 40 years. Anyone who doubts that need only to look at the evidence. In 1979 Florence Downs, then the editor of *Nursing Research* and who later became my editor mentor, wrote that one measure of scientific progress is the extent to which science is developed through single studies that deliberately build on previous work (Downs, 1979). Dr. Downs always exhorted nurse scientists to build on each other's research and to develop research trajectories of their own. This was sage advice as for decades we, as nurse scientists, debated questions whose answers were essential to building the foundations of nursing science but did not add to our overall knowledge.

Nurse scientists discussed whether the discipline should build knowledge using quantitative or qualitative research methods (Carr, 1994). We asked ourselves how true nursing knowledge can be developed if we based our studies on theories from other disciplines (Johnson, 1968). Questions about how best to shape our knowledge took a long time to be answered (Morse & Fields, 2002; Villarruel, Bishop, Simpson, Jemmott, & Fawcett, 2001). Hence, Downs' advice to remember to "build up" was critical, timely, and necessary. We needed to remember to build at the same time we were making foundational decisions.

By the advent of the National Institute of Nursing Research in the US in 1985, nurse scientists were incorporating Downs' suggestion and building nursing science. The process of careful peer review helped us understand the importance of explaining how a proposed study builds on prior work and provides new knowledge toward improving health. We as a scientific community now have laser-like focus on building science that fills a gap, thus ensuring the knowledge we build pieces together information from individual studies into a useful whole. We have carved out specific areas of nursing knowledge in symptom science, self-management, wellness and health promotion, palliative care and in improving health-care systems through innovation (Grady, 2017) by carefully building on what we already know.

In the process of building we have realized the importance of science serving the global community (Pratt & Hyder, 2017). We strive to build knowledge on topics that affect us all (in this regard please see the sixth issue of *Journal of Nursing Scholarship* on the effects of climate

change on global health). We search the literature from around the world to ensure that the gap we are planning on closing is a gap in our global knowledge. We strive to collaborate in multi country teams and to disseminate our knowledge in global journals (such as the *Journal of Nursing Scholarship, JNS*).

So, nursing science has built well over the past 40 years. We continue to build science that maximizes health and minimizes suffering. We use the best methods possible to understand not only how to improve health but also how to humanize the experience of illness.

Nursing will continue to mature as a science but from where I sit there is much for which we can be grateful. I am constantly grateful to get to read all of the important research manuscripts that you submit to *JNS* and to work with so many of you as peer reviewers. I am grateful that you find the articles in *JNS* useful, as shown by continually increasing downloads; and that our robust citations have resulted in our Impact Factor ranking us as number 6 in nursing journals in the world. Let's keep building together towards an even more impressive future.

Susan Gennaro
Editor

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CLINICAL SCHOLARSHIP

Sexual Expression of Nursing Home Residents: Systematic Review of the Literature

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Key words

Attitudes, institutionalized, intimacy, knowledge, long-term care, nursing home, older age, older people, resident, sexual expression, sexuality

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Abstract

Purpose: Living longer, baby boomers will need specialized care offered by nursing homes to manage chronic conditions. This review explores the knowledge, attitudes, and experiences towards older people's sexuality and sexual expression in nursing homes—an important area of research to meet the needs of this emerging population.

Design: A primary search of the Cumulative Index to Nursing and Allied Health Literature (CINAHL) and PubMed databases and secondary inclusion of cited references covering the period January 2000 to November 2016 identified 12 relevant studies.

Methods: Using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram of the screening process, data were extracted, summarized, and compared, and risk of bias was assessed focusing on ethical considerations, sample size and sampling methods, validity and reliability of data collection instruments, participation, cooperation, and response rate.

Findings: Overall, sexual expression in older adults is recognized as a basic need that should be supported. Positive attitudes towards sexuality in nursing homes were correlated with a higher level of knowledge about older adults' sexuality. In addition, positive predictors of attitudes towards sexuality in nursing homes were found to be: age, level of education, and years of experience. Barriers to addressing sexuality in the elderly are the lack of privacy and staff discomfort, which together represent common causes for loneliness and lack of intimacy in nursing homes.

Conclusions: Nursing research and practice need to shift their focus towards individual needs of nursing home residents to accommodate their values and expectations.

Clinical Relevance: Care providers must include a thorough assessment of sexual health of older adults living in nursing homes in routine practice, and include sexual health in the treatment plan.

According to U.S. census projections made by the American Hospital Association (AHA; 2007), there will be 70 million baby boomers 56 to 74 years of age by 2020 and 58 million 66 to 84 years of age by 2030. Of these baby boomers, about 25 million in 2020 and 35 million in 2030 will be living with multiple chronic conditions such as diabetes, arthritis, and obesity (AHA, 2007),

forecasting a rapidly increasing need for residential nursing homes and specialized care. Along with this outlook, research on sexuality in older adults is gaining momentum and respectability, because current policies regarding sexual expression in nursing homes need to evolve to satisfy the needs of a generation that grew up during the American sexual revolution.

As a fundamental part of the 1960s sexual revolution, baby boomers have grown to be sexual beings and cast vital importance to sexuality and sexual expression. Acknowledging this change, the World Health Organization (WHO) in 2006 published a working definition of sexuality, which comprises sex, gender identities and roles, sexual orientation, eroticism, pleasure, and intimacy. "Sexuality is experienced and expressed through thoughts, fantasies, desires, beliefs, attitudes, values, behaviors, practices, roles and relationships. Sexuality is influenced by the interaction of biological, psychological, social, economic, political, cultural, ethical, legal, historical, religious and spiritual factors" (p. 5). Furthermore, "For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled" (WHO, 2006, p. 5). Given the need for sexuality and sexual expression in nursing homes, and considering sexual rights as one of the inalienable human rights, I carried out this systematic literature review.

The purpose of this systematic literature review is to explore the knowledge, attitudes, and experiences of administrators, care staff, relatives, community-dwellers, and residents towards older people's sexuality and sexual expression in nursing homes. The following research questions guided this review:

1. What are the attitudes and level of knowledge of administrators, care staff, relatives, community-dwellers, and residents about older adult sexuality, and how are these attitudes and level of knowledge related?
2. What are the experiences of administrators and care staff about the sexual expression of their nursing home residents, and how do administrators and care staff deal with these sexual expressions?
3. How do the personal attributes and sociodemographic variables of administrators, care staff, relatives, community-dwellers, and residents relate to their knowledge and attitudes towards older people's sexuality and sexual expression in nursing homes?

Methods

Search Strategy

An electronic search of the Cumulative Index to Nursing and Allied Health Literature (CINAHL) and PubMed databases returned 69 and 51 citations, respectively, through a Boolean search of peer-reviewed, English-only, full-text papers that were published between January 2000 and November 2016, and were compliant with the following search string: (sexuality OR intimacy) AND (older people OR older age OR residents) AND (long-term care OR nursing home) AND (attitudes OR knowledge

OR experience) NOT (systematic review OR integrative review). Scrutinizing the 120 primary hits, 76 nonduplicate citations were further screened by reading title and abstract, leading to the elimination of 31 false-positive articles that based on their abstracts were unrelated to the topic. The remaining 45 articles were retrieved, and after a full screen of the text, 36 were excluded for various reasons (Figure S1), whereas three additional studies were identified and included by snowball method after checking the reference lists of relevant articles. Figure S1 outlines the systematic search process from initial database search to the final selection of studies for this review for a total of 12 ($N = 12$). Figure S1 is a diagram outlined directly from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) website, which intends to help summarize the selection process in a clear, straightforward, and understandable way (Liberati et al., 2009).

Inclusion and Exclusion Criteria

Summarized below are the criteria for inclusion and exclusion of studies. These criteria were preset to guide screening by title, abstract, and full text (Liberati et al., 2009). Only articles that met all criteria were included, with a few exceptions that will be mentioned explicitly in the corresponding section.

Types of studies. Only quantitative studies were included, except for a 2013 mixed methods study (survey, followed by a focus group) by Di Napoli, Breland, and Allen (2013), which was included to analyze its quantitative data component only. As outlined above, general eligibility depended on several search filters: articles had to be (a) peer reviewed, (b) published between January 2000 and November 2016, and (c) written in English. The limited time frame was adopted to gather recent information on the topic, and to complement the recent literature review published by Mahieu and Gastmans in 2015, which included sources up to October 2014. Any article published before January 2000 was excluded, as were reviews (general, systematic, and integrative), dissertations, books, editorials, theoretical articles, magazine articles, opinion articles, overviews, case studies, qualitative studies, and didactic materials.

Types of participants. Any kind of participants were included in this review. Studies were included if the participants were nursing home administrators, care staff, relatives, residents, and community-dwellers, but only if the research study focused on nursing home settings. Studies related to settings different from nursing homes were excluded, except for a 2007 study by Bouman,

Arcelus, and Benbow, whose research was carried out in both residential homes (assisted living) and nursing homes.

Types of outcome measures. Studies that reported on outcome measures relevant to the research questions of this review, either directly or indirectly, were considered for inclusion. For example, the current literature review included three articles by Teeri, Valimaki, Katajisto, and Leino-Kilpi (2007a, 2007b, 2008), which reported outcomes about the maintenance of residents' integrity in nursing homes, defining integrity as an umbrella term that included sexuality and sexual expression in which individual needs, habits, wishes, and values are fulfilled. Integrity is "a state of wholeness, giving individuals a sense of being in control of their life" (Teeri et al., 2008, p. 523). On the other hand, studies focused on physiology and pharmacology outcomes were excluded, as were those studies that reported only on dementia patients.

Search Outcome and Risk of Bias Appraisal

Twelve relevant studies were identified for inclusion in this review (Table S1). The risk of bias for each study was assessed following several parameters (Table S2): (a) Did the authors acknowledge ethical considerations of their study? (b) Was the instrument used for data collection explained? (c) Were the validity and reliability of these instruments of data collection reported? (d) What was the sample size, and what sampling method was used? And (e) What was the participation, cooperation, or response rate? These items are for informational purposes only and do not attempt to weigh or formally assess possible bias in each study objectively. For example, the sampling method could confer self-selection or self-exclusion bias in some studies; however, the relevance of these types of bias for study outcomes depends on the purpose of the study.

Data Extraction and Synthesis

A data extraction form was utilized to collect all relevant data, including methodological characteristics (e.g., study design, setting, country) and characteristics of the sample (e.g., sample size, age) to create Table S1.

Results

Characteristics of the Included Studies

This review is based on 12 studies: 10 survey studies, 1 vignette study, and 1 survey study followed by a

focus group. These studies were published between 2002 and 2016 (median = 2010) and conducted in the United States ($n = 4$), Finland ($n = 3$), Belgium ($n = 1$), Israel ($n = 1$), New Zealand ($n = 1$), Poland ($n = 1$), and the United Kingdom ($n = 1$). Except for three studies that did not mention the time frame of their data collection, the time spent from the end of data collection to publication ranged from ≥ 2 to 62 months ($\bar{X} = \text{median} = 33$ months).

Just like the distribution among countries of origin, reported sampling methods varied as well. Most studies utilized convenience methods for sampling ($n = 7$), while the remaining five studies used purposive ($n = 3$), random ($n = 1$), and random stratified ($n = 1$) sampling methods. Overall sample sizes ranged from 31 to 1,166 participants ($\sum 2,875$), and only 9 out of 12 studies explained their inclusion/exclusion criteria. The inclusion of specific participant groups across the studies was as follows: care staff ($n = 5$), residents ($n = 2$), residents' relatives ($n = 2$), community-dwellers ($n = 2$), and administrators ($n = 2$), with ages ranging from 18 to 94 years ($\bar{X} = 44.7$ years). Integrating across participant group membership, 84% of all participants were female.

Concerning the choice of measuring instrument, 7 of the 12 studies used an author-developed measuring instrument; within this group, 2 studies failed to inform about validity and reliability. The remaining five studies used established instruments like the Aging Sexual Knowledge and Attitudes Scale (used by Bonds-Raacke & Raacke, 2011; Bouman et al., 2007; Di Napoli et al., 2013; and Mahieu et al., 2016), Alzheimer Disease Knowledge Scale (used by Di Napoli et al., 2013), Duke University Religion Index (used by Di Napoli et al., 2013), Barthel Index Activities of Daily Living (used by Mroczek, Kurpas, Gronowska, Kotwas, & Karakiewicz, 2013), Holmes Questionnaire (used by Di Napoli et al., 2013), and Fetzer multidimensional measure (used by Bonds-Raacke & Raacke, 2011), but only two studies reported validity and reliability of the data collection instruments used.

Participation, cooperation, and response rates ranged from 7% to 100% (median = 75%). Notably, studies with 100% response collected data from a captive audience (Bonds-Raacke & Raacke, 2011), from willing volunteers (Di Napoli et al., 2013), or through face-to-face interviews (Aizenberg, Weizman, & Barak, 2002; Mroczek et al., 2013). In contrast, the researchers from the study with a 7% response rate acknowledged this limitation and explained how this number was the closest estimate of response rate considering all conditions of their recruitment strategy (Gilmer, Meyer, Davidson, & Koziol-McLain, 2010).

General Aims and Key Findings

Beginning with the largest set of studies, 7 of the 12 works aimed to explore attitudes towards sexual expression in nursing homes, using participants' sociodemographic variables to uncover potential correlations with attitudes. Common variables that were included in the analysis were age, years of experience (for care staff), level of formal and informal education, degree of religiosity, income, marital status, and number of children, but only three studies explicitly included the specific level of knowledge of older adult sexuality. These three studies found that knowledge and attitudes were positively correlated, meaning that higher knowledge levels are associated with more positive attitudes towards sexuality in older adults (Bonds-Raacke & Raacke, 2011; Di Napoli et al., 2013; Mahieu et al., 2016). More positive attitudes towards sexuality in the elderly were also associated with higher education level, having children, and being Catholic (Bonds-Raacke & Raacke, 2011; Yelland & Hosier, 2015). Intriguingly though, the studies also provide support for the conflicting evidence that religiosity and spirituality, in general, are negatively correlated with knowledge level and attitudes towards older people's sexuality and sexual expression in nursing homes (Bonds-Raacke & Raacke, 2011; Di Napoli et al., 2013; Mahieu et al., 2016), ultimately leaving this issue unresolved.

Exploring the impact of factors other than sociodemographic variables, four studies explored aspects that affect management of sexuality in nursing homes and how residents' sexuality is acknowledged (Di Napoli et al., 2013; Gilmer et al., 2010; Lester, Kohen, Stefanacci, & Feuerman, 2016; Teeri et al., 2007a). Key findings of these studies were that most nursing homes do not have policies dealing with resident sexual activity, despite the fact that most staff believed that aged care residents have sexual needs and that these needs should be supported. Furthermore, the studies found that the most common actions to deal with residents' sexuality were direct intercession, calling the family, and calling a staff meeting, while failing to overcome two common barriers to addressing sexuality in older adults: lack of privacy and staff discomfort in facilitating residents' sexuality.

Taking a more resident-focused point of view, only one study included age and gender of residents to explore community-dwellers' attitudes but found these variables to be weak predictors of attitudes towards sexuality in nursing homes (Yelland & Hosier, 2015).

Extending the overall aims and generalizable key findings, the following paragraphs will provide a more in-depth breakdown of findings for each of the participant groups.

Findings From Residents' Data

Residents are ready and willing to discuss their sexuality with healthcare providers openly and to follow a treatment plan for them and their partners if necessary (Aizenberg et al., 2002). Psychosexual needs reported in order of importance are conversation, tenderness, emotional closeness, sexual contacts, and physical closeness (Mroczek et al., 2013). The studies also found that the most important element in a relationship is respect, and even though sex was not the most important basic need, it was rated more important than appetite (Aizenberg et al., 2002).

Notably, in Poland, only 25% of residents reported being satisfied with their sexual lives, while most seniors repeated common stereotypes about sexuality in the elderly such as "sex in elderly is taboo" (71%), "sex is for young people only" (64%), and "sex is not important in life" (51%; Mroczek et al., 2013, p. 32). At the same time, however, most residents reported feeling sexual tension that is relieved by intimate contacts, watching erotic movies, self-stimulation, walking, and distracting attention towards other activities (Mroczek et al., 2013).

Findings From Administrators' Data

Administrators reported more positive attitudes towards elderly sexuality than direct-care staff (Bouman et al., 2007). Moreover, directors of nursing believe that residents with moderate to severe dementia should be allowed to have sexual relationships, and that residents' representatives should be made aware of their relative's choice (Lester et al., 2016).

Seemingly at odds with these observations, Lester et al. (2016) found that 63% of nursing homes do not have policies in place to deal with resident sexual activity; and of those homes with explicit policies, only 59% have them in writing, or require a physician's order to either allow or restrict sexual activity.

Findings From Relatives' Data

Relatives rated maintenance of residents' integrity quite highly, with physical integrity being the highest and psychological integrity the lowest. Relatives wish nursing homes would take better care of residents' intimacy, recreation, entertainment, and loneliness (Teeri et al., 2007a, 2008).

Findings From Community-Dwellers' Data

Attitudes among community-dwellers showed a generational divide. Community-dwellers whose mean age

was 20 years old thought sex should be allowed in nursing homes regardless of a residents' age or gender (Bonds-Raacke & Raacke, 2011). In contrast, the age group of 55 years and older held strong sentiments against sex in nursing homes, which were based on common misconceptions that "older people are incapable of sex" and nursing homes are inappropriate settings for sexual activity (Yelland & Hosier, 2015, p. 10). Regardless of these differences, most respondents expected nursing homes to provide private space for residents to engage in sexual activity (Bonds-Raacke & Raacke, 2011).

Findings From Care Staff's Data

Most care staff believe that residents have sexual needs that should be supported (Bouman et al., 2007; Di Napoli et al., 2013; Gilmer et al., 2010; Mahieu et al., 2016; Teeri et al., 2007b, 2008). Positive predictors of attitudes towards sexuality in older people are older age, work experience, and formal and informal education (Di Napoli et al., 2013; Mahieu et al., 2016). Among these factors, knowledge and attitudes are positively associated, and this association becomes stronger as levels of religiosity decrease (Di Napoli et al., 2013). Besides religious affiliation, younger age in care staff is also negatively associated with attitudes, which is in full agreement with the positive predictors found by different studies (Bouman et al., 2007; Mahieu et al., 2016).

Contrasting with prevalent attitudes among care staff, most staff reported being encouraged to display an anti-sexuality attitude in their management of residents' sexual behavior as they feel it is not their role to be part of the sexuality assessment (Gilmer et al., 2010). Consequently, 37% of incidents were managed by direct intercession, 24% by calling the family, and 11% by calling a staff meeting (Di Napoli et al., 2013). Consistent with these numbers, care staff reported that residents' loneliness is a common problem in nursing homes, and barriers to maintaining residents' integrity include social factors, patient factors, staff shortages, and lack of privacy (Teeri et al., 2007b, 2008).

Discussion

The overall objective of this review was to examine literature available on the knowledge, attitudes, and experiences of different stakeholders in the matter of sexuality and sexual expression in nursing homes. Given the growing importance of such studies in the face of an aging population of baby boomers, the literature on this subject is surprisingly scant. This may be explained in part by the potential for uneasiness with discussing a sensitive and highly intimate topic (Tarzia, Bauer, Fetherstonhaugh,

& Nay, 2013). However, being afraid of offending people should not hinder research on sexuality and sexual expression in older adults (Gott & Hinchliff, 2003)—an objective that is made even more pressing by the limited insights and sometimes conflicting evidence that emerges from the more recent and current literature.

Despite the limited data, and in contradiction of mainstream stereotypes of ageism, current research clearly establishes older adults living in nursing homes as sexual beings. Going beyond this acknowledgement, the studies also reveal that when forced to deal with such a delicate topic, people tend to hide behind bimodal assumptions that older adults are either asexual or sexy oldies. Sadly, these choices ignore the complexities of sexuality in older adults, and idiosyncratically reflect on sociodemographic variables that identify the level of education, age, years of professional experience, and religiosity as key factors affecting perceptions and constructive progress in this area. Keeping in mind that sexual expression is a personal choice, the studies clearly show an increased need to respect the whole spectrum of sexual choices made by older adults, including the choice to not express sexuality at all, especially when individuals are institutionalized. Further supporting the choices that older adults make to satisfy their sexual needs, the studies also reveal opportunities for how written policies could be used to guide health-care staff to not force their own attitudes about matters of sexuality and sexual expression onto their clients.

To bring some clarity to the ethical issue of sexual expression in institutions for older people, Pirhonen (2015) proposed "the capabilities approach." This approach is an applicable theory of justice that supports dignity for older people in long-term care, to guarantee that everyone can pursue the good life, which is the dignity that emerges from human well-being.

Extending Pirhonen's capabilities approach, knowledge about sexuality and attitudes towards sexual expression in older adults are positively correlated. This correlation is consistent with the fact that older age itself is positively correlated with more permissive attitudes towards sexuality in the elderly. Mahieu et al. (2016) proposed that older age is directly related to more positive attitudes because older respondents can identify more easily with contemporary people under their care as opposed to younger respondents. Voicing a similar sentiment, Bouman et al. (2007) explained that older people tend to have more experience, more knowledge, and more training hours under their belts, which in turn explains their more positive attitudes. In agreement with these observations, nursing home administrators had positive attitudes towards sexual needs of residents, while the level of knowledge of care staff about sexuality in older age was not as high as desired (Bouman

et al., 2007). Fortunately, focused training on the topic has been shown to be effective, and to improve both knowledge and positive attitudes in the ranks of care staff (Bauer, McAuliffe, Nay, & Chenco, 2013; Walker & Harrington, 2002).

Looking beyond institutional factors only, the comparison between the attitudes of community-dwellers and age-matched care staff revealed that younger age related to more positive attitudes among community-dwellers, but to more negative attitudes among age-matched care staff. This finding, showing opposite impacts of age on attitude among young people, could be related to strains that weigh the evolution and softening of social and sexual attitudes and norms towards a more permissive society against issues of liability and professional responsibility tied to direct care in nursing homes.

The discovery and acknowledgment of a potential emotional conflict among young care staff—balancing more permissive general stances versus professional responsibilities—provides an opportunity for administrators to make markedly positive differences. Based on the available data, administrators have positive opinions towards sexuality in nursing homes. Capitalizing on this mindset could turn into a significant step towards the administrative restructuring of nursing homes to become more homelike for their residents. Specifically, sexual expression policies, which are nonexistent in most nursing homes, could open a constructive path towards alleviating emotional stress in young care staff and reshaping communication patterns between residents, relatives, and administrators. The research data illustrated that in the current model, administrators feel obliged to keep relatives informed about intimate issues of their resident. Albeit speculative, a possible reason for this type of practice could be born out of business interests that value revenue from family or relatives and fear of litigation over the best interests of the residents. Formalizing written policies that address personal and sexual needs of residents could therefore be the first step forward to restructure nursing homes into facilities that acknowledge their residents' needs more holistically.

Limitations

The current review has a series of limitations to take into consideration. For example, utilizing only one specific string search on only two electronic databases to identify only peer-reviewed citations published in English from January 2000 to November 2016 with full-text availability can introduce bias in identifying relevant studies beyond those search boundaries. Another limitation is the inclusion of studies from a wide variety of countries, which makes it difficult to represent a synthe-

sis that fairly weights and acknowledges different cultures as they influence this topic with regard to social expectations and local stereotypes. The topic of this review is limited to the elderly in nursing homes and does not provide any insight to healthier elderly residing in the community. Lastly, having excluded qualitative studies limits the depth in understanding potential reasons that could explain and better define this phenomenon.

Gaps in the Literature

The main purpose of any critical review of the literature is to describe the current state of the science and to identify important gaps for further research. The current review helps to identify the need for research that more strongly and more consistently includes residents' views and expectations, with a new emphasis on comparing the views of men versus women. The latter is particularly important because most staff surveys that are included in the current literature are from Caucasian women. Though this, in part, is understandable due to professional demographics, a full understanding of the issues will need to include the views of male staff, staff from different cultural backgrounds, and from different geographic regions within the United States.

In addition to diversifying the enrollment among staff participants, additional studies are required to explore attitudes towards sexuality in nursing homes for older men versus older women, and to further elucidate whether attitudes are subject to differences among select subgroups of care staff like nurses and care assistants. Such attempts to further detail attitude profiles among care professionals should also make up for failures to analyze whether nurses' frame of reference (i.e., personal attitudes, beliefs, opinions, and experiences) towards sexuality of nursing home residents influence their delivery of care, their professional practice, and the residents' outcomes, well-being, and quality of life.

Finally, sexuality and sexual expression of the lesbian, gay, bisexual, transgender, queer, questioning, and intersex (LGBTQI) community in nursing homes is also negligible in the literature, regarding management, views, opinions, attitudes from professional care staff, administrators, other residents (both LGBTQI and non-LGBTQI), and their relatives. As societal stances become more permissive towards these communities, more efforts are needed to accommodate these groups as they age, and to provide them with adequate opportunities to live a dignified life in old age.

Conclusions

The scarce literature on sexual expression in nursing homes mostly reflects women's perspective and vastly

neglects residents' vision about their own sexual expression in their institutionalized homes. There is an inescapable need to transform the current administrative model in nursing homes to allow residents to be part of the decision-making process, which is a critical first step in restructuring the environment into a more homelike setting. To have a better and more exhaustive understanding of the individualized needs for sexual expression in nursing homes, study enrollment criteria should acknowledge gender inequalities and include minority subpopulations, such as LGBTQI, in future research. Conclusions of this review support the need to shift our focus in research and in nursing practice towards those individual needs of nursing home residents to accommodate their values and expectations with dignity, justice, and respect in a true person-centered model of care.

Clinical Resources

- Sexuality in Later Life: <https://www.nia.nih.gov/health/publication/sexuality-later-life>
- Building Capacity for Age Sensitive Care: <https://hign.org/>
- The Gerontological Society of America: <https://www.geron.org/>
- American Society on Aging: <http://www.asaging.org/>
- American Geriatrics Society, Home: <http://americangeriatrics.org/>
- Grantmakers in Aging, Home: <https://www.giaging.org/>
- Welcome to the LGBT Aging Project: <http://fenwayhealth.org/the-fenway-institute/lgbt-aging-project/>
- Health in Aging: <http://www.healthinaging.org/>
- American Federation for Aging Research: <https://www.afar.org/>
- National Association of Area Agencies on Aging, n4a: <https://www.n4a.org/>
- Aging and Human Sexuality Resource Guide: <http://www.apa.org/pi/aging/resources/guides/sexuality.aspx>
- Aging, Relationships, & Sexuality: Tools and Resources for Geriatric Care Managers: <http://www.aginglifecarejournal.org/aging-relationships-sexuality-tools-and-resources-for-geriatric-care-managers/>

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web site:

Figure S1. Electronic search for literature identification and the selection process. Criteria applied for exclusion is explained.

Table S1. Summary Characteristics of the Studies Included in the Literature Review

Table S2. Risk of Bias Assessment of the Included Literature



CLINICAL SCHOLARSHIP

Factors Influencing Resilience of Burn Patients in South Korea

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Key words

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Abstract

Purpose: To examine and identify the factors influencing the degree of resilience among Korean burn patients.

Design: A cross-sectional descriptive design was employed.

Methods: The study sample consisted of 138 burn patients recovering from the acute phase in H hospital, Seoul. The male patient participants numbered 93 (67.4%) and the female participants numbered 45 (32.6%). The average age of the participants was 46.79 years. Measures used were the Beck Depression Inventory, State Trait Anxiety Inventory, self-esteem scale, family support scale, and resilience scale.

Findings: The analyses showed that the prediction model for resilience among burn patients was significant ($F = 33.94, p < .001$). The value of the adjusted R^2 was 0.492, which corresponds to the explanatory power of 49.2%. The factor that was found to have the most influence on resilience among burn patients was self-esteem ($\beta = .35$), followed by family support ($\beta = .29$).

Conclusions: This study provides preliminary evidence that self-esteem is a major and primary predictor of resilience among burn patients, next followed by family support.

Clinical Relevance: In the nursing practice, nurses need to pay attention to the burn patient's self-esteem and family support. Concrete interventions and strategies to improve the resilience of burn patients are needed.

Humans are exposed to various dangerous situations, such as natural disasters, fires, accidents, diseases, disorders, and stress (Masood, Masud, & Mazahir, 2016). Among these, fire is one of the common causes of accidents that can happen to anyone regardless of the place or environment. It sometimes takes a person's life or leaves permanent damage to the people who survived. Burns occur with varying types and causes due to the different chemicals that are used in the industrial fields, densely populated residential environment, lifestyle changes, and various disasters, among others (Seo, Jung, Park, Lee, & Kim, 2014; Stoddard, Ryan, & Schneider, 2015).

Background

There was a steady increase in the number of burn victims in Korea, from 366,321 in 2006 to 472,865 in 2011, thereby showing an annual average increase rate of 5.2%. In addition, the average number of burn patients treated in the hospitals in Korea is 472,404 annually, a rate of 984 per 100,000 persons. In 2013, the number of burn patients was 571,919 (Health Insurance Review & Assessment Service, 2015; National Health Insurance Service, 2015).

Burn patients experience physical and mental complex challenges (Seo et al., 2014; Stoddard et al., 2015).

Physical pains include complications and dysfunctions in the skeletal, nervous, and metabolic systems (Seo et al., 2014). Psychological pains include personality changes, substance abuse, and social isolation, among others (Stoddard et al., 2015). In addition, burns often affect the exposed areas of the body. In many cases, the appearance is altered, and the degree of hypertrophy is severe. These features can cause not only physical problems, but also cosmetic problems, thereby resulting in a negative psychological impact (Hoogewerf, van Baar, Middelkoop, & van Loey, 2014). In the study by Seo et al. (2014) regarding hypertrophic scars, a larger lesion has a greater adverse effect on the quality of the patient's life. In other words, the appearance becomes unattractive due to the scars, thereby lowering the patient's self-esteem, and the patient experiences difficulties with daily living and interpersonal relationships (Stavrou et al., 2014). Furthermore, the patient may also experience negative impacts, such as social isolation or rage, among others (Stoddard et al., 2015). Consequently, the patient's quality of life is diminished (Stavrou et al., 2014). These findings imply that a psychological approach toward burn patients is important together with the scar treatment because the physical problems caused by the burn may lead to psychological conflicts, which will have a negative impact on patients' physical functions and make it difficult for them to return to society.

In this manner, burn patients may experience various psychosocial and emotional difficulties. However, previous studies regarding burn patients have mainly focused on physical treatment, including wound care (Lee et al., 2014; Stoddard et al., 2015), nutrition therapy (Cho, 2014; Roh, Chung, Kwon, & Kim, 2012), and scar pain treatment (Cho & Seo, 2014; Ullrich, Askay, & Patterson, 2009), among others. Protein, vitamin C, zinc, and copper for healing of burn wounds have been described as appropriate nutrition therapy (Cho, 2014; Roh et al., 2012), and medication use and dressing treatment have been described for alleviation of pain (Cho & Seo, 2014; Ullrich et al., 2009). With regard to psychological or emotional problems of burn patients, some studies have been conducted on pain and anxiety (Park, 2012; Ullrich et al., 2009), body image and self-esteem (Hoogewerf et al., 2014; No, 2005), and quality of life (Seo et al., 2014; Stavrou et al., 2014), among others. They reported that burn patients might have fragmentary psychological or emotional problems such as increased anxiety due to pain, disorders of body image due to wound scars, and decreases of self-esteem and quality of life due to body disorders. However, objective data are lacking in these studies regarding the psychological or emotional approach for these patients. In addition, the inter-relationships between

the psychological and emotional problems were not examined.

In the past, when conducting studies on patients with diseases, researchers focused on the negative factors, and efforts were made to remove or reduce them. The concept of resilience was developed based on the study conducted by Garmezy in 2011, which described the stress and coping of high-risk children with schizophrenic mothers. The concept of resilience originated from the premise that all human beings have the positive power and strength to overcome difficulties or stressful situations (Luthar, Cicchetti, & Becker, 2000; Masood et al., 2016). This power enables humans to recover the healthy status by effectively coping with and adapting to stress or crisis situations (He, Cao, Feng, Guan, & Peng, 2013). In addition, resilience helps people to cope with the negative impact of stress and to enhance adaptation (Wagnild & Young, 1993). Therefore, it is a very important characteristic for humans. As time goes by, resilience is affected by the interaction between an individual's internal factors and the environment (Luthar et al., 2000). An individual's internal factors include positive self-esteem, optimism, self-control, strength, autonomy, flexibility, and the ability to interpret and cope with a crisis situation. They draw positive results while reducing the negative results by interacting with the environment when people are in a difficult situation (Quezada, González, & Mecott, 2016). If the internal factors (e.g., individual's strength) are enhanced and supported in order to positively interact with the environment, individuals will be able to cope with difficulties and stressful situations, thereby allowing them to recover their healthy status. According to a previous study, positive family support acts as an important factor for the patient's recovery from a crisis situation (Diana, 2013; He et al., 2013). For this reason, family support is thought to play a direct and primary role in the recovery and rehabilitation treatment process of burn patients.

Although the survival rate has increased due to the steady development of wound treatment methods, the sequelae that the burn patients must go through still continue (Diana, 2013). In addition, sequelae (e.g., physical changes due to scars, joint contracture, dysfunction, etc.) destroy the harmony of life (Seo et al., 2014; Ullrich et al., 2009). As a result, the patient experiences low self-esteem and anxiety (Hoogewerf et al., 2014; Seo et al., 2014). Therefore, it is important to enhance the internal and external resources of burn patients in order for them to overcome difficulties and improve themselves. This study was conducted to identify the associations with resilience by examining the degree of self-esteem, which is an internal factor of burn patients dealing with adversity; the degrees of depression and anxiety, which are

negative outcomes; and the degree of family support, which is an external factor.

Purpose

The purpose of this study was to examine and identify the factors influencing the degree of resilience among burn patients. The aims of the study were (a) to identify the general characteristics of burn patients and burn-related characteristics, (b) to examine the degree of resilience and factors related to it, (c) to examine the correlation between the degree of resilience and the factors related to it, and (d) to determine the factors that influence the degree of resilience.

Methods

Design and Participants

A cross-sectional descriptive design was employed. Participants included a total of 138 burn patients recovering from the acute phase in the Rehabilitation Department, H hospital, Seoul. They were 7 days or more into their hospitalization, and they were recruited through convenience sampling. The eligibility criteria included an age of 20 years or older with burn, consented to participate in this study, understood the purpose of this study, had no cognitive impairments or other diseases except burn, and had the complete capacity to verbally communicate in Korean. Of 150 questionnaires, 142 (94.7%) were submitted. Due to incomplete data, only 138 questionnaires were included in the final dataset. Sample size adequacy ($n = 107$) using G power 3 analysis software (Düsseldorf University, Düsseldorf, North Rhine-Westphalia, Germany) was estimated based on alpha level = .05, conventional medium effect size = .25, and power = 0.95 (Faul, Erdfelder, Lang, & Bunchner, 2007). Therefore, the sample size in the study was adequate.

Measures

The study questionnaire was designed to measure the general characteristics and burn-related characteristics of participants, depression, anxiety, self-esteem, family support, and resilience. General characteristics consisted of gender, age, education level, household monthly income, person caring for the burn patient, total body surface area affected by burn, depth of burn, site of burn, phase of burn treatment, and physical dysfunction in activities of daily living (ADLs). This consisted of a total of 10 items.

The resilience scale developed by Wagnild and Young (1993) was adapted into a validated Korean version by Yoon (2013). The validated Korean version was used to measure the degree of resilience of burn patients. It

consists of a total of 25 questions using a 5-point Likert scale. This scale included two subcategories, self-competence (17 items) and acceptance of self and life (8 items). The possible score range was 25 to 125—the higher the score, the higher the level of resilience. The reliability of the scale in this study was Cronbach's $\alpha = .91$.

The Beck Depression Inventory (BDI), developed by Beck, Ward, Mendelson, Mock, and Erbaugh (1961), was adapted into a validated Korean version by Lee and Song (1991). The BDI Korean version was used to measure the degree of depression of burn patients. It consists of a total of 21 questions using a 4-point Likert scale. The possible score range was 0 to 63, and degree of depression was identified by Beck et al. (1961) as follows: 0 to 9 points, *normality*; 10 to 15 points, *mild depression*; 16 to 23 points, *moderate depression*; and 24 to 63 points, *severe depression*. The higher the score, the higher the level of depression. The reliability of the scale in this study was Cronbach's $\alpha = .88$.

The State Trait Anxiety Inventory (STAI), developed by Spielberger (1972), was adapted into a validated Korean version by Kim and Shin (1978). The validated Korean version was used to measure the anxiety of burn patients. It consists of a total of 20 questions using a 5-point Likert scale. The possible score range is 20 to 100 the higher the score, the higher the level of anxiety. The reliability of the scale in this study was Cronbach's $\alpha = .89$.

The self-esteem scale developed by Rosenberg (1965) was adapted into a validated Korean version by Jon (1974). The validated Korean version was used to measure the self-esteem of burn patients. It consists of a total of 10 questions using a 5-point Likert scale. Possible scores are 10 to 50—the higher the score, the higher the level of self-esteem. The reliability of the scale in this study was Cronbach's $\alpha = .90$.

The family support scale developed by Cobb (1976) was adapted into a validated Korean version by Kang (1984). The validated Korean version was used to measure the family support of burn patients. It consists of a total of 16 questions using a 5-point Likert scale. Possible scores are 16 to 80—the higher the score, the higher the level of family support. The reliability of the scale in this study was Cronbach's $\alpha = .89$.

Data Collection

Data were collected from December 2014 to April 2015. H hospital granted permission to conduct this study. The researchers contacted the prospective burn patient participants and explained the purpose of this study as well as the participation details and the questionnaire to be used. The researchers obtained written consent forms from the burn patients who agreed to

participate in this study. The questionnaires were given only to burn patients who agreed to participate in the study, after which the completed questionnaires were collected. Researchers interviewed patients to assess their levels of depression, anxiety, self-esteem, family support, and resilience during burn treatment or rehabilitation. The survey consisted of a self-reporting questionnaire administered by researchers. However, participants' general characteristics were also informed by information from the medical record. The questionnaire took approximately 25 to 30 min to complete.

Data Analysis

Collected data were analyzed using SPSS version 21.0 statistical software (IBM Corp., Armonk, NY, USA). The general characteristics and burn-related characteristics of the participants were analyzed using descriptive statistics, and the correlations between resilience as well as related factors were analyzed using Pearson's correlation coefficient. In order to examine the factors influencing the degree of resilience, multiple regression analysis was used.

Ethical Considerations

The Institutional Review Board (IRB) of H hospital in Seoul approved this study (IRB No. 2014-083). Participants were informed that their participation in this study was voluntary and they could withdraw from it at any time. Participants were also informed of the confidentiality of the data. Researchers obtained completed written consent forms from the study participants.

Results

General characteristics and burn-related characteristics of the participants are shown in **Table 1**. In terms of gender, the male patients numbered 93 (67.4%) and the female patients numbered 45 (32.6%). In terms of age, those participants 40 to 49 years of age numbered 46 (33.3%), which was the largest group. The average age of the participants was 46.79 years. In terms of caregivers, family members took care of 74 patients (53.7%), nonfamily carers took care of 23 patients (16.6%), and 41 patients (29.7%) had no resident caregiver. In terms of burn-related features, 113 patients (81.88%) were burned over less than 30% of their bodies, which was the largest group. As for the degree of burn, 66 patients (47.8%) had a higher than third-degree burn, which was the largest group. As for the phase of burn treatment, 44 patients (31.9%) were undergoing treatment after surgery, 41 patients (29.7%) were undergoing rehabilitation treatment after the wound was mitigated,

Table 1. General Characteristics and Burn-Related Characteristics (N = 138)

Characteristics	Categories	n (%)
Gender	Male	93 (67.4)
	Female	45 (32.6)
Age (years)	≤29	22 (15.9)
	30–39	26 (18.8)
	40–49	46 (33.3)
	50–59	35 (25.5)
	≥60	9 (6.5)
		46.79 (5.43)
Educational level	Elementary school	4 (2.9)
	Middle school	13 (9.4)
	High school	67 (48.6)
	University or higher	54 (39.1)
Household monthly income (10,000 won)	≤99	9 (6.5)
	100–199	23 (16.7)
	200–299	34 (24.6)
	300–399	27 (19.6)
	≥400	45 (32.6)
Person caring for the burn patient	Family caregivers none	74 (53.7)
		23 (16.6)
		41 (29.7)
Total body surface area (%) affected by burn	≤29	113 (81.8)
	30–39	7 (5.1)
	40–49	7 (5.1)
	50–59	5 (3.6)
	≥60	6 (4.4)
Depth of burn (degree)	1	36 (26.1)
	2	36 (26.1)
	≥3	66 (47.8)
Site of burn	Exposure (hand, face, neck, etc.)	52 (37.7)
	Unexposure (hand, face, neck, etc.)	44 (31.9)
	Exposure and unexposure	42 (30.4)
Phase of burn treatment	Wound	36 (26.1)
	Postoperation	44 (31.9)
	Awaiting reoperation	17 (12.3)
	Rehabilitation	41 (29.7)
Physical dysfunction in ADLs	Yes	72 (52.2)
	None	66 (47.8)

Note. ADL = activity of daily living.

36 patients (26.1%) were undergoing treatment without surgery, and 17 patients (12.3%) were planning to undergo resurgery. In terms of the presence of physical dysfunction in ADLs, 72 patients (52.2%) experienced physical dysfunction, while 66 patients (47.8%) did not.

Levels of depression, anxiety, self-esteem, family support, and resilience are presented in **Table 2**. The mean score of the participants for resilience was 86.15, which indicates a high degree of resilience. The mean score for depression was 28.46, which indicates a severe level of depression; the mean score for anxiety was 67.41, which

Table 2. Levels of Depression, Anxiety, Self-Esteem, Family Support, and Resilience ($N = 138$)

Variables	Range (points)	Mean (SD)	Grade point average (SD)
Resilience	25–125	86.15 (11.70)	3.45 (2.01)
Depression	0–63	28.46 (10.99)	1.36 (1.22)
Anxiety	20–100	67.41 (16.21)	3.37 (1.84)
Self-esteem	10–50	35.90 (6.52)	3.59 (0.86)
Family support	16–80	56.97 (9.71)	4.07 (1.83)

indicates a high level of anxiety. The mean score for self-esteem was 35.90, which indicates a slightly high level of self-esteem, and the mean score for family support was 56.97, which indicates a high level of family support.

Correlations of depression, anxiety, self-esteem, family support, and resilience are shown in **Table 3**. The correlation analyses between depression ($r = -0.496$, $p < .001$), anxiety ($r = -0.541$, $p < .001$), self-esteem ($r = 0.524$, $p < .001$), and family support ($r = 0.523$, $p < .001$) in relation to the degree of resilience showed significant negative or positive correlations. As shown in **Table 3**, there were significant correlations in the correlation analyses between all study variables in this study. The lower the scores for depression and anxiety, the higher the degree of resilience; and the higher the scores for self-esteem and family support, the higher the degree of resilience.

Factors influencing resilience are presented in **Table 4**. The test that was conducted on the assumptions of the regression analysis showed that all the assumptions coincided with the required assumptions of the regression equations. First, there were no multicollinearity problems (Durbin-Watson value = 1.984; tolerance limit = 0.213–0.779; variance inflation factor = 1.167–2.509). All the independent variables were established to be independent of one another (correlations among study variables: from -0.541 to 0.524). For the assumption of the linearity model, the normality of the error term and homoscedasticity were satisfactory.

Based on the aforementioned results, multiple-regression analyses of depression, anxiety, self-esteem, and family support of the participants were performed to identify the major factors influencing the degree of resilience among burn patients. The analyses showed that the prediction model of resilience among burn patients was significant ($F = 33.94$, $p < .001$). The value of the adjusted R^2 was 0.492, which corresponds to the explanatory power of 49.2%. The factor that was found to have the most influence on the degree of resilience among burn patients was self-esteem ($\beta = .35$, $p < .001$), followed by family support ($\beta = .29$, $p < .001$).

Discussion

The mean resilience level of the subjects was 86.15 points (± 11.70), with a range of 25 to 125 points, which was higher than the median value. If the score is converted to percentage, it is 68.92%. In the study by An (2014), who used the same scale, the resilience percentile score of cancer patients who underwent chemotherapy was 72.87%. In the study by Kang (2012), the resilience percentile score of women with breast cancer was 72.04%. A simple comparison is difficult because the subjects were in different situations. However, the score of burn patients seems to be lower because they are in an extremely stressful situation due to pain, psychological changes caused by the physical change, and uncertainty for the future due to dysfunctions (Seo et al., 2014; Stavrou et al., 2014; Ullrich et al., 2009).

The degree of depression was 28.46 (± 10.99) out of 63 points, which was within the severe depression range (24–63) as suggested by Beck et al. (1961). The depression score of the burn patients in this study supports the findings of previous studies that burn patients generally experience depression (Hoogewerf et al., 2014; Roh, Chung, Kwon, & Kim, 2012; Seo et al., 2014). The depression score of the burn patients in this study was higher than the score of the hemodialysis patients in the study by Park (2014), who used the same scale, 18.80 (± 11.70), and the score of patients with breast cancer in the study by Cho and Oh (2011), 14.06 (± 7.93). The reason seems to be that burn patients experience severe pain and develop a negative self-perception due to the appearance change caused by the wounds and scars, and guilt for the death of family members or colleagues who got into an accident with them, among others, thereby leading to depression (Hoogewerf et al., 2014; Palmu, Suominen, Vuola, & Isometsä, 2011).

The mean degree of anxiety was 67.41 (± 16.21), with a range of 20 to 100 points, which was higher than the median value. The score was higher than the score of the face burn patients in the study by Kim et al. (2011), who used the same scale, 40.70 (± 10.91), and the score in the study by Park (2012) that measured anxiety by using the visual analog scale (perfect score: 10 points), 5.1. With regard to the characteristics of the burn patients, more subjects in this study underwent surgery, as compared to those in the study by Kim et al. (2011). In addition, there were more subjects with more than a 30% burn area. As for the burn site, the exposed site of body was 37.7% in this study, whereas it was 33.3% in the study by Park (2012). In terms of the degree of burn, 47.8% of subjects had more than a third-degree burn in this study, a much higher proportion than the 3.3% in the

Table 3. Correlations of Depression, Anxiety, Self-Esteem, Family Support, and Resilience ($N = 138$)

Variables	Resilience	Depression	Anxiety	Self-esteem	Family support
Resilience	1				
Depression	-.496 (<.001*)	1			
Anxiety	-.541 (<.001*)	.532 (<.001*)	1		
Self-esteem	.524 (<.001*)	-.426 (<.001*)	-.429 (<.001*)	1	
Family support	.523 (<.001*)	-.236 (.006*)	-.316 (<.001*)	.459 (<.001*)	1

* $p < .05$.

Table 4. Factors Influencing Resilience ($N = 138$)

Variables	B	SE	β	t	p	Adjusted R^2	F	p
Constant depression	53.34	8.76		6.09	<.001*			
	-.11	.10	-.10	-1.04	.302			
Anxiety	-.11	.07	-.15	-1.54	.127			
Self-esteem	.63	.16	.35	1.54	<.001*			
Family support	.35	.08	.29	3.86	<.001*	.492	33.94	<.001*
Educational level	.12	.24	.09	1.06	.132			
Income	.24	.12	.18	1.03	.068			
Person caring for the burn patient	.32	.08	.05	.08	.241			

* $p < .05$.

study by Park (2012). Since there is no Korean study on anxiety related to the dysfunction of burn patients, a direct comparison is impossible. However, the degree of burn is associated with surgery and dysfunction; thus, the degree of anxiety is thought to be higher (Stoddard et al., 2015; Ullrich et al., 2009).

The mean self-esteem score was 35.90 points (± 6.52), with a range of 10 to 50 points, which was higher than the median value. The self-esteem scores seemed to be higher because a greater proportion of subjects were in slightly more stable phases of recovery, including those in the treated status after surgery and those in rehabilitation treatment after acute treatment. The self-esteem of the subjects in this study was slightly higher than the mean score in the study by No (2005), who used the same scale, 33.7 (± 5.3). The reason seems to be that the proportion of patients with more than a 30% burn area was smaller in this study than in the study by No (2005), although the range of burns at the exposed site was similar in both studies. In this study, body image was not examined, and an accurate comparison is difficult. However, this study shows that not only the burn at the exposed site, but also the range and the degree of burn affect body image. This study supports the findings of Hoogewerf et al. (2014) and No (2005) that body image has a significant influence on self-esteem.

The mean family support score was 56.97 points (± 9.71), with a range of 16 to 80 points. The average rating was 4.07 (± 1.83) out of 5 points, which was higher than the median value. In the study by No and Kim (2011), who used the same scale, the mean score

for family support of cancer patients was 48.40 points. In the study by Kim (2012), who targeted hemodialysis patients, the average rating was 3.65 points, which was lower than the score in this study. Most of the subjects in this study were male and married, and the caregivers were mainly family members; family support is higher when the spouse looks after the patient. In addition, the rate of family support was higher since the help of caregivers is required due to the limitations caused by burn wounds in daily activities, including food intake, washing, and toileting. Family support is the most basic and active type of support (Diana, 2013; Kim, 2012). It plays an important role in positively affecting the patient's will for treatment and rehabilitation (Kim, 2012; Stavrou et al., 2014).

Self-esteem and family support showed statistically significant positive correlations with resilience. Meanwhile, depression and anxiety had statistically significant negative correlations with resilience. These results indicate that higher levels of self-esteem and family support, as well as lower levels of depression and anxiety, result in a higher level of resilience. A simple comparison is difficult because the subjects were not burn patients. However, the results are similar to the findings of Kim's study (2013) that was conducted on hemodialysis patients, thereby revealing that self-esteem had a positive correlation with resilience, while depression had a negative correlation with resilience. In the study by Kwak and Byeon (2013) that was conducted on blood cancer patients, depression and anxiety showed negative correlations with resilience.

These findings are all consistent with the results of this study.

In terms of factors affecting the resilience of burn patients, self-esteem and family support were significant. Among these, the influence of self-esteem was the greatest. This result was similar to the findings of Kim's study (2013) that was conducted on hemodialysis patients, in which self-esteem was shown as a major variable for resilience. In this study, the explanation power of the selected study variables for resilience was 49.2%, which was very high. It means that self-esteem and family support are variables that greatly influence resilience, which is the power to recover through supportive resources and positive interactions with a positive faith for recovery (Kim, 2013; Quezada et al., 2016). Interactions among protective factors, positive self-esteem, and family support, as well as a reduced appearance of depression and anxiety caused by maladaptation in a crisis situation, seemed to have an important influence. Especially because the support and relationships among family are very important in the Korean culture (Kim, 2013; Kwak & Byeon, 2013), it seems that the resilience of burn patients was also associated with family support.

Limitations

This study has limitations in that the influences on the burn patient's resilience were investigated only with four variables among subjects of a burn center. Therefore, it is difficult to generalize the study result. Also, measuring depression, anxiety, self-esteem, and resilience for the patients undergoing burn treatment or rehabilitation might not be the same as for those whose treatment or rehabilitation was coming to an end. This aspect could not be completely controlled.

Implications for Nursing Practice and Future Research

Wound healing does not mean completion of the burn treatment. Burns leave various physical and psychosocial sequelae, and require a long period of rehabilitation. In addition, when considering that several operations and long-term treatment are necessary, active support from family members and medical professionals to restore patients' self-esteem and reduce their depression and anxiety are very important in a crisis situation. The findings of this study may be used as basic data for nursing intervention development. The results confirm that self-esteem and family support must be increased, while depression and anxiety must be reduced in order to improve the burn patient's resilience. Additionally, further studies on the burn patient's psychosocial problems and resilience

must be actively conducted. Based on the findings, practical and specific intervention plans must be sought to increase patients' self-esteem and family support, and to reduce their psychosocial problems.

Conclusions

In conclusion, the burn patient's resilience had a correlation with depression, anxiety, self-esteem, and family support. In particular, self-esteem and family support have the greatest influence on resilience. Nursing intervention programs must be provided in order to help the burn patients in accepting and positively adapting to their changed bodies, improving their self-esteem, and receiving strong family support. In the future, expanded studies, including assessing different variables that can affect the burn patient's resilience, are required. Based on the study findings, experimental studies to develop nursing intervention programs and to verify their effectiveness must be conducted.

Acknowledgments

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Clinical Resources

- Korean Burn Society: <http://www.burn.or.kr>
- Korean Psychological Association: <http://www.koreanpsychology.or.kr>

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CLINICAL SCHOLARSHIP

Patient Perspectives on Nurse Practitioner Care in Oncology in Canada

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Communication, nurse practitioner care, nurse practitioner role, patient-centered care, patient satisfaction

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Abstract

Purpose: The purpose of this study was to add to what is known about patient satisfaction with nurse practitioner (NP) care, from the perspective of breast cancer patients who were followed by an NP.

Methods and Design: This study utilized Interpretive Description, a qualitative method aimed at making sense of the experiential aspects of health care and developing practical knowledge for improved care. Nine patients receiving NP-led care in an outpatient breast cancer clinic were interviewed about their perspectives on and experiences with NP-led care. Interview transcripts were thematically analyzed.

Findings: The NP role has long been regarded as a way of addressing many contemporary health system problems, although there continue to be barriers to the effective utilization of the role, including public and patient misunderstandings. This study revealed that, despite persistent traditional role understandings about health professionals, the patient participants appreciated the benefits of NP care and were highly satisfied with both the physical care and holistic support they received during the course of their treatment.

Conclusions and Clinical Relevance: Today's healthcare system is characterized by accessibility issues, unmet patient need, workforce issues, and funding pressures. This research supports and enriches what is known about the benefits and usefulness of NP-provided care from the viewpoint of those receiving the care. The findings offer guidance to NPs in the clinical setting regarding patient needs and optimal care strategies.

In the contemporary Western healthcare system, accessibility issues, unmet patient need, human resource issues, and funding pressures have led policymakers and practitioners to consider alternative approaches to healthcare delivery, including the development of innovative professional roles (Canadian Nurses Association, 2008; Pogue, 2007). The nurse practitioner (NP) role is one such role in which nurses with advanced education and experience provide direct and independent care to patients across a variety of settings. Despite an international body of evidence that supports the effectiveness of the NP role, there are many ongoing barriers to the utilization of NPs, including public misunderstandings about

the role (Bryant-Lukosius, DiCenso, Browne, & Pinelli, 2004; DiCenso & Bryant-Lukosius, 2010). The purpose of the study presented herein was to explore the perspectives of patients who were followed by an NP during active chemotherapy, in order to add to the developing picture of the benefits of this role and the ways in which utilization of this role is shaped by how it is understood. This qualitative study revealed that, despite persistent traditional role understandings about health professionals, the patient participants appreciated the benefits of NP care and were highly satisfied with both the physical care and holistic support they received during the course of their treatment. This research supports and enriches

what is known about the benefits and usefulness of NP-provided care and offers guidance to NPs in the clinical setting regarding patient needs and optimal care strategies.

Background

In 1973, H.R. Robertson wrote a report on the state of healthcare in Canada. In this report, he recommended that more NPs be educated and deployed in order to ease access, coordinate and improve the continuity of care, and promote efficiency in the system. More recent reports, such as the Canadian Nurses Association's advanced nursing practice national framework (2008) and the (American) Institute of Medicine's report on the future of nursing (2011), point out the need to allow nurses to be full partners in redesigning health care, utilize NPs to meet the evolving health needs of the public, and remove barriers to full NP practice. The NP role has now existed in several countries for over 40 years, although role utilization remains dependent on fluctuating government, physician, administrative, and public support (Andregård & Jangland, 2015; DiCenso & Bryant-Lukosius, 2010; Kleinpell, Hudspeth, Scordo, & Magdic, 2012). The NP is a "registered nurse, prepared with a minimum of a Master's degree in nursing, who has acquired in-depth knowledge and clinical experience" (Canadian Association of Nurses in Oncology, 2001, p. 61). Contemporary authors continue to describe the NP role as the "future frontier" because it offers a way of questioning current practice, improving healthcare delivery, addressing access issues, creating new models of patient care, and utilizing human resources more effectively (Bryant-Lukosius et al., 2004; Canadian Nurses Association, 2006; Gardner, Chang, & Duffield, 2007). It is argued that NPs "utilise the therapeutic benefit of nursing" to "facilitate efficient and high-quality care for patients" (Hopwood, 2006, pp. iv–v), emphasizing values of holism, collaboration, coordinated care, advocacy, egalitarian partnerships with patients and families, and diverse interpersonal, counseling, and technical skills (Bakker et al., 2013; Bryant-Lukosius et al., 2007; Spross & Heaney, 2000). The expectation is that NP care can meet the "needs of patients that are not being adequately met by the healthcare system with its current configuration of roles" (Pringle, 2007, p. 5).

In breast cancer care specifically, Friese and colleagues (2010) noted that the NP role is a key strategy to address care needs in light of the increased incidence of this type of cancer, the complexity of cancer care, and the improving survival rates. Multiple, persistent barriers continue to thwart the full implementation of this role, such as ad hoc and crisis-driven utilization, role con-

fusion and overload, lack of physician and team acceptance, limited public awareness, inconsistent educational standards and terminology, and inflexible funding models (Bryant-Lukosius et al., 2004; DiCenso & Bryant-Lukosius, 2010).

Despite the longevity of the role, there is considerable room to understand NP practice within the current healthcare context. We have explored the perspectives of NPs themselves, along with those of physicians and administrators (Stahlke Wall & Rawson, 2016) and turn now to our study of patient understandings of and experiences with NP-provided care. There is consistent evidence that NP care is comparable to physician care in resource use, diagnostic accuracy, and patient outcomes in a number of settings, including breast cancer care (Brown & Grimes, 1995; Bryant-Lukosius et al., 2007; Horrocks, Anderson, & Salisbury, 2002; Osborn, Jones, Gower-Thomas, & Vaughan-Williams, 2010). However, there is only a small body of recent research on patient satisfaction with NP care. Existing studies from around the world provide evidence of high levels of satisfaction across a range of care settings and patient characteristics (Agosta, 2009; Charlton, Dearing, Berry, & Johnson, 2008; Gagan & Maybee, 2011; Green & Davis, 2005; Larrabee, Ferri, & Hartig, 1997; Pinkerton & Bush, 2000; Thrasher & Purc-Stephenson, 2008). Caring, attentiveness, supportive communication styles, information provision, shared decision making, and technical competence have been shown to be important NP behaviors that contribute to patient satisfaction (Bryant & Graham, 2002; Charlton et al., 2008; Green & Davis, 2005; Thrasher & Purc-Stephenson, 2008). Interestingly, satisfaction levels are high even though patients do express confusion and a lack of clarity about the NP role (Gagan & Maybee, 2011; Thrasher & Purc-Stephenson, 2008).

Over the years, patient satisfaction with NP care has been studied exclusively using quantitative methods, mainly through surveys. Some researchers have acknowledged the need for qualitative studies that would move beyond the standard variables included on questionnaires to "capture intricate and individual patient perceptions of satisfaction with care" and explore the meanings that patients attach to NP care (Agosta, 2009, p. 615; Green & Davis, 2005; Pinkerton & Bush, 2000). To date, however, this line of inquiry has not been pursued. Patient satisfaction is associated with improved patient outcomes (Thrasher & Purc-Stephenson, 2008), making it an important aspect of healthcare quality. As well, an enhanced understanding of patient satisfaction with NP care contributes to the nursing profession by "facilitating practice pattern changes and improving the acceptability of NPs as primary care providers in a variety of traditional and nontraditional settings" (Agosta, 2009,

p. 616). Thus, our study is original and important in building knowledge in this area.

Research Methods

This study responds to calls for qualitative inquiry about patient satisfaction. Qualitative methods are the most appropriate to use when researchers seek to understand or uncover attitudes, values, meanings, motives, and perceptions within a given context and to generate ideas for improvement. Some of the most important questions in health services research concern the organization and culture of healthcare provision, lay and professional health beliefs, interactions between providers and patients, the reasons for the uptake (or lack thereof) of particular research findings, and the changing roles of health professionals (Pope & Mays, 1995). Indeed, all of these are pertinent questions to the issue of NP role utilization.

Specifically, this study utilized interpretive description (ID) as the methodological approach. ID is a qualitative method developed especially for use within the health services (Thorne, 2008; Thorne, Reimer Kirkham, & MacDonald-Emes, 1997; Thorne, Reimer Kirkham, & O'Flynn-Magee, 2004), where there is "inherent value in careful and systematic analysis of a phenomenon and an equally pressing need for putting that analysis back into the context of the practice field" (Thorne, 2008, p. 50). ID taps into human behavior or subjective experience in order to understand and explain them and consider how to work with them in everyday practice (Thorne, 2008). ID draws on the general tenets of qualitative methodology such as the exploration of research questions that seek to explore human phenomena within a specific context, sampling that generates rich data from knowledgeable participants, and thematic analysis and abstraction-interpretation of the findings (Thorne, 2008). Unique to ID is the goal of distilling the findings into "take home messages" (Thorne, 2008, p. 195) that can be used to improve nursing practice.

The study participants were nine breast cancer patients who were cared for by NPs in an outpatient setting within a large cancer center over the course of their chemotherapy treatment. Participants were introduced to the study by the NPs from whom they received care and invited to contact author S.S. if they were interested in participating in an interview. The interviews, which were audiotaped and transcribed verbatim, were conducted by author S.S., a non-NP researcher who is not affiliated with the research setting. Interviews are the primary form of data collection in ID, and small sample sizes are typical. In ID, as with all qualitative research, researchers connect with participants who have rich experience with a particular

topic, which is shared, to some extent, with others in the field (Thorne, 2008; Thorne et al., 1997; Thorne et al., 2004). Participants were asked about the initial stages of their breast cancer care and the providers involved, their reactions to being assigned to NP care, their experiences over the course of their treatment, their understandings of the NP role, their satisfaction with their care, and suggestions for improvements in the process. The final sample size was determined by the achievement of saturation, which is when no new themes or leads emerge from continued data collection (Mayan, 2009).

With this approach, the researchers immerse themselves into the data, asking questions about what the data mean and how they relate to the practice-based question (Thorne, 2008). The interpretive themes and overall relationships among the themes become increasingly complex and interrelated as the analysis proceeds. Data analysis involved reading the transcripts for similar ideas, words, and statements (Mayan, 2009), paying attention to the specific words and phrases that demanded particular attention, in light of the study topic (Thorne, 2008). Themes were generated from the grouping of "data bits with similar properties" (Thorne, 2008, p. 145), moving then to a higher level of abstraction by finding patterns and identifying key concepts (Thorne, 2008). This interpretive analytic approach made it possible to understand what was happening within this particular context and to create an overall framework that could be meaningfully transferred back to the practice setting (Thorne, 2008; Thorne et al., 1997, 2004).

This study was granted approval from the research ethics board at the University of Alberta in Edmonton. Informed consent was obtained from all participants.

Study Findings

The expressed experiences of these breast cancer patients were highly consistent. Participants shared their perspectives about their initial reactions to being assigned to NP-led care, discussed their understandings of the roles and role relationships between their oncologist and NP, and articulated the ways in which NP care added value and improved on traditional care models. Quotes from various participants (numbered by order of interview) are woven into the description of the themes to illustrate common participant perspectives.

Initial Reactions

In this setting, the participants began their treatment with a visit to their oncologist. At that meeting, they learned that they would receive ongoing care from a NP. Most of the participants recalled being "a little surprised"

(P4) to find that they were assigned to an NP. Some didn't know until their second visit because "they didn't tell me and [the NP] just walked in there" (P1). Most of them agreed that "I would like to have known that I was only going to see [my oncologist] the one time" (P1). Many of them admitted to feeling "a little dismissed [because] some people got to see the doctor" (P4) and felt unsure about their care "because of the word 'nurse'" (P6) and the associated connotation.

Several of the participants spoke about how they noticed over time that "the people who saw the doctor were not the people I wanted to be. They were the sicker people" (P4). This made them relieved to be assigned to an NP. Their comfort increased as they came to understand the NP role better. One participant was pleased with the model of care from the beginning because she felt that "there's someone that's taking charge of me and my care" (P7). Generally, these patients felt unsure about NP care at first but became more comfortable as time went on.

NP and Oncologist Role Tensions and Understandings

Although these patients saw an NP for virtually their entire course of treatment, they had a sense that their care was still directed by an oncologist who remained in the background. The oncologist and NP care model was presented to them as "a team, and that the team would handle everything that I needed" (P4), but the patients expressed some confusion such as, "Did they work together? What was the link in information between the two of them? It was not totally clear whether there was a hierarchy" (P4). Generally, they viewed the oncologist as the one who "laid it all out [and] set everything in motion" (P1), suggesting that the process of care could not have begun without the doctor. They understood that they received care from an NP "because she [NP] was working with him [oncologist] in *his* clinic" (emphasis added) (P8) and it was possible because "the oncologists were very comfortable with the nurse practitioner delivering care" (P9). Several of the participants explained that the NP "was backed up by these experts [oncologists]" (P9) and that, although they were seen by an NP, "her care was supported by the knowledge base from both the radiologist and the oncologist" (P9). Interestingly, one patient wanted to speak to her oncologist about life-threatening side effects of chemotherapy (P4), but for all of the other patients, the NPs' knowledge was entirely sufficient for their care. These patients conveyed a tension in their own understandings of the NP role. Although it was believed that "this is a medical place; there's a hierarchy" (P4), there was also a realization that "in my heart, I knew

that wasn't true" (P7), that NP care was "second tier" (P7). Traditional ideas of physician-in-charge remained in the minds of these patients, although in reality they were comfortable with and confident in the NP care they received and did not need to rely on physician knowledge. As one patient confirmed, "knowing what I know now" (P6), she would not question receiving NP care.

Value-Added Aspects of NP Care

Despite initial surprise at being assigned to NP-led care and traditional understandings about role relationships between NPs and oncologists, these patients developed a strong appreciation for NP care. Participants pointed out that much of the care they received was medically oriented. Their NPs monitored blood work, wrote prescriptions, adjusted treatment plans, approved chemotherapy, and managed treatment side effects. These patients felt that their NP "knew her stuff" (P1) and "had much more knowledge generally of what was going on with me than [the oncologist]" (P4). In addition, NPs offered a qualitatively different approach to cancer care that met these patients' needs effectively and comprehensively. There was general agreement that "it's mostly medical. But in some ways—maybe because of her attitude, and the way she is—there's also a certain amount of emotional and spiritual support, too" (P8).

These patients had perhaps unexpected perspectives on the need for emotional support. Several of them indicated that they were "not needy" (P2) and did not want to "draw out this huge emotional gooey mess" (P2). This patient pointed out that overly emotional care would have been detrimental, saying that "if someone had been too empathetic, I'd have been a mess of tears" (P2). One described herself as "a little bit on the stronger side" (P5), saying that she "goes with the flow and what you need to do, just go ahead and do it" (P5), which meant she didn't feel the need for much emotional support. A few of them voiced their lack of interest in support groups because, as P2 said, "I didn't want to hang out with a lot of other cancer patients. That wasn't going to help me." Some resisted the motivational sessions that were offered to cancer patients because they were not authentic or necessary for well-being. Several indicated that they "didn't expect anyone to take care of my emotional well-being" (P3), but instead wanted "a professional group that answered all my questions" (P3) in order to deal with their uncertainty. Some explained that they were strong individuals who did not need support, while others spoke of the support they already had from significant others.

Interestingly, however, despite the strongly expressed lack of need for overt emotional support, all of these participants appreciated the relational, holistic approach

of the NP and the reassurance they received throughout their care. Emotional support was nuanced, integrated into care, and personalized; the holistic perspective of the NPs allowed them to anticipate patients' physical needs and weave that into ongoing care. Patients explained that they received care "on both levels—physically and emotionally—[but] she [the NP] didn't make a big deal out of it. She just—professionally just did it" (P2). For these patients, emotional support was "not overt; it wouldn't even appear particularly as deliberate" (P8) and they spoke of the support as being very professional in nature. The NPs caring for these patients had a way of balancing the physical aspects of cancer care, while attending to their unique psychological needs. Issues beyond physical cancer care, such as job stress, family life, and major events such as weddings, were acknowledged and accommodated in the care plan, so that the care focused on "living with" (P9), while still facing cancer. The NPs were described as being "more hands-on" (P3), and it was said that "they look at the bigger picture ... dealing more with the individual" (P3) and tapping into the patient's own strength and resources for healing. Family members were included in care discussions and "she obviously met us time and time again, got to really know us" (P7). The consistency, inclusiveness, and holistic focus of the NPs created a safe and supportive environment where decisions were shared and

"you feel that you can risk a discussion about treatment, a treatment option, as opposed to, if it was purely clinical and the statistics say you're supposed to stay on [a treatment] for 5 years or 7 years, then that frames the discussion. That's the difference" (P9).

Without exception, these patients spoke of the reassurance that they received from their NPs. One noted that she "would look forward to seeing [my NP] and just getting her reassurance" (P2) that everything was on track with treatment and recovery such as surgical recovery, mobility, pain, side effects, and anxiety, while exclaiming that "I cannot stress enough what a lifeline [the NP] has been for me" (P2). The "incredible comfort" (P9) of receiving reassurance from their NP made them feel "able to mentally heal" (P2) and go home with a renewed strength and positive outlook because "her attitude encourages my attitude" (P8). The NPs were described as an "oasis of stability" (P2) where the mind was put at ease and "the comfort level that she gave me did a world of wonder" (P5).

Satisfaction

Patient satisfaction with NP care was high. Because of traditional notions of professional roles in health care, a

couple of the patients viewed the NPs as "people who are trained and know what they're doing, they're working in concert with the doctor" (P8). The NP's independent role was not fully apparent. One patient acknowledged that "there's still not a lot of public awareness of the full extent of their practice or the scope of their practice" (P9), which meant that others could see NP care as second class. This patient was clear, however, that it was "absolutely the opposite" (P9) in terms of the quality of care she received.

NP care was seen as beneficial because it could streamline care, improve access, and reallocate physician time to patients with more complex needs. Notably, though, for these patients, NP care represented a complete shift in thinking about care in terms of who provided it and what it involved. Because of the increasingly chronic nature of cancer, it was pointed out that "the ever-increasing population of survivors need to be followed long-term" (P9), which an NP would do very effectively. It was also noted that there was an overemphasis on the technical aspects of care, which meant that a focus on living well with cancer was "looked upon negatively because it seems like an add-on" (P9). One patient pointed out that

"I don't have high expectations of health technicians, is what I call them [doctors]. And that's fine if that's the role they want to play—as long as they're aware that they're missing a chunk of the care that should be provided, and they make sure that someone else is doing that" (P9).

She believed that NPs could be the ones to provide the value-added care of which these patients spoke so highly.

Despite any initial misgivings or misunderstandings, these patients unanimously felt strongly positive about their NP-led care experiences, explaining that the NP was "a bonus" (P6), that "the experience was wonderful" (P5) and "she was just terrific with me" (P5). One summed up the general sentiment, saying, "I've just been so fortunate. It was a gift. She's a gift" (P9).

Discussion and Conclusions

This research illuminates understandings about NP care and adds an important, and previously missing, qualitative dimension to what is known about the benefits of NP-provided care. Our findings show that NP care is highly regarded and deemed effective by patients receiving cancer treatment from NPs. There is considerable clinical and administrative relevance to these findings in that they offer information for planning and guidance for NPs in their direct interactions with patients.

Existing research shows that patients across a broad range of variables (age, ethnicity, gender, care setting)

are highly satisfied with NP care (Green & Davis, 2005). Some research shows the importance of communication and relationships in satisfying and effective NP care. Thrasher and Purc-Stephenson (2008) surveyed patients receiving NP care, asking several questions about the attentiveness of NPs and the comprehensiveness of their care. They found that patients responded very positively when asked whether the NP was friendly, gave them an opportunity to express what was on their minds, spent time, addressed concerns, and dealt successfully with their health problems. Charlton and colleagues (2008) found that patient-centered communication styles that were based on discussion and self-care had a positive impact on patient satisfaction and outcomes. The results of our research support and extend the findings of previous research. The participants in our study had confidence in the ability of their NPs to address the full range of their health concerns and to do so with a holistic perspective on each patient's unique social, emotional, and psychological needs and resources. What emerged most strikingly in our findings was the notion of reassurance. Every participant expressed a strong appreciation for the ongoing comfort that their NPs offered to them, which was based not on emotional platitudes, but on competent care and information provision over the course of their treatment. Previous research has also shown that breast cancer patients value the coaching, reassurance, and information that NPs provide (Kwast, Drossaert, & Siesling, 2013). Vogel (2003) asserted that NPs can act as facilitators of breast cancer care by providing information that empowers patients to make autonomous healthcare decisions, thus shifting away from a traditional medical model toward a role for NPs as counselors, consultants, and mentors. The effective and satisfying NP and patient relationship, then, is based on knowledge, skill, time, and patients' own strengths, rather than only technical competence, which was noted in this study to be characteristic of traditional physician care.

Interestingly, previous research has shown that patients are satisfied with NP care, even when they do not completely understand the role (Gagan & Maybee, 2011). This is consistent with our findings. However, what our findings demonstrate is that lack of role clarity and poor communication about how providers work together in a physician and NP care model create initial confusion and distress for patients, at an already stressful time. Our participants, who were beginning treatment for a potentially life-threatening disease, felt, in some instances, passed off to a lesser provider. During the process of their treatment, many of them perceived that the physician was in the background if the complexity of care were to exceed the NP's skill set, even though, in

reality, the NPs were able to manage patient care independently in virtually all of these patient situations. The lack of understanding of NP skills and role differences between physicians and NPs allowed for a constant, underlying sense of unnecessary uncertainty. On a macro level, role ambiguity has been a key issue in NP role utilization (DiCenso & Bryant-Lukosius, 2010), and our findings show how that plays out at the provider and patient level. Yet, what we do also see in our findings is that, in the end, satisfaction with NP-led care is high and the experience is positive enough for patients that it compensates to a large extent for the uncertainty of role ambiguity.

Evidence of the value of the NP role is mounting, and this study shines light on what NP care means to patients. Nevertheless, there are considerable, ongoing barriers to NP role utilization because of the blurring of professional boundaries that accompany the role and the lack of acceptance and understanding that that produces (DiCenso & Bryant-Lukosius, 2010; Lowe, Plummer, O'Brien, & Boyd, 2012). Future research should examine the ways in which patients could be introduced more effectively to NP-led care and continue to explore patient satisfaction and outcomes. This would provide a solid foundation of evidence upon which to base decision-making around the NP role. Role understandings and role contributions have an impact on the individual patient experience. Thus, patients' descriptions of care, such as this, offer an excellent barometer of the effectiveness of care delivery models. As these patient experiences attest, NPs hold the potential to transform the patient experience and offer access to excellent, patient-centered care. Attention to patient experiences is foremost in determining how patient care should best be delivered.

Clinical Resource

- Advanced nursing practice: A national framework: https://www.cna-aiic.ca/~media/cna/page-content/pdf-en/anp_national_framework_e.pdf

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CLINICAL SCHOLARSHIP

Older Adult Residents' Perceptions of Daily Lives in Nursing Homes

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Abstract

Purpose: This study aimed to explore older adults' perceptions of their daily lives in South Korean nursing homes.

Design: We employed a qualitative descriptive study using semistructured interviews.

Methods: We conducted individual, semistructured interviews with 21 older adult residents from five nursing homes in South Korea and analyzed the data using thematic analysis.

Findings: Five themes related to older adults' perceptions of their daily lives in nursing homes emerged: enhanced comfort, aspiring to maintain physical and cognitive functions as human beings, desire for meaningful interpersonal relationships, feelings of confinement and limited autonomy, and acceptance of and adaptation to life in a facility. These themes indicated the positive and negative aspects of nursing home residence, and facilitators and challenges to enhancing older adult residents' quality of life (QOL).

Conclusions: Policy, practice, and research endeavors are required to improve older adult residents' QOL, such as adequate professional nursing care for physical and psychological comfort and residents' health and functional status, sufficient activity programs and meaningful relationships, person-centered care to enhance residents' autonomy, and homelike environments.

Clinical Relevance: This study demonstrates that healthcare providers, researchers, and policymakers should consider nursing home residents' QOL to examine the quality of care within the setting and facilitate the development of appropriate strategies to improve QOL among this population.

In South Korea, the population of older adults aged 65 years or older is increasing rapidly, accounting for 6.62 million individuals (13.1% of the total population) in 2015 and an expected 17.62 million (40% of the total population) in 2060 (Statistics Korea, 2011). This has led to a rapid increase in demand for long-term care (LTC) services for older adults in South Korea. Consequently, in July 2008, the South Korean government initiated national LTC insurance for older adults, as a part of the national social welfare (Lee et al., 2015; National Health

Insurance Service [NHIS], 2010). This initiative, and the demand for LTC services in the country, led to a dramatic proliferation of LTC facilities, from 583 in 2005 to 2,935 in 2015. An estimated 1.4% of older adults resided in these LTC facilities in 2015 (NHIS, 2016).

The goal of LTC insurance is to promote older adults' health, reduce their families' care-related burdens, and improve quality of life (QOL) for both groups. Older adults 65 years of age or older and those who are younger than 65 years of age and have a geriatric disease (e.g.,

Alzheimer's disease, stroke, or Parkinson's disease) can apply for LTC insurance. These applicants are assessed by NHIS employees to determine whether they qualify as beneficiaries (NHIS, 2010, 2016). Those who qualify are able to receive LTC services, including nursing home (NH) and home care (NHIS, 2010, 2016). In particular, NH residents typically receive 24-hr nursing care, rehabilitation, and social and recreational therapy (NHIS, 2010).

In the early stages of LTC insurance implementation for older adults, the governmental focus remained on increasing the numbers of and access to these facilities. However, there is now a need for considerable efforts to examine and improve the quality of LTC facilities. A survey reported that 63% of the employees at NHs answered that appropriate care is not provided to older adults when their health condition is changed or treatment is required (No et al., 2010). Lee, Park, Han, and Suh (2012) also reported that current NHs cannot meet the needs of older adults because of inadequate registered nurse (RN) staffing levels and the absence of advanced nurse practitioners. To control quality, the government evaluated all NHs established after 2009 and posted the results on the LTC insurance website, in addition to creating incentives for the NHs to score well on these evaluations (Choe, 2010; Lee & Kim, 2012). However, these evaluations focused on structural characteristics (e.g., environment) and operating procedures, rather than patient outcomes or service quality.

In South Korea, NHs should be considered a second home for older adults, as they are likely to remain in these facilities until they die (Choi & Lee, 2010). Therefore, understanding old residents' perceptions of their daily lives in nursing homes is an important component of assessment and outcome measurement in relation to care quality in NHs. Unfortunately, few studies have been conducted to examine older adults' perceptions of their daily lives in South Korean NHs. The purpose of this study was to fill this research gap by exploring older adults' perceptions of their daily lives in South Korean NHs. The research questions were "How do older adults perceive their daily life in nursing homes?" "What aspects of nursing home affect the daily life of older adults?" "How do older adults perceive their overall health status in nursing homes?" and "What kind of life do older adults want to live in nursing homes?"

Methods

Study Design

We employed a qualitative descriptive design using semistructured, in-depth, individual interviews with NH

older adult residents (Sandelowski, 2000). A qualitative descriptive design was chosen to provide a "comprehensive summary" of their daily life in NHs using "everyday terms" (Sandelowski, 2000, p. 336).

Participants and Setting

Purposive sampling was used to recruit older adult NH residents to understand their perceptions of their daily lives. The inclusion criteria included (a) age of 65 years or older; (b) a minimum of 3-month residence at a participating NH; (c) normal cognitive function evaluated by a standardized Korean instrument that has demonstrated validity and reliability (Kang, Na, & Hahn, 1997); (d) ability to communicate without limitations; (e) ability to understand and reiterate the study purpose; and (f) willingness to participate in the study.

The participants were recruited from five NHs (three located in Seoul and two in the South Korean provinces of Jeollabuk-do and Gyeonggi-do). The number of beds in the NHs ranged from 65 to 296. Four of the NHs had received an "A" grade based on the 2013 national evaluation of NHs conducted by the NHIS, which placed them within the top 10% of the NHs selected for evaluation. The one remaining NH had not been evaluated because it was established after the evaluation took place in 2013.

Data Collection

The study was approved by the institutional review board at the university with which the authors are affiliated. Participant recruitment was performed in collaboration with facility administrators and nurses. Potentially eligible residents were identified by nurses working in the NHs, who also introduced the study to the residents and inquired about their interest. If a resident was interested in participating, the researcher met with the resident individually to explain the study purpose and procedures. All the residents who participated in the study provided written informed consent, and they were aware that they could refuse to participate or withdraw from this study at any time without any negative consequences on the services received from the NHs. We provided a break if the participants felt tired during the interview. To ensure anonymity and confidentiality, an identification number was used to identify each participant, and all the data including audiotapes and transcriptions were kept in a locked cabinet at a researcher's office.

Data were collected between February and June 2015. We designed the semistructured interview guide that facilitated the in-depth interviews (**Table 1**). Two researchers with extensive experience in qualitative

Table 1. Interview Guide

Question 1: Could you describe your everyday life in this nursing home?
 How long have you been here? How did you come here?
 How was your life before you came to this nursing home (e.g., at home or a long-term care hospital)?
 What kind of life did you expect to have here (nursing home)?
 Have there been any changes in your life since you came to this nursing home? If so, please tell me more about them.
 How is your relationship with other residents here?

Question 2: Could you describe what aspects of this nursing home have affected or would improve/worsen your life?
 Could you provide any examples?
 Could you tell me what you like the most about your life in this nursing home?
 Could you tell me what you like the least about your life in this nursing home?

Question 3: Could you describe your overall health status lately?
 Have there been any changes in your health since you came to this nursing home? If so, what do you think the reasons are? Could you provide any examples?

Question 4: What kind of life do you want to live in this nursing home?
 What kind of care would you like to receive in this nursing home?

research (J. Kim and S. J. Chang) conducted the interviews at the participants' convenience in quiet, private rooms at the facilities. Two researchers conducted the interviews because the NHs were located at some distance from each other. One of the researchers interviewed 11 participants at three NHs, and the other interviewed 10 participants at two NHs. The two interviewers used the same interview guide to ensure consistency. Before data collection, they discussed their approach based on the interview guide, and after completing their first interview, they listened to the audio and read the transcripts together and had discussions to identify consistent methods of interviewing. The interviews were conducted in Korean and lasted 60 min on average (range 20–80 min). During the interviews, the interviewers observed participants' behavior and nonverbal expressions and took field notes. The interviewers' impressions and feelings about the interviews were also documented in their field notes. All interviews were audio recorded and transcribed verbatim. The research team compared the transcripts with the original audio recordings to confirm accuracy, removed personal identifiers, and assigned random identifiers to the participants. All of the qualitative data, including those collected via interviews and field notes, were managed using NVivo 10 software (Qualitative Solutions and Research, 2015). Information regarding the general characteristics of the NH residents who participated in the study was obtained via a review of their medical records. We continued to recruit participants and collect data until data saturation was achieved.

Data Analysis

The interview transcripts and field notes were analyzed using thematic analysis according to the six steps described by Braun and Clarke (2006). Two researchers (J. Kim and S. J. Chang) carefully and independently reviewed the transcripts to familiarize themselves with the data and recorded their initial ideas regarding meanings and patterns related to the NH residents' perceptions of daily lives. The researchers then coded the data independently, searching for meaningful units that constituted sentences or paragraphs (i.e., coding units). After the initial coding, the independent coders compared their codes for congruency and reconciled any discrepancies through discussion. Related codes were grouped together to generate subthemes and themes. To ensure that the codes were consistent and coherent with the respective themes, all codes were re-examined by independent coders. Codes that did not fit the theme during this iteration were re-categorized or moved to other themes. In addition, representative quotes and examples from each theme were selected and translated into English to elucidate the findings of the analysis.

Consistent with the criteria for rigor in qualitative studies (Lincoln & Guba, 1985), the trustworthiness of the findings was enhanced through several strategies, including multiple investigators for independent coding and categorization of the data, maintaining an audit trail, and comparing interview transcripts with the original audio recordings to ensure accuracy. Moreover, two bilingual researchers (E. Cho and H. Kim) independently translated quotes and examples selected for the presentation of the findings, compared their translations, and received confirmation from the other team members. The research team also documented details of the study procedures, created memos about data analysis, and requested that two qualitative research experts perform an independent audit.

Results

Sample Characteristics

In total, 21 NH residents 65 to 94 years of age ($M = 83.6$, $SD = 7.1$), of whom 14 were women, participated in the study. The proportion of participants 80 to 89 years of age was higher relative to the other age groups. The proportion of participants who were classified as requiring "Level-3 LTC," which indicates a requirement of partial assistance from others to perform activities of daily living, was higher relative to those requiring other levels of care. Moreover, the duration of their residence at the participating NHs ranged from

Table 2. Nursing Home Residents' General Characteristics ($N = 21$)

Characteristics	<i>n</i> (%)
Gender	
Female	18 (85.7)
Male	3 (14.3)
Age (years)	
60–69	1 (4.7)
70–79	3 (14.3)
80–89	14 (66.7)
90–99	3 (14.3)
LTC level	
Level 1	1 (4.7)
Level 2	3 (14.3)
Level 3	12 (57.1)
Level 4	2 (9.5)
>Level 4	3 (14.3)
Primary disease	
Cerebrovascular accident	10 (47.6)
Geriatric syndrome	6 (28.6)
Neurodegenerative diseases	3 (14.3)
Hip fracture	2 (9.5)
Duration of residence (months)	
3–12	7 (33.3)
13–48	3 (14.3)
49–60	3 (14.3)
>60	8 (38.1)
Environment prior to admission	
Home	16 (76.2)
Lived alone	6 (37.5)
Lived with spouse	2 (12.5)
Lived with child	8 (50.0)
Acute hospital	2 (9.5)
LTC* hospital	3 (14.3)

Note. LTC = long-term care.

3 months to 9 years. The most commonly reported condition was cerebrovascular accident. Details regarding residents' general characteristics are presented in **Table 2**.

NH Residents' Perceptions of Their Daily Lives in the NHs

Five themes emerged from the data collected from older adult residents regarding their daily lives in the NHs. These included the following: (a) enhanced comfort, (b) aspiring to maintain physical and cognitive functions as human beings, (c) desire for meaningful interpersonal relationships, (d) feelings of confinement and limited autonomy, and (e) acceptance of and adaptation to life in a facility.

Enhanced comfort. Many participants reported that their psychological and physical comfort had improved since their admission to an NH. Some of them

enjoyed being freed from their familial responsibilities, as they no longer needed to worry about meals and housekeeping while staying in the NHs. An 82-year-old female resident said, "Housekeeping is always hard, isn't it? But I'm not responsible for anything here and feel respected. All [of the] staff [members] here treat me very well, so I feel very comfortable" (Resident F). Lack of interference from their children was another reason some residents felt comfortable in NHs, as stated by one resident: "Here, I can do whatever I want to do, but if I stayed with my children, it would be awful [because they wouldn't let me do things]" (Resident T, 82-year-old female).

Several residents appraised the NH staff positively as being responsible for and taking care of everyday chores, such as preparing meals, housekeeping, and managing the residents' medications and health needs. For instance, an 80-year-old female resident said, "This place is better than my house . . . here, I just eat and sleep! Everything is done by staff, so I feel very relaxed" (Resident E). Some residents felt that the continuous skilled care they received increased their physical and psychological comfort and reduced dependency and burden on their families. An 81-year-old female resident explained: "Although my children take care of me very well, their care is not better than [the care received] here. Here, staff toilet us, bathe us, and do everything for us. Whose child can do all those things? No way!" (Resident P).

Aspiring to maintain physical and cognitive functions as human beings. Some participants reported satisfaction with improvements in their health, while others were frustrated and concerned about death because of worsening health. Residents often believed they had become healthier through following a regular routine in their NH lives and because of consistent exercise in the NHs. They reported increased mobility and cognitive capacity and well-controlled chronic conditions (e.g., diabetes, hypertension, incontinence). An 82-year-old female resident described the recovery of her physical function: "Every morning after breakfast, I go to the third floor to exercise, especially exercise appropriate for older people! I was unable to stretch this hand before, so I couldn't eat well, but I've become stronger since I came here" (Resident T). Another resident, an 86-year-old female, stated:

Since I came here, I've been living in a regular pattern and eating whatever is given to me; so, my diabetes has been better, and I've been healthier. If I were home, I would have eaten whatever I wanted. As my blood sugar and blood pressure have gone down, my son and daughter like the facility. (Resident Q)

In contrast, some NH residents reported that despite their expectations for recovery they had become weaker, which led to reductions in their hope regarding their health. As a 65-year-old female resident described:

If I got better, I could be more hopeful, but I feel weaker day by day. The distance that took 5 minutes for me to walk [before] now takes 10 minutes, which makes me frustrated. I don't have any confidence or hope. If there was any chance of getting better, I might feel hopeful, but I'm just getting worse, so I'm disappointed every time. (Resident G)

As residents' reliance on others increased, they felt they were losing their humanity:

I don't feel like a human being because it's hard for me to move [by myself]. I need others' help to stand up and [sit] down or go to [the] hospital. Other residents assist me all the time. This is why I say I don't feel like a human being. (Resident U, 94-year-old female)

In addition, as their health deteriorated and they watched other residents dying, they became concerned about the future and death:

As I've observed, several people die here yearly Now, I'm almost a dead person. There are no healthy residents [here]. Everyone's just lying in bed every day, all day long, relying on others for toileting. So who would want to live longer? I don't have any hope or thoughts. I just wonder whether it's better to die now or later. (Resident B, 89-year-old male).

Desire for meaningful interpersonal relationships. While some participants enjoyed their new relationships with others in NHs, others reported they felt lonely because of a lack of meaningful personal relationships. Moreover, several participants found it difficult to live with other older adults with cognitive impairment. Participants who lived alone prior to the NH admission were satisfied with their new relationships with nurses and other residents in the NHs, and they felt less lonely. A 75-year-old female resident said, "Staying here is better than being alone at home If I go home, I'll be alone . . . and I'd feel lonely" (Resident A). Another participant, a 92-year-old female, stated, "I can still talk, so lots of people come to me. The nurses listen to whatever I say, and we laugh together. I think there are a lot of positive things here" (Resident J).

However, participants often reported that dementia and ambulatory limitations prevented many residents

from engaging in meaningful conversations or developing personal relationships, leading to their feelings of boredom and loneliness. They believed they had no peers with whom they could engage in open communication. As an 81-year-old resident stated, "There are no normal people here. Almost every person has dementia or is wheelchair-bound . . . it's hard to communicate with them" (Resident R, female). In addition, participants who experienced ambulatory limitation often felt isolated, as they found it difficult to participate in the planned or unplanned activities. For instance, one resident said:

When I hear and see others laugh and enjoy [themselves], I desperately want to join them . . . but now it takes a lot longer than before for me to walk . . . anywhere, so it's hard for me to join others . . . I'm very disappointed. (Resident G, 65-year-old female)

A few residents reported they found it difficult to live their everyday lives because some residents with dementia manifested verbal and behavioral problems, which interfered with the activities of the relatively healthy older adults. "When I wheeled around, residents with dementia said, 'Why don't you walk instead of using a wheelchair?' I told them, 'I want to walk by myself, but I can't,' but they kept saying the same thing" (Resident A, 75-year-old female). Another participant reported experiencing verbal abuse from some residents with dementia:

I want to go home because . . . when I practice walking, I walk slowly At times, residents in front of me who have dementia have asked me, "Why are you still alive?" I answered, "How can I die? It's beyond my control." Then, they said, "Die," and "You need to die." It's so hard to hear that from others. (Resident G, 65-year-old female)

Feelings of confinement and limited autonomy. Some residents perceived the rules governing group life in NHs as a new form of pressure. Although they wanted to do things as and when they wished, they experienced limitations because of group-focused rules and regulations. Moreover, they wanted to be free to go out, but they required staff members' permission; thus, they often felt confined. As an 84-year-old female participant described:

I should feel free and relaxed, but I actually feel confined emotionally and physically. Even though I try to be active here, I can't do things as I wish, because staying here is group focused. I feel a little suffocated staying here. (Resident C)

Another participant said:

I feel confined here. I really want to go out, but staff don't let me out because it's cold out there now. I understand that. They may worry about any possible injuries, but I am still disappointed with the fact that we need their permission to get out. (Resident A, 75-year-old female)

As NHs focused on groups, rather than individuals, several participants reported that individuals' opinions were often interpreted as complaints, which led to frustration. An 89-year-old male resident said,

My opinions are not heard, and nothing has been fixed ... the staff [members] just follow their rules ... even though I say something to them, they don't listen. They may think, "This older person could be out of [his] mind or demented." (Resident B)

Acceptance of and adaptation to life in a facility. Although NH residents wished to go home or live with their children, they realized that it was not ideal or possible:

I want to go home, but it's boring living at home ... I used to enjoy gardening, but now I can't do it because of my condition ... Instead, I need to have someone who can do it. This whole situation is hard to deal with. This is why I'm here ... so I just need to pretend to be a fool here. (Resident J, 92-year-old female)

They also worried about becoming a burden to their children and therefore did not inform them of their wish to go home.

If I got a little better, I would want to get out of here. However, my son insists that I can't live alone at home anymore ... [he asked me to] stay here a little [while] ... that's why I'm staying here. (Resident B, 89-year-old male).

Accordingly, they accepted and adapted to their current situations and reality. One of the residents, an 86-year-old female, stated, "I don't think I can live at home any more. I will stay here until the end. I think staying here is the most convenient thing" (Resident N).

Discussion

This study explored older adults' perceptions of their daily lives in South Korean NHs. The data obtained from the residents revealed five themes. Many residents experienced enhanced physical and psychological comfort after their admission to NHs. While staying in NHs, residents aspired to maintain physical and cognitive

functions as human beings and desired meaningful interpersonal relationships. Some residents also reported limited autonomy and feelings of confinement related to institutionalization. However, they tried to accept and adapt to life in an NH. These findings are largely consistent with previously published research (Bradshaw, Playford, & Riaz, 2012; Chang, 2013; Hall, Opio, Dodd, & Higginson, 2011; Hjaltadottir & Gustafsdottir, 2007; Kwong, Lai, & Liu, 2014; Murphy, Cooney, & Casey, 2014; Robichaud, Durand, Bedard, & Ouellet, 2006; Schenk, Meyer, Behr, Kuhlmeier, & Holzhausen, 2013).

NH residents' comfort is an important component when healthcare providers assess residents' QOL (Gregersen, Jordansen, & Gerritsen, 2015). In our study, NH residents described their experiences of comfort in terms of both physical and psychological aspects. The "enhanced comfort" resulting from not having to prepare meals, perform household chores, and manage medications and health needs is similar to "feeling comfortable" with care in NHs that the family could not offer in the theme of "feeling optimistic about living in a nursing home" (Chang, 2013) and "securing the insecure body (being cared for and being safe)" (Hjaltadottir & Gustafsdottir, 2007). In addition, the participants felt "enhanced comfort" because they were freed from their familial responsibilities and the reduced dependency and burden on their families, which is consistent with feeling free from being a burden on the family in "feeling optimistic about living in a nursing home" (Chang, 2013). As they lived in NHs and received comprehensive care from staff for their needs, they reported relief from stress related to familial responsibilities (e.g., everyday chores for their families) and children's interference, as well as the fear of becoming a potential burden to their families. These findings highlight a possible need to develop and test measures appropriate for South Korean culture to assess residents' physical and psychological comfort.

Physical and cognitive function is an important factor that may contribute to NH residents' QOL. Our findings showed that some NH residents who experienced improvement in functional status were satisfied with their lives in NHs, whereas others experiencing worsening functional status were frustrated and concerned about their future and death. The participants aspired to maintain physical and cognitive functions. They were afraid of losing their humanity as their physical and cognitive function deteriorated. This is consistent with the findings of previous studies (Chang, 2013; Kwong et al., 2014). Elderly residents were eager to maintain their physical function to recover their roles (Chang, 2013) and perceived the deteriorating physical function as a loss of control over their lives (Kwong et al., 2014); thus, they were most concerned about this. Hall et al. (2011) and Schenk

et al. (2013) identified health status as one of the key dimensions of residents' QOL. In our study, NH residents described receiving ongoing, timely professional care and services as one of the benefits of living in NHs, primarily because family members were often unable to provide them with the necessary care at home. Consistently, in previous studies, NH residents reported feeling secure in NHs, as they received appropriate care and assistance when required (Bradshaw et al., 2012; Nakrem, Vinsnes, Harkless, Paulsen, & Seim, 2013; Schenk et al., 2013). As professional care and services contribute to NH residents' QOL, healthcare professionals and policymakers should endeavor to improve quality of care and services in order to improve or maintain residents' health and functional status.

The importance of meaningful interpersonal relationships with peers and staff members was prominent in the interviews with NH residents in our study. Some NH residents indicated that these relationships contributed to their positive perceptions of life in an NH; however, others experienced loneliness resulting from a lack of personal, meaningful relationships with others. This is consistent with the findings of previous studies (Chang, 2013; Roberts & Bowers, 2015; Schenk et al., 2013). For example, a grounded theory study conducted in the United States showed that once residents had been admitted to NHs, they were exposed to new relationships with other residents and staff members, and they tended to define these relationships as either positive (friendly) or negative (unfriendly) based on others' responses in conversations (Roberts & Bowers, 2015). Relationships and interactions with other residents occurred primarily while the participants were engaged in planned NH activities. Therefore, it may be imperative for NH management teams and healthcare providers to develop strategies that include the provision of support in accessing activities and opportunities to participate in them (e.g., low-threshold group exercise programs), to help NH residents, including those with ambulatory dysfunctions, to engage in activities (Quehenberger, Cichocki, & Krajic, 2014). In a previous study, older adults in NHs experienced a deep sense of loss and loneliness because of the frequent turnover of nurses in the NHs, as they perceived the relationships with nurses as very important and meaningful in their lives (Chang, 2013). Since older adults in NHs desire meaningful interpersonal relationships with staff members, especially nurses, policymakers and NH management teams need to develop strategies to improve the personal and meaningful relationships of older adults with nurses through nurse's turnover reduction strategies and therapeutic communication.

In a systematic review regarding QOL in NHs, autonomy was identified as one of the key components

positively associated with residents' perceived QOL (Murphy et al., 2014). Unfortunately, limited autonomy is a frequently reported issue that affects residents' experiences of living in NHs. Consistently, in our study, for many residents, feelings of confinement often resulted from imposed limits to personal autonomy, such as permission being required from staff members to go out, residents' lack of opportunities to plan their days, and group-focused rules and regulations. Older adults spent most of their time indoors and felt confined. They expressed their desire to go outside for fresh air, which is consistent with "seeking solace (overstepping the confinement)" (Hjaltadottir & Gustafsdottir, 2007, p. 51). In addition, individual opinions were often ignored by the staff members; to protect and enhance residents' autonomy, person-centered care, rather than task or regulation-oriented care, must be implemented in NHs (Rodgers, Welford, Murphy, & Frauenlob, 2012).

In the present study, the residents tried to accept the NHs as their home and adapt to life in an NH. The theme of "acceptance of and adaptation to life in a facility" is similar to "seeking solace (feeling at home)" in a previous study (Hjaltadottir & Gustafsdottir, 2007). A qualitative systematic review showed that residents' positive attitudes toward life in an NH contributed to their acceptance of and adaptation to life in an NH (Bradshaw et al., 2012). Moreover, the creation of a homelike environment could help residents accept and adapt to their lives in NHs. Homey environments involve both physical factors and a homey atmosphere (Bradshaw et al., 2012). Physical factors include providing residents with their own rooms and bathrooms that are filled with familiar furniture and their own belongings, and ensuring there is sufficient outside space to allow them to enjoy outdoor activities (Bradshaw et al., 2012; Hjaltadottir & Gustafsdottir, 2007; Schenk et al., 2013). A homey atmosphere allows NH residents to plan their days and includes a variety of activity programs (Bradshaw et al., 2012). In a study conducted in Norway, having their own room, as well as having access to practical assistance, someone to communicate with, enjoyable mealtimes with others, easy living, and belonging to a group, contributed to residents' acceptance of NHs as their homes (Nakrem et al., 2013).

In this study, the residents wished to go home or live with their children; however, they did not inform their children of this wish because their children wanted them to stay in the NHs. The residents knew they would place a burden on their families if they went back home. Thus, they tried to accept and adapt to life in the NH for their families. This shows that family is very important to the elderly residents in the NHs, as is consistent with the findings of previous studies (Chang, 2013;

Hjaltadottir & Gustafsdottir, 2007; Tsai & Tsai, 2008). Previous studies reported that elderly residents perceived their QOL in the NHs based on their family relationships (Tsai & Tsai, 2008). Telephone communication and visits with family and children are perceived as the most important social resources for the residents (Chang, 2013; Hjaltadottir & Gustafsdottir, 2007). Thus, NHs need to develop strategies to support family bonds to help older adults maintain feelings of being part of a family, and to help family members feel welcome in the NHs (Hjaltadottir & Gustafsdottir, 2007).

The present study is among the first to report older adults' perceptions of their daily lives in South Korean NHs. Future research is needed to examine daily lives among Korean NH residents with cognitive impairment. When considering residents' QOL as one of the indices of NH care quality, it is necessary to develop culturally valid measures for assessing cognitively impaired older adults' QOL. Therefore, efforts to develop, test, and validate QOL assessment instruments suitable for South Korean NH residents are required. Further research is also required to develop culturally appropriate interventions to improve older adults' experiences and sense of autonomy in NHs in South Korea and to examine their efficacy with respect to QOL.

This study has some limitations. First, interviews were conducted with older adults with normal cognitive function; therefore, the results do not reflect the daily lives of NH older adults with cognitive impairments. Second, the quality ratings of the NHs included in this study were high. The experiences of residents in low-quality NHs could differ from those expressed by the participants in the present study. Nevertheless, our study is important given that little evidence exists regarding South Korean NH residents' perceptions of their daily lives. Thus, the results could provide important information upon which future programs may be conceptualized.

Conclusions

This study explored older adults' perceptions of their daily lives in South Korean NHs. The results demonstrated that residents' perceptions of their daily lives in NHs are complex and characterized by both positive and negative experiences. The study also identified the facilitators and challenges involved in enhancing residents' QOL. The findings of this study indicate that policy, practice, and education endeavors are required to improve older adult residents' QOL by focusing on adequate professional nursing care for physical and psychological comfort and residents' health and functional status. Our findings also show the need for

sufficient activity programs, meaningful interpersonal relationships, and person-centered care to enhance the residents' autonomy, and create homelike environments. In addition, further research is required to improve understanding, assess NH residents' QOL accurately, and facilitate the development of appropriate strategies to improve QOL for this population.

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Clinical Resource

- National Health Insurance Service. Long-term care insurance: <http://www.longtermcare.or.kr/npbs/e/e/100/index.web>

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CLINICAL SCHOLARSHIP

Contextual Factors Impacting a Pain Management Intervention

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Abstract

Purpose: To determine if findings from our preliminary study related to patient and nursing satisfaction with a pain management intervention could be replicated in a changed environment, and if contextual factors could impact the effectiveness of a pain management intervention on patient satisfaction with nursing staff's management of pain.

Methods: A prospective, experimental design was used with six monthly assessments before, during, and after the intervention. Data were collected from 540 patients admitted to eight medical surgical and progressive care units and nurses that worked in these units at an academic health sciences center in the southern United States, from March to July 2015. The script-based, pain management communication intervention included three specific tactics: script-based communication, use of white boards, and hourly rounding. The Hospital Consumer Assessment of Healthcare Providers and Systems survey was used to assess two items: "pain is well controlled" and "staff did everything they could to help with pain." Contextual factors focused on the practice setting.

Findings: Both scores for "pain is well controlled" ($\beta = .028$, $p = 0.651$) and scores for "staff did everything they could to help with pain" ($\beta = .057$, $p = .385$) did not change initially but then increased significantly and were sustained over time. Nurses had high levels of satisfaction with the intervention ($M = 7.9$, $SD = 2.1$) and compliance with the intervention ($M = 8.0$, $SD = 1.9$), and had little difficulty in implementing the intervention ($M = 8.3$, $SD = 1.4$). In terms of contextual factors, the number of beds on the unit and the number of patients being discharged negatively impacted scores for "pain is well controlled" and "staff did everything they could to help with pain." Hospital length of stay positively impacted scores for "pain is well controlled" by staff.

Conclusions: Despite challenging contextual variables, the study extended the findings of an early preliminary study in showing the effectiveness of pain management intervention on patient satisfaction with staff's management of pain. In evaluating the impact of an intervention, it is essential to examine the contextual environment.

Clinical Relevance: Using simple, clear, and consistent communication between patients and nurses related to pain can positively impact patient satisfaction with pain management over time. The health care environment can enhance nursing practice and patients' outcomes.

Increasingly, there is recognition that the effectiveness of healthcare interventions should be considered within the context in which they occurred (Shekelle et al., 2011). Contextual influences may help or hinder an intervention and the resulting outcomes (Bonell, Fletcher, Morton, Lorenc, & Moore, 2012). Understanding the contextual environment before and during the implementation of an intervention is crucial in determining the circumstances under which this intervention can be effective and successful (Bonell et al., 2012; Ovretevit et al., 2011).

Current healthcare systems provide an interesting and complex environment for conducting healthcare research. Healthcare systems in the United States have changed tremendously during the past few decades (Antos, 2015; Jennings, 2008; Wexler, Hefner, Welker, & McAlearney, 2014), with the aim to improve quality of care, increase patients' satisfaction, and decrease costs (Antos, 2015; Ellner et al., 2015). Some of the changes may negatively impact the nursing work environment (Fox & Abrahamson, 2009). In addition, the healthcare environment is currently characterized by nursing shortages. Nursing shortages are associated with increased nurses' workload and lower job satisfaction, which consequently impact patients' care, outcomes, and experiences (Curtin, 2007). Interestingly, the healthcare environment and empowerment of nurses (context) commensurate with ANCC Magnet[®] designation are associated with improved patient outcomes (Kutney-Lee et al., 2015; Tei-Tominaga & Sato, 2016).

Assuring high-quality health care is an essential goal for all healthcare organizations in order to promote quality, safety, and a positive patient experience. A critical aspect of the patient experience is successful management of their pain by their care providers. Patient satisfaction is a core element in reflecting patient experience and assuring high-quality health care (Evans, 2016; Moore, Hamilton, Krusel, Moore, & Pierre-Louis, 2016). Previous studies showed that different factors may impact patients' satisfaction with pain management, including personal beliefs, communication with healthcare providers, as well as patients' expectations (Moore et al., 2016; Schroeder et al., 2016). Patients may report satisfaction with pain management despite the presence of pain (Karabulut, Aktaş, Gürçayır, Yılmaz, & Gökmen, 2015; Miaskowski, Nichols, Brody, & Synold, 1994; Ward & Gordon, 1996). Different approaches have been used to improve hospitalized patients' satisfaction with pain management. Several studies found that pain assessment, effective communication, acceptance and understanding, and providing patients with needed and accurate information about pain can help in improving patients' satisfaction with pain management (Muller-Schwefe

et al., 2011; Smith, DuHamel, Egert, & Winkel, 2010). Our preliminary study showed that clear and consistent communication between patients and nurses related to pain had a significant positive effect on patient satisfaction with staff's management of pain (Alaloul, Williams, Myers, Jones, & Logsdon, 2015). Further information about this study is supplied in the following section.

Preliminary Study

The aim of this study was to evaluate the effectiveness of the use of script-based communication, white boards in patient rooms, and hourly rounding on patient satisfaction with nurses' management of pain (Dearmon et al., 2013; Sherwood, McNeill, Starck, & Disnard, 2003; Studer, Robinson, & Cook, 2010). Nurse satisfaction with script-based communication was also measured. A prospective, quasi-experimental pretest–posttest design was used. Data were collected from two matched units that provided care for patients in an academic health sciences center in the southern United States. Patient satisfaction with pain management was measured by two items from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS).

Both scores for "pain is well controlled" by staff ($\beta = .045$, $p = .009$) and scores for "staff is doing everything to help with my pain" ($\beta = .075$, $p < .001$) improved significantly compared to patients from the control unit. A majority of the nurses felt the script-based communication approach was easy to comply with ($n = 17$, 94.4%). The "nurses were satisfied with the script-based communication approach (score = 7.84; 1 = *unsatisfied* and 10 = *very satisfied*) and were very compliant with implementing the script-based communication tactics (score = 8.16; 1 = *noncompliant* and 10 = *very compliant*).

The preliminary study was limited by use of only two matched units in one academic health sciences center. Therefore, further research is needed to test the effectiveness of the intervention and generalizability of study findings.

Changes have occurred in health care, and specifically in our academic health science center, since the completion of the preliminary study in 2013 and publication of study findings in 2014. These changes have included: (a) merger of our academic health sciences center with a large, national healthcare system; (b) appointment of a new chief nursing officer; (c) increased nurse manager turnover rate; (d) increased registered nurse turnover rate resulting in challenges in staffing; and (e) change in the way data are collected for patient satisfaction from mailed survey to phone survey. In order to determine if findings from our preliminary study could be replicated in a changed environment, our first two aims were the

same as in our pilot study. The first aim of the current study was to evaluate the effectiveness of an intervention (script-based communication, use of white boards, hourly rounding) related to pain management on patient satisfaction with the nursing staff's management of pain. Patient satisfaction was measured by using scores of the two HCAHPS items related to patients' experience with pain: (a) "pain is well controlled" and (b) "staff did everything they could to help with pain." The second aim of the study was to assess nurses' satisfaction with script-based communication related to pain management, as tested in our pilot study. Finally, the third aim of the study was to identify contextual factors that could impact the effectiveness of a pain management intervention on patient satisfaction with staff's management of pain.

Methods

The study replicated methods (e.g., intervention, instruments, procedures) used in our preliminary study, extending the intervention to all eight medical-surgical and progressive care units in the academic health sciences center. Since the preliminary study and the current study were both conducted in the same setting, contamination of the site did not allow for a control group for this study.

Design

A prospective, experimental study design was used. Research ethical approval was obtained by the University Institutional Review Board and the hospital research committees.

Participants and Setting

Data were collected in a hospital located in an academic health sciences center in the southern United States. The study was conducted on eight separate nursing units with mixed acuity. The units included both medical-surgical and progressive care level patients. The patients' conditions included cancer, stroke, trauma, elective surgeries, and multiple medical diagnoses. Patients who were admitted to the eight medical-surgical and progressive care units at the academic center and who responded to the HCAHPS survey ($n = 540$) and nurses who worked during the study period in these units ($n = 84$) were included.

Experimental Intervention

The study intervention included three specific tactics that may positively impact patient satisfaction with pain: script-based communication, use of white boards, and hourly rounding (Dearmon et al., 2013; Sherwood et al.,

2003; Studer et al., 2010). Patient-centered communication may improve health outcomes, including patient satisfaction (Brand & Stiggelbout, 2013; King & Hoppe, 2013). The content of the white boards included up-to-date information about pain levels, pain goals, and pain management options. This information was required to be shared with patients in hourly rounding around the clock, unless patients were sleeping. Below is the script used by nurses:

We are going to do everything that we can to help keep your pain under control. Your pain management is our number one priority. Given your (condition, history, diagnosis, status), we may not be able to keep your pain level at zero. However, we will work very hard with you to keep you as comfortable as possible.

Procedures

Nurses read the script to patients when they were assessing their pain, as opposed to individualizing their communication related to pain assessment. Posters with the script were displayed throughout all units, including the patients' rooms, as visual reminders for the staff and patients. Unless the patients were sleeping, nurses were required to assess patients' pain on an hourly basis using the 0- to 10-point pain scale and to use the white board to document patients' pain level and pain medication schedule.

Data on patient satisfaction with pain management were collected from the HCAHPS database by the research team at the end of the study. Data were collected on all subjects who received care on any of the units studied and who responded to the survey.

As in the preliminary study, all nurses ($n = 84$) working on each unit attended an in-service education program provided by the pain service charge nurse prior to the implementation of the study. The content of this training focused on the three specific tactics in detail and the importance of adherence to these tactics. Each session lasted for 1 hour during regular working hours. The charge nurse encouraged group interaction to promote nurses' participation in the implementation process. A post-test was conducted at the end of each session to ensure that nurses understood the essential elements of study intervention. After completion of the nurses' training, the research team contacted the units' managers to obtain permission to start the implementation of the script-based intervention.

Instruments

The Hospital Consumer Assessment of Healthcare Providers and Systems. The HCAHPS was used to assess

patient satisfaction with pain management. The HCAHPS (Giordano, Elliott, Goldstein, Lehrman, & Spencer, 2010) is a 27-item national, standardized, and publicly reported survey which was developed by the Centers for Medicare and Medicaid Services and the Agency for Healthcare Research and Quality. This survey was designed to be administered to a random sample of adult patients who were recently discharged from the hospital to assess their opinions about the quality of care they received at the hospital on a monthly basis. Three items of this survey are specifically related to patients' experiences with pain. The first item assesses patients' need for pain management; the second item inquires if the pain was well controlled; and the third item identifies how often the hospital staff did everything they could to help with pain. The first item is answered by "yes" or "no." The second and third items are answered on a 4-point Likert scale ranging from 1 (*never*) to 4 (*always*). The HCAHPS was administered by a contacted third-party vendor using phone interviews.

Nurses' satisfaction. The research team used a three-question survey to assess nurses' satisfaction with the script-based communication intervention related to pain management, developed for our pilot study (Alaloul et al., 2015). The nurses' satisfaction survey was collected by the research team at the end of the study. Nurses were asked to rate their satisfaction with the script-based communication approach and their compliance with the intervention using a 10-point ordinal scale (1 = *unsatisfied*, 10 = *very satisfied*; 1 = *noncompliant*, 10 = *very compliant*). Nurses were also asked to give their overall rating of level of difficulty in implementing the intervention (1 = *difficult*, 10 = *easy*). Only three questions were used to reduce participant burden, and reliability data were not calculated on so few questions.

Contextual factors. Contextual factors related to practice setting included variables that have previously been shown to influence quality of patient care: characteristics of the unit manager, experience (Blegen, Vaughn, & Goode, 2001; Mallidou, Cummings, Estabrooks, & Giovannetti, 2011), and education of nurses (Aiken et al., 2011; Manojlovich, Sidani, Covell, & Antonakos, 2011) on the unit, and factors that impact nurses' work load (number of beds on unit, admissions and discharges, patient days, and average length of stay [LOS]; Aiken et al., 2012; Goode, Blegen, Park, Vaughn, & Spetz, 2011). Number of beds on unit, number of admissions and discharges, LOS, and patients days were obtained from the medical records department. Staff characteristics were obtained from the human resources department and nurse managers on each unit.

Contextual variables were calculated monthly and pooled across the eight units.

Use of white boards, hourly rounding, and fidelity of the intervention. White board audits and assessment of the fidelity of script verbiage were conducted by the clinical manager and the charge nurses of each intervention unit and the pain service charge nurse on a daily basis using a check list. The check list included information about compliance with hourly rounding, content of white boards (up-to-date information about pain levels, pain goals, and pain management options), and script verbiage. Although no gold standard exists for fidelity ratings, we aimed for 90% fidelity based upon other cited studies (e.g., Wickersham et al., 2011).

Statistical Analysis

Initially we tested for differences in baseline patient (average LOS, patient days on the ward), unit (number of beds, number of admissions, number of discharges), and nurse (years of experience, recent graduate, has a bachelor of science in nursing [BSN]) characteristics (analyses of variance for continuous variables and chi-squared tests for categorical data) to determine if data could be pooled across the units. Subsequently, we performed a descriptive analysis on the pooled demographic data (since there were no significant baseline differences).

Two separate generalized linear mixed-effects models were developed for the two outcomes ("pain is well controlled" and "staff did everything they could to help with pain") in which time since implementation of the intervention was incorporated as a repeated-measures effect and all other variables were incorporated as random effects. All random effects were calculated monthly and pooled across the eight units. We then tested if any of the studied variables impacted scores over time, as well as the impact of contextual variables. Additionally, an interrupted time series analysis model using an autoregressive, integrated moving average approach was employed to assess the effect of implementation on scores over time. The significance of changes in intercept and slope of the regression lines was assessed before and after implementation. A Durbin-Watson statistic was used to examine for the presence of first-order autocorrelation among serial observations, and the model was corrected for autocorrelation (Durbin & Watson, 1951). A descriptive analysis of nurse satisfaction with the implementation of the script-based communication was performed.

Results

White board audits and assessment of the fidelity of script verbiage on a daily basis revealed that nurses

implemented the intervention 89.4% of the time. This was slightly less than our goal of 90% fidelity.

Aim 1

As seen in **Figure 1**, both scores for “pain is well controlled” ($\beta = 0.028$, $p = .651$) and scores for “staff did everything they could to help with pain” ($\beta = 0.057$, $p = .385$) did not change initially but then increased significantly and were sustained over time. That is, scores significantly increased from March to April ($p = .039$ and $p = .002$, respectively), but remained consistent across future months (all subsequent month-to-month comparison p values $> .05$). There was little variability in patient satisfaction scores, and baseline scores for “pain is well controlled” were higher than in the pilot study. In the pilot study, scores were consistently around 2.4 to 2.5, while in the current study these same scores were consistently around 3.4 to 3.6. This is a full point higher on a 1- to 4-point scale, which may lead to a ceiling effect and nonsignificant results across later months. A larger sample size may be needed to see a significant change.

A significant change in intercepts of regression lines showed a significant difference between two time periods for “staff did everything they could to help with pain” scores (intercept change; pre-implementation vs. postimplementation = 0.3; 95% confidence interval [CI] 0.1, 0.5; $p = 0.022$). In addition, the slope of the regression line between two time periods was significant for both “pain is well controlled” (0.08; 95% CI 0.04, 0.13; $p = 0.044$) and “staff did everything they could to help with pain” (0.2; 95% CI 0.15, 0.25; $p = .004$). Lastly, the two slopes (for the two questions) were not significantly different from zero, suggesting consistent scores post-implementation. The Durbin-Watson statistic was 1.72, suggesting nonsignificant first-order autocorrelation.

Aim 2

Nurses had high levels of satisfaction with the intervention ($M = 7.9$, $SD = 2.1$) and compliance with the intervention ($M = 8.0$, $SD = 1.9$), and had little difficulty in implementing the intervention ($M = 8.3$, $SD = 1.4$).

Aim 3

In terms of contextual factors, on average, the nurse managers had 2.7 years ($SD = 1.9$) of experience in their roles, 2.6 ($SD = 2.0$) new nurses started on the units monthly, and 80.0% ($SD = 7.2\%$) of the nurses had a BSN. On average, the units had 21.8 beds ($SD = 5.1$), 85.8 ($SD = 32.1$) admissions a month, and 117.0 ($SD = 42.0$) discharges a month, representing 534.8 ($SD = 133.1$)

total patient days a month and an average LOS of 4.8 ($SD = 1.0$) days. This represented a total of 686 admissions, 936 discharges, and 4,278 patient days for the entire study period. As seen in **Table 1**, the number of discharges ($\beta = -2.15$, $p = .008$) led to significant decreases in “pain is well controlled” scores over time, while the number of beds ($\beta = -1.95$, $p = .003$), average LOS ($\beta = 2.04$, $p = .006$), and time since implementation of intervention ($\beta = 1.76$, $p = .030$) led to significant increases in “pain is well controlled” scores over time. By contrast, the number of beds on the unit ($\beta = -1.88$, $p = .009$) and number of discharges ($\beta = -2.23$, $p < .001$) led to significant decreases in “staff did everything they could to help with pain” scores over time, while average LOS ($\beta = 1.12$, $p = .036$) and time since implementation of intervention ($\beta = 1.58$, $p = .027$) led to significant increases in “staff did everything they could to help with pain” scores over time.

Discussion

Pain is one of the most significant problems that negatively impact patients' quality of life (Muller-Schwefe et al., 2011) and patients' experience (Subramanian, Ramasamy, Ng, Chinna, & Rosli, 2016), and increases healthcare expenses (Institute of Medicine, 2011). It is worth pointing out that improvement in patient satisfaction with pain management may not indicate improvement in pain scores. Our intervention was not intended to improve pain scores but to improve patients' satisfaction with pain management. We demonstrated continued effectiveness of a script-based pain management intervention on patients' satisfaction with nursing management of pain. The study extended the findings of our preliminary study to a larger population. The continued effectiveness of the intervention was demonstrated despite challenging contextual variables. Effectiveness trials, such as this study, measure the degree of beneficial effect of an intervention in “real world” clinical settings, and thus extend the science. It is important to understand the contextual environment when evaluating the impact of an intervention. Appraising study findings in isolation of context may lead to distortion of reality. Hospitals (such as our academic health sciences center) undergoing restructuring and merger can negatively impact nursing working environments (Aiken, Clarke, & Sloane, 2000; Castner, Wu, & Dean-Baar, 2015). Indeed, several studies have demonstrated that restructuring of hospitals and mergers of hospital systems can negatively impact nurses' job satisfaction and increase burnout (Cummings, Hayduk, & Estabrooks, 2005; Gonzalez, Wolf, Dudjak, & Jordan, 2015; Teo, Pick, Newton, Yeung, & Chang, 2013).

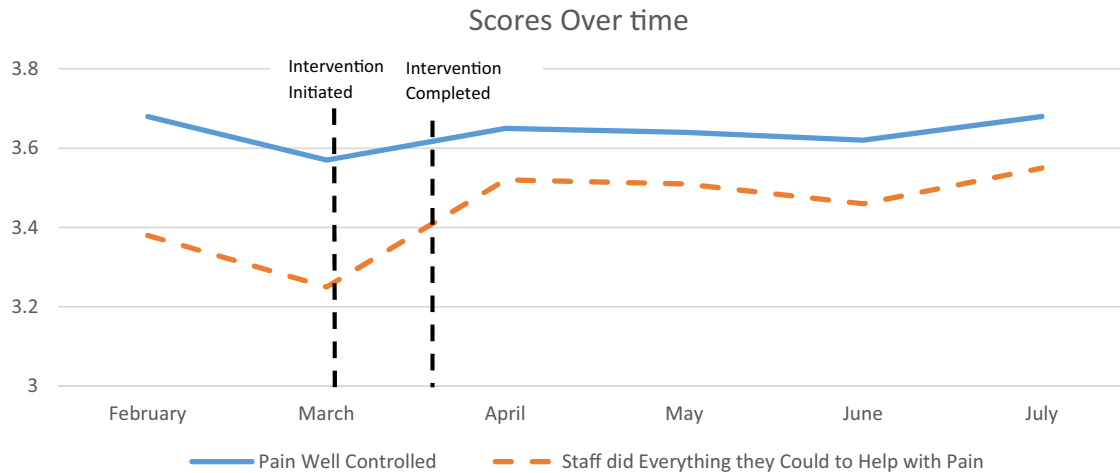


Figure 1. Impact of the intervention on patient satisfaction with the nursing staff's management of pain.

Table 1. Scores for Predictors of "Pain is well controlled" and "Staff did everything they could to help with pain"

Predictor	"Pain is well controlled"		"Staff did everything they could to help with pain"	
	β	<i>p</i> value	β	<i>p</i> value
Nurse manager's years of experience	-.54	.387	-.48	.199
Number of new RNs	-.42	.429	-.31	.603
Percentage of nurses with a BSN	1.12	.412	.75	.102
Number of beds on unit	-1.95	.003**	-1.88	.009**
Number of admissions	-.92	.696	-.48	.224
Number of discharges	-2.15	.008**	-2.23	<.001***
Patient days	-.39	.848	.64	.092
Average length of stay	2.04	.006**	1.12	.036*
Time since implementation of intervention	1.76	.030**	1.58	.027*

Note. BSN = bachelor of science in nursing; RN = registered nurse.

* $p < .05$; ** $p < .01$; *** $p < .001$.

The average LOS for patients at this academic health sciences center is similar to the average national level (Weiss & Elixhauser, 2014). The percentage of nurses with a BSN degree in this center (80%) is higher than the percentage of the national registered nurses workforce (Health Resources and Services Administration, Bureau of Health Professions, National Center for Health Workforce Analysis, 2013). An explanation for this high percentage of BSN-degreed nurses is that the BSN is the preferred degree for hiring new staff in the academic health sciences center, and several baccalaureate nursing programs are available to educate nurses in the community. Lastly, our number of discharges and admissions are similar to those of hospitals of a similar size (~400 beds).

In the current study, the number of beds and number of patients being discharged negatively impacted patient scores for "pain is well controlled" and "staff did everything they could to help with pain." Perhaps the

"busyness" of larger units gives the impression to patients that their pain is not the nurses' priority (Bourdillon et al., 2012; Greenslade & Jimmieson, 2011).

Additionally, hospital LOS positively impacted scores for "pain is well controlled" by staff. There are inconsistent findings in the literature on the relationship between LOS and patient satisfaction. In the current study and some previous studies (Charalambous, 2013; Rosenheck, Wilson, & Meterko, 1997), a positive significant relationship between LOS and patient satisfaction was found. Some studies found decreasing LOS to be associated with increased patient satisfaction (Purdy, Spence Laschinger, Finegan, Kerr, & Olivera, 2010; Schoenfelder, Klewer, & Kugler, 2010), while other studies found no significant relationship between LOS and patient satisfaction (Borghans, Kleefstra, Kool, & Westert, 2012; Pompili et al., 2015). Longer time spent on the unit may provide more opportunities for nurses to

establish relationships with patients and convince patients of the nurses' sincerity in working to control patients' pain (Borghans et al., 2012; Pompili et al., 2015). These differences in patients' satisfaction regarding LOS may be due to the fact that patients were more concerned with the quality of care provided during their stay at the hospital rather than the LOS. Interestingly, nurses' level of education did not affect patients' satisfaction with pain management. Level of education may not have been significant since standard interventions were provided. It suggested to us that all nurses were providing similar quality of care.

Scores seen in the current study (consistently around 3.5) were significantly higher than those in our previously published reported (consistently around 2.5; $p = 0.008$). Whether this is due to contamination or informal communications across wards, nurses working across numerous units, any other factor or initiative in the hospital, or is simply an anomaly is currently being investigated.

The study intervention was entirely controlled and delivered by nurses. Nurses continued to be satisfied with the script-based communication intervention. There was little cost associated with delivery of the intervention. Thus, this study could be replicated in national and international low-resource settings.

Study Limitations

Findings of this study should be generalized only to similar settings. Despite the changes in the context of the organization and the extension of the intervention to eight units, unmeasured characteristics of an academic health sciences center may have influenced study findings. Our study was not intended to measure actual pain. Future studies should include the actual quality of pain management. Findings should not be generalized to community hospital settings without further testing. In addition, study findings may not be generalizable to some cultural groups with unique perspectives on pain. Self-report was used to collect data from the nurses and limits study findings. Lastly, multicollinearity among variables could exist (e.g., number of admissions and number of discharges, patient days, and LOS), and it may simply be an artifact that, for example, the number of discharges is significant, while the number of admissions seems to not be significant. It may be an artifact that the two are measuring similar metrics (volume).

Conclusions and Future Directions

Researchers should continue to measure context when evaluating interventions in healthcare organizations. The impact of LOS on perception of pain should be further

explored. Use of a comprehensive theoretical framework to consider all relevant study variables should be considered. The framework of contextual factors (Tomoaia-Cotisel et al., 2013) is one such framework. In addition, future studies should evaluate the impact of patient- and family-centered care on the pain experience (Bookout, Staffileno, & Budzinsky, 2016).

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Clinical Resources

- American Academy of Pain Management: <http://www.aapainmanage.org/>
- American Society of Pain Management Nursing: <http://www.aspmn.org/>

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CLINICAL SCHOLARSHIP

Cross-Validation of the Minnesota Living With Heart Failure Questionnaire

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Abstract

Purpose: The Minnesota Living With Heart Failure Questionnaire (MLHFQ) is the leading method for assessing quality of life in patients with heart failure (HF) around the world. However, unique, culture-specific variations in factorial structure have been identified. The current study examined the cross-cultural equivalence of an Italian version of the MLHFQ.

Design: Cross-sectional assessment as part of an HF study in Italy. Patients ($n = 1,192$; mean age = 72 years, $SD = 11$) completed demographics, the MLHFQ, and the Short-Form 12 (SF-12).

Methods: A series of exploratory and confirmatory factor analyses were used to develop an appropriate factor model in the current sample.

Findings: We initially fit a confirmatory factor analysis based on published psychometric work validating the MLHFQ. This did not provide adequate fit, and the sample was then randomly split into equivalent subsets to conduct factor analyses with cross-validation. In the first subsample, an exploratory factor analysis uncovered slight modifications to the proposed factor structure that resulted in much improved model fit. The final model included a higher order factor and three subscales: physical, emotional, and social. A cross-validation confirmatory factor analysis using this structure was conducted in the remaining subset to ensure broader applicability of the results. Correlations with the SF-12 were consistent with previous work using these measures.

Conclusions: Some items of the MLHFQ are sensitive to differences across cultures, and factor structures vary based on where the scale is administered. In spite of these differences, the total score remains a valid and reliable indicator of quality of life in HF patients across cultures.

Clinical Relevance: Cultural influences on quality of life are important to consider when assessing patients' well-being in HF.

Development of chronic heart failure (HF), with its significant symptom burden, has a substantial impact on a patient's physical, emotional, and social functioning (Ponikowski et al., 2015; Yancy et al., 2013) and therefore quality of life (QOL). Assessment of QOL in HF is commonly conducted using the Minnesota Living With Heart Failure Questionnaire (MLHFQ; Rector & Cohn, 1992). The MLHFQ is a disease-specific instrument that

assesses the physical and emotional impact of HF on QOL. Due to the increased international incidence of HF (Dunlay & Roger, 2014) and need for a gold standard measurement instrument that can be used across national borders, the MLHFQ has been translated for other countries, including Germany (Quittan et al., 2001) and Taiwan (Ho, Clochesy, Madigan, & Liu, 2007). Consistent with recommendations for translation of questionnaires

(Epstein, Santo, & Guillemin, 2015), the authors (a) translated the scale using multiple translators, (b) reconciled differences between translators, (c) used experts to verify translations, and (d) conducted a back-translation. However, despite these steps, psychometric examinations of these translations suggest that all items are not suitable across cultures. For example, an item about the cost of medical care did not load with other items, likely due to government involvement in medical care (Ho et al., 2007; Lambrinou et al., 2013).

Herdman, Fox-Rushby, and Badia (1998) proposed five categories of equivalence when translating a questionnaire in a new culture: conceptual, item, semantic, operational, and measurement. Conceptual and item equivalence indicate the extent to which domains and items are relevant and meaningful across cultures. Semantic equivalence is whether items have the same literal meaning across cultures. Operational and measurement equivalence indicate that the questionnaire can be used and has similar psychometric properties across cultures. Functional equivalence was an overarching determination of the equivalence of the scale based on findings of the other five categories to argue for the use of a scale in a given culture.

The findings above indicate that the MLHFQ violates conceptual and item equivalence across cultural settings. This suggests the need for a country-specific evaluation of these equivalencies when using new translations of the instrument. The current study attempted to establish these categories of equivalence in an Italian translation of the MLHFQ.

Methods

This is a secondary analysis of data from a prospective cross-sectional study that recruited participants from 28 provinces (i.e., 25% of the total Italian provinces) geographically dispersed across Italy (Cocchieri et al., 2013). The purpose of the original study was to characterize and identify determinants of HF self-care in Italy.

Participants

Participants ($n = 1,192$) were recruited in 2011–2012 from Italian cardiovascular centers by trained nurse research assistants. Inclusion criteria for the study were that the participants must be 18 years of age or older; have an HF diagnosis confirmed according to European Society of Cardiology guidelines (Dickstein et al., 2008) by echocardiogram and clinical evidence; and have no evidence of an acute coronary event in the preceding 3 months. Participants were excluded if they had obvious dementia and were not oriented to time and place. The

study was approved by the centers' institutional review boards before data collection commenced.

Measures

The MLHFQ has 21 items measured on a 6-point Likert scale (0 = *no*; 5 = *very much*). The instrument stem is worded to ask the person how much HF has affected his or her life during the previous 4 weeks using common, negative experiences such as extremity swelling, and impact on mobility or social relationships. Items are scored as a sum of item responses for a total score and two dimension scores (physical, emotional), with higher scores reflecting poorer QOL. Test-retest reliability has been reported at $r = 0.87$ (Rector & Cohn, 1992), and Cronbach's alpha for all items ranged from $\alpha = 0.87$ to 0.95 (Rector, 2005). Alpha in the current study was 0.91. Using the MLHFQ, individuals with more severe HF report greater difficulty, and scores on the scale decrease significantly when individuals receive interventions targeting HF (Rector & Cohn, 1992).

The Italian version of the MLHFQ was obtained from the Mapi Research Trust (<http://www.mapi-trust.org/>), which provides linguistically validated research tools. Before its use, the Italian translation of the MLHFQ provided by the Mapi Research Trust was examined by two Italian nurse investigators who were experts in HF and familiar with English cardiovascular terminology, as well as by a bilingual Italian-English faculty with expertise in medical terminology. After this examination, the above translation was judged as semantically equivalent to the original MLHFQ. With respect to operational equivalence, this scale was administered in a paper-and-pencil format consistent with previous work.

The Short Form 12 (SF-12; Ware, Kosinski, & Keller, 1996) is a generic measure for QOL consisting of physical functioning and mental health subscales. Scores range from 0 to 100, and higher scores indicate better QOL. The SF-12 has been used previously in HF patients to track change over time (Hanyu et al., 2000), and the physical and emotional subscales have adequate reliability ($\alpha = 0.68$ – 0.98) in the current sample (Vellone et al., 2015).

Sociodemographic information was collected using a structured question developed by the research team.

Analytic Strategy

Analyses in the current study were carried out in a series of steps to address the aims. First, descriptive statistics including skew, kurtosis, and interitem correlations were calculated. For model fitting, we examined the fit of the model originally proposed by Rector and Cohn (1992) using a confirmatory factor analysis (CFA). When fit of this model fell below criteria suggesting adequate

model fit, we conducted an exploratory factor analysis (EFA) using a subset of the data to identify factors. This exploratory analysis allowed us to uncover additional factors to explain the poor fit of the hypothesized conceptual model. A CFA on a second, unique data subset was then conducted to confirm the stability of factors and ensure their broader applicability. Finally, subscales were cross-validated by examining their relationships with the SF-12.

To test the original measurement model, a CFA model was constructed that was consistent with the structure proposed by Rector and Cohn (1992). All analyses (the CFA and subsequent EFA) used maximum likelihood estimation and produced fit statistics for evaluation of model fit. Due to the sensitivity of the χ^2 statistic to small model deviations in large samples, we report these values but did not use them in the evaluation of model fit (Muthén & Muthén, 2010). Instead, the comparative fit index (CFI), Tucker-Lewis fit index (TLI), and standardized root mean square residual (SRMR) were used to determine model fit. For the CFI and TLI, values above 0.9 are considered acceptable model fit, and SRMR values below .08 indicate acceptable model fit (Browne & Cudek, 1993). Item loadings were inspected to identify coherent factors. Items were selected to represent a specific factor if the associated loading was at or above 0.35, which exceeds the minimal cut-off recommended by Merenda (1997). Given the presence of the higher order factor, lower order factors were treated as uncorrelated except in how they loaded on the higher order factor. Exploratory models were fit using FACTOR software (Lorenzo-Seva & Ferrando, 2013), and confirmatory models were fit using Mplus 7 (Muthén & Muthén, 2010).

Model fit of the initial CFA was poor, and we attempted to uncover a more suitable structure for the current data. To conduct these analyses, we divided the sample into two random subsets of $n = 596$ (SAS Institute's SURVEYREG procedure). An EFA was fit to the first random subset to identify the underlying structure. The original scale development assumed several subscales as well as a higher order factor that explained item correlations. To examine this possibility, we examined the Schmid-Leiman solution, which identifies subscales as well as produces a solution that tests for the existence of a higher order factor and adjusts the factor solution to account for this factor (Wolff & Preising, 2005). After identifying the appropriate structure using this subsample, a CFA was fit to the remaining sample to determine whether this model provided adequate fit to the remaining data to provide evidence for the generalizability of these factors.

Using the factors identified as part of the EFA/CFA, we computed reliability for all of the subscales and higher

order factor using traditional Cronbach's alpha. For the higher order factor we used two additional methods that capitalize on the latent variable model. We examined McDonald's omega, a reliability value that represents the percentage of true score variance relative to all of the variance in scores on a scale. We also computed model-based reliability based on the recommendations of Yang and Green (2010). These methods are particularly relevant for assessing reliability in a bifactor model such as the one hypothesized to exist in the current data. Following the reliability analysis, we examined the relationships of the identified factors to functioning as assessed by the SF-12 to provide evidence of construct validity and measurement equivalence.

Results

The average HF patient in this sample was an older (mean age = 72.4 years, $SD = 11.2$), retired male (58%, $n = 694$) with lower levels of education (almost 80% had less than a high school education). Both reduced and preserved ejection fraction HF patients participated, with an average ejection fraction of 44.6% ($SD = 10.8\%$). Patients had HF for a mean of 4.3 years ($SD = 3.7$). More than half the sample (54.5%) had been hospitalized at least once in the previous year. Descriptive statistics of the MLHFQ items and correlations are available as supplemental material (**Table S1**). No items were substantially skewed or kurtotic.

Replication of Rector and Cohn (1992) Model

The first CFA model was fit based on the work of the original scale developers, Rector and Cohn. This model posited two subscales (physical and emotional health) and a higher order factor using all 21 items. This model did not fit the current dataset well: $\chi^2(176) = 1,523.93$; $p < .0001$; CFI = 0.88; TLI = 0.86; SRMR = .05. In addition to poor overall model fit, several items failed to load on the physical subscale. Specifically, items 5, 6, 7, and 12 did not load as expected. Further, three items (11, 15, and 16) did not adequately load on the higher order factor. Taken together, this provides evidence of model misidentification in the current sample.

Exploratory Factor Analysis on Data Subset 1

Because the original model provided poor fit to the data, we next examined the data using EFA carried out in a random subset of participants. A model allowing three subscales and a higher order factor fit the data well: $\chi^2(150) = 548.32$; $p < .0001$; CFI = 0.93; TLI = 0.90; SRMR = .00. Item content and factor loadings are

Table 1. Results of Exploratory Factor Analysis

Item	Did your heart failure prevent you from living as you wanted during the past month (4 weeks) by	Factor 1	Factor 2	Factor 3	Higher order factor
1	causing swelling in your ankles or legs?	0.18	0.074	0.131	0.475
2	making you sit or lie down to rest during the day?	−0.046	0.018	0.372	0.647
3	making your walking about or climbing stairs difficult?	−0.051	−0.044	0.424	0.695
4	making your working around the house or yard difficult?	−0.083	0.073	0.383	0.668
5	making your going places away from home difficult?	0.124	0.044	0.281	0.672
6	making your sleeping well at night difficult?	0.174	0.098	0.211	0.632
7	making your relating to or doing things with your friends or family difficult?	0.313	0.119	0.108	0.599
8	making your working to earn a living difficult?	−0.037	0.529	0.104	0.510
9	making your recreational pastimes, sports, or hobbies difficult?	−0.100	0.484	0.172	0.540
10	making your sexual activities difficult?	0.089	0.503	−0.021	0.392
11	making you eat less of the foods you like?	0.163	0.114	0.018	0.277
12	making you short of breath?	0.188	0.043	0.220	0.625
13	making you tired, fatigued, or low on energy?	0.033	−0.011	0.373	0.711
14	making you stay in a hospital?	0.185	0.237	0.039	0.422
15	costing you money for medical care?	0.222	0.180	−0.056	0.246
16	giving you side effects from treatments?	0.453	0.233	−0.220	0.218
17	making you feel you are a burden to your family or friends?	0.513	0.003	−0.041	0.452
18	making you feel a loss of self-control in your life?	0.444	−0.085	0.105	0.590
19	making you worry?	0.325	−0.046	0.175	0.623
20	making it difficult for you to concentrate or remember things?	0.421	−0.066	0.124	0.614
21	making you feel depressed?	0.476	−0.100	0.105	0.612

Note. Bold values indicate those above the .35 cut off.

included in **Table 1**. Items 11 and 15 did not load on any of the subscales or the overall factor and were dropped from further analysis. Items 7 and 19 approached but did not reach sufficient loadings on individual factors but did load on the higher order factor. Finally, item 16 loaded on a specific subscale but not on the higher order factor. The CFA was constructed with these adjustments to assess fit in the second subsample.

Confirmatory Factor Analysis on Data Subset 2

Using the results of the EFA, we cross-validated this factor structure with a CFA constructed to replicate the proposed measurement model (**Figure 1**). This model fit the data well: $\chi^2 (136) = 567.41$; $p < .0001$; CFI = 0.93; TLI = 0.91; SRMR = .04. Inspection of the factor loadings indicated that item 13 did not load adequately

on the physical factor. For the higher order factor, items 2 and 3 did not replicate the relationships identified in the EFA. Additionally, item 17 no longer loaded on the higher order factor.

Reliability Analysis on Final Model

Prior to examining the construct validity of the MLHFQ subscales identified, we calculated reliability for each subscale as well as the higher order factors using traditional Cronbach's alpha and McDonald's omega; model-based reliability was calculated for the whole CFA model. For the physical subscale, $\alpha = 0.882$, $\omega = 0.883$; for the emotional subscale, $\alpha = 0.856$, $\omega = 0.863$; for the social subscale, $\alpha = 0.771$, $\omega = 0.783$; and for the higher order factor, $\alpha = 0.931$, $\omega = 0.932$. Model-based reliability was 0.936.

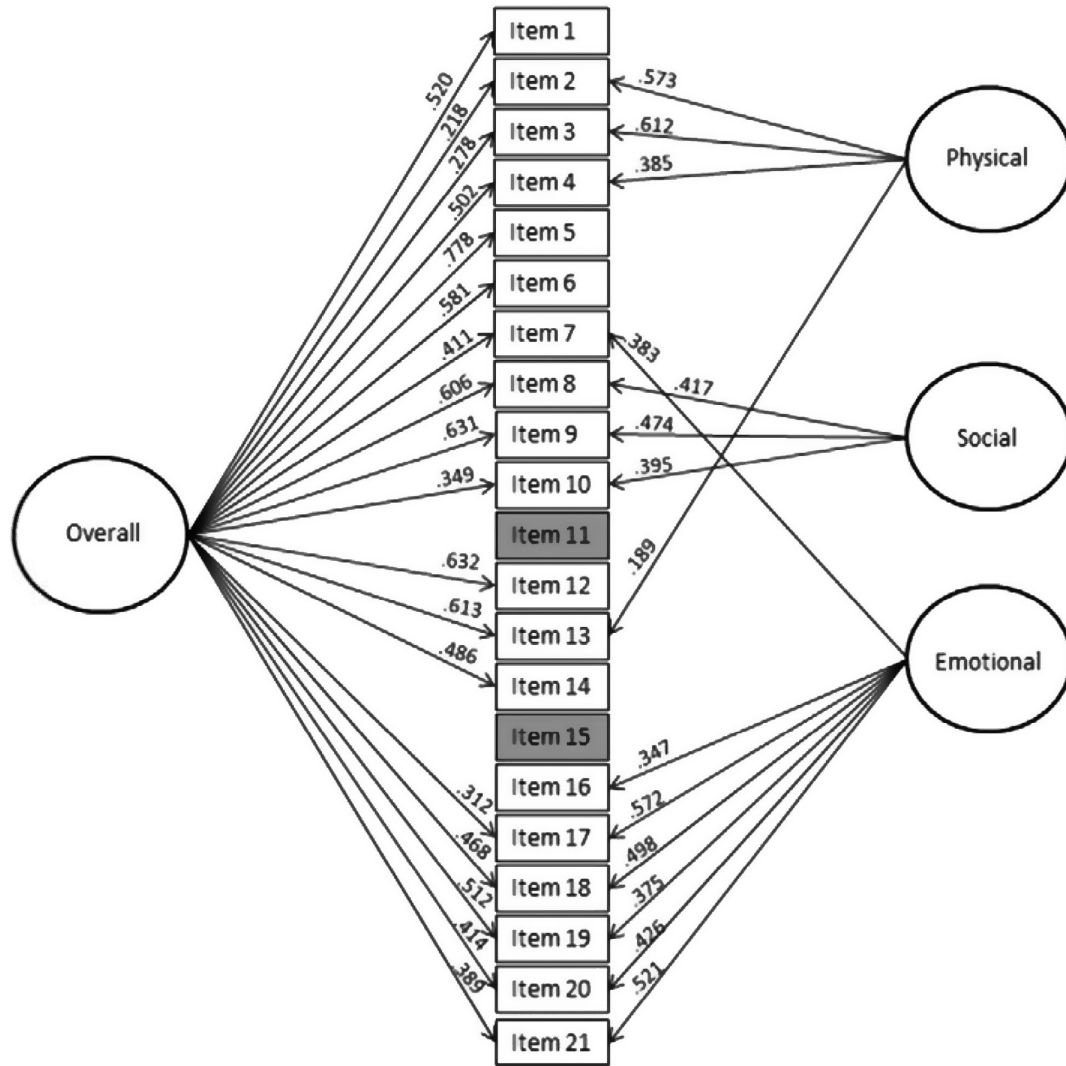


Figure 1. Confirmatory factor analytic model cross-validating exploratory factor analysis.

Construct Validity With the SF-12

Our final step was to determine the construct validity of these factors and establish measurement equivalence. As expected, scores on the factors were significantly negatively correlated with the SF-12 scores (SF mental $r = -0.71, -0.40, -0.44, \text{ and } -0.62$; SF physical $r = -0.42, -0.66, -0.34, \text{ and } -0.61$, with the physical, emotional, social, and overall scores, respectively).

Discussion

The purpose of this study was to conduct a psychometric analysis of the Italian version of the MLHFQ. We examined five categories of equivalence consistent with the recommendations of Herdman and colleagues (1998).

Semantic equivalence was established through a rigorous translation process. We then used factor analysis to establish conceptual and item equivalence of the scale by examining the fit of these data to the model originally proposed by Rector and Cohn (1992). When this model did not provide adequate fit, we conducted an EFA followed by a CFA. Finally, we examined measurement equivalence by examining the subscales’ relationships with an established indicator of functioning (SF-12). We will discuss the results of each step more in-depth in light of the existing literature. To our knowledge this is the first study that has conducted a cross-cultural validation of the Italian version of the MLHFQ.

This analysis, while resulting in deviations from the original model proposed and tested by Rector and Cohn (1992), was relatively consistent with this earlier work in

that we identified subfactors (physical and emotional) as well as an overall second-order factor. As in the original study, item 11 (i.e., making you eat less of the foods you like) continued to load poorly with other items. Excluding it from the factor score did not decrease the construct validity of the score. Interestingly, though Rector and Cohn (1992) did not name or examine the clustering of items 8, 9, and 10, more recent work has conceptualized this as a social environment factor (Garin et al., 2013). We found this same clustering in the current analysis.

This analysis also identified some areas where conceptual and item equivalence were not satisfied. Item 15, which asks about costs of medical care, frequently does not load with any other items in the scale (Ho et al., 2007; Lambrinou et al., 2013). This is likely due to differences in healthcare systems across countries, which makes this item more or less relevant depending on whether the country has a universal healthcare system. Other commonalities include the general structure of the scale across cultural settings. Most psychometric studies examining translations of the scale identify factors that are consistent with the original psychometric work and the current analysis. Studies using Chinese (Ho et al., 2007) and Greek (Lambrinou et al., 2013) translations of the scale identified a similar social environmental factor that includes items 8, 9, and 10. Confirming this, Garin and colleagues (2013) analyzed eight studies involving data from 21 countries and determined these items loaded together across different contexts, providing additional support for a social environmental construct that underlies cross-cultural differences in the experience of HF. This would suggest a measurement equivalence with previous cross-cultural adaptations of the MLHFQ.

The current analysis also identified several new items that have possible conceptual problems for the Italian version of the MLHFQ. In our sample, items 1 (swelling in ankles, legs), 5 (going away from home), 6 (sleeping well at night), and 12 (short of breath) did not load with the other items typically found on the physical scale. This suggests that once the overall factor was considered, these are not strong indicators of physical functioning. Instead, item 13 (tired/fatigued) was related to items about resting during the day (item 2), and difficulty walking (item 3) or working (item 4). These items suggest a factor that represents a general level of fatigue due to HF rather than a straightforward physical limitations factor that has been uncovered in other work. Also, in contrast to previous studies, side effects of treatments (item 16) loaded with the emotional items not on the physical subscale (Ho et al., 2007) or overall factor score in the current sample. Another important difference from previous work

was item 7 (difficulty relating to or doing things with friends/family). This item tends to load with the physical factor in previous work but loaded with the emotional items in the current data, suggesting that, in the Italian context, difficulties in interpersonal interaction has more in common with feeling burdensome than actual physical activities.

Despite the differences in identified factors in the current study, correlations with the SF-12 were remarkably consistent with previous work (Garin et al., 2008) demonstrating measurement equivalence. The greater the impact of HF on individuals' physical, social, or emotional lives, the lower their scores on the SF-12. This provides compelling evidence for the construct validity of the MLHFQ in this Italian version of the instrument. Although some specific items violate conceptual and item equivalence, the scale retains its functional equivalence with other versions (Herdman et al., 1998).

Clinical Implications

Provision of patient-centered care by clinicians requires thorough assessment of symptoms and careful evaluation of the impact of HF and HF interventions on QOL. A culturally specific measuring tool can improve communication between clinicians and patients, resulting in more accurate symptom assessment, more holistically appropriate interventions, and more effective evaluation of health outcomes. Clinicians should consider whether it is ever appropriate to include items that clearly do not reflect cultural norms. Given the differences uncovered in the structure of factors (i.e., which items loaded on which factor), we recommend focusing on total scores rather than subscale scores in culturally diverse samples. The total score provides a starting place for a clinical conversation with a patient regarding their personal concerns rather than potentially missing concerns because of a poorly identified subscale score. From a practical point of view, based on our results, Italian clinicians should consider the exclusion of items 11 and 15 in the overall assessment of HF patient QOL, since these two items did not load on any of the subscales or the overall factor.

Research Implications

This analysis provides evidence for the validity and functional equivalence of the MLHFQ in its Italian version. Although each instrument in a rigorous research study should be assessed for validity and reliability in its current dataset, our analysis provides information that will allow an investigator to select the MLHFQ Italian

version with some confidence. But our study also supports the proposition that QOL has stable, cross-cultural dimensions and yet also more contextual dimensions (cf. Brzyski, Kózka, Squires, & Brzostek, 2016). In addition, if Italian investigators are interested in measuring physical, social, and emotional HF-related QOL, they should consider the factorial structure identified in this study. However, we recommend further studies in Italian samples in order to ascertain the stability of our findings. Future research is needed to explore the gaps in conceptual and item equivalences of the Italian version of the MLHFQ. Epstein and colleagues (2015) recommend cognitive interviewing to identify items that lack cultural relevance. This technique would allow researchers to modify items and assess conceptual domain coverage in a new culture.

Limitations

Although this robust sample was recruited from geographically dispersed cardiovascular centers across Italy, it is possible that the sample is not generalizable to all settings of care. It is also possible that a more highly educated or younger sample would result in different factor loadings of the items. Psychometric analysis and establishing equivalence of scales across cultures is an ongoing process that is in need of ongoing assessment.

Conclusions

The MLHFQ is considered a fundamental tool for understanding the impact of HF on the lives of patients. Establishing that the scale behaves as originally designed across cultural contexts is crucial for ensuring comparability of results across samples collected throughout the world. The current study identified a number of items that lacked cultural relevance in an Italian sample. Despite these problematic items, MLHFQ total and subscale scores continued to correlate with other measures of functioning, suggesting adequate measurement equivalence. The MLHFQ requires additional consideration when creating cross-cultural adaptations.

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Clinical Resources

- Mapi Research Trust: <http://www.mapi-trust.org/>
- University of Minnesota. Minnesota Living With Heart Failure Questionnaire: <http://www.mlhfq.org/>

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web site:

Table S1. Interitem Correlations and Descriptive Statistics for MLHFQ Items



CLINICAL SCHOLARSHIP

Benefits of Attending a Weekend Childhood Cancer Survivor Family Retreat

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Benefits, childhood cancer survivors, family, retreat

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Abstract

Purpose: To explore the long-term benefits to families of childhood cancer survivors who attended a weekend childhood cancer survivor family retreat.

Design: Descriptive-qualitative study including families who had attended the weekend retreat at least once but not in the past 12 months, and who attend a large pediatric hematology and oncology cancer survivorship program in Texas.

Methods: A semistructured interview guide was used during three audio-taped focus groups to explore the benefits of having attended a weekend retreat. Descriptive qualitative analysis was used to analyze the focus groups' transcripts.

Findings: Seven families participated in the focus groups, and the themes identified were reconnecting (with others or family), putting life in perspective, and changing outlook on life.

Conclusions: Retreats offer families of cancer survivors opportunities to reconnect with others and their own family members in a therapeutic environment. These reconnections in a therapeutic environment enriched the families' positive outlooks on life and changed their perspectives.

Clinical Relevance: Families of childhood cancer survivors report a lack of support following the completion of therapy. Retreats in a nonclinical therapeutic setting optimize family-perceived support, relationship building, and reconnecting survivor families.

Camps and retreats provide opportunities for children with cancer to engage in recreational activities outside of their cancer treatment-related activities (Miller, 2000; Ped-Onc Resource Center, 2016; Walker & Pearman, 2009). Because the diagnosis of cancer in a child affects the entire family, offering weekend retreats for the family may similarly confer benefits. The impact of having a child with cancer strains family relationships, financial resources, quality of life (QOL), and coping potential, whether or not the child survives. Offering weekend retreats for these families with other families who have experienced the same life events will hopefully give them hope, build social networks, assist with family cohesion that may have been lost during the active cancer treatment, and enhance QOL.

Theoretical Framework

The concept of therapeutic landscapes was first described by Gesler (1992); nature offers healing and restorative qualities. Nature and being with nature remove the feelings of isolation that individuals sense while in the traditional treatment setting and foster both physical and mental well-being and overall health. Gesler's work in the powerful healing value of nature, fresh air, and breath-taking scenery is well represented in the many summer, week-long, and weekend camps available for children experiencing life-threatening or altering medical problems.

The impetus for the current study was not explicitly guided by the concept of therapeutic landscapes, but

rather by the nature of being with other survivor families in an environment that facilitates openness, relaxation, and family. The location of the weekend retreat for childhood cancer survivors and their families was chosen based on influence of the children's experiences at this camp during treatment.

Background

Cancer-focused camps provide children with opportunities to experience activities they would never have enjoyed otherwise, including respite from their routine daily activities (Hancock, 2011; Laing & Moules, 2014). Most states in the United States offer camps for children with cancer (Ped-Onc Resource Center, 2016). Attending a cancer camp may also have implications for improving psychological well-being and sustained positive affect over time (Wellisch, Crater, Wiley, Belin, & Weinstein, 2006). Children who have had cancer may feel alone and that no other person has experienced what they have. They may also experience more depressive symptoms and post-traumatic stress disorder. Wellisch et al. (2006) explored the psychosocial impact of cancer camps in patients (children with cancer) and their siblings immediately prior to attending camp, at the end of the week-long camp, and then at 4 to 6 months following camp. The patients who attended camp reported improved depressive scores, decreased negative mood, and decreased anhedonia 4 to 6 months following attendance at camp compared to baseline. Lingering depressive symptoms among children with cancer and those who have survived cancer may lead to survivors' lack of appropriate social skills for developing healthy relationships with their family and peers, as well as healthy intimate relations with potential significant others.

Retreats for children with cancer offer a supportive environment for children who attended. In their descriptive survey study, Conrad and Altmaier (2009) found that after attendance at retreats, children (females > male) reported increased emotional esteem-enhancing support and emotional informational support. On a greater scale, among families with children who have cancer or disabilities, the retreats have also been shown to be therapeutic experiences and to enhance family interactions (Smith, Gotlieb, Gurwitch, & Blotcky, 1987) and to provide social support for parents (Körver, Kinghorn, Negin, Shea-Perry, & Martiniuk, 2013; Miller, 2000).

Martiniuk, Amylon, et al. (2014) reported on the potential benefits of pediatric oncology camps. The investigators found that attendees acquired skills related to friendship, family citizenship, independence, competence, teamwork, responsibility, and interest in exploration. Previous research demonstrated that retreats

for children may also have a greater positive impact on their mood, self-concept, friendship, and knowledge of cancer (Martiniuk, 2003). Martiniuk, Silva, Amylon, and Barr (2014) conducted a literature review on camp programs for children undergoing cancer treatment. The results of the Martiniuk, Silva, et al. review indicated that the number of studies with rigorous methodologies is growing, but ongoing studies are warranted using larger sample sizes and more standardized measures to evaluate camp outcomes. In addition, further evaluation is warranted of what specific components or activities offered at camps are responsible for the reported positive outcomes.

The value of camps for children with cancer and their families was recently described by Laing and Moules (2016). Children, their families, and counselors participated in interviews soon following a summer camp, and provided meaningful data on the therapeutic nature of that experience. Cancer camps provided psychosocial and emotional support to children within an environment that offers acceptance, fosters relationships, and meaning to their lives (Laing & Moules, 2014). Cook, Germann, and Chiu (2013) examined the impact of a weekend retreat for childhood cancer survivors and their families on hope and QOL using questionnaires distributed to the families immediately following the experience, and then again at 3 months. Hope and QOL increased immediately following the retreat, but neither hope nor QOL was sustained at 3 months following retreat attendance.

In 2014, Beckwitt explored the role of childhood cancer camps in adults who had survived childhood cancer. Using a qualitative approach, participants in Beckwitt's study identified three themes, including feeling a sense of normalcy while attending camp, having meaningful camp experiences, and having access to information that was not shared with them beforehand.

The current study helps fill the gaps addressing the long-term benefits to childhood cancer survivors and their families who attended a weekend retreat using in-depth qualitative methods. The review of literature provides the framework to further explore the long-term benefits to childhood cancer survivors and their families. The impetus for the annual family childhood cancer weekend retreat was to address the needs of both the childhood cancer survivors and their parents. Families of childhood cancer survivors wanted to meet other families of survivors to see how other parents were dealing with their child's late effects of cancer. Unfortunately, these families had limited opportunities within the cancer center to meet other families of childhood cancer survivors, and reported having a lack of supportive care within the cancer center after the child completed cancer treatment.

Methods

Following institutional review board approval, the current descriptive study was conducted to explore the long-term benefits to families of childhood cancer survivors who attended a weekend retreat specifically for survivors and their families. A qualitative descriptive approach was used to capture the experiences of all family members, using an interview guide to facilitate the focus group sessions.

Sample

Families of childhood cancer survivors who attended the weekend retreat in the past at least once in the prior 12 years but not within the previous 12 months were purposively recruited by telephone to elicit their interest in participating in this study. All family members were invited to attend one of three planned focus groups. However, children 13 to 17 years of age were required to provide written assent, and adults provided informed consent to be in the study. Following informed consent and written assent, families participated in one of three audio-taped focus groups. Children who could not provide written assent were not permitted to participate in this study due their potential inability to provide reliable data representing long-term benefits of attending the retreat. Questions were developed based on responses to the post-retreat attendance evaluation form, which had provided valuable data supporting the benefits to survivors and their families who attended each year. The focus groups took place in the pediatric hematology and oncology department or hospital.

Data Analysis

The descriptive data were collected and entered into REDCap (Harris et al., 2009) and analyzed using SPSS version 22 (IBM Corp., Armonk, NY, USA). The audio-taped focus group interviews were analyzed using a qualitative descriptive approach (Sandelowski, 2000). Using this approach allows investigators to obtain varying descriptive accounts of the data, but with the same outcome or meaning. However, investigators are required to thoroughly evaluate, code, and derive further meaning of the data but using the words of the participants (Sandelowski, 2010). The investigators in this study used directed questions, including (a) what did families expect to gain from attending the retreat, (b) how did attending the retreat change their way of thinking about survivorship, (c) how did attending the retreat change their priorities, and (d) how had attending the retreat changed their family relationships. The families were allowed to speak

more broadly about how their attendance at the retreat had benefited them.

The audio-taped focus groups were held at the hospital where the survivors received long-term follow-up. The focus group sessions were transcribed verbatim by a professional transcription service, and responses of participants were read line by line looking for key words and repeated statements and themes. The two investigators (L.B. and J.B.), who had experience in both focus group facilitation and in qualitative inquiry, independently analyzed the data, then collaborated to ensure reliability of the data. Confirmability of the data was also established by going back to the participants immediately following the focus groups when the transcribed data were not clear.

Findings

Seven families (a total of 23 individuals) participated in this study. All families were Caucasian; the majority of parents were college educated; the parents were 41 to 50 years of age; and the average annual income of all families was \$89,000. Two of the families had attended the retreat at least five times, two families had attended twice, and two families had attended only once. None of the families had attended in the past 24 months. The average age of both survivors and siblings at the time of their first attendance at the retreat was 12.7 and 13.9 years, respectively, indicating potentially vivid and reliable memories of the retreat experience.

The interview guide for the focus groups addressed families' reasons for attending camp, how their family interactions have changed since attending the retreat, their outlook on life in general, and how the families used the resources shared with them during the weekend retreat. The themes identified in this study included (a) reconnecting (with others or family), (b) putting life in perspective, and (c) changing outlook on life.

Reconnecting

Families revealed their most common reason for attending the retreat was to go back to the location of the retreat that their own child had attended during the summer during his or her cancer treatment. Parents talked about how their children would return home from the week-long cancer camp expressing how great the experience had been for them. Parents wanted to go visit the camp that had given their children great memories even during their cancer treatment.

Families also talked about the first time they each had attended the retreat and stated wanting to reconnect with other families who had similar experiences,

identifying how they were coping and continuing to network with other families they may have met in the oncology center. “You think you’re the only one with that diagnosis” echoed one parent of a 16-year-old son (survivor of acute lymphoblastic leukemia [ALL]).

One mother who attended the group with her 14-year-old son (survivor of T cell ALL) and another mother of a young adult female (survivor of rhabdomyosarcoma) who attended with her entire family echoed, “others get it . . . you are allowed to be numb, no judging, but freedom to express your feelings” (mother of T cell ALL survivor). The comments represented some of the raw feelings and emotions the parents felt comfortable sharing with other families, and they wanted to reconnect with these other survivor families attending the retreat.

Reconnecting with family. Reconnecting with their own family was very evident in all the participants, especially parents. All families mentioned getting away from reality and the distractions of everyday life that prevented them from having meaningful conversations. Being together at the camp, away from social media—including TV, phones, and the Internet—provided the medium these families used to reconnect. Four families (57%) used the opportunity to bond with one another in their own cabins, play games together, talk, and spend more quality time together. Several families and survivors spent time “resting and just spending time with my family” and “liked there was no TV, and we spent time together with our own family.” One parent of an 18-year-old female (ALL survivor) became very emotional when talking about her family becoming closer. When talking about the diagnosis period, “. . . my husband and I just handled the diagnosis and everything different. Now we are closer than ever and closer as a family.” She talked about how the cancer diagnosis and treatment tore them apart for a while, but since the treatment had ended, having had the opportunity to meet other families of childhood cancer survivors and recognizing how blessed their family is, they have a closer relationship. The family of a now 22-year-old female (hepatoblastoma survivor) traveled a long distance for the retreat and used the time at the retreat as part of their annual vacation. This family attended the weekend retreat at least five times and would use one of the family activity periods in their cabin playing cards together as a family. A father and his 21-year-old son (neuroblastoma survivor) would fish all day if they could, and would typically enjoy their time together at the edge of the lake.

The name, Camp O’hana, was given for the retreat by the first year’s participants and means “family.” All family participants commented how much they appreciated the focus of the retreat being on the family. The

program on Saturday included many different activities (rock wall climbing, zip line, fishing, archery, cooking, arts, and an educational workshop for parents), and families were asked to attend the activities as a family, but they were not required to participate. At any time, families could regress to their cabins to rest and enjoy the company of each other without distractions. One young adult female (ALL survivor) whose parents separated during her treatment, stated that the retreat definitely brought her family together: “you’re forced with parents for a weekend and the rest of your family . . . they’re actually kind of cool.” Children saw their parents as people, relaxing and engaging in activities they had never experienced together in a relaxed, therapeutic environment.

Putting Life in Perspective

The new perspective on life was represented by sub-themes “not sweating the small stuff” and “reacting differently to crises.” During the weekend retreat, adolescents and parents were invited to attend a young adult childhood cancer survivor (YACCS) panel. The panel was facilitated by the social worker, who is a clinical licensed counselor and an advanced practice nurse with over 20 years of experience in pediatric oncology. The members of the YACCS panel presented a short narrative of their treatment history and how they overcame or dealt with their challenges of surviving cancer. In addition, parents could talk openly with each other about the challenges their own children faced, and ask questions of the YACCS panel and facilitators of the workshop. During this time, parents would deliberately exchange contact information and jot down newly learned resources and questions to address with their healthcare team at a later time.

Parents reported also being “less uptight” about problems their children may be facing after attending the retreat, and finding more joy in life, appreciating the “little things” in life, not sweating the small stuff. A father who attended with his young adult son (neuroblastoma survivor) reported being more “laid back,” taking each day as it comes tackling challenges as they presented. The mother of a teenage son (ALL survivor) who is an athlete shared a recent traumatic event (fracture of leg) he experienced. Prior to his diagnosis of cancer, this event would have brought the family into crisis mode, but his mother restated, “is he bleeding out . . . no, then he will be fine.” Families used the lens of having had a child with cancer from which to look at current traumatic events and challenges.

The mother of a young adult female (hepatoblastoma survivor) reported that she continues to worry about her daughter, but is grateful every day: “All the things that could have gone wrong with her, and some of

those kids that had so many more problems.” She also stated, “we learned others went through harder times than we did,” and another parent of a young adult female (neuroblastoma survivor) stated, “oh my gosh, we could have had it worse.” These families clearly articulated a change in perspective in life and events that occurred following their children’s diagnoses and cancer treatment and having the opportunity to meet many other survivors who had fared much worse than their own children. Two parents in two separate families still remained reactive when symptoms appeared in the survivor. “It’s like the rug pulled out from under us” was reported by a mother of a young adult female (neuroblastoma survivor) who described her daughter’s diagnosis, and the feeling of potentially having the rug pulled out from under her again at any time. Another parent also compared her current feelings about her son’s (ALL survivor) current status and stated “. . . still panic but now less since the retreat” This particular family talked specifically how they looked at current events from the lens of their past experience with cancer and learned how other families of cancer survivors dealt with their past.

Having a child diagnosed with cancer is devastating and leaves parents feeling vulnerable and helpless. Following the completion of therapy, parents continued to have these feelings, especially when their cancer survivor children had symptoms similar to what they had when they were diagnosed with cancer. They compared any current medical crisis or event to the experience of having had cancer, although parents reported continued concern for their children’s long-term health. Parents talked about their heightened level of suspicion or anxiety when this happened, but having had the opportunity to meet other parents of survivors who feel similarly had put many parents at ease.

The comments by the parents and children represented a perspective on life since attending the retreat. Meeting many other survivors who dealt with more challenges than their own child changed their perspective on life. Lastly, one of the most poignant changes in perspective was valuing their children’s good health compared to other survivors’ health, and evaluating current medical or life events from a different viewpoint.

Changing Outlook on Life

The YACCS panel had a huge impact on the feelings of empowerment among parents who attended. The parents reported that they learned about what challenges their children may encounter, but more importantly what resources are available to them to help their children overcome and manage those challenges. Seeing and hearing about the challenges the YACCS panel faced

and how the young adults overcame or dealt with those challenges was empowering for parents. A parent of a teenage male survivor (T cell ALL) with educational difficulties indicated, “I will advocate more strongly for my child in school.” Several other parents revealed they planned to make preparations to find support for their own children to help them overcome the current challenges their children face, such as educational difficulties. One mother always felt her young adult daughter (hepatoblastoma survivor) could do anything after her cancer, but now she keeps “pushing her more . . . she can do anything.” Families talked about how they now motivate their children, including survivors and siblings, to aim to do what they want to do no matter how difficult it may be to achieve. Parents of two survivors with academic difficulties reported they are now using resources they learned about during the retreat to support their children’s academic success.

The mother of a young adult female (neuroblastoma survivor) who was diagnosed as a toddler was never given a “wish.” A wish is given to children who can verbally articulate what they wish for, and several national organizations exist that provide these wishes. Because of their attendance at this retreat and learning about a wish with a different organization, this mother contacted the organization, and her daughter was given a wish prior to her 19th birthday. The family now volunteers with the organization that provided her daughter a wish. The family used this opportunity to reach out to other families of children with cancer to ensure they received the same consideration.

Several families also talked about “wanting to give back” to the hospital where their children were treated, or volunteer in the community where they live. The family of a teenage son (ALL survivor) has served on the hospital family advisory council, while others reported having served as mentors to other families whose children had recently been diagnosed with cancer. The parents of a young adult female (hepatoblastoma survivor) who lived at least 2 hours from the treatment center talked about how other children in their community were being diagnosed with cancer, and they used the opportunity to reach out to them to provide support and resources.

Discussion

The themes identified in this qualitative exploration of the long-term benefit of a family survivor retreat were reconnecting (with others or family), putting life in perspective, and changing outlook on life. The priorities of families included having had the opportunity to spend uninterrupted time with each other and talking about

re-established relationships among each other. One set of parents had strained relationships during the child's cancer treatment. The family revealed that learning that other families had similar experiences with cancer helped them find meaning in their own relationships. Though these families who participated in the focus groups did not talk in-depth about the changes in their family relationships, investigators attending the retreat each year have observed the changes in parent-to-parent and family relations.

The planned changes to be made in the lives of these families and their perspective on survivorship were also important to them. Families talked about their interest in giving back to others. Coming back to the oncology center to assist families and children undergoing cancer treatment and to provide them with psychosocial and informational support was specifically addressed. Further, families of childhood cancer survivors wanted to share their stories of survivorship to give hope and empowerment to other newly diagnosed children and their families.

The parents and adolescents were impressed how the members of the YACCS panel were able to overcome their many challenges. Parents reported their need to help their own children succeed, since the YACCS panel members were able to articulate their own successes in overcoming their challenges. Parents of childhood cancer survivors were unsure of what might lie ahead for their childhood cancer survivor, and if there were resources available to help them succeed. Having the YACCS panel and other parents of cancer survivors offer resources and tips for overcoming the challenges faced by childhood cancer survivors seemed to be more valid than what may have been given to them during annual cancer survivor visits in the clinic. At each survivor visit, the survivorship provides up-to-date information about the follow-up care plan and, based on responses from parents and survivors, provides resources in the community that can help the survivor. It was not until another individual who experienced the same challenges and who could speak from having engaged with the resource did it become reasonable to reach out for support.

Walker and Pearman (2009) reported on the history of therapeutic camps for children over the past several years, and concluded that more rigorous, quality research is needed to measure the benefits of attending such retreats. Only one of the studies reviewed (Beckwitt, 2014) examined the long-term benefits of cancer camps for young adults who had survived cancer. While Beckwitt (2014) did not include families, the young adults who attended camp during their cancer treatment continued to benefit from continued access to emotional support and resources. Families in the current study also

continued to benefit from the resources they learned about during the weekend survivor retreat and from the network of support from other survivor families.

Laing and Moules (2014) indicated the need for oncology programs to consider using pediatric cancer retreats as targets for intervention to improve psychological well-being. The current family cancer survivor retreat may serve as one intervention to enhance the survivors' and families' emotional and social health. The YACCS panel specifically appeared to have the greatest impact on the families' changes in life. The remote location, the scenery, and the ability to be with one's family in a nondistracting environment were important to the childhood cancer survivor families. The most important outcome was for these survivors and families to meet other survivors of childhood cancer, and to know that they are not the only ones experiencing the challenges of surviving cancer. The challenges themselves were not specifically addressed in this article, but included educational difficulties (most common), risks for health problems in the future, and how to deal with them if or when the health problems developed.

The YACCS panel constituents and discussion topics may have changed from year to year but have typically comprised survivors with ALL, neuroblastoma, brain tumors, and solid tumors, and treatments ranging from limited intensity to amputation, bone marrow transplantation, and radiation therapy. The survivorship staff purposefully chooses young adults with a variety of diagnoses, treatments, and disabilities and abilities, trying to engage young adults who are willing to share their stories and offer how they address their own challenges.

Conclusions

The retreat was not initially established to address challenges survivors were facing, but rather to be a mechanism for families of survivors to network with other families. What has ultimately emerged over the years is the positive side of surviving cancer, the benefits of having experiences like a weekend retreat to share the experience of cancer, and the changes families want to make as a result of attending a childhood cancer survivor family weekend retreat.

The lasting connections the families made throughout the weekend and their reported plans to change how they view their child's (survivor) future may enhance QOL and perceived social support (resources). It will also be important to longitudinally examine the long-term benefit to families and their children who attended this weekend retreat using a mixed-methods approach. Assessing QOL, perceived social support, and perceived outlook on life lend themselves to quantitative measurement.

However, exploring the long-term benefits of attending a childhood cancer survivor family weekend retreat using qualitative methods will assist investigators in accessing the rich experiences reported by individual families.

Clinical Relevance

Cancer and retreats for children being treated for cancer and children who have survived cancer and their families offer many therapeutic benefits. Investigators attend Camp O'hana each year and provide families the opportunity to share personal information with each other, such as their names, addresses, phone numbers, and any other information families wish to share. The sharing of family contacts with other attendees is one mechanism of giving families of childhood cancer survivors opportunities to network with other families throughout the year. Unfortunately, sharing of information is prohibited due to the constraints placed by Health Insurance Portability and Accountability Act rules. Attending retreats gave families of childhood cancer survivors networking opportunities with other families of cancer survivors, and investigators wanted to be sure the retreats met the specific needs of the survivor families. The long-term benefits of attending a family survivor retreat has been established in this study, because camps for children with cancer have been addressed in prior studies. Childhood cancer affects the family and does not know boundaries, and the therapeutic environment of a retreat setting offers many rewards to these families dealing with the outcomes of having a child treated for cancer. Through the efforts of the Children's Oncology Camping Association, International (COCA-I), organizations who offer camps for children with cancer and their families can network with others who offer camping experiences for this population (COCA-I, 2014). The COCA-I community provides standards of excellence in offering camping experiences, and education and advocacy to ensure best practices for members of the COCA-I.

Clinical Resources

- Ped-Onc Resource Center, Cancer Kid Camps: <http://www.ped-onc.org/cfissues/camps.html>
- Childrens Oncology Camping Association International: www.cocai.org

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CLINICAL SCHOLARSHIP

Frailty as a Risk Factor for Falls Among Community Dwelling People: Evidence From a Meta-Analysis

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Key words

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Abstract

Purpose: This study was conducted to investigate the relationships between different frailty stages and the fall incidence rates of community-dwelling older adults. The differences between various frailty indicators regarding assessment accuracy of the fall incidence rates of community-dwelling elders were also analyzed. Finally, the relationship between frailty and recurrent falls was explored.

Methods: This study comprised a systematic literature review and meta-analysis. Two researchers independently examined and extracted the related literature. The key search terms included frailty, frail, fall, older people, older, geriatric, and senior. The literature sampling period was from January 2001 to December 2016. The quality of each paper was assessed according to the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The databases of the Cochrane Library, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, and MEDLINE were used to conduct a systematic literature search by using the random effect mode to analyze the compiled papers.

Findings: A total of 102,130 community-dwelling older adults ≥ 65 years of age and 33,503 older adults who had experienced a fall were compiled to investigate the relationship between frailty and falls. The meta-analysis results revealed that compared with robust older adults, frail older adults demonstrated the greatest risk for falls, followed by prefrail older adults. Furthermore, the use of different frailty indicators to predict the fall incidence rates of older adults yielded nonsignificantly different outcomes. In short, studies of either cardiovascular health or osteoporotic fracture indicators are effective for predicting the risk for falls in older people. Finally, this study confirmed that compared with robust older adults, frail older adults were more likely to experience recurrent falls.

Conclusions: Frailty is a crucial healthcare topic of people with geriatric syndromes. Frail older adults are likely to experience recurrent falls. In addition, the evidence-based study indicated that once older people enter the prefrail stage, they are likely to experience falls. Therefore, older adults should be evaluated for the possibility of geriatric syndromes such as frailty, which may be addressed to reduce the risk for bone fractures and death.

Clinical Relevance: Professional nurses should use frailty assessment indicators as early as possible to evaluate the possibility of frailty in community-dwelling older people. Meanwhile, effective frailty prevention strategies should be applied to prevent frailty, thereby reducing the incidence of falls and enhancing older persons' quality of life.

The topic of active ageing, proposed by the World Health Organization (WHO), has become a core concept applied by countries worldwide to develop geriatric health policies (WHO, 2002). Therefore, in 2002, the United Nations recommended that all countries prioritize geriatric policies in their action strategies (United Nations, 2010). As they age, older adults commonly experience various types of diseases. Despite having the same chronological age as others, such adults might demonstrate substantially different rates and trajectories of changes in their health conditions and bodily functions; hence, such differences incur a great challenge when assessing the health conditions of older adults. Frailty is perceived as an antecedent syndrome of functional degradation in older adults and a middle stage between being able to live independently and death (Chang & Lin, 2015).

The WHO maintains that frailty is an essential factor affecting the favorable aging of older adults. Research on frailty published prior to 2000 treated frailty, comorbidity, and disability as synonyms. Fried et al. (2001) were the first to establish standardized definitions for these three terms and define the five clinical indicators of frailty. Fried et al. pointed out that frail older adults have higher risks for fall, hospitalization, disability, and death. Previous relevant studies revealed that adults ≥ 65 years of age demonstrate a prevalence rate of frailty between 5.8% and 35% (Kulmala, Nykänen, Mänty, & Hartikainen, 2013; Romero-Ortuno et al., 2010) and of prefrailty between 18.8% and 50.9% (Chang & Lin, 2016; Romero-Ortuno, Walsh, Lawlor, & Kenny, 2010; Santos-Eggimann, Cuénoud, Spagnoli, & Junod, 2009). Frailty-induced falls incur a low quality of life in older adults and increase the burden on their caregivers (Bande-en-Roche et al., 2015). Additionally, research has revealed that frailty-induced falls can increase the risks for bone fractures, hospitalization, and death (Samper-Ternent, Karmarkar, Graham, Reistetter, & Ottenbacher, 2012; Tom et al., 2013). It has been pointed out that nursing care for frailty is not well understood by many nurses (Heath & Phair, 2011). Because nursing personnel play a critical role in caring for frail older people (Bindels, Cox, Widdershoven, Schayck, & Abma, 2014), the risk for falls can be substantially reduced if nursing personnel are able to identify the frailty of older adults at an early stage.

Frailty pertains to a state of vulnerability, which causes various systems of the body to exhibit reduced physiological functions and increases the risk for adverse outcomes (Chang & Lin, 2015; Kamo et al., 2017). Currently, frailty is commonly assessed using the Cardiovascular Health Study (CHS) indicators (Fried et al., 2001), which evaluate grip strength, walk speed, exhaustion, physical activity, and unintentional body weight loss of a patient. However, because the CHS indicators involve numerous

items and require extensive measurement time, Ensrud et al. (2008) proposed the Study of Osteoporotic Fractures (SOF) indicators assessment, which incorporates fewer items, features comparable reliability and validity, and is quicker and easier to administer. The SOF indicators assess frailty through the following three criteria: unintentional weight loss of more than 5% over the past year, inability to rise five times from a chair without using armrests, and answering “no” to the question “Do you feel full of energy?” The CHS and SOF indicators are often used to evaluate the frailty of community-dwelling older people. Because community assessment involves varying situations, evaluation tools must be effective within a limited period of time. Therefore, it is necessary to assess frailty efficiently by using the indicator that is quicker and easier. However, few studies have compared the applicability of the CHS and SOF indicators in assessing the frailty of community-dwelling older adults.

Numerous studies have investigated the relationship between frailty and risk for falls in older people (Bande-en-Roche et al., 2006, 2015; Ensrud et al., 2008, 2009; Fried et al., 2001; Fugate Woods et al., 2005; Kiely, Cupples, & Lipsitz, 2009; Samper-Ternent et al., 2012; Shim et al., 2011; Tom et al., 2013). However, scholars have offered contradictory opinions regarding the relationship between frailty stages and the risk for falls. Some studies have reported that prefrail older people exhibit a higher risk for falls than do robust older people (Bande-en-Roche et al., 2015; Ensrud et al., 2008, 2009; Fugate Woods et al., 2005; Samper-Ternent et al., 2012), whereas others have indicated that the two groups have nonsignificantly different risks for falls (Bande-en-Roche et al., 2006; Fried et al., 2001; Kiely et al., 2009; Shim et al., 2011; Tom et al., 2013). Moreover, some studies have noted a higher risk for falls in frail older people than in robust older people (Bande-en-Roche et al., 2015; Ensrud et al., 2008, 2009; Kiely et al., 2009; Samper-Ternent et al., 2012; Shim et al., 2011), but others have argued that the risks differ nonsignificantly between these two groups (Bande-en-Roche et al., 2006; Fried et al., 2001; Fugate Woods et al., 2005; Tom et al., 2013). Because of the inconsistencies among previous studies, nursing professionals are unable to clearly determine whether frailty is associated with falls or which frailty stages exhibit higher risks for falls; meanwhile, they are also unable to practice appropriate strategies to prevent falls among this high-risk group. Therefore, a meta-analysis was needed to examine the varying assertions of related literature.

Furthermore, a previous study on frailty and falls only compared the risk for falls among robust older people with those among frail and prefrail older people (Kojima, 2015); there has been a notable lack of investigation into

the difference in the risk for falls between frail and prefrail older people, the pairwise comparison between the risk for falls and each frailty stage (i.e., the robust, prefrailty, and frailty stages), and the risk for recurrent falls in each frailty stage.

It is important to highlight issues around the assessment and nursing care of frailty in older people (Smith & Kydd, 2017). Accordingly, a meta-analysis was performed to review, compare, and integrate the critical results of evidence-based papers that have discussed the aforementioned topics. The present study can serve as a crucial reference for nursing personnel to formulate intervention programs that can prevent falls in frail older people.

Aims

The purpose of this study was to determine the relationship between different frailty stages and the fall incidence rate of community-dwelling older adults. The differences between various frailty indicators for assessing the falls of community-dwelling older adults were examined. Finally, the relationship between frailty and the risk for recurrent falls was assessed.

Methods

Data Sources and Search Strategy

A systematic search was conducted to collect literature from the databases. Four computer databases—the Cochrane Library, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, and MEDLINE—were searched for potentially relevant articles. The key search terms used were frailty (or frail), fall, and older people (or older, geriatric, or senior). Abstracts and titles were searched for key terms. Because the three terms frailty, comorbidity, and disability were differentiated and redefined in 2001, the present study collected data from January 2001 to December 2016.

Inclusion and Exclusion Indicators

The inclusion indicators allowed papers that addressed a prospective study, used CHS or SOF indicators, examined the three stages of frailty (frail, prefrail, and robust), had follow-up lasting more than 1 year, and included community-dwelling adults ≥ 65 years of age. The adjusted or unadjusted odds ratio (OR) or hazard ratio (HR) was applied to present the analysis results.

The exclusion indicators were literature reviews, letters to editors, book chapters, graduate theses, doctoral dissertations, experimental studies, and interventional studies.

Frailty Assessment

This study mainly employed the CHS indicators because they are commonly used to assess frailty. Proposed by Fried et al. (2001), these indicators evaluate the following five conditions: grip strength, walk speed, exhaustion, physical activity, and unintentional body weight loss; individuals who attain score thresholds of three, one to two, or none of the five conditions are categorized as frail, prefrail, or robust, respectively. However, because the CHS indicators involve numerous items and require extensive measurement time, Ensrud et al. (2008) proposed the SOF indicators assessment, which incorporates fewer items, features comparable reliability and validity, and is quicker and easier to administer.

The SOF indicators assess frailty through the following three criteria: unintentional weight loss of more than 5% over the past year, inability to rise five times from a chair without using armrests, and answering “no” to the question “Do you feel full of energy?” Individuals who experience three, one to two, or none of the aforementioned conditions are categorized as frail, prefrail, or robust, respectively. Conducting assessments in a community requires the use of quick and simple indicators to effectively and rapidly evaluate the frailty conditions and risks for falls among older people. However, no studies have yet compared the applicability of various indicators in predicting the fall incidence of older people.

Quality Assessment

This research followed three methods to assess study quality. First, the articles were evaluated to decide whether confounding factor adjustments were shown. Next, the Oxford classification principle (Phillips et al., 2001) was applied to evaluate the grade of research according to its study design. Finally, we applied the Agency for Healthcare Research and Quality (2014) and Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Liberati et al., 2009), which used risk for bias, consistency, and precision of estimates to analyze research quality and calculate the strength of frailty–fall relationship evidence. Articles with low quality, low grade, or no confounding factor adjustments were classified as poor quality and therefore were excluded from this research.

Data Extraction

Two researchers independently examined and extracted the collected data. The case recruitment methods, sampling numbers, prevalence rates, and relationships

between each frailty stage and the risk for falls addressed by the compiled papers were analyzed. This study invited as the third reviewer a researcher experienced in evidence-based research who has published numerous systematic reviews and meta-analysis studies. When the two reviewers had conflicting opinions regarding the extracted data, the third reviewer was invited to examine the data. Five studies were examined and confirmed by the third reviewer.

Ethical Considerations

Based on the conclusions of Sullivan (2011), reviews, meta-analyses, and descriptions of educational materials that do not involve human subjects do not require institutional review board review.

Data Synthesis

According to the statistics model used, we extracted ORs from the logistic regression models and HRs from Cox proportional hazard models, respectively. We computed the summary effect (combined effect or pooled effect) under a random-effect model that allows the true underlying effect (e.g., frail group versus robust group) to vary among individual studies and assumes it follows normal distribution. Furthermore, the summary effects (HRs or ORs) were calculated from subgroups of frailty indicators (CHS versus SOF) and were compared under a random-effect model. We also compared the summary effects (HRs or ORs) of contrasting the frailty status groups on falls and recurrent falls using a mixed-effects model. We assessed the heterogeneity of ORs and HRs across individual studies using I^2 statistics that a value of greater than 25%, 50%, and 75% of I^2 statistics is considered to be minimally, moderately, and highly heterogeneous, respectively (Higgins, Thompson, Deeks, & Altman, 2003). Finally, we assessed the publication bias using a funnel plot and Egger's intercept test (Egger, Smith, Schneider, & Minder, 1997). Data analyses were completed using Comprehensive Meta-Analysis 2.2 (CMA 2.2; Biostat, Inc., Englewood, NJ, USA).

Results

Study Sample

Figure S1 depicts the details of the literature review. Among the initial studies identified, studies were excluded for the following reasons: used the cross-sectional method; did not use the CHS or SOF indicators; did not classify frailty into three stages (robust, prefrail, and frail); follow-up lasted less than 1 year; did not study

community-dwelling older adults ≥ 65 years of age; or lacked data (HR or OR) and duplicate cohorts. After excluding these studies, we included prospective cohort studies that were agreed upon by the two reviewers. Table S1 summarizes the characteristics of the studies for meta-analysis. In total, these studies sampled 102,130 individuals and recorded 33,503 falls, with a mean follow-up time of 1.85 years ($SD = 1.00$ years).

A total of 10 studies were included in this meta-analysis, in which 7 studies reported ORs and 3 studies presented HRs. Three studies (2 for OR, 1 for HR) provided data of both CHS and SOF indicators (Ensrud et al., 2008, 2009; Kiely et al., 2009), 6 studies provided data of CHS indicators (4 for OR, 2 for HR), and 1 study provided data of SOF indicators (1 for OR, 0 for HR). Falls were used as an outcome in 7 studies (5 for OR, 2 for HR), and recurrent falls were adopted in 3 studies (2 for OR, 1 for HR).

Firstly, because all 10 studies were cohort studies according to the classification standards of the Oxford Centre for Evidence-Based Medicine (Phillips et al., 2001), they were identified to be of B grade in recommendation level and 2b in evidence level, resulting in a low risk for bias and consistency. Secondly, 4 studies adjusted only one variable and were thus imprecise classification studies. Therefore, all studies demonstrated a low risk for bias and consistency, but 4 of them were imprecise (Table S2).

Contrasting the Groups of Frailty Status on Fall and Recurrent Fall

Figure S2 demonstrates the summary results of comparing the groups by frailty status derived from ORs and HRs, respectively. Results derived from ORs showed that the risk for fall in the frail group was higher than that in the robust group (summary OR 2.50; 95% confidence interval [CI] 1.58–3.96); that in the frail group was higher than that in the prefrail group (summary OR 1.64; 95% CI 1.18–2.28); and that in the prefrail group was also higher than that in the robust group (summary OR 1.47; 95% CI 1.22–1.79). Results derived from HRs were similar to those from ORs, and all comparisons contrasting the groups by frailty status were significant.

Subgroup Analysis of Frailty Indicators: CHS Versus SOF

Figure S3 illustrates the results of contrasting the groups by frailty status and grouped by CHS and SOF derived from ORs and HRs, respectively. Results derived from ORs showed the increased risk for fall was not statistically significantly different between CHS and SOF,

with p values of the heterogeneity test of .632 for frail versus robust, .524 for frail versus prefrail, and .869 for prefrail versus robust, respectively, under the mixed-effects model. Similar results were derived from HRs and ORs, and the increased risk for fall due to frailty status was comparable between CHS and SOF criteria through these comparisons.

Subgroup Analysis of Type of Fall: Fall Versus Recurrent Fall

Figure S4 displays the results of contrasting the groups by frailty status and grouped by fall and recurrent fall derived from ORs and HRs, respectively. Results derived from ORs indicated that the increased risk for frailty status on fall and recurrent fall was comparable, with p values of the heterogeneity test of .679 for frail versus robust, .333 for frail versus prefrail, and .750 for prefrail versus robust, respectively. In terms of results derived from HRs, the increased risk by frailty status (relative to robust) on recurrent fall (summary HR 2.01; 95% CI 1.37–2.94) was significantly greater ($p = .047$) than that on fall (summary HR 1.27; 95% CI 1.00–1.62). However, the increased risk for other frailty comparisons (frail versus prefrail and prefrail versus robust) was comparable between fall and recurrent fall.

Heterogeneity and Publication Bias

The between-study heterogeneity of this meta-analysis was high ($I^2 > 75\%$) for results derived from ORs and was low to moderate (I^2 ranged from 0% to 50%) for that from HRs. The funnel plots (**Figure S5** for ORs and **Figure S6** for HRs) showed a symmetrical pattern, and Egger's test demonstrated insignificant results, indicating no apparent threat of publication bias in the current meta-analysis.

Discussion

Woo, Leung, and Zhang (2016) indicated that frailty and successful aging are two sides of the same coin. In other words, frailty prevention is an essential indicator for successful aging of older adults. However, current meta-analysis studies regarding the risk for falls in frail older adults are incomprehensive (Kojima, 2015). The present study was the first to target community-dwelling older adults ≥ 65 years of age to determine the relationship between each frailty stage (i.e., robust, prefrailty, and frailty stages) and the risk for falls. Moreover, this study examined the use of frailty indicators to predict the risk for falls, in addition to the relationship between frailty and the risk for recurrent falls. The results of

the meta-analysis revealed that frail older adults demonstrated higher risks for falls than did robust older adults. This finding is consistent throughout the collected papers, which all indicated that frailty was the primary predictor of falls in older people (Bandeem-Roche et al., 2015; Ensrud et al., 2008, 2009; Kiely et al., 2009; Samper-Ternent et al., 2012; Shim et al., 2011; Tom et al., 2013).

Regarding the relative risks for falls in robust and prefrail older adults, the collected studies revealed dissimilar results. Some studies have reported that prefrail older adults exhibited higher risks for falls than did robust older adults (Bandeem-Roche et al., 2015; Ensrud et al., 2008, 2009; Fugate Woods et al., 2005; Samper-Ternent et al., 2012; Tom et al., 2013), whereas other studies have revealed the opposite outcome (Bandeem-Roche et al., 2006; Fried et al., 2001; Kiely et al., 2009; Shim et al., 2011). The evidence-based results of the present study revealed that regardless of employing the OR or HR to present the outcomes of the fall assessment, frail and prefrail older adults demonstrated higher risks for falls than did robust older adults, indicating that once they enter the prefrail stage, older adults are likely to experience falls. Previous studies have reported that the frailty-induced fall incidence of older adults can incur substantial burdens on themselves, their caregivers, and society (Robertson, Savva, & Kenny, 2013). Therefore, the early diagnosis of the possibility of prefrailty and the provision of preventative measures, including resistance exercise or nutritional supplements (Ng et al., 2015; Viña et al., 2016), can facilitate alleviating the frailty conditions of older adults, thereby reducing their risk for falls.

The literature review revealed that previous studies have employed CHS or SOF indicators to discriminate frailty. Further analysis revealed that applying either the CHS or SOF indicators to determine the relationship between frailty and falls in older adults yielded similar outcomes. In other words, all research that has used either the CHS or SOF indicators demonstrated that, compared with robust older adults, frail older adults exhibit the highest risks for falls, followed by prefrail older adults. However, one previous study (Chang & Lin, 2016) indicated that because community assessment involves varying scenarios, assessment tools must be effective and easy to use to complete data collection and evaluation within a limited period of time. Comparing the CHS and SOF indicators, this study revealed that the SOF indicators only comprise three items, and the assessment is thus quicker and easier. Therefore, SOF indicators are more applicable for assessing the frailty of community-dwelling older adults.

Notably, frail older adults also demonstrate higher risks for recurrent falls than do robust older adults. A previous study demonstrated that frail older adults are highly

likely to experience recurrent falls and hip fractures (Ensrud et al., 2007). Moreover, frail older adults exhibit a high mortality rate within 1 year after experiencing a hip fracture (von Friesendorff et al., 2016). These findings indicate that once older adults enter the frailty stage, their physiological functions gradually deteriorate. Each time they experience a fall, the likelihood of recurrent falls increases. The Quality and Safety Education for Nurses guidelines (2010) and Institute of Medicine (2010) mentioned that nurses must contribute professional knowledge to deliver high-quality care and work collaboratively with health professions. Therefore, healthcare nurses should collaborate with other health professionals to actively prevent the falls of frail older adults, which in turn will prevent them from experiencing recurrent falls and hip fractures, thereby reducing their mortality rate.

This study featured several unique characteristics. First, it was the first to combine a systematic literature review and meta-analysis to investigate the risk for falls among older adults in each frailty stage, in addition to comparing the differences between different frailty indicators in predicting fall incidence rates and examining the relationship between frailty and recurrent falls. Second, the studies collected in the present study have employed similar follow-up durations (approximately 1–2 years); hence, they have estimated similar levels of risk for falls in older adults. Finally, both the collected studies and the present study have targeted community-dwelling older adults ≥ 65 years of age. Therefore, the results of this study can serve as a reference for administering related programs for preventing frailty in this age group. Nevertheless, this study had several limitations. First, the meta-analysis revealed medium to high levels of heterogeneity. Therefore, certain inferences of this study should still be treated conservatively. Second, previous studies have employed various frailty indicators. Although a subgroup analysis was conducted in the present study to demonstrate that the different assessment methods yielded similar risks for falls in frail older adults, this concern might have led to statistical errors. Finally, although most studies have controlled for interference variables regarding the prediction of falls, the present study could not completely eliminate individual interference factors; hence, the consistency of the results might have been affected. However, despite the meta-analysis results and relationships derived in this study being affected by the aforementioned limitations, the study results can still serve as a valuable reference for healthcare professionals to use when assessing the risk for frailty-induced falls in community-dwelling older adults. In addition, the results can facilitate performing relevant care decisions and evaluating care programs.

Conclusions

Frailty is an essential topic for people experiencing geriatric syndromes. Frailty leads to recurrent falls in older adults. The evidence-based papers indicated that once older adults enter the prefrail stage, they are likely to experience falls. Therefore, nursing professionals should apply frailty assessment indicators early to evaluate the possibility of frailty in community-dwelling older adults. Additionally, precautions should be simultaneously taken by nursing personnel to prevent falls in community-dwelling older adults who have been assessed as frail. In addition, studies have demonstrated that both the CHS and SOF indicators can be used by nursing personnel to assess the risk for falls in older people. However, because the SOF indicators are quicker and simpler to use, they are more feasible for use in communities than are the CHS indicators. Finally, nursing personnel should develop effective fall prevention measures for community-dwelling frail people (e.g., resistance exercise interventions and nutrition consultancy and support services), thereby reducing the incidence of falls and recurrent falls and enhancing their quality of life.

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Clinical Resources

- Oxford Centre for Evidence-based Medicine. Levels of evidence: <http://www.cebm.net/oxford-centre-evidencebased-medicine-levels-evidence-march-2009/>
- Preferred Reporting Items for Systematic Reviews and Meta-Analyses. The PRISMA statement: <http://www.equator-network.org/reporting-guidelines/prisma/>

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web site:

Figure 1. The enrollment of sampled studies.

Figure 2. Summary estimates on the increased risk of fall in contrasting the groups of frailty status; (A) odds ratio, (B) hazard ratio.

Figure 3. Comparing groups of frailty status subgrouped by CHS and SOF on the risk of fall; (A) odds ratio, (B) hazard ratio.

Figure 4. Comparing groups of frailty status subgrouped by type of fall; (A) odds ratio, (B) hazard ratio.

Figure 5. Funnel plot and Egger's test derived from odds ratio; (A) frail relative to robust, (B) frail relative to prefrail, and (C) pre-frail relative to robust.

Figure 6. Funnel plot and Egger's test derived from hazard ratio; (A) Frail relative to robust, (B) frail relative to prefrail, and (C) pre-frail relative to robust.

Table S1. Details of 10 Studies Assessed as Suitable for Inclusion.

Table S2. The strength of evidence base on Agency of Healthcare Research and Quality (2014) and PRISMA guidelines (2009).



Nonlinear Analysis to Detect if Excellent Nursing Work Environments Have Highest Well-Being

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Key words

Bayesian models, latent variable models, nursing staff/psychology, professional burnout, statistical models, surveys and questionnaires, workplace

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Abstract

Purpose: To detect potentially nonlinear associations between nurses' work environment and nurse staffing on the one hand and nurse burnout on the other hand.

Design: A cross-sectional multicountry study for which data collection using a survey of 33,731 registered nurses in 12 European countries took place during 2009 to 2010.

Methods: A semiparametric latent variable model that describes both linear and potentially nonlinear associations between burnout (Maslach Burnout Inventory: emotional exhaustion, depersonalization, personal accomplishment) and work environment (Practice Environment Scale of the Nursing Work Index: managerial support for nursing, doctor–nurse collegial relations, promotion of care quality) and staffing (patient-to-nurse ratio).

Findings: Similar conclusions are reached from linear and nonlinear models estimating the association between work environment and burnout. For staffing, an increase in the patient-to-nurse ratio is associated with an increase in emotional exhaustion. At about 15 patients per nurse, no further increase in emotional exhaustion is seen.

Conclusions: Absence of evidence for diminishing returns of improving work environments suggests that continuous improvement and achieving excellence in nurse work environments pays off strongly in terms of lower nurse-reported burnout rates. Nurse staffing policy would benefit from a larger number of studies that identify specific minimum as well as maximum thresholds at which inputs affect nurse and patient outcomes.

Clinical Relevance: Nurse burnout is omnipresent and has previously been shown to be related to worse patient outcomes. Additional increments in characteristics of excellent work environments, up to the highest possible standard, correspond to lower nurse burnout.

Over the past decade, health services researchers have established a level of consistency in the direction and magnitude of the association between positive nurse work environments and safe workloads on the one hand, and reduced feelings of burnout on the other hand (Aiken et al., 2012; Poghosyan, Clarke, Finlayson, &

Aiken, 2010). A recent large study in which burnout was linked to the quality of the work environment was the Registered Nurse Forecasting Study (RN4CAST). This international effort aimed to highlight the important role of nurses in providing safe patient care (Sermeus et al., 2011). Early RN4CAST studies used

single or multicountry data in simple models that explored the link between nurse work environment and burnout (Aiken et al., 2012; Bruyneel, Van den Heede, Diya, Aiken, & Sermeus, 2009).

More complex modeling of this association has subsequently tested whether effects of specific nurse work environment dimensions on burnout are homologous across hierarchical levels. Findings revealed that country, hospital, and nursing unit nurse work environment dimensions impact nurse burnout dimensions of emotional exhaustion, depersonalization, and reduced personal accomplishment differently (Li et al., 2013). A follow-up study allowed for level-specific covariates in both the mean structure and covariance matrix of the three burnout dimensions: instead of simply asking whether more positive nurse work environment dimensions lead to lower burnout, the question was asked whether the correlation between the three burnout dimensions depends on these covariates. Findings showed that as nurses' work experience increases, the correlation between emotional exhaustion and personal accomplishment also increases (Li, Bruyneel, & Lesaffre, 2014).

Much attention has thus been focused on nurse work environment and burnout measures, because their multidimensional nature allows researchers to propose new theories and to align these theories with appropriate yet challenging statistical models. Another important advancement to be made is that of tackling the possibility of nonlinearity in the association between work environment, staffing, and burnout. Policies that seek an evidence-based approach to improve nurse and patient outcomes through nursing delivery system strategies would benefit from a larger number of studies that identify specific minimum as well as maximum thresholds at which inputs affect outcomes. When it comes to nurse workload, Staggs and Dunton (2014) phrased this issue as "how much staffing is enough or how much might be too much?" A similar reasoning had previously instigated Zhang, Unruh, Liu, and Wan (2006) to search for decision points between staffing and quality in nursing homes using nonlinear modeling techniques. Using an S-shaped production function, they searched for the optimum level of production. It was hypothesized that as nurse staffing increases, quality first increases at a faster rate (increasing marginal returns), then at a slower rate (diminishing marginal returns), and finally at some point stops increasing completely (diminishing absolute returns). The optimal staffing point is hypothesized to be in the area of diminishing marginal returns. The researchers showed that different minimum staffing levels could be set for achieving different levels of quality. At a certain level of quality, staffing ratios need to increase less substantively to reach ever-higher levels of quality.

Nonlinear relations have been shown for various outcomes in multiple settings and using different analytic techniques in both frequentist and Bayesian frameworks. For example, Mark, Hughes, and Jones (2004) also found signs of diminishing marginal returns, showing that better nurse staffing decreases the mortality ratio for staffing levels up to a certain threshold for the number of patients per nurse. This threshold corresponded to the 88th percentile value in their study sample. Blegen and Vaughn's (1998) findings even demonstrated that if the proportion of nurses in the staffing mix (including nurses and unlicensed assistive personnel) was higher than 85%, the rate of adverse patient outcomes increased. Most recently, Pitkäaho, Partanen, Miettinen, and Vehviläinen-Julkunen (2015) used a Bayesian dependency model that allowed them to model relationships between several categorical variables and a nonlinear relationship between nurse staffing and patients' length of stay in acute care units.

Questions of nonlinearity apply to work environment dimensions as well, but have rarely been investigated. Vahney, Aiken, Sloane, Clarke, and Vargas (2004) reported that a linear constraint was appropriate to investigate the association between work environment and the three burnout dimensions. Their nonlinear models indeed suggested that for all three burnout dimensions, rates are lower in poor versus mixed environments and in mixed versus good environments. However, this effect was consistently more pronounced in poor versus mixed environments. To our knowledge, no further efforts have been undertaken to study the possibility of such nonlinear associations.

The present study presents a synergy between a meaningful substantive issue in nursing research and a recently developed statistical procedure. We examined the potentially nonlinear impact of nurses' work environments and nurse staffing on nurses' burnout experiences by applying a semiparametric latent variable model (LVM).

Methods

Sample and Procedure

This is a secondary data analysis of the RN4CAST study, a 3-year (2009–2011) nurse workforce study involving 33,731 registered nurses in 2,184 nursing units in 489 hospitals in 12 European countries (Belgium, England, Finland, Germany, Greece, Ireland, Poland, the Netherlands, Norway, Spain, Sweden, Switzerland).

Data collection took place between December 2009 and February 2010. In 10 countries, a minimum of 30 general (nonspecialized) hospitals were randomly selected

via multilevel sampling. In Ireland and Norway, the selected hospitals represented all of the relevant institutions. At least two adult general medical and surgical nursing units for each hospital were randomly selected. At the time of designing the RN4CAST study, U.S. evidence linking nurses' workloads and work environments to patient safety and clinical outcomes was best documented for these types of patients. The RN4CAST study aimed to replicate these findings in Europe.

All nurses involved in direct patient care activities were then invited to participate in the study. The overall response rate of 62% compares favorably with rates seen in other nursing outcomes research studies of this scale (Aiken, Clarke, & Sloane, 2002). Hospital-level response rates exceeded 50% for all countries except for Greece (42%) and the Netherlands (37%). All nursing units that were randomly selected within the participating hospitals agreed to take part in the study. Individual nurse response rates across countries were consistently high, except for those from England (38.6%), Finland (46.2%), and Germany (41.6%). See Sermeus et al. (2011) for more background on the RN4CAST study.

Here, we included only data from the nurses for whom there were no missing (or invalid) values for the considered variables (see measures). This yielded a data set with 23,589 observations (69% of total) in 2,143 nursing units in 488 hospitals that was used for the computations. No pattern in missing data was noticed, and as previously described for these data, various strategies for handling missing data values were tested and provided close estimates (Li et al., 2014).

The RN4CAST study protocol was approved by the ethics committee at Katholieke Universiteit Leuven, which was the coordinating center for the study, and by the relevant ethical committees in all participating countries.

Measures

Burnout. Burnout is the response variable and was measured using the 22-item Maslach Burnout Inventory (MBI), with each item scored on a 7-point Likert scale (from *never* to *every day*, coded from 0 to 6) on the frequency of burnout experiences (e.g., "I feel emotionally drained from my work"). Maslach and Jackson (1986) extracted three main dimensions of burnout: emotional exhaustion, depersonalization, and reduced personal accomplishment. The 22 items are summed scores obtained from the original MBI scale. Emotional exhaustion may be described as feelings of being emotionally overextended and exhausted by one's

work; depersonalization is an impersonal response toward recipients of one's service, care, treatment, or instruction; and personal accomplishment, which is inversely measured, reflects feelings of competence and successful achievement in one's work with people. Burnout is thus indicated by higher scores on emotional exhaustion and depersonalization, and lower scores on personal accomplishment. The MBI was translated into 11 languages from its original American English version while ensuring its relevance to the nursing practices and healthcare contexts of 12 countries (Squires et al., 2013). At least 1 of the 22 items was missing from the responses of about 10% of the nurses.

Work environment. The Practice Environment Scale of the Nursing Work Index (PES-NWI) was used to measure the nurse work environment (Lake, 2002). Nurses rated their work environment on a 4-point Likert scale (*totally agree* = 4, *agree* = 3, *not agree* = 2, *totally not agree* = 1). Checking multicollinearity showed a potential problem for the dimensions of staffing and resource adequacy and nurse participation in hospital affairs. As previously suggested, three dimensions were retained in the analysis (Kutney-Lee et al., 2009; Li et al., 2013): managerial support for nursing (mean score of four items), doctor–nurse collegial relations (mean score of seven items), and promotion of care quality (mean score of eight items). These subscales are aggregated at the nursing unit level by taking the mean of all nurses' responses within those units. For Sweden, no nursing unit identifiers were available from the sampling design. We therefore aggregated the nurses' responses at the hospital level.

Nurse staffing. The patient-to-nurse ratio was our indicator for nurse staffing. It was calculated from the nurse survey as the number of patients per nurse and aggregated at the nursing unit level, except again for Swedish data, which were aggregated at the hospital level.

Statistical Analysis

First, descriptive statistics for the three components of the MBI, the three components of the PES-NWI, and nurse staffing were given.

Second, the semiparametric LVM proposed by Fahrmeir and Raach (2007) was used to investigate potentially nonlinear associations between work environment and burnout experiences among nurses. An LVM consists of a measurement model and a structural model. The measurement model is similar to a classical factor analysis and describes the effect of latent variables

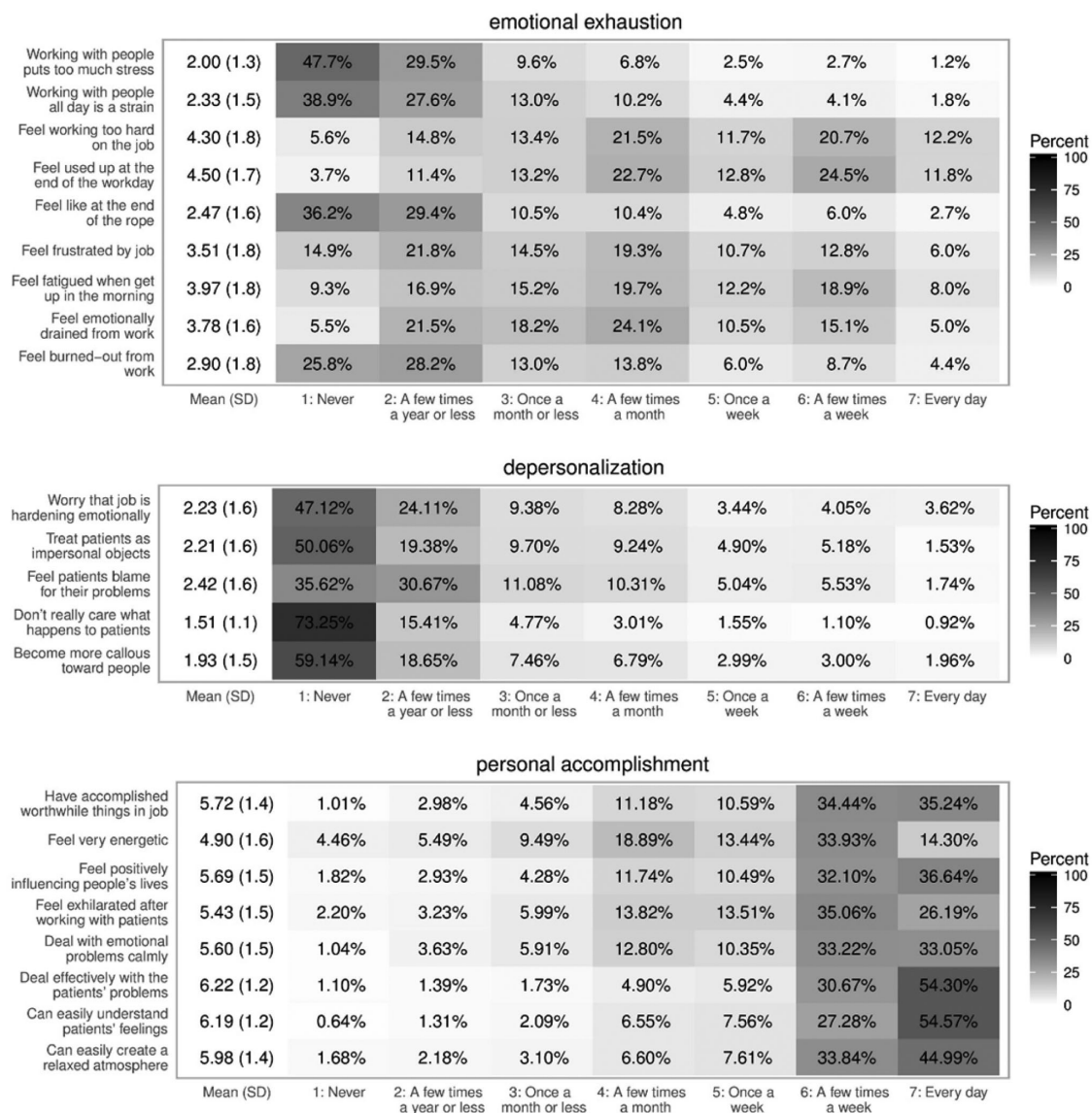


Figure 1. Frequency distribution of the 22 burnout items. Burnout is measured using the Maslach Burnout Inventory, with each item scored on a 7-point Likert scale (from *never* to *every day*, coded from 0 to 6). Maslach and Jackson (1986) extracted three main dimensions of burnout: emotional exhaustion, depersonalization, and reduced personal accomplishment.

(the three burnout dimensions) on response variables (the 22 observed MBI items). The structural model describes the linear and nonlinear relationship between the latent variables and the explanatory covariates (work environment dimensions and nurse staffing). See Appendix S1 for more details on the LVM proposed in this study.

All computations were performed with the statistical software R (R Development Core Team, 2016) and a modification of the R-package MCMCpack version 0.6.6 developed by Fahrmeir and Raach (2007).

Results

Descriptive Statistics

Figure 1 portrays the frequency distribution of the 22 burnout items for their respective dimensions as suggested by Maslach and Jackson (1986), as well as the mean score for each item. Nurses reported feelings of emotional exhaustion more frequently than feelings of depersonalization, with seven of nine items measuring emotional exhaustion having a higher mean score than all five items of depersonalization. For emotional

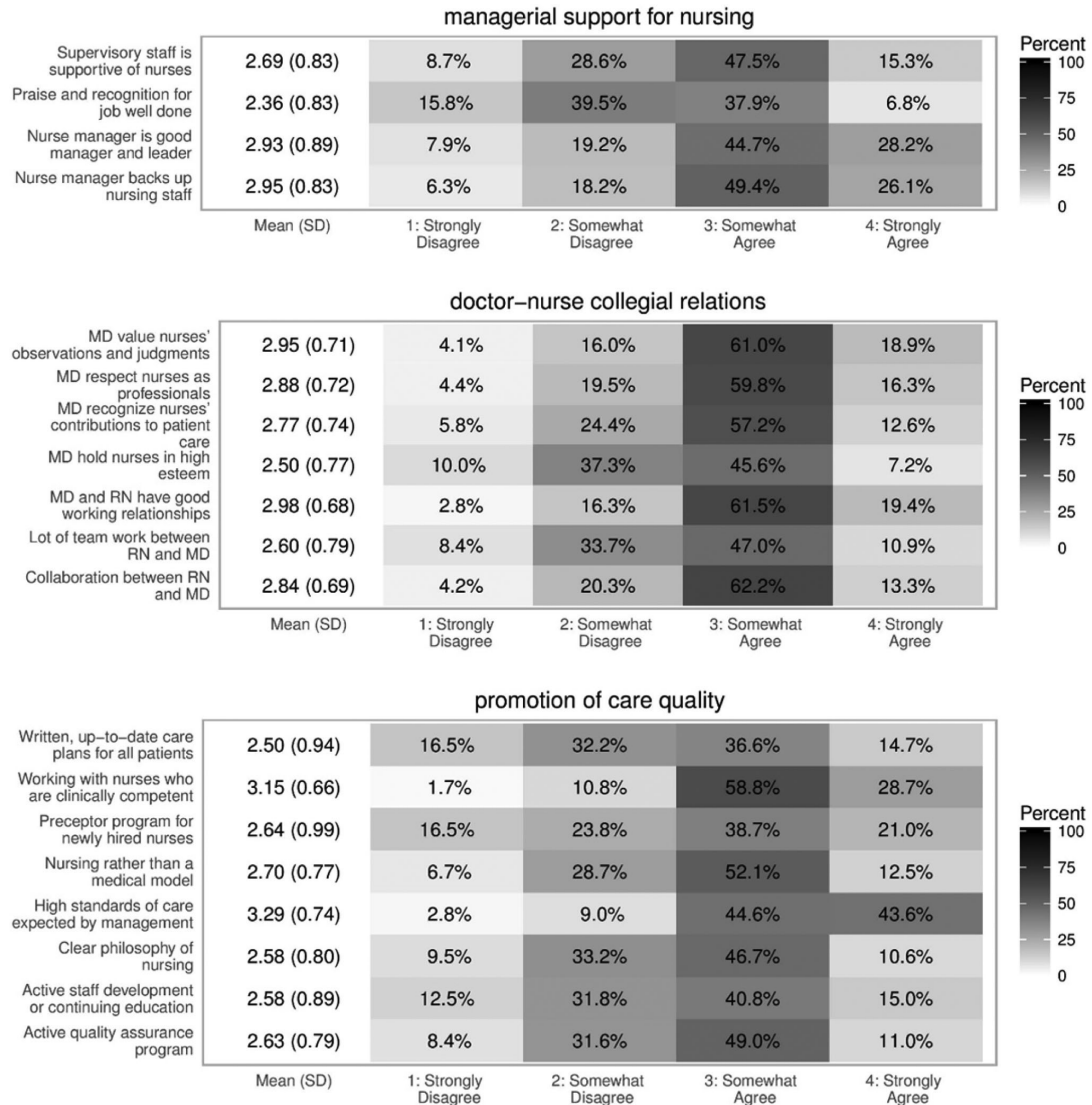


Figure 2. Frequency distribution of the 19 work environment items. The Practice Environment Scale of the Nursing Work Index was used to measure the nurse work environment (Lake, 2002). As previously suggested, three dimensions were retained in the analysis (Kutney-Lee et al., 2009; Li et al., 2013): managerial support for nursing (mean score of four items), doctor–nurse collegial relations (mean score of seven items), and promotion of care quality (mean score of eight items).

exhaustion, the highest prevalence was seen for nurses feeling used up at the end of the workday and feeling that they are working too hard on their jobs. Nurses feeling that patients blame them for some of their problems was most prevalent for the depersonalization dimension. On the positive side, the lowest score was seen for nurses' not really caring what happens to some of their patients. When it came to personal accomplishment, nurses scored lowest on feeling very energetic, and they scored highest for easily understanding how their patients feel about things and dealing very effectively with the problems of their patients.

Figure 2 displays the frequency distribution of the 19 work environment items for their respective dimensions as suggested by Lake (2002), as well as the mean score for each item. For managerial support for nursing, nurses indicated that praise and recognition for a job well done are lacking. Overall, however, nurses reported that supervisory staff is supportive of nurses and backs up nursing staff in decision making, even if the conflict is with a physician, and nurse managers are seen as good managers and leaders. Opinions on doctor–nurse collegial relations were generally positive. The lowest scores are seen for teamwork between nurses and physicians

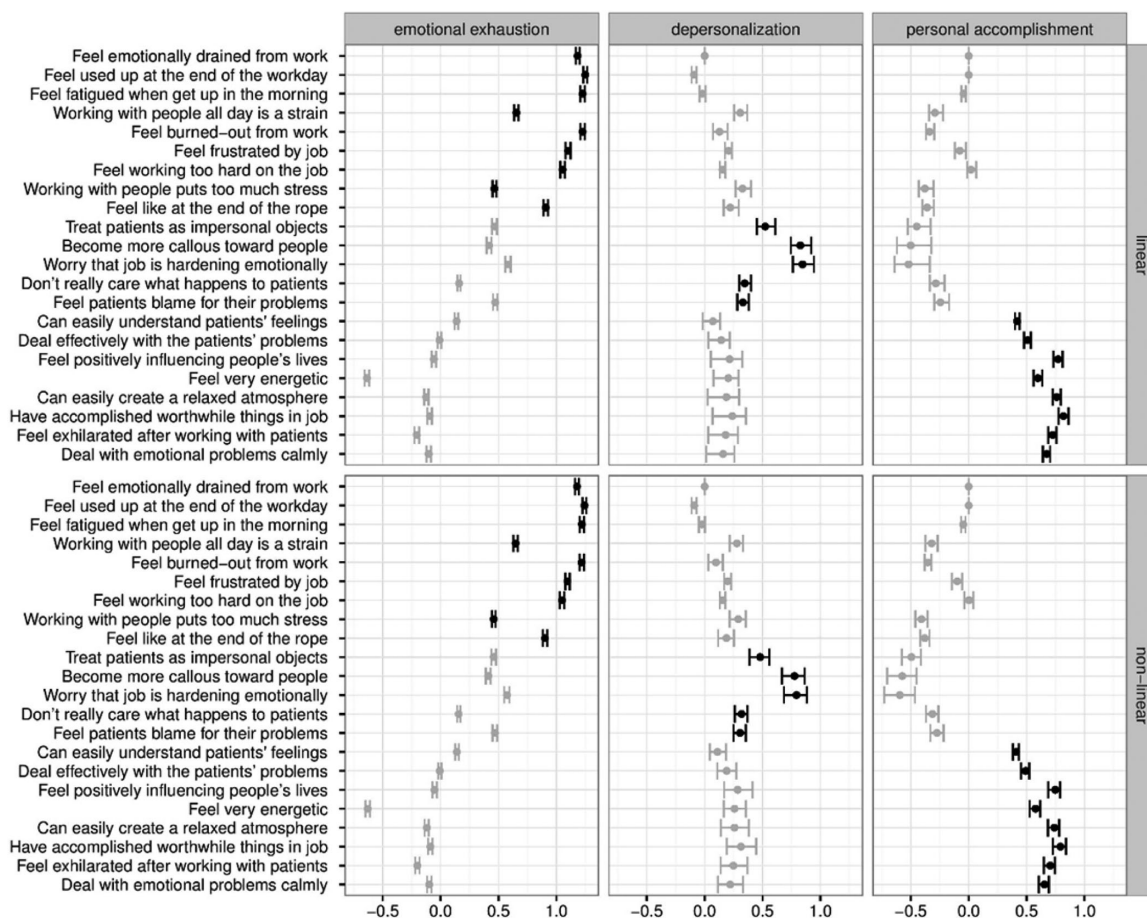


Figure 3. Factor loadings for the 22 burnout items for the three hypothesized burnout composite measures (emotional exhaustion, depersonalization, and personal accomplishment). The upper half of this figure presents the findings for the linear model. The lower half of this figure presents the findings for the nonlinear model. These findings reflect the measurement part of the semiparametric Latent Variable Model, as shown in Equation 1 Figure S1 (available with the online version of this article).

and physicians recognizing nurses’ contributions to patient care. There is large variation for the items measuring promotion of care quality. Written, up-to-date care plans seem to exist infrequently on the one hand, while on the other hand nurses indicated that their colleagues are clinically competent and that high standards of nursing care are expected by the management.

The aggregated values for nurse staffing ranged from 1.07 to 30.20, with a mean of 8.22 patients per nurse. The first quartile, the median quartile, and the third quartile equal 6.32, 8.22, and 9.53, respectively.

Linear and Nonlinear Analysis

Figure 3 presents the findings for the measurement model (cf. Equation 1 in Figure S1); that is, the factor loadings for the three suggested burnout composite measures and how these are affected by the inclusion of

nonlinear effects in the structural model (cf. Equation 2 in Appendix S1). For both the linear and nonlinear models, the items loaded well to their respective dimensions, particularly for the dimension of personal accomplishment (for which items are reverse worded), except for items 6 and 16, which had lower loadings than the other items measuring emotional exhaustion.

Figure 4 displays the findings for the structural part (cf. Equation 2 in Appendix S1) of the linear and nonlinear models. This shows the effect of the three work environment components and nurse staffing on nurse burnout. For example, the top left figure shows the linear (black dashed-dotted line) and nonlinear (black solid line; gray dashed line for confidence intervals) associations between managerial support for nursing and emotional exhaustion. In this case, similar conclusions would have been reached for the linear and nonlinear models. That is, nurses with a better perception of managerial support

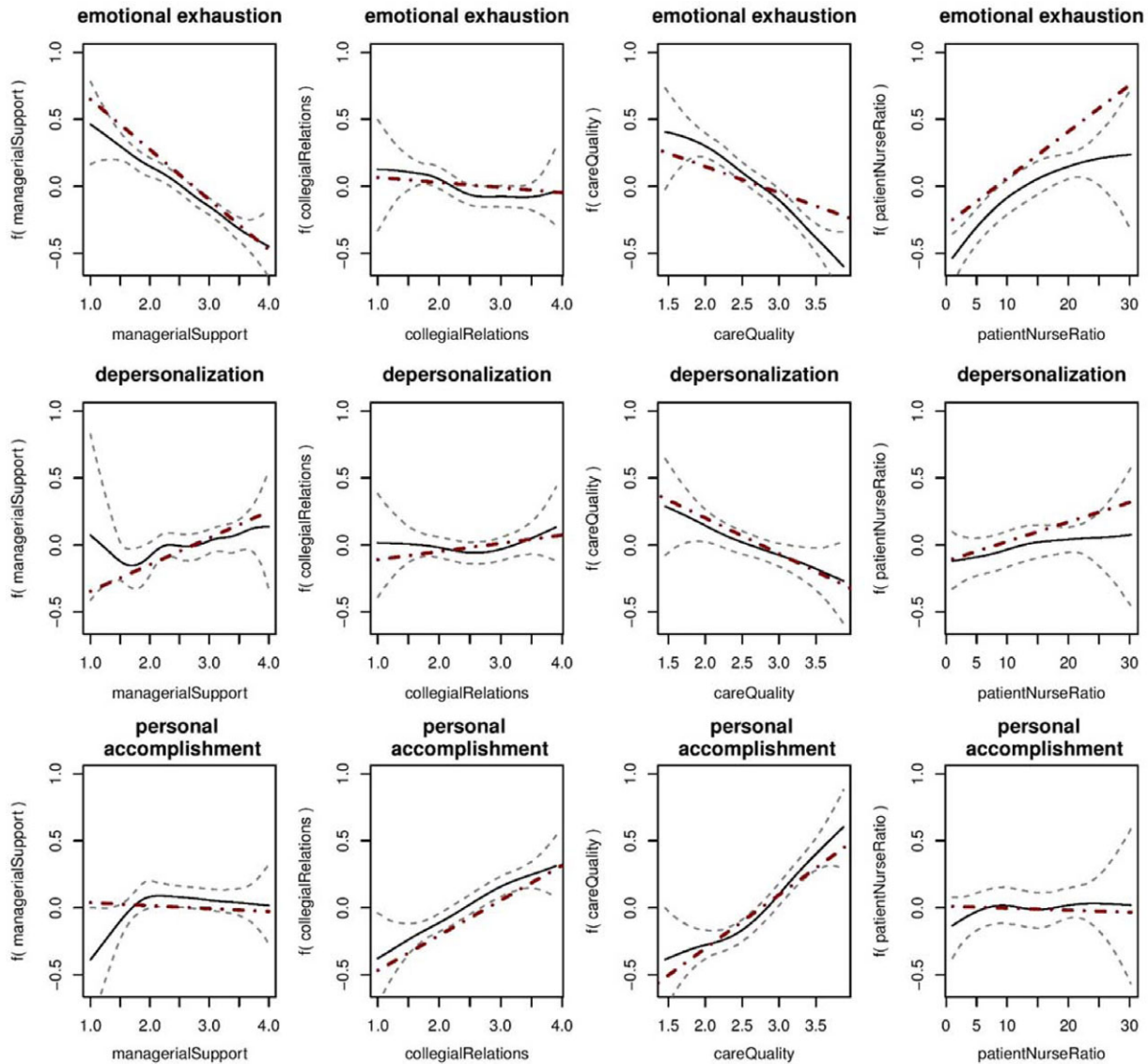


Figure 4. Effect of the three work environment components (managerial support for nursing, doctor–nurse collegial relations, promotion of care quality) and nurse staffing on the three hypothesized burnout composite measures (emotional exhaustion, depersonalization, and personal accomplishment). Black dash dotted lines present linear associations. Black solid lines and grey dashed lines present nonlinear associations and confidence intervals. These findings reflect the structural part of the semiparametric Latent Variable Model, as shown in Equation 2 in Figure S1 (available with the online version of this article).

experience lower emotional exhaustion. For the associations between managerial support, depersonalization, and personal accomplishment, no meaningful associations were observed. Every value in the confidence interval is a plausible value of the parameter effect. Since zero is contained in the interval for each value on the x-axis, the effect can be considered as nonsignificant. This is also the case for the associations between doctor–nurse collegial relations, emotional exhaustion, and depersonalization, and between nurse staffing, depersonalization, and personal accomplishment. For

the significant associations between managerial support for nursing and emotional exhaustion, doctor–nurse collegial relations, and personal accomplishment, and between promotion of care quality, depersonalization, and personal accomplishment, the linear and nonlinear models do not diverge. A more complex nonlinear association is observed between promotion for care quality and emotional exhaustion, and between nurse staffing and emotional exhaustion. For the former, a stronger association is seen for the nonlinear model, with emotional exhaustion decreasing at a steeper rate after a certain

threshold (around a mean work environment score of 2). Second, emotional exhaustion increases with an increasing number of patients per nurse, but the nonlinear model suggests that the rate at which emotional exhaustion increases slows down after a patient-to-nurse ratio of about 15 (which is far beyond the third quartile) is reached.

Discussion

Over the past decade, researchers have conducted large-scale studies and applied novel methodological techniques to nurse workforce data, guiding meaningful interventions and strategies to improve nurse well-being and patient safety. Here, we applied commonly used methods and measurement instruments—the PES-NWI, patient-to-nurse ratios, and the MBI—to revisit the association between nurse work environment, nurse staffing, and nurse burnout. The novelty is in the application of a statistical technique that allows for the joint investigation of a possible nonlinear association between these constructs while respecting the latent character of the burnout construct. Our fully nonlinear analysis avoids the notion that arbitrary values are chosen to categorize explanatory variables, which is standard practice in the few studies that have assessed nonlinearity in nursing research (Blegen & Vaughn, 1998; Vahey et al., 2004; Zhang et al., 2006).

The most important findings for decision makers and researchers suggest that additional increments of nurse-perceived presence of characteristics of excellent work environments correspond to better outcomes. In this sense, it is extremely worrying that RN4CAST findings for at least one country showed that nurse work environments instead had deteriorated compared to a previous study (Zander, Dobler, & Busse, 2013).

A highly regarded intervention to implement improvement in nurses' work environments is through the American Nurses Credentialing Center Magnet Program, for which it has repetitively been shown that through such transformation of the nurse work environment significant improvements in nurse and patient outcomes can be achieved (Kutney-Lee et al., 2015). This intervention has already been shown to also lead to improved job-related outcomes for nurses in hospitals outside the United States: in England (Aiken, Buchan, Ball, & Rafferty, 2008) and in Russia and Armenia (Aiken & Poghosyan, 2009). However, in England, the one hospital that was awarded Magnet status failed to renew it later (Royal College of Nursing, 2015). Now more than ever, institutional collaboration between U.S. Magnet hospitals and partner hospitals in Europe seems the most feasible approach for European hospitals to promote

and transform their work environments and sustain improvement. Another program that is also related to the quality of the nursing care delivery system is the Kaiser model of integrated health delivery. Kaiser hospitals have been shown to have more positive work environments, patient-to-nurse ratios, and better educated nurses compared to non-Magnet hospitals, making them similar to Magnet hospitals (McHugh, Aiken, Eckenhoff, & Burns, 2016). With regard to the Joint Commission International Gold Seal of Approval in quality and patient safety, a recent study showed that several aspects of the nursing work environment improved after accreditation (Kagan, Farkash-Fink, & Fish, 2016). Apart from these organizational-level interventions are several team-level and nursing unit-level interventions. TeamSTEPPS (Strategies and Tools to Enhance Performance and Patient Safety) relies on improving communication and other teamwork skills among healthcare professionals (King et al., 2008) and has been shown to improve nurses' perceptions of teamwork (Gaston, Short, Ralyea, & Casterline, 2016). Productive Ward focuses on releasing time for nurses to focus on patients' needs by using lean methods and tools (Robert, Morrow, Maben, Griffiths, & Callard, 2011). A recent single-center empirical evaluation of Productive Ward, however, found that although improvement in nurses' work environments was realized, perceived workload and emotional exhaustion increased. The researchers concluded that a balance should be sought between continuing the existing level of nursing care and introducing additional activities that come with large-scale quality improvement initiatives (Van Bogaert et al., 2017).

Not all work environment dimensions are significantly associated with each burnout dimension. These findings again highlight the variation in associations displayed by different elements of the work environment and of nurse burnout. Often work environment dimensions are aggregated to a single score because it is considered an easy approach by which to conduct an analysis and convey results (e.g., Bruyneel et al., 2015; Vahey et al., 2004). However, this may mask important associations, more so because it has also previously been shown that different associations are found across different organizational levels (Gabriel, Erickson, Moran, Diefendorff, & Bromley, 2013; Li et al., 2013).

The item variation within the dimensions of the work environment is also noteworthy. This variation is seldom discussed in research on nurses' work environments, as it is often lost through aggregation of items into a dimension. Further qualitative research could assess the barriers related to management that expects high standards of nursing care and clinically competent colleagues, on the one hand, and the lack of up-to-date care

plans on the other hand. Quantitative researchers may look into the hierarchical ordering of items (i.e., identify if within-dimensions respondents who agreed with one question are more likely to agree with another question). This could provide guidance for interventions and assist change managers in setting priorities.

An increasing number of patients per nurse is associated with increased emotional exhaustion up to a certain threshold beyond the third quartile, after which emotional exhaustion hardly increased further. It could be hypothesized that nurses working in environments with a very high workload may develop a resilient mindset and actively engage in coping with stress. RN4CAST and other nurse workforce studies have generated renewed interest into safe staffing legislation. Wales has recently become the first European country to introduce legislation relating to safe nurse staffing (Royal College of Nursing, 2016). Further research into the nurse staffing tipping point at which there is an increased likelihood of diminished patient care should focus on patient outcomes in addition to nurse outcomes. Previous high-impact policy guidance has shown that policymakers are keen on such tipping points. The National Institute for Health and Care Excellence (2014), for example, used RN4CAST evidence to establish its safe staffing guidance.

Limitations

One shortcoming in our modeling approach is that our latent variable model, while it accounts for the multidimensionality of the response variable (burnout), does not account for the multidimensionality of the explanatory variable (work environment). Further extensions on the semiparametric LVM could also account for the fact that our explanatory variables are not observed variables.

A second shortcoming to our approach is that it is not yet possible to account for the hierarchical nature of the data. This is a simplification over previous work mentioned earlier in this article (Gabriel et al., 2013; Li et al., 2013).

Third, the semiparametric LVM needs additional tools for model evaluation. At this stage it is unclear which indicators are useful for assessing model fit and for comparing findings with those from other techniques and models.

Last, these findings are from a cross-sectional study, and both the explanatory variables and the outcome are self-reported. This implies that our data provide restricted information on causality and that response bias may have occurred.

Conclusions

Nonlinear analysis suggests that for work environment dimensions that are significantly associated with burnout, there are no diminishing returns to increasing the quality of those work environment dimensions. Thus, while managers may need to apply different strategies and to foster different skill sets to move their work environment from poor to fair, from fair to good, and from good to excellent, the reward is that with each achievement, outcomes are better. Twinning activities between U.S. Magnet hospitals and European hospitals could lead to the broader implementation of an intervention that has repeatedly been shown to instigate such excellence in nurses' work environments.

Clinical Resources

- American Nurses Credentialing Center Magnet Recognition Program: <http://nursecredentialing.org/Documents/Magnet/>
- National Institute for Health and Care Excellence guidance on safe staffing for nursing in adult inpatient wards in acute hospitals: <https://www.nice.org.uk/guidance/sg1>
- Nurse Staffing Level Act (Royal College of Nursing): <https://www.rcn.org.uk/about-us/policy-briefings/nurse-staffing-levels-wales-act>

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web site:

Figure S1. Semi-parametric Latent Variable Model (LVM) proposed by Fahrmeir & Raach (2007).



HEALTH POLICY AND SYSTEMS

An Exploratory Study on Exemplary Practice of Nurse Consultants

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Key words

Nurse consultant, advanced practice nursing, career laddering, competencies, outcomes

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Abstract

Purpose: To examine the exemplary practice of nurse consultants (NCs) and derive a model to illustrate the highest level of advanced nursing practice.

Design: A descriptive study was conducted to examine the practice and outcomes of seven NC roles in varied clinical specialties in Hong Kong. Exemplary practice was examined in relation to competencies for advanced practice nursing in Hong Kong and the United Kingdom.

Methods: Data about NC characteristics and their practices were collected using a structured questionnaire and analyzed using descriptive statistics. Health service documents and clinical notes were analyzed using the framework approach.

Findings: All NCs demonstrated the competence expected of an advanced practice nurse with impacts on patients, nursing profession, and the organization as identified in the advanced nursing practice framework in Hong Kong. NCs also performed at the highest level of practice delineated by Skills for Health in the United Kingdom. They were involved in diagnostic and therapeutic practice, and identified patient satisfaction and symptom management as key outcomes.

Conclusions: This study provides new insight into levels of advanced practice and illustrates the exemplary work of NCs to demonstrate how they have developed and shaped services to bring about positive patient and organizational outcomes. Career laddering that places NCs at the highest level of advanced practice is important for making the best use of nursing expertise to achieve optimal patient and organizational outcomes.

Clinical Relevance: This study addresses a knowledge gap to enrich our current understanding of the impact of advanced practice nursing roles by linking NC role practices and competencies to key outcomes.

Amongst all professionals, nurses are the largest group providing healthcare services. However, a recent review of World Health Organization (WHO) documents found that despite significant workforce numbers, there is a global shortage of nurses and underutilization of nursing expertise and scope of practice (Wong et al., 2015). The WHO (2010) has recommended human resource planning strategies to optimize the use of nurses so that access to care by people in need can be enhanced. These strategies involve the education of new nurses, efforts to maintain qualified nurses in the field, and appropriate matching of skills to tasks. Increasingly, there is a global call for the expanded use of advanced practice nursing roles to address complex population health and healthcare system needs, and for clearly articulated career pathways to these roles as a strategy to support nursing practice development and retention (Bryant-Lukosius & Martin-Misener, 2016). In Hong Kong, a relatively new advanced practice nursing role, the nurse consultant (NC), has been introduced at the highest level of the clinical nursing career ladder. This article summarizes what is known about the NC role internationally and shares the results of an NC study in Hong Kong. The main objective of this study was to examine exemplary NC practice in relation to competencies for advanced practice developed by the Hong Kong Academy of Nursing (HKAN, 2015) in order to understand how NCs enact their roles to positively impact on patient, professional, and organization outcomes. A second objective was to determine how NCs enact their roles in relation to different levels of practice as defined by the Royal College of Nursing (2012).

Background

The NC role has been introduced in Australia, the United Kingdom, and Hong Kong for two reasons: first, to retain advanced nurses in clinical roles by expanding the clinical pathway, and second, to improve the quality of care and patient health outcomes (Bryant-Lukosius & Wong, in press). The Australian NC role was introduced in the late 1980s and has three grades associated with increasing levels of experience and work complexity. Grade 1 or entry-level NCs have at least 5 years' postregistration experience with relevant specialty and postregistration qualifications (Fry et al., 2013). They are expected to perform functions across five domains: clinical practice and consultation, leadership, education, research, and clinical services planning and management (Baldwin et al., 2013). These functions correspond with clinical nurse specialists in the United States who are required to practice within three spheres of influence, that is, patient, nurses-nursing practice, organization-health

systems (National Association of Clinical Nurse Specialists, 2010). The United Kingdom introduced the NC role in the 2000s with entry-level requirements of master's education and specialty experience, and defined areas of performance related to expert practice in direct care, professional leadership and consultancy, education and training, and service development (Gerrish, McDonnell, & Kennedy, 2013). In the United Kingdom, there is a framework differentiating nine levels of practice of the health professionals according to their ability to deal with complexity, unpredictability, and their scope of responsibilities for patient care, innovation, and leadership. The topmost level goes to directorate grade of the organizations. The NCs are benchmarked at level 8, the second level from the top and the highest level for clinicians, while advanced practitioners are positioned at level 7 (Skills for Health, 2010). In Hong Kong, the NC role was introduced in 2009 with similar requirements of master's education, 8 years of work experience, and specialty training (Lee et al., 2013). Competencies for advanced practice nurses, including NCs, have been developed to promote role clarity and role implementation and to move towards regulation of these roles by the HKAN. These competencies were developed by local experts and take into account international standards for advanced practicing nursing roles, but have not yet been validated in practice (HKAN, 2015).

A number of published studies have examined the work of NCs. Kennedy et al. (2012) conducted a mixed-methods systematic review of 36 studies to explore the impact of the NC role in adult care in the United Kingdom. Review results showed that NCs had a positive impact on two types of outcomes: clinical and professional. Clinical outcomes were related to patients, such as improved symptom control, quality of life, and care experiences. Professional outcomes were related to developing nurses and other healthcare team members, quality of work life, and the acceptance of NCs by other providers. A subsequent qualitative study, examining the work of six individual NCs in the United Kingdom, identified a third dimension of NC impact related to organizational outcomes (Gerrish et al., 2013). Organizational outcomes were associated with cost savings through reductions in health service use (e.g., length of stay) and achieving national benchmarks. Gerrish et al. (2013) found that the NCs' work impacted within and beyond clinical settings to also influence healthcare system outcomes by working across disciplines and practice sites, advancing knowledge through research, presenting at national conferences, and engaging in forums that influenced national policy agendas. Similarly, findings from a Hong Kong NC study indicate that NCs manifest their expertise by assessing and treating cases with complex health problems,

developing and implementing new clinical services, leading continuous quality improvement, and engaging in research or evidence-based practice activities (Chan et al., 2014).

While there is developing evidence about the positive impact of the NC role on patient, profession, and organizational outcomes, how the role differs from other types of advanced practice nursing roles is unclear. One study suggests that there is similarity between clinical nurse specialist (CNS) and NC roles (Jokiniemi, Pietila, Kylma, & Haatainen, 2012). The question also remains as to whether NCs at the highest level of the clinical ladder perform qualitatively differently from advanced practicing nurses at their early stage of the role (Gerrish et al., 2013). Further, there is limited understanding of how NCs enact their roles to achieve better outcomes. Improved role clarity and understanding of NC roles is necessary to support effective decision making about optimal utilization of the role.

Methods

Design

This was a descriptive study using a mixed-methods approach. The quantitative approach collected structured information on demography, practice domains, and key outcomes, while the qualitative approach collected cases and documents that illustrated the scope of practice and impacts.

Participants

The study took place in a large regional hospital in Hong Kong with over 1,300 beds and 12 NCs working in different specialty areas. Seven of the NCs had worked in their position for almost 2 years, while the rest were newly appointed. To address study objectives, the newly appointed NCs were excluded, and only the seven NCs with 1 or more years to establish their roles and fulfill the expected role competencies were included.

Data Collection Methods

Data were collected between January and December 2014. An initial face-to-face interview was conducted to complete a questionnaire that consisted of two parts. The first part, composed of structured questions developed and validated for a previous study, examined the work of advanced practice nurses (Wong & Chung, 2006). The content included (a) demographics (gender, education level, and experience); (b) practice dimensions (time spent in role components, types of referrals, diagnostic

and therapeutic practice behavior, extent of independent practice, and key indicators reflecting service outcomes); and (c) job satisfaction. The second part of the questionnaire asked the respondents to provide documents explicating four particular aspects of their work: NC's mission with service models, NC-initiated clinical protocols, service outcome reports, and clinical notes of patient cases representing the NC's exemplary practice in relation to the advanced nursing practice competency framework (HKAN, 2015). The relevance of these documents to the NC role was confirmed by a senior nurse manager and a member of the NC Service Model Committee of the Hospital Authority. Each NC was interviewed at the beginning of the study to collect data for the structured questions and expound the documents needed for the second part of the questionnaire. Follow-up member checking was performed to validate interpretations of the data by the research team and seek clarifications if needed.

Ethical Considerations

We obtained ethics approval for the study from the participating hospital and our university. The informants were provided with written information on the purpose of the study and signed a consent to participate. We assured them that the study was voluntary and that they could withdraw from it at any time without penalty. All patient information provided to the research team was anonymized, so that patient confidentiality was maintained.

Data Analysis

The quantitative questionnaire data were entered into SPSS V22.0 for Windows (IBM Corp., Armonk, NY, USA) and organized using descriptive analysis, including means, frequency counts, and percentages. The qualitative data were analyzed using the framework approach, which involves five stages for data management: familiarization, identification of a thematic framework, systematic coding, organization of data into major themes, and mapping of the relationships (Richie & Lewis, 2003). Each research team member examined the documents independently to become familiar with the data and identify relevant themes. The team then met to share the initial themes identified and construct a framework for analysis. We produced the final framework after a few rounds of deliberation with refinement. We sorted and coded the data systematically according to the framework, with themes and relationships mapped within and across the seven NC cases (Richie & Lewis, 2003). The framework approach facilitated the capturing

of different aspects of a complex phenomenon that were interconnected (Smith & Firth, 2011), which was appropriate for this study in order to examine the multidimensional activities associated with NC competencies and to differentiate the levels of work. Illustrative examples of NC role enactment related to level of practice and competence domains of practice were extracted during analysis.

The research team members (authors F.K.Y.W., A.T.Y.L., R.N., E.W.Y.W., S.M.W., and E.C.Y.K.) were involved in analyzing the documents using an iterative process of discussion in coding and interpretation throughout. An audit trail was kept to ensure consistency of coding and interpretation, and all discrepancies were resolved by consensus to reach the final coding. The framework approach allowed transparency in data analysis, ensuring that the accounts were presented accurately to reduce possible misinterpretation (Smith & Firth, 2011).

Results

The seven informants were NCs who had specialty entitlement in the areas of community psychiatry, diabetes, lactation, orthopedics, palliative care, urology, and wounds. All had at least a master's degree, and one was in the final stages of completing a doctoral degree. They had an average of 21 years of specialty experience and had been NCs for an average of 1.6 years. The practice dimensions of the NC roles are summarized in **Table 1**. Nearly half (48.8%) of their time was spent on direct or indirect (leading or supervising a team to deliver care) patient care. The other half of their time was mainly used in staff development (19.7%), meetings (11.7%), and research or project work (10.6%). All of the NCs could refer patients for consultation, but were restricted to disciplines related to their areas of specialization. Some NCs could also receive unrestricted patient referrals from other professionals. As far as diagnostic and therapeutic practice behaviors were concerned, NCs could initiate therapies such as wound dressing and bladder training, and introduced staff and patient protocols that impact hospital-wide practice. No NC could initiate new medications, but some could adjust prescribed medication according to protocols. Most of the NCs could initiate diagnostic tests such as ultrasound, and one had admission privileges. The NCs reported that most of their work (83%) was conducted independently, but for some aspects they needed to work interdependently or dependently with other professionals. When asked which measures could best reflect their service outcomes (they could choose more than one), most NCs selected client satisfaction, symptom management, re-

Table 1. Practice Dimensions and Job Satisfaction of Nurse Consultants

	N = 7	Mean (SD)
Role components (out of 100%)		
Direct client service		35.6 (13.7)
Indirect client service		13.2 (8.0)
Staff development		19.7 (3.7)
Meetings		11.7 (8.7)
Research/project work		10.6 (3.4)
Miscellaneous		9.2 (6.2)
Referral		
Referral-in		
Unrestricted	5	
Referral-out		
Restricted	7	
Diagnostic and therapeutic practice behavior		
Initiate new medication	0	
Adjust prescribed medication	3	
Initiate therapy	7	
Initiate diagnostic tests	4	
Admission privileges	1	
Staff protocols initiated	7	
Client pamphlets and/or protocols initiated	7	
Independent practice (% of role activities)		
Independent		83.3 (18.2)
Interdependent practice		13.6 (14.4)
Dependent practice		3.1 (4.7)
Key indicators reflecting service outcomes (Can choose more than 1)		
Client satisfaction	7	
Symptom management	7	
Readmission rate	6	
Complication prevention	5	
Specialty specific indicators	5	
Emergency room attendance rate	4	
Caring for the family caregiver	4	
ADL level	4	
Nurse clinic attendance rate	3	
Waiting time for first attendance	3	
Job satisfaction (1, most dissatisfied – 10, most satisfied)		7.1 (0.8)

Note. ADL = activities of daily living.

duced readmission rates, prevention of complications, specialty-specific indicators (e.g., breastfeeding rates), emergency room attendance, care for family caregivers, and level of activities of daily living as key indicators. The nurse clinic attendance rate and waiting time for first attendance were chosen by three of the informants. Overall, the NCs reported being satisfied with their jobs.

There were 7 missions with service models, 7 case notes, 39 service outcome reports, and 77 NC-initiated clinical protocols submitted for qualitative analysis. After members' independent review and subsequent rounds of team deliberation, the team constructed a framework that could illustrate the multidimensional work

domains I and II representing patient impacts, III, IV, and V signifying system impacts, and VI and VII professional impacts (see **Figure 1**). The case scenarios are provided in **Figure S2**. The first domain refers to the NC's competence in managing patients with complex health conditions. The wound NC demonstrated the ability to manage the complete episode of a complex wound with Fournier gangrene by helping to control the infection, manage the patient's pain, reduce the wound size, achieve complete wound healing, and control mortality rate. The NC monitored the patient's condition closely and applied advanced techniques to remove necrotic tissue and purulent drainage, and to augment the effects of the antibiotics to promote healing. In this case scenario, the NC demonstrated the features of level 8 practice, requiring highly specialized knowledge and being at the forefront of the field.

The second domain is enhancing the therapeutic nurse–client relationship. This domain is illustrated by collaboration between two NCs, in community psychiatric care (CP) and palliative care (PC). The CP NC was following a woman with paranoid-type schizophrenia and borderline personality. The CP NC learned that the patient's boyfriend had been diagnosed with advanced-stage colon cancer and the woman had expressed the intention to kill herself if he died. Since the man was being followed up by the palliative unit of the same hospital, the CP NC consulted the PC NC to address the psychosocial needs of the couple. They worked together to maintain the optimal well-being of their respective patients independently and collaboratively, since any change in one patient would affect the other. The man had good symptom control and was receiving both physical and psychosocial care at the end stage of his life from the PC NC. Throughout the process, both NCs demonstrated a therapeutic interaction with their patients, providing them with information and emotional support, guidance, and counseling to achieve the best possible outcomes. Eventually the man died comfortably and the woman was stabilized and able to live in the community with social support. In this scenario, both NCs exhibited the ability to analyze complex processes and initiate interdisciplinary care processes to maintain therapeutic relationships with the couple.

The third domain is demonstrating effective leadership and teamwork. The diabetes NC demonstrated leadership in orchestrating the team to provide expert and timely care to a pregnant woman with brittle diabetes. The NC empowered the staff to manage the episode when the woman had hyperglycemia and urine ketones, and when insulin pump failure was detected; the staff was also charged with taking alternative measures to manage her insulin supply. The diabetes NC exerted leadership in

mobilizing resources, communicating with the different parties involved, and taking responsibility for managing this complicated case. The features of level 8 practice exhibited by this NC case were the ability to analyze complex processes and being accountable for service delivery with a leading role.

The fourth domain is enhancing quality assurance and improvement. This domain was illustrated by the lactation NC, who engineered hospital changes required to be designated as a baby-friendly hospital. The NC constructed a framework to ensure the required structures and processes were in place, such as the rooming-in of mother and infant and related policies and protocols. Staff were equipped with training and exposure to practice through professional exchanges with international counterparts. New mothers were provided with education and a peer support group. The proportion of breastfed newborns rose from 70% (2009) to 91% (2014), surpassing the outcomes of neighboring hospitals. This NC case demonstrated features of level 8 practice related to original thinking and being accountable for service delivery with a leading role.

The fifth domain is managing and negotiating innovative and effective approaches to care. The illustrative case is the urology NC, who designed a "Trial Without Catheter" program to reduce the waiting times of patients requiring catheterization after pelvic or lower limb fractures. By enhancing access to care, patients had earlier discontinuation of the urinary catheter and fewer urinary tract infections often associated with prolonged catheter use. The urology NC contributed to better patient outcomes by facilitating a change in practice that included re-engineered work processes to provide community nurse follow-up of patients and an NC-led follow-up clinic. This NC case demonstrated the features of level 8 practice related to original thinking, taking a leading role, and being accountable for quality service delivery.

The sixth domain is enhancing professional attributes of general and advanced practice. The orthopedics NC illustrated this domain by developing a novel method to promote the healing of complex wounds requiring multiple surgeries for skin grafting. The innovative method, progressive wound closure, was piloted among 11 patients, of whom 10 achieved successful wound closure within a mean of 19 days without requiring surgery. The NC, through self-advancement and learning from an international counterpart, developed the innovative approach to dealing with large skin defect wounds and built evidence to demonstrate the effectiveness of this approach. This NC case demonstrated level 8 practice related to highly specialized knowledge and attainment of performance at the forefront of the field.

The final domain is enhancing personal attributes. All NCs exhibited competence in this domain through leadership in their related specialty areas and professional organizations. The NCs contributed to the profession by engaging in consultancy work to shape the direction of their discipline, and were recognized for their expertise as invited speakers in local and international forums. These actions illustrate level 8 practice involving highly specialized knowledge and leadership in specialty education.

The above examples illustrate the accomplishment of the NCs in each of the domains of the competence framework, attained at skill level 8. All of the NCs had fulfilled the competence domains and attained the level of practice. There were some competency statements in domain I, such as “managing patients with complex health conditions,” that were not applicable to the lactation NC because this role focused on well babies and mothers and not illness conditions.

Discussion

The results of this study led to the development of a three-dimensional framework describing NC role enactment and the breadth and depth of their work across seven competency domains. The results suggest that each of the NCs was functioning at level 8 according to the Skills for Health (2010) career framework. The top of the framework, level 9, is for organization directors who assume responsibility for developing and delivery of service to a population substantiated with frontier knowledge and ability to interface between fields. Thus, the NCs were functioning at the highest level of clinical practice to develop and improve services and act as consultants to analyze and manage complex care delivery processes. The NCs also enacted their roles across one or more competency domains to achieve positive outcomes for patients, the nursing profession, and the organization. Similarities between NC and CNS roles have been previously reported (Jokiniemi et al., 2012); however, how these roles are enacted may differ in relation to the NC career ladder structure and organizational expectations for a very senior clinical leadership role in comparison to other advanced roles.

The results reinforce those of previous studies in Hong Kong and the United Kingdom, indicating that NCs are clinical leaders who manage complex cases and contribute to improved patient outcomes related to symptom management, wound healing, chronic disease management, mental health, and recovery from acute illness (Chan et al., 2014; Kennedy et al., 2012; Lee et al., 2013). As in other studies, the NCs led initiatives and

achieved quality improvement benchmarks, reduced wait times by increasing access to specialized care, and introduced evidence-based practices to improve patient recovery (Chan et al., 2014; Gerrish et al., 2013).

Similar to NCs in Australia, those in this study were most frequently involved in providing expert patient care (Wilkes, Luck, & O’Baugh, 2015). Other studies have reported frequent NC involvement in consultation activities and systemwide activities to improve practice (Giles, Parker, & Mitchell, 2016; Wilkes et al., 2015). These activities were also illustrated by the NCs in this study, who established standards of practice that had hospital- or territory-wide impact by negotiating innovative and effective approaches to care delivery. Study findings indicating that the NCs functioned at a high level within the career framework are consistent with the results of an Australian study in which NCs performed at a significantly higher level of practice compared to registered nurses in nonadvanced roles (Gardner, Duffield, Doubrovsky, & Adams, 2016).

The NCs in this study have manifested achievements that meet the benchmarks of their international counterparts. For instance, orthopedic and trauma practitioners at the level 8 consultant level in the United Kingdom are expected to diagnose patients with musculoskeletal conditions or injuries, prescribe treatment, and integrate evidence-based practice in providing high-quality care (Royal College of Nursing, 2012). The orthopedics NC in this study demonstrated success in managing patients with traumatic injury and wound healing problems using innovative evidence-based strategies. The wound NC was able to control the mortality rate of patients with Fournier gangrene under her care at 0% while the overall reported rate was 20% to 40%. The professional and system impacts of the NCs in this study are also comparable to NCs in other countries. Similar to Irish NCs, they initiated practice change, shouldered responsibility for policy and guideline development and implementation, were accountable for services at large, worked with multidisciplinary teams to effect change, engaged in education, and were involved in shaping professional directions at national and international levels (Elliott et al., 2013).

The NC role was introduced with the goal to retain the talents and expertise of advanced and specialized nurses in the workforce. There are a number of challenges to sustaining this goal. First is the need to develop and grow the number of NCs in the healthcare system. A study by Fry et al. (2013) found that NCs at the highest grade (grade 3) had surpassed the other two grades in clinical service and consultancy, clinical leadership, research, education, and clinical services planning and management. This is not surprising, given that the

grade 3 NCs are more mature and experienced in their specialty practice, but does emphasize the need for succession planning to groom top-level nurses who can provide strategic clinical leadership. Support from senior healthcare administrators is important, but managers and directors may not always fully understand the NC role (Mullen, Gavin-Daley, Kilgannon, & Swift, 2011). In the absence of senior leader support, work environments may not permit optimal role implementation, and some NCs move on to nonclinical positions (Mullen et al., 2011). The lack of understanding by other professionals and the perceived costs of the NC role are other barriers to effective role implementation (Franks, 2014). Similar challenges were faced by NCs in this study.

This study adds to the global discourse confirming that high-level nursing practice can contribute to human health and also makes the work and impact of NCs more visible within the healthcare system (Zittel et al., 2011). Optimal use of innovative roles, such as the NC, is important for achieving an appropriate mix of nursing staff and maintaining motivated and experienced nurses in clinical practice (WHO, 2010). Further work is needed to articulate NC roles within a clear advanced practice nursing framework, along with title protection and regulated practice, so that nurses at the highest level can be empowered to contribute to their full potential for the benefit of patient and quality service outcomes (Ryley & Middleton, 2016).

Limitations and Strengths

The self-report and retrospective nature of the data collection is a limitation, but as was the case in this study, few healthcare organizations have the capacity to prospectively or electronically link specific NCs or their activities to key outcomes. Another study limitation is that the generalizability of the results may be limited to NCs from one practice setting in Hong Kong. These limitations may be offset by the consistency of results demonstrating a high level of role enactment across the broad range of specialty areas of practice examined among the seven NC roles. Application of a nationally agreed upon competency framework based on international standards, along with a health professional career framework from the United Kingdom, lends further support for the relevance of the study findings to NC roles in other settings and countries. This study adds knowledge to the existing studies of advanced practice nursing roles by integrating qualitative and quantitative data to examine NC activities in relation to key outcomes in order to strengthen our understanding of how NCs have an impact (Bryant-Lukosius et al., 2016).

Conclusions

This study provides evidence that NCs on the highest rung of the clinical ladder of nursing practice demonstrate all domains of work related to advanced practice that impacts on patients, the profession, and organizations. As top leaders in clinical nursing, NCs possess state-of-the-art knowledge and the ability to solve complex problems, shape development, and introduce innovation to change practice. Establishing a critical leadership mass at the forefront of clinical nursing practice is essential for optimizing the use of human resources to provide quality care.

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Clinical Resources

- Hong Kong Academy of Nursing Limited. Guidelines for program planning and examination: <http://www.hkan.hk/main/en/publications/guidelines-for-program-planning-and-examination>
- International Council of Nurses: <http://international.aanp.org/>

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web site:

Table S1. The Hong Kong Academy of Nursing Competence Statements for Advanced Practicing Nurses

Table S2. NC Impacts, Competence Domains and Illustrative Cases of Level 8 Practice



PROFESSION AND SOCIETY

An Evolutionary Concept Analysis of Compassion Fatigue

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Key words

Compassion fatigue, professional issues, health care providers, concept analysis

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Abstract

Purpose: The purpose of this article is to fill the need for an updated concept analysis of compassion fatigue.

Methods: This review used Rodgers' Evolutionary Model to direct the analysis of 25 papers published between 2005 and 2015. This review focused strictly on healthcare providers in the formal healthcare setting.

Conclusions: The authors provided an analysis of the evolution of compassion fatigue and identified surrogate terms, attributes and defining characteristics, and antecedents and consequences of the term, true to Rodgers' Evolutionary Model. Related terms are also discussed and a brief case model is provided.

Clinical Relevance: A better understanding of compassion fatigue will allow researchers and clinicians to identify its causes, prevention, and treatment. This could impact the rate at which healthcare providers leave clinical practice and their ability to compassionately engage with patients.

Compassion fatigue (CF) has become a point of interest in recent healthcare research. It is identified as one of the reasons valuable healthcare providers (HCPs) disengage, have noticeable changes in their clinical practice, and choose to leave the profession. There is still some confusion regarding the concept of CF and other related concepts despite a significant amount of research on CF in the past few years. This confusion has been noted in recent literature reviews that have called for an updated concept analysis of CF (Sorenson, Bolick, Wright & Hamilton, 2016). This article aims to accomplish that.

Methods

This concept analysis was guided by Rodgers' Evolutionary Model (Tables 1 and 2). This model accounts for the changes that naturally occur to concepts as time

progresses and more research is generated (Rodgers & Knafl, 2000). Rodgers' model also accounts for the refinement of concepts that occurs as contexts change (Rodgers & Knafl, 2000). CF has undergone several major reconceptualizations from its original meaning; thus, Rodgers' model is a natural fit.

Data Sources and Sample for Data Collection

A review of the literature was completed to identify healthcare research related to the concept of CF in HCPs. PubMed and HealthSource: Nursing & Academic Edition were searched for "compassion fatigue" and "healthcare providers." Further criteria were that the article was published in English with full text accessible via the online databases. This concept analysis focuses on the current understanding of CF; therefore, the search was limited

Table 1. Steps of Rodgers' Evolutionary Method for Concept Analysis

1	Identify and name the concept of interest
2	Identify surrogate terms and relevant uses of the concept
3	Identify and select an appropriate realm/sample for data collection
4	Identify attributes of the concept
5	Identify references, antecedents, and consequences of the concept
6	Identify concepts that are related to the concept of interest
7	Identify a model case of the concept

From Rodgers and Knafl (2000).

Table 2. Rodgers' Evolutionary Method for Concept Analysis of Compassion Fatigue

1	Identify and name the concept of interest Compassion fatigue
2	Identify surrogate terms and relevant uses of the concept Secondary traumatic stress
3	Identify and select an appropriate realm/sample for data collection PubMed HealthSource: Nursing & Academic Edition 2005–2015 All formal healthcare providers and formal healthcare settings
4	Identify attributes of the concept Inability to process emotional stress related to caring for traumatized or suffering individuals Emotional, physical, and spiritual symptoms Abrupt onset
5	Identify references, antecedents, and consequences of the concept Antecedents Working as healthcare provider Prolonged exposure to traumatic events Empathy for the suffering individual Desire to absorb or alleviate suffering Consequences Difficult to compassionately or empathically engage Effects on job performance Influence on decision to leave profession
6	Identify concepts that are related to the concept of interest Burnout Moral distress Emotional exhaustion Compassion stress
7	Identify a model case of the concept

to papers published between 2005 and 2015. All formal healthcare settings and HCPs were included, regardless of practice area or geographical location. Abstracts and conference summaries were excluded. The initial search yielded 309 papers. Google Scholar database was also searched for the combined terms using the same exclusion criteria and the results sorted by relevance, resulting in a total of 5,620 articles. The first 10 articles were reviewed and had already been included in the results from the other databases, so no additional articles were added to the resulting body of literature. After omitting

duplicate results from PubMed and HealthSource: Nursing & Academic Edition, the remaining articles' titles and abstracts were reviewed for inclusion criteria; this yielded 114 articles. Twenty percent of these publications were randomly selected for review, resulting in 23 articles representing a wide variety of healthcare settings and HCPs. This sample size was further validated by data saturation characterized by repetition of themes and reemergence of characteristics in the papers included. Many of these articles cited Figley's and Joinson's definitions of CF; thus, Figley's and Joinson's original papers on the topic were also included in the review of the literature for reference.

Evolution of Compassion Fatigue and Surrogate Terms

CF is a complex concept, originating from caregivers' experiences of post-traumatic stress disorder (PTSD). Figley's research was the driving force behind much of the conceptualization and evolution of CF, with other researchers also working to validate and clarify his definition of CF. The common theme through all of these changes is that CF is the emotional cost of caring for traumatized individuals or bearing witness to others' trauma (American Psychiatric Association [APA], 1980, 1994; Figley, 1993, 1995; Joinson, 1992). Despite this, there is still ambiguity surrounding the concept of CF. To understand CF, we must first have a clear picture of its evolution and how research has shaped its conceptualization and related phenomena.

Post-traumatic Stress Disorder

PTSD was initially acknowledged in the 1980 American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders, 3rd edition* (DSM-III; APA, 1980). PTSD was used to describe and diagnose the physical and psychological effects of traumatic events, generally described as stressors outside of the typical human experience (APA, 1980; Friedman, 2013). The DSM-III clearly stated that knowing of others' traumas can be traumatizing (APA, 1980). The DSM-IV elaborated on this, emphasizing that bearing witness to or gaining knowledge of others' traumas can be traumatizing, citing knowledge of traumatic deaths, injuries, or threats of death or injury to someone close as criteria for the diagnosis of PTSD (APA, 1994). Figley noted that research on PTSD focused almost exclusively on the directly traumatized individual, and therefore began to focus his work on individuals in close contact with the traumatized (Figley, 1995).

Secondary Catastrophic Stress Reactions

Figley differentiated the secondary party's reaction to a traumatic event as a secondary catastrophic stress reaction (Figley, 1993). Figley used this term to describe the reaction caused by an empathic or sympathetic engagement with a traumatized individual (Figley, 1993). He therefore asserted that relationships could be viewed as liabilities, since being a member of someone's support network during a trauma can lead to secondary catastrophic stress reactions (Figley, 1982, 1985). This spread of trauma from one individual to another, and eventually to an entire system such as a family or healthcare team, has also been referred to as chasmal or secondary trauma (Figley, 1985; Figley, 1999). Of note, this phenomenon had been recognized as the chasmal effect in earlier work completed by one of Figley's students (Kishur, 1984). The spread of the effects of trauma is more common among people, like healthcare workers, who often view themselves as an integral part of a traumatized individual's support network or have a self-concept that includes characteristics of a savior or rescuer (Figley, 2015).

Secondary Traumatic Stress

Figley recognized a need to conceptualize the particular type of stress that leads to the vicarious traumatization of those caring for the directly traumatized. He began to use the term secondary traumatic stress (STS) to describe the costs of caring for the traumatized individual (Figley, 1993). The term secondary traumatic stress is used to describe the PTSD-like symptoms that result from providing empathic support to the primary victims of traumatic events (Figley, 1993). Figley intended STS to function as a diagnosis of the specific PTSD-like symptoms people experience when they are indirectly traumatized by providing support to the primary victim of trauma (Figley, 1993). STS stems from the desire to help the traumatized individual and to alleviate his or her suffering (Figley, 1999).

STS differs from PTSD in that it specifically addresses the experiences of the supporter who becomes secondarily traumatized by knowing about or by helping to alleviate the suffering of another person. This differentiation has been advantageous in discussing and researching the lived experiences of those caring for the traumatized, in both social and clinical contexts, while preserving the commonly applied definition of PTSD.

Compassion Fatigue

STS is now widely known as compassion fatigue. Joinson (1992) coined the term compassion fatigue during her study of evaluation for STS and burnout in

emergency room nurses. She initially defined it as a "unique form of burnout that affects people in the caregiving profession" (Joinson, 1992, p. 116). Figley also adopted the new terminology, defining CF as "a state of exhaustion and dysfunction, biologically, physiologically, and emotionally, as a result of prolonged exposure to compassion stress" (Figley, 1995, p. 34) and the direct result of empathy and exposure (Figley, 1999 [in Stamm]). Generally, it is thought of as the cost of caring.

Surrogate Terms

Joinson stated that while STS may give a better clinical description of this experience, CF is more user friendly. Figley added that in his experience nurses prefer the term CF to STS, stating the terms may be used interchangeably (Figley, 1995; Joinson, 1992). The creators of both CF and STS agree that the terms are reflective of the same concept; therefore, STS is considered an acceptable surrogate term for CF.

Attributes and Defining Characteristics of Compassion Fatigue

Much of the confusion surrounding CF originates in its similarities with other related concepts. However, with the exception of its surrogate term STS, CF has unique attributes that differentiate it from other, often conflated, concepts. The attributes that define CF include the inability to process emotional stress related to caring for traumatized or suffering individuals, emotional, physical, and spiritual exhaustion, and an abrupt onset of symptoms (Todaro-Franceschi, 2013).

Antecedents and Consequences of Compassion Fatigue

Antecedents

Antecedents of CF include working as an HCP, prolonged exposure to clients' traumatic events, empathy for the suffering individual, and a desire to absorb or alleviate the individual's suffering. HCPs, by definition of the role, find themselves interacting with patients and families in crisis. Therefore, working in this role and repeated exposure to others' traumatic events and physical and emotional trauma increase the risk for secondarily experiencing the traumatic event (Figley, 1995). Prolonged or frequent experiences of empathizing with patients or their families are the foundation for CF, as empathetic engagement is how the traumatic experience is spread from the primary victim to the secondary individual (Figley, 1995). Exposure to the

traumatic events of others remains a common theme in more recent literature regarding the causes of CF. Excluding articles that only referenced Figley’s or Joinson’s definitions of CF, 16 of the 23 articles cited caring for traumatized individuals as an antecedent of CF (see **Table S1**).

Providing empathic and compassionate care also need to happen for CF to occur. Engaging with patients on an emotional and compassionate level requires an added level of commitment and potentially stress from the HCP, inherently increasing the risk for CF in the HCP (Figley, 1995). Again excluding studies that only cited Figley’s or Joinson’s definitions, 9 of the 23 reviewed studies pointed at compassionate care, empathetic care, or emotional engagement as contributing factors for CF.

Consequences

Although significant, there are more detrimental consequences than the obvious physical and psychological symptoms associated with CF. HCPs typically remain exposed to the suffering that led to the onset of CF, even as symptoms of CF manifest (**Table 3**). HCPs who experienced CF found it harder to compassionately or empathically engage with patients (Austin, 2011; Stewart, 2009). This can drastically affect how HCPs are able to perform their jobs because much of their roles depends on establishing and maintaining a relationship of trust with their patients. HCPs often find the connections they form with patients rewarding; CF impedes this from happening and ultimately may affect whether HCPs find meaning in their work, influencing decisions to leave

the profession. Continuing to lose valuable HCPs to preventable causes will have detrimental effects on a health-care system with growing demands (Carter & Mikan, 2013).

Concepts Related to Compassion Fatigue

In addition to the concepts vital to the evolution and conceptualization of CF, a few other concepts were also linked to CF in the literature.

Burnout

Burnout is also associated with emotional exhaustion; however, it is more related to the cumulative effects of stressors of a job, particularly when one believes that there are not enough resources to meet the needs of the job (Anewalt, 2009; Maslach, 1982). The cumulative effect of stressors is reflected in a gradual onset of symptoms, a major contrast from the abrupt onset of CF. The associated symptoms, such as fatigue, headache, and difficulty focusing, can be subtle and are often easily mistaken for other causes, so it is important to recognize the symptoms when they appear and to identify the underlying problem. Depersonalization, reduced sense of personal accomplishment, low job satisfaction, and feeling discouraged as an employee are key factors in burnout (Maslach, 1982; Maslach & Jackson, 1984). While they do add that client problems contribute to burnout, they contribute in the sense that the problems’ chronicity, acuity, and complexity are beyond the provider’s abilities (Lee, Medford, & Halim, 2015; Maslach, 1982; Maslach & Jackson, 1984).

Table 3. Symptoms of Compassion Fatigue

Behavior changes	Emotional changes	Physical changes
Inability to maintain balance of empathy and objectivity	Heavy heart, emptiness	Chronic fatigue
Chronic lateness	Diminished sense of personal accomplishment	Exhaustion
Overworking	Decreased sense of purpose	Frequent headaches
Exaggerated startle response	Less able to feel joy or happiness	Gastrointestinal complaints
Difficulty focusing and concentrating	Low self-esteem	Hypertension
Substance abuse	High self-expectations	Cardiac symptoms, including chest pain and tachycardia
Eating disturbances	Helplessness and hopelessness	Sleep disturbances
Avoiding or dreading work	Numbness	Muscle tension, aches, and pains
Calling in sick frequently	Disinterested and detached	Frequent or lingering illness
	Disillusioned	Anxiety
	Apathy	
	Depression	
	Anger	
	Blaming	
	Irritability	

Adapted from Todaro-Franceschi, V. (2013). *Compassion fatigue and burnout in nursing* (pp. 82–83). New York, NY: Springer Publishing Company,

Other Concepts

Other descriptions that were confused with CF in the literature were moral distress, “When one knows the right thing to do, but institutional constraints make it nearly impossible to pursue the right course of action” (Jameton, 1984, p. 6); emotional exhaustion, “Chronic state of physical and emotional depletion that results from excessive job demands and continuous hassles” (Wright & Cropanzano, 1998, p. 486); emotional distress, “Is more generic and may occur in a stressful work environment but may not have an ethical element” (Epstein & Delgado, 2010, Manuscript 1), and compassion stress, “The demand for action to relieve the suffering of others” (Figley, 2001). However, these terms are more encompassing of symptomology and causation and are not specifically linked to caring for traumatizing individuals.

Compassion Fatigue Case Model

The final step in Rodger’s Evolutionary Concept analysis model is to include a case model of the examined concept. The case model should exemplify the concept in question and offer an applicable real-life example of how the concept may be identified and applied. The following case model demonstrates how a nurse may develop and exhibit symptoms of CF resulting from clinical practice.

M.A. has been working in the pediatric trauma unit for 9 years as a nurse. M.A. works hard to emotionally connect with the children and families, and often finds herself wishing she could absorb their suffering. In the past 2 months, she has taken care of multiple children who passed away during her shift, and several severely abused children. Last week, M.A. began to have migraines and experience persistent nausea prior to her shifts at the hospital. She has been very tired yet unable to sleep at night. At work, she is finding it more difficult to engage with the children and families she cares for; though she is still providing good technical care, she is struggling to provide the same level of compassionate care. She feels apathetic at work, has been arriving late to shifts, and is having a difficult time finding meaning in the job that she used to love. M.A. is experiencing CF.

Conclusions

The cost of replacing an HCP is staggering; for example, the average cost of turnover for a single RN is \$36,900 to \$57,300, resulting in an estimated cost of \$729 million per year in the United States (Brewer, Kovner, Green, Tukov-Shuser, & Djukic, 2012; NSI Nursing Solutions Inc., 2015). CF is a complex phenomenon. Its effects on individual provider well-being, clinical practice, and the

decision to leave a job are striking and necessitate further research for its prevention and treatment; advancing our understanding of CF has the potential to decrease costly turnover of HCPs. However, CF is often confused with similar and potentially overlapping concepts. By using Rodgers’ Evolutionary Concept analysis model, this concept analysis clarified the concept of CF by performing a thorough review of its rapid evolution, attributes and antecedents, and consequences based on current literature. This clarification helps remove some of the ambiguity surrounding CF, creating the potential for more precise research about this phenomenon and its effects on HCPs and the healthcare system.

Clinical Resources

- Compassion Fatigue Awareness Project: compassionfatigue.org
- Compassion Fatigue — The American Institute of Stress, <http://www.stress.org/military/for-practitionersleaders/compassion-fatigue/>

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web site:

Table S1. Review of Literature Included in Concept Analysis



PROFESSION AND SOCIETY

Development and Dissemination of the El Centro Health Disparities Measures Library

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Measure library, measure repository, measure translation, measurement

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Abstract

Purpose: This report describes the development and dissemination of a library of English measures, with Spanish translations, on constructs relevant to social determinants of health and behavioral health outcomes. The El Centro Measures Library is a product of the Center of Excellence for Health Disparities Research: El Centro, a program funded by the National Institute on Minority Health and Health Disparities of the U.S. National Institutes of Health. The library is aimed at enhancing capacity for minority health and health disparities research, particularly for Hispanics living in the United States and abroad.

Design: The open-access library of measures (available through www.miami.edu/sonhs/measureslibrary) contains brief descriptions of each measure, scoring information (where available), links to related peer-reviewed articles, and measure items in both languages. Links to measure websites where commercially available measures can be purchased are included, as is contact information for measures that require author permission. Links to several other measures libraries are hosted on the library website. Other researchers may contribute to the library.

Methods: El Centro investigators began the library by electing to use a common set of measures across studies to assess demographic information, culture-related variables, proximal outcomes of interest, and major outcomes. The collection was expanded to include other health disparity research studies. In 2012, a formal process was developed to organize, expand, and centralize the library in preparation for a gradual process of dissemination to the national and international community of researchers.

Findings: The library currently contains 61 measures encompassing 12 categories of constructs. Thus far, the library has been accessed 8,883 times (unique page views as generated by Google Analytics), and responses from constituencies of users and measure authors have been favorable.

Clinical Relevance: With the paucity of availability and accessibility of translated measures, behavioral nursing research focused on reducing health disparities can benefit from repositories of research instruments such as the El Centro Measures Library.

This report describes the El Centro Measures Library, which is housed in the University of Miami School of Nursing and Health Studies (SONHS). We describe the process, challenges, and approaches of curating measures translated to Spanish and used in health disparities research with Hispanic-Americans. We also present metrics regarding access and feedback from constituencies of users and measure authors. Ultimately, we aim, through this vehicle, to inform the research community of the availability of the library, and of other resources for translated measures that can be used in research to address health disparities in vulnerable populations.

The National Institute on Minority Health and Health Disparities defines health disparities as differences in health status that adversely affect socially disadvantaged groups, including ethnic minorities, sexual and gender minorities, and individuals of low socioeconomic status (Perez-Stable, 2016). Health disparities scientists document disparity outcomes such as incidence, prevalence, and burden of disease, as well as health-related quality of life. The science of health disparities is also devoted to discovering the factors that contribute to risks for and protection from poor health outcomes among vulnerable groups. These factors include social determinants of health at the individual, interpersonal, community, and societal level. Understanding the determinants of health disparities is necessary for developing interventions that can eliminate or reduce these disparities. Nursing research has been instrumental in addressing health disparities (National Institute of Nursing Research, 2016), benefiting both individual and public health, as well as shaping the advancement of the nursing profession (McFetridge, 2014; National Institute of Nursing Research, 2016; Polit & Beck, 2014; Van Herk, Smith, & Andrew, 2011).

While Hispanics in the United States enjoy longer life expectancy than other minority groups, they experience disproportionate prevalence in specific health problems, including HIV/AIDS, cervical cancer, diabetes, obesity, psychological distress, suicidality, health risk behaviors among youth, and teenage childbearing (National Center for Health Statistics [NCHS], 2016). In addition, Hispanics have considerable challenges in regard to social determinants of health, such as educational attainment, poverty, access to health care, and low rates of health insurance coverage (NCHS, 2016; U.S. Department of Health and Human Services [USDHHS], 2015). In the United States, persons of Hispanic origin constitute nearly 17% of the total population and by 2060 are expected to comprise 28% of the population (U.S. Census Bureau, 2015a); thus, the disparities experienced by this community constitute a significant public health concern (USDHHS, 2015).

Behavioral research to address health disparities experienced by Hispanic-Americans requires approaches that are linguistically appropriate for the diverse Hispanic population. Hispanics in the United States trace their national origins to over 20 Spanish-speaking countries (Lopez, Gonzalez-Barrera, & Cuddington, 2013). Because of the variations in language used by people from different national or regional origins, investigators conducting research with Spanish speakers sometimes translate measures specifically for their local study populations when a translation they deem suitable for their specific study population is not available. The profusion of ad hoc translations raises the likelihood that the same measure applied in different settings may differ not only with respect to language, but potentially to differences in the construct being measured, limiting the comparability of findings across studies. Furthermore, not all Hispanic-Americans are fluent in Spanish. It is estimated that of Hispanics living in the United States, 36% are bilingual, 38% are primarily or exclusively Spanish speakers, and 25% are primarily or exclusively English speakers (Krogstad & Gonzalez-Barrera, 2015). Therefore, research addressing health disparities experienced by Hispanic-Americans requires research instruments that are available in both English and a version of Spanish that at least aspires to be universally accessible (NCHS, 2016).

Measure Translation and Dissemination Approaches

Developers and publishers of research instruments are increasingly attuned to the need to conduct rigorous and universal translations to Spanish as well as other languages given increasing trial internationalization and the predominant development of instruments in the English language. Four examples follow and demonstrate varying approaches and standards of rigor for translation. The first example is the Mapi Research Trust, a leading curator and distributor of clinical outcome assessments, which aims to provide access to information about these instruments and disseminate them to the global research community. The library houses 4,000 patient-centered outcome questionnaires, which includes over 250 for which they are the official distributor. The Mapi Language Services Division has expertise in linguistic validation and has authored the Linguistic Validation Manual for Health Outcome Assessments (Mapi Health Research & Commercialization, 2016). Mapi's approach to translation involves working in close collaboration with measure authors to ensure conceptual equivalence and international harmonization of all language versions. Mapi's translation methodology includes (a) conceptual analysis

of source questionnaire, (b) forward translation, (c) backward translation, (d) interviews with patients or clinician review, and (e) proofreading and finalization. Mapi also provides translatability assessment, which is defined as the evaluation of the extent to which a measure can be meaningfully translated into another language (Mapi Health Research & Commercialization, 2016).

A second example is Psychological Assessment Resources (PAR), a leading publisher of psychological assessment materials that offers products in a variety of formats. All the translations available through PAR have been approved using translation followed by back-translation by an individual unfamiliar with the English version of the test, with the back-translation forwarded to the author and PAR for review and approval.

A third example is the National Institutes of Health (NIH)—Supported Patient-Reported Outcomes Measurement Information System (PROMIS), a set of person-centered measures that evaluates and monitors physical, mental, and social health in adults and children and is open access. The PROMIS methodology for translation includes (a) translation from English to Spanish by one individual, (b) back-translation of the Spanish translation to English by a second individual, (c) review by multiple experts, and (d) cognitive debriefing with a sample of native speakers. A universal approach to translation ensures that, whenever possible, one language version is created for multiple countries instead of country-specific versions of the same language (PROMIS, 2016).

Finally, Mind Garden, a company that aims to enable access to validated psychological assessments and instruments to the global community, offers a full range of psychological assessments. Many of the translations available on Mind Garden have been (a) conducted by individual researchers, (b) may be partial translations, and (c) typically do not have validation data. Although the translation quality is not assured, they seek to facilitate work with non-English-speaking populations by making translations available in their current form. Mind Garden has a process for granting permission to researchers to translate measures and a requirement that the translations are returned to them and made available on their site free of charge to other researchers. They also include a link to the International Test Commission Guidelines for Translating and Adapting Tests (Mind Garden, 2015).

Access to measures collected in the above examples can range from open-access public domain materials to copyrighted materials with access limited by paywalls; the four libraries referenced above illustrate this spectrum of access. PROMIS provides open and free access to all their research instruments. The questionnaires that Mapi distributes on behalf of their copyright holders represent conditions of use that are specific to each questionnaire.

For example, a fee may be charged for commercial users, a nominal fee for funded academic research studies, and no fee for nonfunded academic users. Mapi may offer to handle the licensing process for questionnaires that they house but do not distribute. The instruments available through both PAR and Mind Garden are for purchase and require permission for use as well as for any modifications.

Navigating copyright law within the context of commercial publishing operations presents a challenge in creating openly accessible online repositories such as the El Centro Measures Library. As Thomas Jefferson observed, there is a tension in copyright law between protecting the knowledge creators' rights and the rate of innovation in society: copyright laws that are too strong slow the rate of knowledge production (Stiglitz, 1999). This tension creates a legal environment that is constantly being renegotiated. Instead of strict enforcement, copyright law is interpreted through the analysis of four factors in the use of copyrighted material: what is the purpose of the use (e.g., commercial or nonprofit), what is the nature of the copied work (e.g., fiction or nonfiction), how much of the original work was copied, and finally the effect of the use on the market (Crews, 2006). Some observers note that current copyright law in the United States is too strong and thus stifles innovation as well as society's ability to steward knowledge as a public good (Farb, 2006; Samuelson, 1996). PubMed Central shows exemplary collaborative efforts between publishers, online content providers, and regulators to overcome this difficulty.

How scientists discover prior research in their field has also changed dramatically since large scale open-access publishing efforts began. All research is fundamentally based on drawing from past work to create new knowledge. Libraries as repositories of historical knowledge are an integral part of this process, and over the course of millennia they have created organizational systems to serve the purposes of discovery and access (Battles, 2003). As scientific work continues to adopt digital tools and methods in the research process, the academy has started to build digital libraries in addition to traditional paper-based collections (Bowker, 2005). Indeed, all researchers build pdf document libraries on their computers as well as book-based libraries in their offices. A principal function of contemporary academic libraries is to reproduce this process at scale.

The Beginnings and Impetus for the El Centro Measures Library

At the inception of El Centro in 2007, the center investigators elected to use a common set of measures across

studies to assess demographics, culture-related variables (e.g., acculturation, familism), proximal outcomes of interest (e.g., HIV knowledge, family cohesion), and major outcomes (e.g., substance use). Thus began the process of collecting a library of measures. The collection was expanded to include all the measures used in each study conducted by researchers associated with El Centro, not only the ones funded by the center. At the beginning, the library of measures was loosely structured and measures were shared by investigators through an informal workplace network along with anecdotal experiences with use of the measures. Some measures and existing translations were modified by El Centro investigators for our research populations, which consist of Hispanic-Americans of various national origins, reflecting the population of our city. All measures were empirically supported for use with Hispanics, and the translations were approved for use by the university's institutional review board (IRB).

The decision to broaden the scope of measures included in the library and expand the curation and dissemination of measures more widely across the institution came from the experience of the first author (V.B.M.) as a member of the Social and Behavioral Sciences IRB, where it was noted that although the university is in a community where a sizable proportion of the population speaks Spanish as a primary language, many of the research protocols being reviewed were only open to participants who could read and speak English. An informal review conducted in 2007 by personnel at the university's Human Subjects Research Office found that only 15% to 20% of behavioral studies approved by the IRB included non-English speakers. This is out of proportion with the population of Miami-Dade County where over 70% of families speak a language other than English at home (U.S. Census Bureau, 2015b), contributing to the problem of underrepresentation of immigrants in biomedical and behavioral research.

Methods

Building the Library

We initiated a formalized process for developing the El Centro Measures Library in 2012. The goal was to organize, expand, and centralize the library in preparation for a gradual process of dissemination—first to faculty and doctoral students at our SONHS—next to the larger community of investigators at the university, and finally to the national and international community of researchers. We identified three publicly available web-based measures libraries as exemplars to inform our design: (a) the Oregon Research Institute–Center on Early Adolescence Measures Repository, funded by the National Institute

on Drug Abuse (<http://measures.earlyadolescence.org/>); (b) the Grid-Enabled Measures Database (GEM), funded by the National Cancer Institute (<https://www.gem-beta.org/Public/Home.aspx>); and (c) PROMIS Measures–Northwestern University, funded by the NIH (<http://www.healthmeasures.net/explore-measurement-systems/promis>).

The measures library team consisted of the director and coordinator of the El Centro Research Core, a PhD student, and undergraduate student workers. The team collected each measure in English and Spanish, collected or wrote brief descriptions of each measure, and gathered peer-reviewed publications describing the development, translation, and psychometric properties of the measure. The team also traced any modifications that were made to the measure to adapt the measure for a specific population as well as the source and method used for the Spanish translation. Spanish translations that are part of the library come from a variety of sources: translations conducted by measure originators, by other investigators who have published research using their own translation, by El Centro study teams using translation-back translation-reconciliation methods, or by a University of Miami IRB-approved vendor. The process of tracing modifications and translations presented a significant challenge because in some cases the measures being used in El Centro studies had been passed down from study to study, some dating back more than a decade. Considerable effort was required to gather the information regarding translations and modifications. Team members interviewed researchers who had used the measures, and in some cases read IRB protocols and publications to find clues when the researcher could not confirm the information. Measures were not included in the library until a thorough verification process was completed to insure accuracy.

Translations performed within El Centro and by vendors approved by the University of Miami Human Subjects Research Office used the translation and back-translation method, with reconciliation by a third party. Back-translation allows for comparison of the translation with the original text for quality and accuracy and helps to evaluate the equivalence of meaning between the source and target texts. It involves taking the translated version of a document or file and then having a separate independent translator (who has no knowledge of or contact with the original text) translate it back into the original language. During the reconciliation step, the original source material is compared with the back-translation to look for and revise instances where the meaning of the translated item is unclear or different from the original meaning. El Centro translators, who were often members of study teams, were fully

bilingual and signed a document attesting that they were qualified to translate, based on their proficiency in both languages, and that their translations were conducted independently.

Approach to Intellectual Property

As we moved towards disseminating the library to a larger audience, we encountered the next challenge, which was to determine the copyright or public domain status of measures as well as the terms of use. The approach to intellectual property rights involved in hosting a publicly available repository required an understanding of copyright and intellectual property laws and the strategies needed to comply with those laws. In the first phase of dissemination to investigators within our immediate school, the library was accessible via a secure, internal sign-on. A paragraph appeared on the library's landing page advising users that the library was for informational purposes only and that measure authors and copyright holders must be contacted for permission to use.

In preparation for wider dissemination, we consulted with specialists in digital strategies and data curation at the University of Miami libraries who provided insights into copyright and intellectual property, fair use, and common research practice. Of note is that practice among researchers does not always align with publisher policy. Publishers will often overlook informal sharing among researchers of copyrighted research materials but have much stricter standards for libraries. Additionally, measure authors and authors often sign over rights to publishers and therefore do not have the right to grant permission for use. As a collaborative effort with the University of Miami Libraries, we drafted copyright and intellectual property and disclaimer language and designed a strategy for contacting measure authors and authors to seek permission to include their measure in the library. The strategy assured that we performed due diligence to gain permission before including a measure in the library. With due diligence and the disclaimer, the risk for copyright infringement is reduced. The final language advising users to contact copyright holders on the landing page of the El Centro library is similar to what was used in the first phase of dissemination to the SONHS, as described above.

The process to contact measure authors for permission to include their measure in the library included several steps. First, a team member located e-mail contact information for all measure authors. Next, we sent a web-based survey that asked the measure authors to select from three options to indicate the level of inclusion of their measure in the library: (a) full posting (post

description, link to source article or abstract, and measure items in English and Spanish), (b) limited posting (brief description and link to source article), or (c) refuse to post. The message that accompanied the survey explained the mission of the library and asked for nonexclusive rights to disseminate the measure, translate it to Spanish, copy it for preservation (back-up), and migrate it to different formats (for preservation). The initial mailing went out to 62 authors in late February of 2016. A second mailing was sent to those who did not respond to the first e-mail approximately 6 weeks later. The response rate after both mailings was 58%. Of the 36 authors who responded, 22 permitted full posting, and 14 opted for limited posting. None of the respondents refused to allow their measure to be posted in the library. Those who approved only limited posting were no longer the copyright holders and provided contact information for the copyright holders or reached out to them on our behalf. In keeping with standards imposed for due diligence, as advised by the University of Miami Library, we kept those measures from authors from whom we did not receive a response after two mailings. However, as clearly stated in the El Centro Measures Library website, we will respect requests from measure authors or copyright holders to remove posted measures.

Results

Library Contents

The library currently contains 61 measures, 56 of which came from El Centro–associated studies. The remaining five came from other university investigators. Twenty-five additional measures are being prepared for inclusion in the library: 13 from El Centro investigators and 12 from other university investigators. Spanish translations included in the library came from several sources. Twenty-nine were translated by El Centro–associated investigators, 3 were translated by other University of Miami investigators that contributed to the library, 16 were translated by the measure authors, 4 were translations reported by other researchers, and 9 are available through the copyright holder. The level of access to measures currently included in the library varies. Thirty-three of the measures are publicly available, 12 require author permission (contact information is included in the library), and 16 are available for purchase (in one case the English version is available for purchase while the Spanish translation is publicly available). Twelve constructs have been identified for categorizing the measures, allowing for more than one construct or measure. **Table 1** shows the constructs and the number of measures currently categorized under each construct.

Table 1. Categories of Constructs Represented in the Measures Library

Child/adolescent	10
Culture	5
Experience with Health care services	4
Family	6
Gender/sexuality	3
Health	5
HIV/AIDS	8
Psychological distress	6
Substance use	6
Stress/coping	1
Social support/relationship	6
Violence	4

Dissemination

In June of 2016, the library became live and publicly accessible on the El Centro website. At that time, an e-mail was sent to researchers across the university via the Research Listserv announcing the rollout of the library as a resource to university investigators and inviting them to contribute measures with Spanish translations used in their research. Additionally, information about the El Centro Measures Library was disseminated at scientific conferences, including two important nursing conferences, the 2016 Sigma Theta Tau International Nursing Research Conference and the 2016 Council for the Advancement of Nursing Science Conference.

From June 22, 2016, through March 22, 2017, a Google Analytics report indicated that there were 8,883 unique IP address views of the library. The average time on the landing page of the library was 1 min and 52 s, indicating that visitors were taking some time to look at the list of measures. The number of page views spiked dramatically at two time points, one in July and another in September, corresponding with dissemination at the two nursing conferences referenced above.

Feedback From Measure Authors and Users

Among the authors who responded to the survey, 14 provided additional information about their measure such as copyright status, suggestions for inclusion of additional measures they authored, information on Spanish translations, and scoring. One author offered to provide clean copies of the measure as well a list of related scientific article citations. Quotes from authors included "Thank you for including our work" and "Happy to support this effort!"

Local users of the library have let us know that they have found it to be a useful resource. Several users from outside of our institution, representing national as well as international doctoral students, medical doctors, and

PhD level researchers, have reached out for information about measures they were interested in using in their research.

Discussion

Advancing the science of minority health and health disparities requires resources that can support rigorous research and facilitate the inclusion of participants from disparity populations. The El Centro Measures Library aims to contribute to the advancement of health disparities science by facilitating access to a set of instruments that have been used with Spanish-speaking study samples. Increased access to Spanish translations of measures and to information about the pedigree of these translations is critical to conducting studies that can develop knowledge on social, psychological, and cultural determinants of health. Hispanics are a growing demographic in the United States such that health disparities in this population are of high public health significance. Further, having Spanish-language measures serves the needs of researchers in Spanish-speaking countries or other countries with large numbers of immigrants of Hispanic origin. Spanish-language measures that have a universalist approach to translation facilitate the use of common measures across sites, which can help to disentangle commonalities and differences between Hispanic subgroups.

Access to measurement resources is limited by cost and lack of an efficient means of discovery of these compendia of translated measures. To find and access standardized research output from different locations in time and space remains difficult. While the recent development of open-access repositories is remarkable, there remains much work to be done to transform these initial efforts into tools that better suit the needs of health disparities researchers so that they can better serve their target populations. Moreover, it remains difficult to create and sustain online resources either as libraries or repositories in which the translated measures can be stored and made widely accessible to health disparities researchers.

The launch of PubMed Central in 2000 came with much hope that open-access academic publishing would accelerate knowledge production (Holdren, 2013; NIH, 2003), and help to bridge the divide between research communities in the global north and the global south (Cockerill & Knols, 2008). Yet, as the last 15 years have shown, open-access publishing is not the panacea for sharing scientific output that some originally envisioned. Authors' fees, Internet access, and technical know-how (familiarity with navigating online systems) remain problems for many researchers, particularly those

in the developing world (Papin-Ramcharan & Dawe, 2006).

Future Directions

Despite its promise, the El Centro Measures Library is limited in scope, and further work is needed to increase its potential impact. Firstly, it remains to be determined if the measures in the library are psychometrically or conceptually valid for different subgroups of Spanish-speaking people in the United States and other nations. Future work with the library might solicit feedback or data sets from researchers who have used measures in the library to conduct studies on psychometric equivalence across samples from (a) studies done with samples in regions of the United States and abroad, (b) of different national origin, and (c) that differ on socioeconomic and other demographic characteristics. Secondly, the number of measures and the constructs addressed by the measures are mostly limited to those used in El Centro-associated studies. While researchers outside of El Centro have begun to contribute measures that they have used and we intend to continue to expand the library holdings, the work of maintaining and expanding the library requires time and infrastructure support.

We hope through this publication to inform the national and international community of nursing scholars about the availability of the library, and of other resources for translated measures that can be used in research to address health disparities in vulnerable populations. With the paucity in availability and accessibility of translated measures, nursing research geared towards health disparities needs translated measures and will benefit from accessible online resources such as these.

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Clinical Resources

- The Center on Early Adolescence Repository of Measures contains measures pertinent to early adolescent functioning and relevant influential contexts (e.g., family, school, peers, etc.): <http://measures.earlyadolescence.org/>

- Grid Enabled Measures Database (GEM) is a web-based collaborative tool containing behavioral, social science, and other relevant scientific measures that aims to support and encourage a community of users to drive consensus on best measures and share the resulting data from use of those measures: <https://www.gem-beta.org/Public/Home.aspx>
- Mapi Research Trust houses 4,000 patient-centered outcome questionnaires as well as their 40,000 translations into some 170 languages. This includes over 250 questionnaires for which Mapi is the official distributor: <http://mapi-trust.org/>
- The PhenX (consensus measures for phenotypes and exposure) Toolkit is a catalog of recommended, standard measures of phenotypes and environmental exposures for use in biomedical research. It offers well-established, broadly validated measures relevant to investigators in human genomics, epidemiology, and biomedical research: <https://www.phenxtoolkit.org/>
- The Patient-Reported Outcomes Measurement Information System (PROMIS[®]) is a set of person-centered measures that evaluates and monitors physical, mental, and social health in adults and children. It can be used with the general population and with individuals living with chronic conditions: <http://www.healthmeasures.net/explore-measurement-systems/promis>
- Psychological Assessment Resources is a leading publisher of psychological assessment materials offering an array of assessment formats developed to meet the needs of professionals in psychology, mental health, counseling, education, forensics, pharmaceutical product development, and career counseling: http://www4.parinc.com/Company/about_PAR.aspx
- The University of California at San Francisco Center for AIDS Prevention Studies (CAPS) offers surveys and scales designed and tested by CAPS for use by HIV researchers, evaluators, prevention program planners, and designers: <https://caps.ucsf.edu/resources/survey-instruments-and-scales/>

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PROFESSION AND SOCIETY

New Graduate Nurses' Professional Commitment: Antecedents and Outcomes

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Abstract

Purpose: This study examines the factors that increase new graduate nurses' professional commitment and how this professional commitment in turn affects professional turnover intentions, anxiety, and physical health symptoms.

Design: The study was carried out in association with the nursing undergraduate's affiliation of Quebec, Canada. A three-wave longitudinal design was employed among nursing students. Nurses were surveyed before they entered the labor market, and then twice after they started working.

Methods: Participants were contacted by post at their home address. The hypotheses were tested using structural equation modeling.

Findings and Conclusion: Professional commitment explains why good work characteristics and the provision of organizational resources related to patient care reduce nurses' anxiety and physical symptoms, and increase their professional turnover intentions. Pre-entry professional perceptions moderate the effects of work characteristics on professional commitment such that when participants hold positive pre-entry perceptions about the profession, the propensity to develop professional commitment is higher.

Clinical Relevance: There is a worldwide shortage of nurses. From a nurse training perspective, it is important to create realistic perceptions of the nursing role. In hospitals, providing a good work environment and resources conducive to their professional ethos is critical for ensuring nurses do not leave the profession early on in their careers.

The increasing need to care for ageing populations, coupled with many nurses who leave the profession and are not all replaced by those who enter the profession (International Council of Nurses, 2007), creates a sense of emergency to attract and retain new graduate nurses. However, studies show that when newly graduated nurses enter the profession, they experience high levels of burnout and poor health, and high intentions to leave the occupation (Cho, Lee, Mark, & Yun, 2012; Gambino, 2010; Sun, Gao, Yang, Zang, & Wang, 2016). These features signal that the transition or the reality shock from school to practice is still a major challenge (Cowin & Hengstberger-Sims, 2006) that deserves greater attention by scholars and practitioners.

One key concept that has recently gained the interest of scholars to understand nurses' attitudes following organizational entry is professional commitment, or the emotional attachment nurses develop with their profession (Meyer & Allen, 1991). Professional commitment, also called occupational commitment, encompasses an identity belief whereby individuals who are strongly committed to their profession identify with the profession and internalize the profession into their self-identity and self-definition (Lee, Carswell, & Allen, 2000). Because entering the labor market is a major role transition for nurses, they inevitably question "who I am" as a professional. In the adjustment process leading to a successful socialization, new nurses negotiate a professional identity

in such a way that their new professional reality fits with their self-perceptions of being a nurse (Leong & Crossman, 2014).

To date, nursing studies have shown that nurses who are committed to their profession are less likely to leave their profession and are less likely to feel stressed at work (Chênevert, Jourdain, & Vandenberghe, 2016; Cowin & Hengstberger-Sims, 2006; Gambino, 2010; Sun et al., 2016). However, there still remains a gap in our knowledge regarding the key antecedents of new nurses' professional commitment (Lu, Chang, & Wu, 2007). We know little about the relationship between nurses' work experiences and their professional commitment, and about how work experiences interact with professional perceptions prior to labor market entry to affect professional commitment after organizational entry. Moreover, it is still not clear whether professional commitment represents a pivotal concept that can explain how nurses' work experiences impact their well-being and their desire to remain or quit the nursing profession (Jourdain & Chênevert, 2010).

The present study seeks to fill these voids. We collected data from 120 newly hired nurses in Canada in order to test a research model about the antecedents and consequences of their professional commitment. Specifically, we adopted a three-wave longitudinal design to better understand the effects of pre-entry professional self-perceptions (Time 1) and experiences at work (Time 2) on nurses' professional commitment (Time 2), and, in turn, their intentions to leave the profession, as well as their anxiety and physical health symptoms (Time 3). In this process, we expected professional commitment to mediate the relationship between work experiences and outcomes, and pre-entry perceptions to moderate the relationship between work experiences and professional commitment.

Literature Review

Professional commitment is conceptualized in nursing studies as a tie to the profession, a sense of pride in the profession, and a willingness to maintain membership in the profession (e.g., Gambino, 2010; Lu et al., 2007; Unruh & Zhang, 2013). This conceptualization is close to the affective component of commitment proposed by Meyer and Allen (1991, p. 67), according to which affective commitment "refers to the employee's emotional attachment to, identification with, and involvement in" the profession. Thus, nurses with a strong professional commitment like their profession and perceive a good fit between their own self-concept and their chosen profession.

Since professional commitment defines the tie between the person and his or her profession, an immediate outcome of commitment is the intention to stay (or to leave) the profession. When emotionally committed, nurses experience a balance or a fit between their self-perception and their experience as a nurse, and this balance pushes them to build an aspirational or possible self as a nurse in the long term. Studies have shown a positive association between nurses' professional commitment and turnover intentions, as well as actual departure from the profession (Chang et al., 2015; Jourdain & Chênevert 2010; Numminen, Leino-Kilpi, Isoaho, & Meretoja, 2015). Another consequence of professional commitment is improved well-being, or at the opposite end of the spectrum, anxiety and the associated physical symptoms. The mismatch between self-perceptions of being a nurse ("who I am") and the tasks actually executed every day ("what I do") can be seen as an example of cognitive dissonance (Festinger, 1957). The experienced dissonance drains nurses' energetic and emotional resources, such that they experience anxiety and physical symptoms when unable to craft a positive identity from their working experiences. This situation can be understood through the conservation of resources theory (Hobfoll, 1989) whereby a mismatch of emotional and psychological resources can threaten employees' valued resources (i.e., a positive identity), thus undermining their health and well-being. The challenges of obtaining a positive professional identity associated with professional commitment underlines why a strong positive link has been found between professional commitment and work stress among nurses (Lu et al., 2007).

Given the expected strong relationships between professional commitment and intentions to leave the profession, as well as anxiety and physical symptoms, the question then becomes, "How do we create work experiences that can enhance the professional commitment of newly hired nurses?"

Studies on nurses' socialization have identified two main challenges associated with the transition from school to practice. Firstly, newly graduated nurses experience stress and difficulties in performing their tasks due to a misfit between a previous desire to deliver nursing care and a reality framed by high workloads, interpersonal conflicts, feelings of being unprepared, and bureaucratic rules that the hospital requires nurses to follow (Leong & Crossman, 2014; Maben, Latter, & Clark, 2006; Unruh & Zhang, 2013). In line with these results, we tested whether the organizational resources for caring, that is, the efforts made by organizational members to help nurses deliver the best quality of care to patients, will impact their professional commitment. Since caring remains at the heart of the nursing profession (Johnson,

Cowin, Wilson, & Young, 2012) and captures the essence of meaning and sense of the profession, we expect that a work environment that provides a good quality of care to patients should favor the development of nurses' professional commitment.

Secondly, newly graduated nurses perceive unmet expectations about their status in the hospital when they enter the job market. Poor salaries and rewards, tensions with physicians and other professionals, and lack of career opportunities can create disappointment among nursing professionals (Cowin & Hengstberger-Sims, 2006) and have been related to low perceptions of professional identity (Chênevert et al., 2016; McCabe & Garavan, 2008). All of these work characteristics encompass the external attributes of the job that provide prestige and status to the profession. When present, these work characteristics increase the feelings of pride associated with being a nurse, and therefore increase perceptions of commitment to the profession.

We also argue that pre-entry perceptions serve as a contextual variable that moderate the working environment–professional commitment relationship. When nurses start their first job after graduating, they carry expectations and dispositions with them that alter how working experiences during socialization affect their professional commitment. Professional perceptions before organizational entry, or how individuals feel tied to the nursing profession when they are a student, act as a personal disposition that should activate the relationship between working experiences and professional commitment. This hypothesis is formulated on the basis of Trait Activation Theory (Tett & Guterman, 2000), according to which traits or dispositions are expressed as responses to trait-relevant situations. Working experiences form the reality of the everyday work of nurses, and as such, form a situation where nurses can compare their expectations and dispositions to reality. Nurses with a high professional identity before organizational entry generally form their perceptions through a favorable disposition regarding the profession. They should be more sensitive to positive signals from the working environment, and more prepared and armed to use them as a way to confirm their professional commitment to nursing. Conversely, individuals who do not view nursing as a calling at the end of their studies tend to question to a greater extent their professional identity, have a more fragile and unstable professional identity, and thus may be less armed to use positive working experience to consolidate their professional commitment. On this basis, we expect that pre-entry professional perceptions will moderate the working environment–professional commitment relationship, such that the relationship will be stronger when pre-entry professional perceptions are high.

Methods

Sample and Research Design

The study was conducted in association with the nursing undergraduates affiliation of Quebec, Canada. The research team obtained the agreement of this association to survey its members, who were all nursing students about to graduate after either a 3-year college program or a 3-year university program. When students register at the nursing affiliation of Quebec, they fill out a consent form to take part in surveys and scientific studies. The nursing affiliation provided us with the home addresses of students who had consented to be surveyed. Before we sent the first questionnaire, we also obtained an ethical certificate from the university of the co-author in charge of the study. The ethical committee contact details were indicated in the study presentation letter.

The first questionnaire was sent 2 months before nurses' graduation (Time 1) to measure a variety of preferences and dispositions regarding the nursing profession, including pre-entry perceptions about the profession. Of the 2,395 nursing graduates contacted, 675 responded, representing a 28.2% response rate. At Time 2, 3 months following the nurses' graduation, we sent the second questionnaire, which included measures that captured nurses' work experiences and professional commitment. Of the 600 questionnaires sent at Time 2 (75 respondents did not provide their contact details at Time 1), 252 were returned, representing a 42% return rate between Time 1 and Time 2. The third questionnaire was sent 9 months later (approximately 12 months after Time 1) and was designed to collect data on nurses' professional turnover intentions, anxiety, and physical symptoms. Among the 252 questionnaires sent at Time 2, we received a total of 120 available questionnaires at Time 3, for a 48% response rate (and a 5% rate compared to the initial sample).

Instruments

We used instruments whereby responses were recorded on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Pre-entry professional perceptions were measured with two items ($\alpha = .72$): "I'm enthusiastic about exercising as a nurse" and "I'm happy to have the chance to become a nurse."

Work characteristics were measured with five items chosen among the attributes highlighted in the literature as necessary for nurses' successful socialization (Bliss-Holtz, Winter, & Scherer, 2004). The items were ($\alpha = .70$) "high salary and bonuses"; "job security"; "career advancement"; "broad range of benefits"; and "a prestigious job title." Organizational resources for care

were measured with five items: "the hospital ensures that we have the equipment required to reach high caring standards"; "I receive support in my caring tasks achievement"; "I have an appropriate access to other professionals in order to do my job adequately"; "communication with physicians is helpful to achieve my tasks"; and "my hospital has implemented processes in order to improve caring quality" ($\alpha = .82$).

We measured professional commitment with four items from the affective occupational commitment scale developed by Meyer, Allen, and Smith (1993). We used this instrument because it has been validated among two samples of nurses, and we removed the two items that showed low factor loadings in these two studies, in order to keep the four items with the highest loading scores. A sample item is, "I am proud to be in the nursing profession" ($\alpha = .82$).

Professional turnover intentions were measured with four items developed by Meyer et al. (1993): "I often think of leaving this profession"; "It is likely that I orient my career towards another field"; "It is likely that I leave this profession by one year"; and "If I could, I would probably quit this profession" ($\alpha = .93$). Individual anxiety was measured with four items from the anxiety/depression factor of the General Health Questionnaire validated by Kalliath, O'Driscoll, and Brough (2004). Scores were provided on a frequency scale (1 = *never* to 6 = *constantly*). A sample item is, "Been feeling unhappy or depressed" ($\alpha = .82$). Finally, we used the 18 items of the Physical Symptoms Inventory created by Spector and Jex (1998) to measure physical symptoms. This instrument provides a list of 18 symptoms likely to occur in the aftermath of stress (e.g., headache, stomach upset). Each participant was asked to indicate if in the past 30 days they had each symptom and if they saw a doctor for it. In line with Spector and Jex's recommendations, we added the score for the 18 symptoms to create the global score of physical symptoms, and divided by 18 to obtain a final measure (from 1 = *no symptom at all* to 3 = *all symptoms for which I saw a doctor*).

Psychometric Properties

We performed confirmatory factor analyses to test the distinctiveness of our study's variables. We proposed and tested a six-factor model (pre-entry professional identity, organizational care resources, work conditions, professional commitment, anxiety, and professional turnover intentions) in which all items were specified to load on their respective factors. Because physical symptoms were measured with a global score of symptoms, we did not include this measure (considered as objective) in the measurement model. The hypothesized measurement

model provided a good fit to the data (χ^2 [237] = 314.60, $p < .01$; Comparative Fit Index [CFI] = .94; Incremental Fit Index [IFI] = .94; Tucker Lewis Index [TLI] = .92; root mean square error of approximation Root Mean Square Error of Approximation [RMSEA] = .05). We compared this model with a one-factor model in which all items were specified to load on the same factor (χ^2 [252] = 955.95, $p < .01$; CFI = .44; IFI = .46; TLI = .33; RMSEA = .15), and a three-factor model in which the items of variables measured at the same time were grouped under the same factor (χ^2 [249] = 630.13, $p < .01$; CFI = .70; IFI = .71; TLI = .63; RMSEA = .11). Our proposed measurement model provided a significantly better fit to the data than the two alternative models (one-factor model: $\Delta\chi^2$ [15] = 641.35, $p < .01$; three-factor model: $\Delta\chi^2$ [12] = 325.53, $p < .01$).

Data Analyses

We performed three complementary analyses to test our research model. We started with descriptive statistics and correlations to analyze the means and standard deviations of the measured concepts. We then tested the research model without the moderation variable using structural equation modeling, since this technique is well suited for testing simultaneous multiple relationships among variables while accounting for measurement error. We did not include the moderator in the model due to the low sample size. The moderation was tested using regression analysis with the PROCESS macros developed by Preacher and Hayes (2004). This technique is better suited to testing moderations for which there are small samples, and it allows for bootstrapping analyses to be conducted as well as the calculation of conditional effects of antecedents at three values of the moderator. The next section presents the results derived from the statistical analyses.

Results

Sample Characteristics

The final sample (**Table 1**) was represented at Time 3 by a large majority of women (94% of the final sample). The participants had an average age of 27 years ($SD = 7.7$), and 68% had a college degree. Most nurses had a permanent working contract (66%), and mainly worked during rotated shifts (40.9%) and night shifts (32.7%).

Testing the Research Model

Table 1 shows that the mean score for pre-entry professional perception is low with a high standard deviation

Table 1. Descriptive Statistics and Correlations

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
1. Gender	1.06	.24	—										
2. Age	26.99	7680	.11	—									
3. Working shift	2.92	1.02	-.02	-.07	.23*	-.03							
4. Working contract	2.30	1.13	-.17	-.07	.09								
5. Pre-entry P. perceptions (T1)	1.23	1.13	-.11	.02									
6. Work characteristics (T2)	3.92	0.62	-.23*	-.10	-.16	-.02	.01						
7. Resources for care (T2)	3.90	0.80	-.01	-.10	-.25*	-.03	-.09	.33**					
8. P. commitment (T2)	4.57	0.68	.01	.03	-.05	.13	-.02	.32**	.36**				
9. Anxiety (T3)	2.31	0.88	-.13	-.22*	.08	.08	.12	-.11	-.10	-.32**			
10. Physical symptoms (T3)	1.34	0.19	-.24*	.08	-.05	-.04	.20*	-.11	-.07	-.24*	.36**		
11. P. turnover intentions (T3)	1.61	0.97	-.06	-.12	.05	.09	.06	-.12	-.19*	-.36**	.46**	.23**	(.93)

Note. Reliability coefficients are reported in parentheses on the diagonal. Gender: 1 = female; 2 = male. Age: in years. Working shift: 1 = day; 2 = evening; 3 = night; 4 = rotation. Type of working contract: 1 = permanent full time; 2 = permanent part time; 3 = temporary full time; 4 = temporary part time. *N*s = 105 to 120; P. = professional.

* $p < .05$. ** $p < .01$.

(mean = 1.23, $SD = 1.13$), indicating that our participants were not strongly tied to a career in nursing before they started working, with high discrepancies between participants. As expected, professional commitment measured at Time 2 was correlated negatively with anxiety, physical symptoms, and professional turnover intentions, all of them measured at Time 3 ($r = -.32$, $p < .01$; $r = -.24$, $p < .05$; and $r = -.36$, $p < .01$, respectively).

The hypothesized structural model yielded a good fit to the data ($\chi^2 [225] = 336.19$, $p < .001$, CFI = .91, IFI = .91, TLI = .89, RMSEA = .06). We compared this model to an alternative model in which we added direct paths from the independent variables to the dependent variables. None of the relationships between the dependent and independent variables were significant, and the alternative model did not significantly improve model fit ($\Delta\chi^2 [6] = 1.08$, $p = \text{nonsignificant}$). This finding revealed that professional commitment fully mediated the relationships between work experiences (work characteristics and organizational resources for caring) and the three critical outcomes (anxiety, physical health symptoms, and intention to leave the profession). As depicted in **Figure 1**, work characteristics ($\beta = .31$, $p < .05$) and perceptions that the organization provides resources for caring ($\beta = .24$, $p < .05$) were positively related to professional commitment. Professional commitment was negatively related to anxiety ($\beta = -.55$, $p < .01$), physical symptoms ($\beta = -.07$, $p < .05$), and professional turnover intentions ($\beta = -.65$, $p < .01$).

Table 2 shows the results regarding the moderating effects of pre-entry professional perceptions. We found that pre-entry professional perceptions do not moderate the organizational resources for care–professional commitment relationship ($\beta = .16$, $p = \text{nonsignificant}$).

However, the moderation is significant for the work characteristics–professional commitment relationship ($\beta = .68$, $p < .05$). In this latter situation, the R^2 change is significant when the interaction term is introduced into the regression analysis (R^2 change = .04; $F = 4.83$, $p < .05$), confirming the significant effect of the moderator. The relationship between work characteristics and professional commitment remains significant for all values of professional perception measured at Time 1 (the value “0” is not included in the interval between lower bound and upper bound), but is stronger when professional perception is high before organizational entry ($\beta = .70$, $p < .01$ for high levels of professional perceptions versus $\beta = .25$, $p < .05$ for low values of professional perceptions). **Figure 2** illustrates the simple slope plots between work characteristics and professional commitment for both low and high values of pre-entry professional perceptions.

Discussion

Nurses are leaving the profession at an accelerating rate while even new nursing graduates are being deterred from entry (Jourdain & Chênevert, 2010). A particular worry for hospitals is newly hired nurses who experience a reality shock in the transition from university to work, and who leave the profession after a few months of practice. However, little is known about the actions hospitals can take to ensure a successful transition from training to practice. We used a longitudinal research design to examine how a positive work environment in the form of good work characteristics (e.g., high salary and bonuses, job security, career advancement, and a prestigious job title) and the provision of organizational

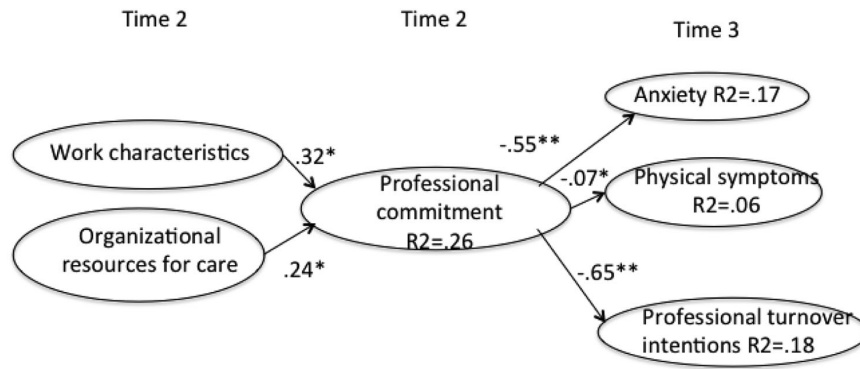


Figure 1. Results of structural equations modeling.
 Note. Standardized coefficients and effect sizes. * $p < .05$ ** $p < .01$. *** $p < .001$.

Table 2. Results of Moderation Analyses

	β	SE	p	
Moderation on professional commitment ($R^2 = 14\%$)				
Intercept	4.57	.06	.00	
Pre-entry professional perceptions (PPP)	-.02	.14	.88	
Work characteristics (WC)	.41	.10	.00	
PPP \times WC	.68	.31	.03	
Moderation on professional commitment ($R^2 = 14\%$)				
Intercept	4.58	.06	.00	
Pre-entry professional perceptions (PPP)	.03	.14	.85	
Organizational resources for care (ORC)	.33	.08	.00	
PPP \times ORC	.16	.24	.49	
	β	Boot SE	CI (LB) 95%	CI (UB) 95%
Conditional indirect effect of work characteristics on professional commitment (R^2 change = 4%)				
-1 SD (-.95)	.12	.11	.04	.46
Mean (.00)	.41	.10	.22	.61
+1 SD (.95)	.70	.18	.34	1.06

Note. Size of *bootstrap* sample = 1,000; values are unstandardized. $N = 110$; CI = confidence interval; LB = lower bound; UB = upper bound.

resources for care can improve nurses' well-being and reduce their intentions to leave the profession. In addition, cognizant of nurses' personal dispositions developed towards the profession during their training, we investigated whether positive or negative pre-entry perceptions would influence how nurses interpreted signals in their environment related to their development of professional commitment. Results supported our proposed mediation model in that professional commitment fully mediated the working environment-outcomes relationships.

Our study builds on prior research that highlights how professional commitment is instrumental to nurse retention (Gambino, 2010; Jourdain & Chênevert, 2010). Our study extends these findings by examining additional consequences of professional commitment in the form of anxiety and physical health symptoms. Our findings indicate that a low professional commitment is detrimental not only to nurses' retention, but also to nurses'

well-being. Our results also extend prior research by examining the drivers of nurses' professional commitment (Jourdain & Chênevert, 2010; McCabe & Garavan, 2008). Indeed, the results revealed that a good work environment and organizational resources for care are important predictors of new nurses' professional commitment.

We also explored the moderating role of pre-entry professional perceptions in the mediating mechanisms. Our results did not support a moderating effect of pre-entry perceptions in the relationship between organizational resources for care and professional commitment. However, pre-entry perceptions did moderate the work characteristics-professional commitment relationship. Therefore, if positive perceptions about the nursing profession are developed as a student nurse, they are more likely to hold dispositions of a positive nature and use their work experiences to further cultivate their professional commitment. Conversely, if negative perceptions

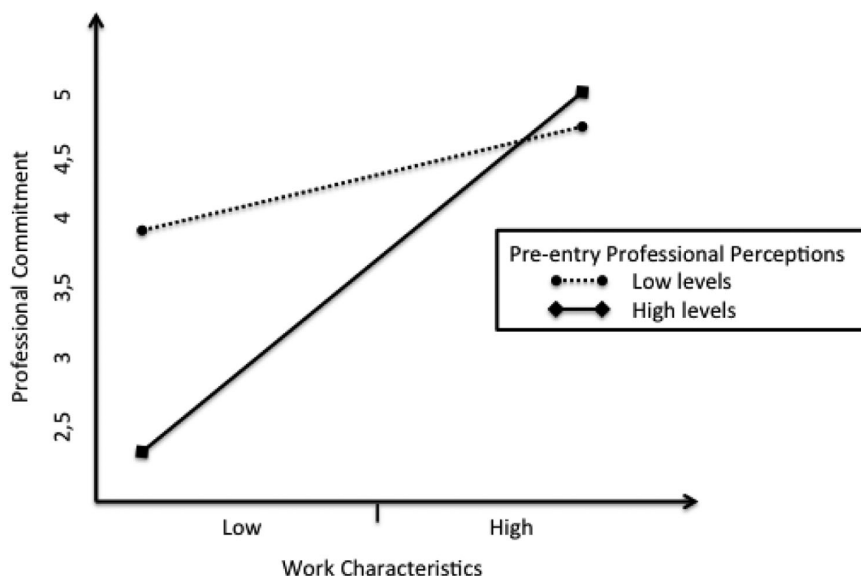


Figure 2. Results of moderation analyses.

about the profession are developed as a student nurse, they might question whether nursing really is a calling, thus inhibiting the mechanisms supporting professional commitment following organizational entry. To the author's knowledge, this is the first study to explore how prior expectations influence the current reality for nurses in terms of professional commitment development.

Our findings have several practical implications. We recommend that nursing managers ensure that nurses are provided with good working conditions such as a good salary, a prestigious job title, and career development opportunities. These factors ensure that nurses feel a sense of pride in being a nurse, which fosters their professional commitment. In addition, it is also recommended that nurses are provided with resources for patient care because this will also stimulate their professional commitment. Given the important role of pre-entry perceptions in our results, another practical recommendation for the professional body of nurses could be to incorporate realistic job expectations for them regarding the profession and equip them with the skills to withstand the challenges of a stressful and often resource-impooverished environment.

Limitations and Future Research Directions

This study has a number of limitations. First, the current study is limited by its small sample size, which raises questions about the generalizability of our findings to the general nursing population. However, given that

the current study sought to track nurses in a longitudinal format, it was inevitable that some would drop out of the surveys. Future research should replicate our study among larger samples and perhaps focus on different categories of nurses to see whether any differences exist. Second, our study only considered two novel antecedents of professional commitment, well-being and turnover intentions. Future research might tease out a broader spectrum of resources inherent to the human resources system of a hospital and examine their role in enhancing nurses' well-being, professional commitment, and intention to remain in the profession. A fruitful line of inquiry might focus on the role of high involvement work practices (Chênevert et al., 2016) that is a central feature of the best hospitals (e.g., Magnet status hospitals) in the United States (Rondeau & Wagar, 2006).

Clinical Resources

- Canadian Nurses Association. Careers for registered nurses and professional development: <https://www.cna-aiic.ca/en>
- Professional Nurses Association of Quebec: <http://www.oiiq.org/english-version>

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How Could Nurse Researchers Apply Theory to Generate Knowledge More Efficiently?

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Abstract

Background: Reports of nursing research often do not provide adequate information about whether, and how, researchers applied theory when conducting their studies. Unfortunately, the lack of adequate application and explication of theory in research impedes development of knowledge to guide nursing practice.

Objectives: To clarify and exemplify how to apply theory in research.

Methods: First we describe how researchers can apply theory in phases of research. Then we share examples of how three research teams applied one theory to these phases of research in three different studies of preventive behaviors.

Conclusions: Nurse researchers can review and refine ways in which they apply theory in guiding research and writing publications. Scholars can appreciate how one theory can guide researchers in building knowledge about a given condition such as preventive behaviors. Clinicians and researchers can collaborate to apply and examine the usefulness of theory.

Clinical Relevance: If nurses had improved understanding of theory-guided research, they could better assess, select, and apply theory-guided interventions in their practices.

Theories can be useful to nurse-researchers as guides for conducting research (Bartholomew & Mullen, 2011; Rodgers, 2005). A theory offers a set of concepts and propositions that can be applied consistently and examined systematically across studies of clinical problems (Meleis, 2012). Admittedly, not all research should be theory guided; some research is conducted to generate theory about new phenomena (Goldkuhl, 2012). When appropriate, researchers can use theories as guides across phases of research. When researchers communicate clearly about how they have applied a theory in their studies, others can synthesize evidence more readily across studies where the same theory was used. By doing so, researchers can build scientific knowledge more efficiently than if they were not theory guided (Fawcett, 1978; Meleis, 2012; Rothman, 2004).

Many researchers have not applied theories to their studies when they could have done so (Balfe & Brugh, 2009; Bayrami, Taghipour, & Ebrahimipour, 2014; Heit, Blackwell, & Kelly, 2008). In a review paper, Conn, Cooper, Rupp, and Russell (2008) sought to characterize the reports of intervention studies conducted by nurses. They found that about half of the authors reported using a theory or framework, slightly less than half shared any links between theory or framework and their interventions, and only about a quarter reported sufficient detail either for future researchers to replicate the interventions or for clinicians to translate them into practice.

Interdisciplinary scholars (Kobrin, 2011; Michie, Fixsen, Grimshaw, & Eccles, 2009; Sales, Smith, Curran, & Kochevar, 2006) have called for healthcare researchers

to explicate how theory guides research more clearly. Painter, Borba, Hynes, Mays, and Glanz (2008) investigated the degree to which researchers used theory to conduct their studies. They reviewed health behavior publications in three disciplines—medicine, public health, and psychology—from 2000 to 2005. Among the 193 publications they identified, only about a third of the teams mentioned theory.

Michie and Abraham (2004) examined reviews of studies in which researchers claimed to have assessed the efficacy of theory-guided interventions to promote health behaviors. These authors concluded that researchers often did not (a) explain how theory guided their studies in their publications or (b) delineate why or how they proposed that their intervention would be effective, according to their theories.

Some researchers may apply components from theories to their studies; however, they often apply only one or a few components, rather than all that are relevant (Conn et al., 2008; Michie & Abraham, 2004). The lack of adequate application of theory to research and of clear explication about how theory guides research impedes researchers who strive to replicate prior studies and develop knowledge to support nursing practice (Fawcett, 1978; Meleis, 2012). Perhaps many researchers have not clearly understood how and why theory can guide them across phases of research.

Our objectives are to clarify and exemplify how researchers can apply theory in health-related research. In the following sections, we explain how three research teams applied one theory in phases of research and we illustrate our points with examples from these three studies. If nurse researchers could improve the adequacy with which we conceptualize, apply, and report both the “why” and “how” of theories guiding our studies, then we could replicate such studies more readily and generate knowledge for nursing practice more efficiently.

Background

Three research teams guided their studies with the Theory of Care-Seeking Behavior (TCSB). This theory is a middle-range theory focused on one aspect of human experience (Smith & Liehr, 2008). As a middle-range theory, the TCSB is abstract enough to guide researchers and clinicians in generalizations, yet specific enough to guide research (Cody, 1999; Smith & Liehr, 2008). It can be used to describe, explain, or predict the phenomenon of care seeking. According to the TCSB, care-seeking behavior refers to individuals’ use of clinical services for health care, including engaging in secondary prevention behaviors (SPBs). SPBs are evidence-based approaches that people engaged in either to detect disease early or to

intervene promptly to control disease (Cohen & Chehimi, 2007).

In the TCSB, there are two main types of variables that influence care-seeking and are amenable to change: psychosocial variables and external conditions (Lauver, 1992; Lauver, Settersten, Kane, & Henriques, 2003). The psychosocial variables are affect, utility beliefs, normative influences (norms), and habits. Affect refers to feelings related to SPBs, such as anxiety about a screening process. Utility beliefs refer to values and probabilities of experiencing worthwhile outcomes from particular SPBs. Norms refer to perceived social expectations such as either peers’ or professionals’ views regarding SPBs. Habits refer to how individuals usually engage in similar behaviors such as having annual examinations. The second type of variable is external conditions, which refers to factors typically outside of individuals’ control that are influenced by institutional or public policies (Lauver, 1992; Lauver et al., 2003). This variable has been operationalized as financial affordability, geographic accessibility, and acceptability of staff to patients (Facione & Katapodi, 2000; Lauver et al., 2003). See **Table 1** for a summary of these concepts and their definitions.

Each of the three authors had identified clinical problems that were conceptually similar while working independently. Each had identified a population that was unlikely to obtain screening tests as recommended by evidence-based guidelines. After careful consideration of theories, we separately chose the same theory to guide studies of our clinical problems. Two research teams described people’s use of cancer (Lauver et al., 2003; Lor, Khang, Xiong, Moua, & Lauver, 2013) and sexual transmitted infection (STI) screening (Backonja, Royer, & Lauver, 2014). A third team tested intervention effects on women’s use of breast screening tests (Lauver et al., 2003). In different studies, the three teams sampled college students, Hmong women, and low-income women.

In the following sections, we discuss how phases of research are relevant to theory-guided research. We exemplify the following phases: Phase 1, Conceptualizing the clinical problem; Phase 2, Describing how to choose a theory; Phase 3, Describing how theory guides study aims; Phase 4, Delineating how theory guides methods; Phase 5, Describing how theory guides analyses; Phase 6, Reporting study results; and Phase 7, Incorporating theory in summary discussions.

Phase 1: Conceptualizing the Clinical Problem

Health-related research begins with researchers identifying clinical problems to study. Then researchers review literature to delineate characteristics of such clinical problems (Rodgers, 2000, 2005; Walker & Avant,

Table 1. Concepts in the Theory of Care-Seeking Behavior

Concept	Definition	Examples
Psychosocial variables		
Affect	Feelings associated with care-seeking behavior.	Fear of seeking care. Feeling anxious about results of screening.
Utility	Overall worth of care seeking, expectations and values of seeking care.	Beliefs about the likelihood of care-seeking behavior yielding relevant outcomes.
Normative influences	Personal, professional, or peer opinions about care-seeking behaviors (e.g., secondary preventive behaviors).	Personal: One's beliefs about morally correct behavior regarding care seeking. Social: Friends' or family's beliefs about care seeking. Interpersonal agreement to act: Promise made with healthcare provider, friend, or family member to engage in care seeking.
Habits	One's usual care-seeking behavior, past experience with care seeking, or how one usually acts related to care seeking when one experiences symptoms.	Whether or not one seeks care promptly with symptoms. Whether one seeks asymptomatic screening (e.g., screening for sexually transmitted infections before starting new sexual relationship).
External conditions	Specific, objective conditions that impact one's ability to seek care. Can reflect either facilitators or barriers.	Affordability (e.g., having insurance that covers cost of screening), accessibility (e.g., a screening facility is near one's home), acceptability (e.g., staff at screening facility are welcoming).

2005). If scholars understand the conceptual dimensions, antecedents, and consequences of their clinical problems, then they are likely to select theories and methods that are aligned well with their clinical problems.

To illustrate, three research teams conceptualized their clinical problems as secondary prevention behaviors (SPBs). SPBs refer to behaviors that assist in either the early detection or the early treatment for a condition, regardless of the presence of symptoms (Cohen & Chehimi, 2007). The research teams described their clinical problems of interest as SPBs because this conceptualization is consistent with lay people's perceptions of STIs and cancer screening. Typically, lay people do not differentiate between having tests for asymptomatic screening or for diagnostic purposes with symptoms.

One team (Backonja et al., 2014) identified the clinical problem that adolescents and young adults 15 to 24 years old were acquiring about half of all STIs (Satterwhite et al., 2013; Weinstock, Berman, & Cates, 2004). In addition, young people often do not engage in either asymptomatic screening or symptomatic testing for STIs as recommended (Centers for Disease Control and Prevention, 2010, 2012; National Committee for Quality Assurance, 2007; Tao, Hoover, & Kent, 2012; Tao, Hoover, Leichter, Peterman, & Kent, 2012). Therefore, this team conceptualized the clinical problem as an SBP.

In another instance, one team (Lor et al., 2013) identified that Hmong women have underused breast and cervical SPBs for cancer. Only 16% of a sample of Hmong women in California had ever had mammograms (Yang, Mills, & Dodge, 2006). In contrast, a Healthy People 2020

goal is to increase the percentage of women who receive asymptomatic screening for breast cancer to 81% (U.S. Department of Health and Human Services, 2013).

Phase 2: Describing How to Choose a Theory

There are several strategies that researchers can use to choose a theory to guide their studies. Researchers can consider whether or not a given theory has concepts and propositions that adequately capture the nature of the clinical problem and the proposed relationships among such concepts. They can review whether or not alternative theories are credible, clear, and parsimonious with regard to their phenomena (Fawcett, 1978; Meleis, 2012). Also, they examine the degree of empirical support for the theory. This process is often iterative of comparing theories for similarities or differences and for the degree of empirical support.

For example, the team (Backonja et al., 2014) concerned about young adults' STI rates had synthesized current research about young adults' engagement in SPBs for STIs. This team considered whether to guide their study with the TCSB. Importantly, they reviewed the literature for variables that had the same conceptual definitions as those in the TCSB, regardless of whether prior researchers had been guided by the TCSB or had used the same terms for variables as in the TCSB. The team found that many definitions of variables in prior STI research were consistent with definitions of concepts in the TCSB. The team reviewed the literature for empirical support of the concepts from the TCSB with regard to SPBs for STIs (e.g., beliefs, normative influences; Balfe & Brugh,

2009; Chacko et al., 2008; Head, Crosby, Shrier, & Moore, 2007; Sanders, Nsuami, Cropley, & Taylor, 2007). The team found these variables had been associated with SPBs for STIs. Together, these conclusions informed the team's decision to guide their study with the TCSB.

Researchers can consider whether concepts and propositions from promising theories are congruent not only with their clinical problem but also with the culture of the population to be studied. We share an illustration of how one team (Lor et al., 2013), who studied Hmong women, had investigated whether the TCSB was conceptually adequate to guide their study. After identifying that the concepts and propositions in the TCSB were relevant to their clinical problem of interest, the team decided to seek consultation about the appropriateness of the TCSB for the Hmong population with which the researchers were working. The researchers chose three female Hmong students in the health professions to serve as a panel of cultural consultants. Without telling the consultants about the TCSB, a researcher asked, "What do you think are some possible reasons for why Hmong women would get, or not get, breast or cervical cancer screening?" Only after the consultants shared all their ideas did researchers introduce the TCSB concepts. The research team asked the consultants in a neutral fashion whether or not their reasons corresponded to the TCSB concepts and they asked what might have been omitted. By consensus, the consultants agreed that the concepts from the TCSB were conceptually consistent with their ideas, the TCSB concepts were logically adequate to explain SPBs, and they could not think of concepts omitted from the TCSB. This process provided partial support for the initial validity of the TCSB regarding cancer screening among a Hmong population.

Phase 3: Describing How Theory Guides Study Aims

Theories can guide researchers systematically in many ways. If researchers have aims to describe engagement in SPB, then a theory can guide the methods. If researchers have an aim to test intervention effects on SPB, as guided by theory, then the theory can guide the methods and the intervention.

Two research teams planned descriptive studies which were guided by the TCSB (Backonja et al., 2014; Lor et al., 2013). Their aims were to describe SPBs because their phenomena were not well understood in their particular populations of interest. One team described Hmong women's beliefs, feelings, norms, and external conditions regarding breast and cervical cancer SPBs with an interpretive approach (Lor et al., 2013). The second team examined college students' reasons for engaging in

SPBs for STIs with a mixed-methods approach (Backonja et al., 2014). See **Table 2** for a summary of the teams' aims and methods in three different studies about SPBs guided by TCSB.

One team's (Lauver et al., 2003) aims were to predict SPBs for breast cancer because there was empirical support for proposed relationships between TCSB concepts and breast screening behaviors. The TCSB includes a proposition that external conditions moderate the influence of other explanatory variables. So, this team derived a study aim to test whether external conditions moderated the effect of their intervention.

Phase 4: Delineating How Theory Guides Methods

Descriptive studies: Using concepts from theory to inform data collection. When researchers plan studies that are theory guided, they typically assess variables that are consistent with concepts from the theory. In one such instance, the team (Backonja et al., 2014) who studied STIs developed a questionnaire for data collection based on concept evidence for the TCSB (e.g., Balfe & Brugh, 2009; Chacko et al., 2008; Head et al., 2007; Sanders et al., 2007). The team created checklists with short-answer responses and open-ended questions for spontaneous responses. They systematically reflected each TCSB concept in their items. One checklist addressed possible reasons to seek STI screening. It included the item "When I have symptoms"; this item was written to reflect habits. Another checklist included reasons not to engage in SPBs; one item was "STD testing is expensive"; this item was written to reflect external conditions.

In another instance, the team (Lor et al., 2013) who studied Hmong women developed an interview guide with open-ended questions. Researchers created at least one question for each concept in the TCSB. To elicit information regarding affect, researchers asked, "What are your feelings about getting a Pap test?" To elicit utility beliefs, researchers asked, "When you think about having a breast exam, what thoughts do you have?" The team used an interview rather than a written questionnaire because traditionally the Hmong communicate orally (Thao, 2006).

Experimental study: Concepts from theory guide overall design. One team applied the TCSB in a randomized, controlled trial (Lauver et al., 2003). This team hypothesized that a tailored message about breast cancer screening, based on the TCSB, would be more effective in promoting breast cancer screening than standard messages. This hypothesis was based on researchers'

Table 2. Key Characteristics of Three Different Studies, Guided by the Theory of Care-Seeking Behavior (TCSB)

Study	Purpose(s)	Design	Sample	How addressed concepts from theory	Data analysis
Cancer screening study among Hmong women (Lor, Khang, Xiong, Moua, & Lauver, 2013)	To understand Hmong women's underuse of breast and cervical cancer screening, guided by theory.	Descriptive Cross-sectional	Group of 16 Hmong women 24–73 years of age. Primary language for most participants was Hmong.	In a focus group, asked open-ended questions, based on concepts from theory. For each, we asked at least one question.	Conducted directed, content analysis of participants' responses. Coding categories were based primarily on TCSB concepts.
Sexually transmitted infection screening study (Backonja, Royer, & Lauver, 2014)	To describe people's reasons to seek sexually transmitted infection (STI) screening, guided by theory.	Descriptive, Cross-sectional	330 college students, 216 female and 114 male; ≥ 18 years of age. Most were White and had never been screened for STIs.	Designed a questionnaire, based on concepts from theory. Asked closed-ended questions with checklists and open-ended. Asked at least one question.	Analyzed responses to closed-ended questions with descriptive statistics. Conducted directed content analysis of participants' responses to open-ended questions. Coding categories were based primarily on TCSB concepts.
Cancer screening intervention study (Lauver, Settersten Kane, & Henriques, 2003)	To test effects of a nurse-delivered, patient-centered intervention, guided by concepts from theory, on women's breast screening behaviors. To assess whether intervention effects differed by external conditions, based on proposition from theory.	Randomized, controlled trial. Women assigned randomly to one of three message conditions (nothing initially, usual care, or tailored discussion, based on theory). Example outcomes: Rates of clinical breast examination and mammography use. Collected data at three points in time: baseline, 3–4 months post intervention, and 13–16 months post intervention.	797 women recruited from three sources (a hospital including based radiology department serving low-income urban clients, and control participants from a case-control study). To control for habit, we excluded women who had had mammograms in the prior 13 months.	Intervener served as a normative influence. Assessed and addressed concepts from theory (e.g., typical affect, utility beliefs, and norms) in tailored discussions with participants assigned to theory-based message condition. Measured external conditions with questionnaire.	Conducted hierarchical regressions. Determined whether message condition influenced rate of breast cancer screening behaviors. Examined also whether degree of external conditions moderated rates of screening behaviors.

ideas that the TCSB was more adequate than other behavioral theories. Furthermore, they hypothesized that the message effects would be moderated by external conditions, based on propositions in the TCSB and empirical findings (Lauver et al., 2003). To test these hypotheses adequately, the team applied the TCSB concepts in either the overall design or analysis. To apply these concepts in the design, researchers sought women who had not had mammograms in the past year to control for the concept

of habit in the recruitment of the sample. They selected nurses to be interveners to reflect the concepts of social and professional norms, assuming nurses would be perceived as socially accepted and credible authorities about cancer screening.

To apply in analyses, researchers developed three different message conditions to be delivered by telephone and in subsequent mailings. In the control group, no messages were provided initially. For the second group,

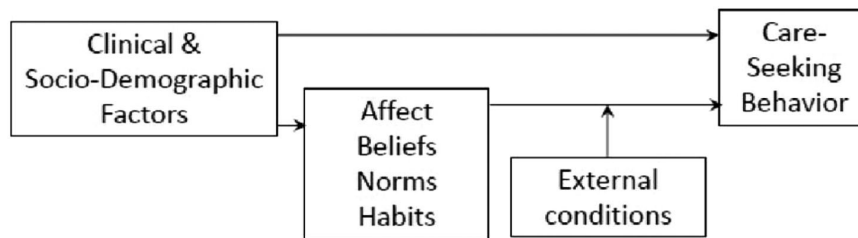


Figure 1. Diagram of concepts and propositions in the Theory of Care-Seeking Behavior.

the messages offered standard information—that is, typical recommendations about breast screening with factual information and rationale, but no discussion of TCSB concepts. The third group received messages that involved assessment and discussion of selected TCSB concepts, including participants' beliefs, affect, or external barriers, tailoring on participants' named issues. Examples included (a) utility beliefs about need for, and undesirable side effects of, screening and (b) information about external conditions such as typical costs of screening and local screening sites. Because the concepts guiding the third message group were not reflected in other messages, the team tested whether participants getting the theory-guided message had higher screening rates than those who received other messages (i.e., typical recommendations or no message initially).

Phase 5: Describing How Theory Can Guide Analyses

Theory can guide researchers in analyzing either narrative or numerical data. To illustrate, the team (Lor et al., 2013) who interviewed Hmong women also applied concepts from theory in their analysis of narrative data. The team created coding categories that were based on the TCSB concepts and were mutually exclusive (Graneheim & Lundman, 2004; Hsieh & Shannon, 2005). The team conducted directed content analysis of participants' responses (Graneheim & Lundman, 2004; Hsieh & Shannon, 2005) using theory-based coding categories. However, they did not force responses into these categories. This approach to analysis was useful for the team to see response patterns about the same concepts, yet about different SPBs—breast or cervical. For example, the team saw that participants' utility beliefs about treatments for breast and cervical cancers were similar, and both reflected uncertainty.

In addition, the team (Backonja et al., 2014) who studied STIs applied the TCSB in their narrative and numeric analyses. Based on the TCSB concepts, the team created coding categories, for seeking and avoiding

testing for directed content analysis of participants' text responses to open-ended questions (Neuendorf, 2011). If participants responded to an open-ended question about avoiding STI screening with "I am afraid of the results," the team coded this response as reflecting the concept of affect. The team also analyzed the frequency with which participants responded to short-answer questions about seeking and avoiding STI screening. The team was able to identify commonalities and differences across responses to short-answer responses—about seeking or avoiding screening—more easily with concept-based responses. Similarly, the team was able to perceive commonalities and differences across text and numerical data because both were guided by TCSB concepts. Analyzing mixed-methods data by concepts facilitated a descriptive understanding of young adults' SPBs for STIs.

When researchers conduct directed content analyses, guided by theory, they may observe inconsistencies between the planned coding categories and their data. In this situation, researchers do not want to force data into coding categories if the two do not correspond well. Perhaps the theory is not valid in certain contexts. For the team (Lor et al., 2013) who studied cancer SPBs among Hmong women, most data aligned with coding categories, but not all. Participants' narrative responses about the inadequate interpreter services at cancer screening sites did not align well with the category of "acceptable treatment by staff" reflecting one dimension of external conditions. The team decided to code responses about interpreter services separately because they were characteristically different from other responses coded in the category of "acceptable treatment by staff." Also, the policy and practice implications for these responses differed.

Theory also can guide researchers' tests about explanation or prediction. The team (Lauer et al., 2003) who tested an intervention about breast screening applied the TCSB in analyses and examined whether their tailored message group had the highest rates of SPBs. To do this, they created computer codes for each group to compare rates among the three message groups.

Because the team also tested the proposition about whether the group effect on SPBs would be moderated by external conditions (**Figure 1**), they created interaction terms to represent the multiplicative effect of group and external conditions. This approach was essential to test the proposition about the moderating influences of external conditions on other explanatory variables (Triandis, 1980).

Phase 6: Reporting Study Results

When researchers summarize findings from a theory-guided study, they can use the components of the theory to organize their report and can help readers see how theory guided their study. In contrast, if researchers described their methods, analyses, and findings without references to the theory that guided them, then they would likely obscure how theory guided their studies. Two illustrations follow.

In their study of SPBs for STIs, researchers (Backonja et al., 2014) reported their findings from content analyses and from quantitative analyses by concepts in the TCSB. Alternatively, researchers could report their findings by which variables were most to least common findings. By reporting findings by concept, researchers could help readers recognize similarities and differences across the qualitative and quantitative data more efficiently. For example, habit reflected participants' responses to both short-answer and open-ended questions about engaging in SPBs for STIs. In the study of Hmong SPBs, researchers (Lor et al., 2013) summarized findings by concept and by type of SPB (breast, cervical screening). By reporting these findings by concept, the team could facilitate readers' appreciation of similarities and differences by type of SPB.

Phase 7: Incorporating Theory in Summary Discussions

When researchers are guided by theory in their studies, they summarize their study findings in relation to prior evidence and theory. For example, if researchers found that a concept, such as utility beliefs, was related positively to seeking SPBs, then they would discuss the support for the theory along with other evidence (Backonja et al., 2014; Lauver et al., 2003; Lor et al., 2013). If researchers provide valid support for a theory in a given context, and they summarize their methods well, then future researchers could replicate and extend the earlier work relatively easily.

However, when findings do not support theory, then researchers can address critically whether the findings may be explained by either limitations of

their methods, or of the theory, or both. If researchers provide adequate explications of how theory guided their methods in reports of studies where theory is not supported, then future researchers could design studies to examine whether the theory needs to be revised, and if so, how. For example, two of our teams found that affect was relevant to SPBs (Backonja et al., 2014; Lor et al., 2013). However, the direction of the relationship between affect and screening differed somewhat by sample and context. Thus, future researchers can examine this relationship again to clarify how affect may influence screening, considering context, sample, and measures.

In summaries of studies, researchers discuss not only the implications of their findings for research but also for practice, education, or policy. The team who studied Hmong women summarized their work by sharing that inadequate interpreter services was an external condition that impeded Hmong women's use of SPBs for breast and cervical cancer. This team identified implications for both practice and organizational policies regarding the need for translation services in clinical settings.

Discussion

We have described how theory can be useful across phases of research in efforts to improve the applications of theories to studies of health-related phenomena and the descriptions of such applications in publications. We have exemplified how researchers can apply components of theory to research phases from three studies based on one theory. In doing so, we have addressed scholars' concerns about atheoretical research that had been conducted in nursing and other disciplines (Bartholomew & Mullen, 2011; Conn et al., 2008; Michie & Abraham, 2004; Painter et al., 2008; Rodgers, 2005).

We have explained how researchers can conceptualize carefully their clinical problems of interest, such as under-engagement in SPBs. When scholars are clear about the characteristics and correlates of such clinical problems, they may choose a fitting theory to guide their research. Because our three teams decided that both psychosocial concepts and external conditions were relevant to SPBs, our teams concluded that the TCSB would be adequate to guide our studies.

We have explained how researchers can use theory as a guide to organize or synthesize literature about a given phenomenon, even when prior researchers have not been guided by the same theory. In addition, we have explained how theory can guide aims and methods. We have exemplified how theory can guide methods (e.g., design, measures) from two descriptive studies and from one experimental study. We also have discussed and

exemplified how theory can be applied in analyses with both narrative and numerical data.

We have discussed how researchers can apply theory in their reports. We have illustrated how researchers can report findings by theory components so readers can recognize similar findings across studies guided by the same theory or by similar concepts or propositions. When researchers can compare study findings by such components, then they may identify patterns more easily than if researchers did not report findings by such components. If authors were to organize their research reports about health-related phenomena in this manner, they could facilitate development of knowledge, either in support or refute of theory. Just as theory can guide research, so too can research findings guide either conclusions in support or revisions of theory.

Conclusions

In summary, when different researchers use the same theory to understand a health-related phenomenon, such as SPBs, then they could build knowledge more efficiently across their different studies than if they did not use the same theory. When authors explain in sufficient detail how they planned their aims and methods, guided by theory, in sufficient detail, then readers can perceive conceptual parallels or differences across studies (Bartholomew & Mullen, 2011; Meleis, 2012; Rodgers, 2005). Ultimately, when nurse researchers conduct theory-guided research carefully and delineate how they did so in their publications, then their research could inform nursing practice efficiently as well as add to our existing knowledge of describing, explaining, and predicting clinical problems.

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Clinical Resources

- Middle-range theory for nursing. http://www.springerpub.com/samples/9780826119162_chapter.pdf
- Nursing theory. <http://nursing-theory.org/index.php>
- Theory at a glance—A guide for health promotion practice. <http://www.sbccimplementationkits.org/demandrnmnch/wp-content/uploads/2014/02/Theory-at-a-Glance-A-Guide-For-Health-Promotion-Practice.pdf>

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