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International practice settings, interventions and outcomes of nurse practitioners in geriatric care: A scoping review

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ABSTRACT

Objectives: To identify and summarize the common clinical settings, interventions, and outcomes of nurse practitioner care specific to older people.

Design: Scoping review of the international published and grey literature.

Data sources: A structured literature search was conducted of CINAHL, EMBASE, MEDLINE, Google Scholar, and Cochrane Collaboration and Joanna Briggs Institute databases.

Review methods: Following the Arksey and O'Malley framework, randomized controlled and quasi-experimental studies of Masters-prepared nurse practitioners providing care for patients over 65 years were included. Studies were reviewed independently by two investigators. Data were extracted, collated by setting, summarized in tables and synthesized for analysis.

Results: In total, 56 primary research studies from four countries and 23 systematic reviews were identified. Primary studies were conducted in primary care (n = 13), home care (n = 14), long-term care (n = 10), acute/ hospital care (n = 9), and transitional care (n = 10). Nurse practitioner interventions included substitutive as well as a supplementation NP role elements to meet specific unmet patient care needs. Studies examined six main outcome measures: service utilization (n = 41), cost (n = 24), length of stay (n = 14), health indices (n = 44), satisfaction (n = 14) and quality of life (n = 7). Cumulatively, nurse practitioners demonstrated enhanced results in 83/144 (58%) of outcomes compared to physician-only or usual care. The most commonly measured financial-related outcome was service utilization (n = 41) and benefits were frequently reported in home care (8/9, 89%) and long-term care (7/10, 70%) settings. Among patient and care-related outcomes health indices were most frequently measured (n = 44). Primary care most frequently reported improved health indices (11/ 13, 85%). Transitional care reported improved outcomes across all measures, except for service utilization. Conclusions: This review demonstrates improved or non-inferiority results of nurse practitioner care in older people across settings. More well-designed, rigorous studies are needed particularly in relation to costs. The results of this review could be used for future systemic review of effectiveness of NP care specific to older people. Despite the demonstrated NP role value, barriers to implementing the nurse practitioner role persist internationally and more work is needed to develop and promote these roles.

What is already known about the topic?

- The nurse practitioner role continues to spread and develop internationally.
- Studies have demonstrated positive outcomes in patients receiving care from nurse practitioners.
- Nurse practitioners have been used extensively in geriatric care.

What this paper adds

- This review identified the studies that reported the impact of NP care in geriatric patients.
- NP care of geriatric patients was identified in five clinical settings, including primary care, home care, long-term care, acute care, and transitional care.
- NPs have consistently produced equivalent or better outcomes compared to physician care alone/usual care across the five identified settings.
- It highlights the outcomes sensitive to NP care in geriatric patients.

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1. Introduction

The United Nations (UN) estimates that by 2045, one-third of the global population will be over 60 years of age and the number of people over 80 years of age will triple (United Nations, 2015). This demographic shift, as well as the growing rates of chronic disease and obesity-related illness, will strain health care systems internationally. Currently, the population of people over 60 years of age in Europe, is greater than in any other part of the world (United Nations, 2015). To meet the healthcare needs of aging patients, governments and international health care organizations endeavor to increase the number of practitioners to provide direct clinical care. However, many geriatric residency programs continue to have unfilled posts. Indeed, in the United States (US), 56% of geriatric fellowships were unfilled in 2015 (Golden et al., 2015). Moreover, the number of practicing generalist physicians (i.e. primary care) continues to decline globally (World Health Organization, 2015).

In Anglophone countries such as the US, Canada, Australia and the United Kingdom (UK) nurse practitioners (NPs) function as autonomous health care providers to improve access to care, reduce physician work and/or mitigate physician shortages (Martin-Misener et al., 2015). Indeed, a 1995 Canadian study found 46% of nurse practitioners were functioning in a substitutive role to address physician shortages (Dunn and Nicklin, 1995). Nurses in a substitute role function autonomously and provides the same care as physicians alone. In contrast, supplementation refers to situation where NPs "supplements or extends the care of the doctor by providing a new primary care service" (p. 3) (Laurant et al., 2007). The distinction of the types of care models has been reported as a crucial determinant for successful interprofessional collaboration and role clarification when implementing these roles into practice (Contandriopoulos et al., 2015). Nurse practitioners have successfully closed gaps in care related to provider shortages and have expanded access to care for vulnerable populations – including geriatric patients with complex chronic conditions (Donald et al., 2013; Kane et al., 2003). Additionally, NPs in certain settings function in collaborative roles wherein they bring an advanced practice nursing perspective as part of an interprofessional approach to care emphasizing case management, care coordination, disease prevention, and health promotion improving the quality of care (Newhouse et al., 2012, Stanik-Hutt et al., 2013).

A nurse practitioner is an advanced practice nursing role (Hamric et al., 2014). The NP has advanced training that today requires a Master's degree in most countries. The advanced education focuses on developing expert knowledge and competencies in pathophysiology, pharmacology, and advanced physical assessment - also known as the "3 Ps". The NP is trained to examine, diagnose, and treat patients throughout the lifespan (American Association of Nurse Practitioners, 2015). This role has been implemented, or is in development, in 27 of the 39 countries in Europe, USA, Canada, Australia and New Zealand, yet training requirements, legal protection of the title, professional licensure and certification vary significantly between countries (Maier and Aiken, 2016; Pulcini et al., 2010). While the International Council of Nurses has developed an internationally-accepted definition of the NP role and competencies (2014, Sastre-Fullana et al., 2014), there continues to be a notable lack of consensus on requirements for NP education and clinical training.

In light of the growing global public health needs resulting from the aging population, the mounting shortfall of healthcare providers and the documented effectiveness of nurse practitioner care, this scoping review aims to identify experimental and quasi-experimental studies and summarize the common clinical settings, interventions, and outcomes of nurse practitioner care for older people, especially. We envision this mapping of the literature will be of interest to educators, researchers, health administrators, and policy makers implicated in the development and implementation of novel nurse practitioner roles particularly in countries where the field is only now emerging.

2. Methods

This scoping review follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Moher et al., 2015). We employed the five-stage Arksey and O'Malley framework for scoping reviews (Levac et al., 2010). Briefly, the sequential stages of the process are: i) identify the research question, ii) identify the relevant literature, iii) select the literature, iv) chart the data, and v) collate, summarize, and report results (Davis et al., 2009).

2.1. Identifying the research question(s)

This project was guided by the following inter-related queries:

- In what geriatric care settings have NPs been implemented and its rationale?
- What type of interventions has been employed in the various clinical settings?
- What NP sensitive outcomes have been reported in the literature?
- Based on the reported outcomes, are NP interventions effective for older people?

2.2. Identifying relevant literature

A two-tiered search strategy was used. First, CINAHL, EMBASE and MEDLINE databases were searched for relevant published articles. Hand-searching of reference lists on key papers and web-based search of the grey literature, such as Google Scholar and professional and government websites were performed with the same terms used for the published articles. Systematic reviews were retrieved from the Cochrane Library and the Joanna Briggs Institute EBP database. Second, references from the retrieved systematic reviews were screened to ensure that all relevant primary studies were included in this scoping review. Articles published in English, French, and German between January 1980 and March 2016 were retrieved. This extended time period was selected to enable identification of pertinent early interventions in geriatric NP care. Search terms and linked terms included: primary health care OR general practice OR private practice OR general practitioner OR primary nursing OR ambulatory care OR outpatient department OR emergency health services OR emergency healthcare or ambulatory OR outpatient OR family AND nurse practitioner OR acute care nurse practitioner OR emergency nurse practitioner OR gerontologic nurse practitioner, OR adult nurse practitioner OR advanced practice nurse, OR clinical nurse specialist OR PCNP OR ANP AND aged OR elderly. This search yielded 1437 articles. The second-tier search involved examining the bibliographies of retrieved key articles to identify additional relevant studies and seminal articles from the literature; this process identified an additional 346 articles for a total of 1783 articles.

2.3. Selecting the literature (i.e. inclusion-exclusion criteria)

Articles included in this scoping review met specified inclusion criteria: i) randomized controlled or quasi-experimental design, ii) a patient population with an average (\pm SD) age of 65 years or older iii) an intervention delivered by a Masters-prepared nurse practitioner with a scope of practice in line with the definition below.

The definition of a nurse practitioner drew from the broad definition of the International Council of Nurses (2014); "A Nurse Practitioner/ Advanced Practice Nurse is a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A Master's degree is recommended for entry level" (2014). However, this consensus definition lacks precision regarding the day-to-day function and scope of practice of the nurse practitioner. Therefore, we created an operational

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