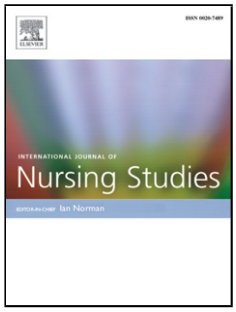

Title: How do nurse practitioners work in primary health care settings? A scoping review

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Title: How do nurse practitioners work in primary health care settings? A scoping review

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Title: How do nurse practitioners work in primary health care settings? A scoping review

Keywords: community health services; nurse practitioners; primary health care; review literature; vulnerable populations; scoping review;

Abstract:
Objectives: This scoping review explores the work of nurse practitioners in primary health care settings in developed countries and critiques their contribution to improved health outcomes.

Design: A scoping review design was employed and included development of a research question, identification of potentially relevant studies, selection of relevant studies, charting data, collating, summarising and reporting findings. An additional step was added to evaluate the methodological rigor of each study.

Data: Data sources included literature identified by a search of electronic databases conducted in September 2015 (CINAHL, Informit, Web of Science, Scopus and Medline) and repeated in July 2016. Additional studies were located through hand searching and authors' knowledge of other relevant studies.

Results: 74 articles from eight countries were identified, with the majority emanating from the United States of America. Nurse practitioners working in communities provided care mostly in primary care centres (n=42), but also in community centres (n=6), outpatient departments (n=6), homes (n=5), schools (n=3), child abuse clinics (n=1), via communication technologies (n=6), and through combined face-to-face and communication technologies (n=5). The scope of nurse practitioner work varied on a continuum from being targeted towards a specific disease process or managing individual health and wellbeing needs in a holistic manner. Enhanced skills included co-ordination, collaboration, education, counselling, connecting clients with services and advocacy. Measures used to evaluate outcomes varied widely from physiological data (n=25), hospital admissions (n=10), use of health services (n=15), self-reported health (n=13), behavioural change (n=14), patient satisfaction (n=17), cost savings (n=3) and mortality/morbidity (n=5).

Conclusions

The majority of nurse practitioners working in community settings did so within a selective model of primary health care with some examples of nurse practitioners contributing to comprehensive models of primary health care. Nurse practitioners predominantly worked with populations defined by an illness with structured protocols for curative and rehabilitative care. Nurse practitioner work that also incorporated promotive activities targeted improving social determinants of health for people rendered vulnerable due to ethnicity, Aboriginal identity, socioeconomic disadvantage, remote location, gender and aging. Interventions were at individual and community levels with outcomes including increased access to care, cost savings and salutogenic characteristics of empowerment for social change.

Introduction

Across the globe, nurse practitioners are advanced practice nurses who work both autonomously and collaboratively in variety of practice settings including hospitals, residential aged care, communities and primary health care (Parry and Grant 2016). They practice in developed countries such as Canada (College of Registered Nurses of British Columbia 2016), the United States of America (American Association of Nurse Practitioners 2013), the United Kingdom (Royal College of Nursing 2012), Australia (Nursing and Midwifery Board of Australia 2013) and New Zealand (Nursing Council of New Zealand 2012). The role of nurse practitioners was developed in response to an anticipated shortage of medical professionals to improve access to care, especially for underserved and vulnerable populations (Bonsall and Cheater 2008). As such, nurse practitioner roles have typically been implemented as either substitutes for medical professionals or as complementing and enhancing the overall care provided by medical professionals (Bonsall and Cheater 2008). In contrast to a biomedical focus of diagnosis and disease treatment held by many medical professionals, nurse practitioners practice within a holistic philosophy of care that emphasises therapeutic relationships and awareness of the whole person (Gould, Johnstone et al. 2007, Harvey, Driscoll et al. 2011).

The release of 2030 Agenda for Sustainable Development compels the exploration of how the existing workforce manages to ‘promote physical and mental health and

well-being…extend life expectancy for all…achieve universal health coverage and access to quality health care' (United Nations 2015). While nurse practitioners have entered the workforce as primary care providers, little is known about their work in primary health care settings. This review explores how the nurse practitioner role has been taken up in primary health care settings in developed countries and summarises evidence of efficacy of these roles. The review was prompted by a need to examine the evidence base from which to trial implementation of a nurse practitioner led multidisciplinary care team into a homeless service to provide health and care to vulnerable children and families in South Australia. The role would require a nurse to be highly skilled in a child and family health specialisation, to work autonomously and in collaboration with a number of stakeholders. Initial scans of the literature identified a plethora of evidence around the success of nurse practitioner roles in acute care settings but little in the area of working with vulnerable children in communities.

Methods

This review was guided by Arksey and O'Malley's (2005) and Levac, Colquhoun and O'Brien's (2010) guidelines for conducting a scoping review. A scoping review enabled examination of all relevant literature on the topic, regardless of study design (Arksey and O'Malley 2005, Levac, Colquhoun et al. 2010). This is important for practice-based initiatives that may be primarily descriptive in nature. The five main stages of investigation included development of the research question, identification of potentially relevant studies, selection of relevant studies, charting the data, collating and summarising and reporting findings (Arksey and O'Malley 2005, Levac, Colquhoun et al. 2010).

The preliminary question explored models used by nurse practitioners to provide care to vulnerable children in community settings. As this yielded limited responses (Yousey and Carr 2005, DiMarco, Huff et al. 2009, Lynam, Loock et al. 2010, Wong, Lynam et al. 2012) including papers without evaluation data, the search was expanded to investigate care provided by nurse practitioners for all children in communities. This resulted in only one additional paper (Kozlowski, Lusk et al. 2015). The final search was expanded to look more broadly at nurse practitioner care in communities

spanning all age groups. The final question being ‘how do nurse practitioners work in primary health care settings and is there any evidence that they can enact change?’

Studies were identified by a search of key nursing electronic databases conducted in September 2015 (CINAHL, Informit, Web of Science, Scopus and Medline) and repeated in July 2016. Additional studies were located through hand searching and authors’ knowledge of other relevant studies. A summary of the search strings used can be found in Table 1.

Table 1 Summary of search strings

Name of database	Search string
CINAHL	(MH "Nurse Practitioners") AND (MH "Primary Health Care") OR (MH "Communities) Limiters: Published Date: 20050101-20161231; English Language; Peer Reviewed
Informit	Nurse practitioner* AND "primary health" OR "primary health care" OR communit* Year range: 2005-2016
Web of Science	**TOPIC:** ("nurse practitioner" OR "nurse practitioners") Refined By: **TOPIC:** ("primary health care" OR "primary care" OR communit*) AND **TOPIC:** (program* OR initiativ* OR framework* OR model*) AND **DOCUMENT TYPES:** (ARTICLE OR REVIEW) AND **LANGUAGES:** (ENGLISH) AND **DOCUMENT TYPES:** (ARTICLE OR REVIEW) AND **PUBLICATION YEARS:** (2014 OR 2007 OR 2013 OR 2006 OR 2012 OR 2008 OR 2009 OR 2005 OR 2015 OR 2010 OR 2011 OR 2016) AND **DOCUMENT TYPES:** (ARTICLE OR REVIEW)
Scopus	TITLE-ABS-KEY ((**{nurse practitioner}** OR **{nurse practitioners}**) AND (**{primary health care}** OR **{primary care}** OR **communit***) AND (**model*** OR **program*** OR **framework*** OR **initiative***)) AND (LIMIT-TO (LANGUAGE , **"English"**)) AND (LIMIT-TO (SRCTYPE , **"j"**)) AND (LIMIT-TO (PUBYEAR , **2016**) OR LIMIT-TO (PUBYEAR , **2015**) OR LIMIT-TO (PUBYEAR , **2014**) OR LIMIT-TO (PUBYEAR , **2013**) OR LIMIT-TO (PUBYEAR , **2012**) OR LIMIT-TO (PUBYEAR , **2011**) OR LIMIT-TO (PUBYEAR , **2010**) OR LIMIT-TO (PUBYEAR , **2009**) OR LIMIT-TO (PUBYEAR , **2008**) OR LIMIT-TO (PUBYEAR , **2007**) OR LIMIT-TO (PUBYEAR , **2006**) OR LIMIT-TO (PUBYEAR , **2005**))
Medline	Nurse practitioner.mp. or Nurse Practitioners/ AND (Primary Health Care/ OR "primary health" OR "primary health care" Or communit*) AND (initiative* OR program* OR framework* or model*)

The third step involved selection of studies to be included in the review. The search strings identified 925 results after duplicates were removed. Hand searching of reference lists and studies added by authors from their prior knowledge of the topic gave a total of 939 studies. Articles were screened by title and abstract on the basis of the inclusion and exclusion criteria outlined in Table 2. This resulted in a total of 74 articles for review (Figure 1). Work in a primary health care setting was defined as services that were 'the first point of contact with the health system…' and were underpinned by the principles of social justice, equity and empowerment (Verrinder and Talbot 2014). In defining primary health care work, we referred to any roles that were based outside of acute care or tertiary services such as those based in community settings and roles where the care provided constituted the first point of contact to a health service, or primary care. Developing countries were excluded because they face different challenges regarding health issues, access to health care and healthcare delivery.

Table 2 Inclusion and Exclusion Criteria

Inclusion Criteria	**Exclusion Criteria**
English language, peer-reviewed primary research studies published from September 2005 to July 2016.	Non-English language studies, non-primary research papers, or papers published before 2005.
Describe or evaluate a model of primary health care that involves a nurse practitioner based in the primary care, home or community setting.	Model of care does not include a nurse practitioner or care is based in the hospital or residential aged care facility.
Developed countries.	Developing countries.

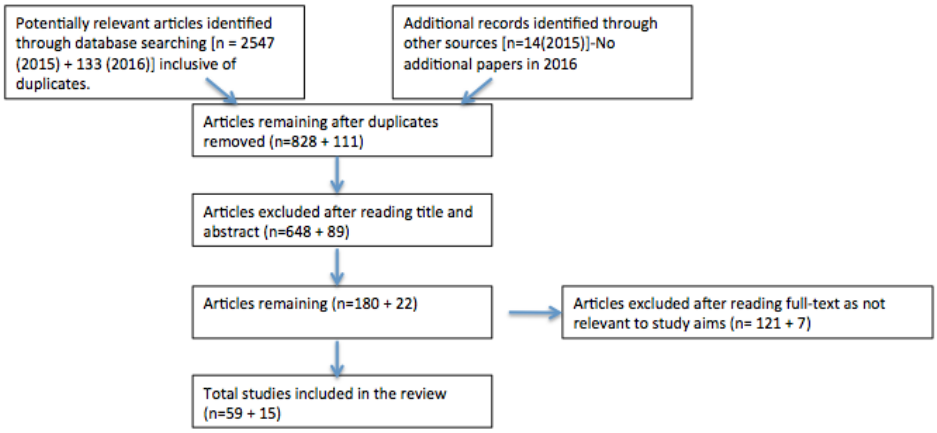

Figure 1: Flow diagram of study selection

Following Arksey and O'Malley's (2005) fourth stage, data was extracted into summary tables (supplementary online table 1) including author details, year of publication, type of primary health care, location, the model of care, and measures of the program's success. A final step was added by the authors in evaluating the methodological rigor of each study. This final step was not intended to exclude studies from discussion in a scoping review, but to ascertain evidence of evaluation as per the formative research question. The studies were evaluated using the Critical Skills Appraisal Programme (Critical Skills Appraisal Programme 2013). When a specific Critical Skills Appraisal tool did not exist for a particular research design, the existing questions were adapted so that they were relevant to the research design (see supplementary online table 2). Overall, quality was generally moderate to high (n=66 out of 74) However, some studies (n=8) presented in the form of short articles appeared methodologically weak as the methodological procedures were not adequately described.

Results

This study included a total of 74 articles from developed countries that reported on how nurse practitioners provide primary health care in community settings. The majority of papers were from the United States of America (n=45), Canada (n=12) and the Netherlands (n=9). A smaller number were based in the United Kingdom (n=3), Australia (n=2), Guam (n=1), New Zealand (n=1), and Slovenia (n=1). The number of countries and geographical spread of studies in this review adds strength to the findings in that they are more likely to be generalisable to other areas.

The findings are presented firstly as a description of the work of nurse practitioners in communities followed by a discussion of the ability of nurse practitioners to enact positive change for clients, clients' families and communities.

Nurse practitioners in primary health care settings

Nurse practitioners provided care in a range of accessible settings, mostly in primary care centres (n=42), but also in community centres (n=6), outpatient departments (n=6), homes (n=5), schools (n=3), and child abuse clinics (n=1), via communication technologies (n=6), and through combined face-to-face and communication technologies (n=5). The scope of nurse practitioner work varied on a continuum from being targeted towards a specific disease process (see for example Chang, Davis et al. 2007, McCarrier, Ralston et al. 2009) or managing the patient's broad health and wellbeing needs in a holistic manner (see for example (Lynam, Loock et al. 2010, Prasad, Dunn et al. 2014). In the more targeted programs, there were very specific goals which frequently related to the management or prevention of chronic disease. Consistent with the goals of these targeted programs, nurse practitioners' interventions tended to have a relatively narrow biomedical focus where the nurse practitioner implemented a specific, structured or evidence-based protocol. Examples included diabetes management (Chang, Davis et al. 2007, McCarrier, Ralston et al. 2009, Conlon 2010, Stone, MacPherson et al. 2010, Choi and Rush 2012, Jessee and Rutledge 2012, Murfet, Allen et al. 2013) or encouraging healthy lifestyle changes (Speck, Hines-Martin et al. 2007, Goessens, Visseren et al. 2008, Perman 2008, Marion, Finnegan et al. 2009, Whittemore, Melkus et al. 2009, Whittemore, Melkus et al. 2010, Courtney, Conard et al. 2011, Stines, Perman et al. 2011, Ter Bogt, Milder et

al. 2011, Vermunt, Milder et al. 2011, Barte, ter Bogt et al. 2012, Vermunt, Milder et al. 2012, Jarl, Tolentino et al. 2014). Although these programs did not ignore factors influencing patients' psychosocial health, it was clear that the focus was around treating or preventing exacerbation of existing conditions rather than addressing determinants of health.

Some nurse practitioners were active in holistic and preventative programs with broad goals and increased scope of practice. In these programs, nurse practitioners were required to identify and manage not only client physiological health needs, but also their social and emotional wellbeing. This frequently involved coordination of client care through consultation and mediation within a multidisciplinary health care team. Examples of this work included case management of home-based palliative care patients (Deitrick, Rockwell et al. 2011), addressing the wellbeing of runaway adolescent girls (Edinburgh and Saewyc 2009) and access to health care for vulnerable children (Lynam, Loock et al. 2010, Wong, Lynam et al. 2012). In these roles nurse practitioners addressed broader social determinants of health for vulnerable populations.

Who do nurse practitioners work with?

In addition to the care populations identified, such as diabetes (Chang, Davis et al. 2007, McCarrier, Ralston et al. 2009, Conlon 2010, Stone, MacPherson et al. 2010, Vermunt, Milder et al. 2011, Choi and Rush 2012, Jessee and Rutledge 2012, Vermunt, Milder et al. 2012, Murfet, Allen et al. 2013) or the presence lifestyle risk factors for chronic disease (Speck, Hines-Martin et al. 2007, Goessens, Visseren et al. 2008, Stines, Perman et al. 2011, Ter Bogt, Milder et al. 2011, Barte, ter Bogt et al. 2012, Allen, Dennison Himmelfarb et al. 2014, Jarl, Tolentino et al. 2014), nurse practitioners worked with populations who were considered vulnerable. This included ethnic groups identified as being at risk (Marion, Finnegan et al. 2009, Choi and Rush 2012, Barrett , Salem et al. 2015, Murphy, Coke et al. 2015), individuals and groups from rural areas (Wright, Purdy et al. 2007, Jessee and Rutledge 2012, Murfet, Allen et al. 2013, Barrett , Salem et al. 2015, Kozlowski, Lusk et al. 2015, Tokuda, Lorenzo et al. 2016, Tyler and Horner 2016), areas of socio-economic disadvantage (Speck, Hines-Martin et al. 2007, Marion, Finnegan et al. 2009, Lynam, Loock et al. 2010, Stines, Perman et al. 2011, Wong, Lynam et al. 2012, Walker, Marshall et al. 2013,

Ritten, Waldrop et al. 2015, Berry, Williams et al. 2016) or frail elderly (Wajnberg, Wang et al. 2010, Prasad, Dunn et al. 2014, Ritchie, Andersen et al. 2016). In this way, nurse practitioners practiced to improve the health of hard to reach populations challenged with access and acceptability of traditional health care services.

Although the majority of the studies related to nurse practitioner care of adults in primary health care settings, eleven studies specifically investigated the work of nurse practitioners with children, young people or their families. Most of this work related to specific disease processes such as asthma (Newcomb 2006, Allcock 2009), concomitant asthma and sickle cell disease (McClain, Ivy et al. 2016), anxiety (Kozlowski, Lusk et al. 2015), or eczema (Schuttelaar, Vermeulen et al. 2009). Five programs were broader, including rehabilitative, preventive and some promotive aspects in obesity (Perman 2008, Stines, Perman et al. 2011, Tyler and Horner 2016), parental functioning (Ordway, Sadler et al. 2014), access to health care for vulnerable children (Lynam, Loock et al. 2010, Wong, Lynam et al. 2012) and wellbeing of runaway adolescent girls (Edinburgh and Saewyc 2009).

Enhanced skills

Examination of the studies identified that nurse practitioners used a broad range of skills to promote the health and wellbeing of clients in their care. These included co-ordination, collaboration, education, counselling, connecting clients with services and advocacy. Six studies described explicitly using nurse practitioners for enhanced co-ordination of care through collaboration and communication with other health care professionals (Counsell, Callahan et al. 2006, Chang, Davis et al. 2007, Deitrick, Rockwell et al. 2011, Enguidanos, Gibbs et al. 2012, Lawson, Dicks et al. 2012, Fortinsky, Delaney et al. 2014). Due to the complex and diverse needs of those for whom they care, nurse practitioners were also able to clearly identify when client needs were outside their scope of practice and referred clients to other services. Connecting people with services was important when they had multiple or complex needs that were best addressed through a multidisciplinary approach (Enguidanos, Gibbs et al. 2012, Prasad, Dunn et al. 2014). For example, the nurse practitioners in the randomised control trial intervention reported by (Enguidanos, Gibbs et al. 2012) were involved in bridging the gap between the clients' hospital discharge and their next appointment with their doctor. Nurse practitioners proactively contacted clients'

physicians to discuss potential medication issues or other needs which might otherwise have gone unnoticed or unmet (Enguidanos, Gibbs et al. 2012).

In connecting patients with other services, nurse practitioners acted as advocates for their clients and helped them navigate often complex and disjointed services (Prasad, Dunn et al. 2014). Prasad et al. (2014) reports that nurse practitioners worked as an 'interconnecting glue' who ensured care across all sectors was coordinated and consistent. The process of connecting and coordinating the care from different providers was especially important for people who might not have the capacity to navigate the health system and assertively voice their concerns (Lynam, Loock et al. 2010, Deitrick, Rockwell et al. 2011, Wong, Lynam et al. 2012, Hanrahan, Solomon et al. 2014, Prasad, Dunn et al. 2014). In these cases, nurse practitioners were able to advocate for their clients to ensure timely information sharing and implementation of a consistent and coherent treatment plan (Prasad, Dunn et al. 2014). For example, nurse practitioners were able to coordinate comprehensive primary health care for individuals with severe psychiatric disabilities who otherwise may not access health services (Rogers, Maru et al. 2016).

Evidence that Nurse Practitioner interventions improve health outcomes

Despite the limited quality of some studies, there is evidence that nurse practitioner interventions resulted in positive outcomes for individuals and groups. The measures used to evaluate outcomes varied widely from physiological data (n=25), hospital admissions (n=10) use of health services (n=15) self-reported health (n=13), behavioural change (n=14), patient satisfaction (n=17) cost savings (n=3) and mortality/morbidity (n=5). These are presented below categorised in relation to benefit.

Individual benefits

Due to the broad scope of nurse practitioner roles included in this review, individual patient outcomes were measured in many ways. These included biometric and biochemical data to measure response to treatment, as well as self-reports of symptom improvement and health related quality of life. For example, individuals with diabetes generally experienced reduced HbA1cs (Chang, Davis et al. 2007, Stone, MacPherson et al. 2010, Choi and Rush 2012, Jessee and Rutledge 2012) while other individuals

reported an improvement in symptoms specific to their disease process (Philp, Lucock et al. 2006, Wright, Purdy et al. 2007, Owens, Eby et al. 2012, Sawatzky, Christie et al. 2013, Voorn, Vermeulen et al. 2013, Housholder-Hughes, Ranella et al. 2015, Kozlowski, Lusk et al. 2015, Teunissen, Stegeman et al. 2015). In some studies caregivers also benefitted from the nurse practitioner intervention, such as caregivers of patients with dementia who reported a reduced caregiver burden (Ament, Wolfs et al. 2015).

Although the majority of studies reported positive changes as a result of the nurse practitioner intervention, there were some examples of interventions that lead to few statistically significant impacts (Speck, Hines-Martin et al. 2007, Perman 2008, Stines, Perman et al. 2011, Ter Bogt, Milder et al. 2011, Fortinsky, Delaney et al. 2014). The reasons given for lack of positive results were suggested to be related to broader social issues, such as the difficulty changing lifestyle for obesity (Speck, Hines-Martin et al. 2007) and the severity of social problems (Hanrahan, Solomon et al. 2014). Hanrahan, Solomon et al. (2014) suggested that nurse practitioners may be able to enact change when they were working as part of a multidisciplinary team especially when providing care to clients with multiple comorbidities and complex social issues.

Community benefits

The most obvious community benefit was increased access to care. In some cases, the nurse practitioner provided a service that individuals would otherwise have difficulty accessing for reasons including affordability, geographical isolation or extended waiting times (Sarro, Rampersaud et al. 2010, Kozlowski, Lusk et al. 2015, Lucatorto, Watts et al. 2016, Tokuda, Lorenzo et al. 2016). Nurse practitioners also increased the quality of care as measured by adherence to relevant best practice recommendations (Conlon 2010, Lawson, Dicks et al. 2012, Reuben, Ganz et al. 2013). For example, Conlon (2010) compared nurse practitioner diabetes care to that of physicians, finding that nurse practitioners were much more likely to indicate that they had provided nutritional education to clients (73.3% versus 6.7%). In this way, communities can benefit not only from increased access to care, but also by improved quality of health care.

Societal benefits

The main societal benefit that resulted from the nurse practitioners' work related to cost savings. Estimated cost savings were explicitly reported in three studies (Williams, Assassa et al. 2005, Allcock 2009, Allen, Dennison Himmelfarb et al. 2014) where other studies reported decreased use of services which would ultimately result in cost savings for the health care system. Examples of this include decreased use of emergency departments (Newcomb 2006, Owens, Eby et al. 2012, Murphy, Siebert et al. 2013, Roots and MacDonald 2014), reduced hospital admissions (Newcomb 2006, Allcock 2009, Godleski, Cervone et al. 2012, Lowery, Hopp et al. 2012, Murphy, Siebert et al. 2013, Roots and MacDonald 2014), decreased length of stays (Godleski, Cervone et al. 2012) and reduced visits to a general practitioner (Newcomb 2006, Allcock 2009, Enguidanos, Gibbs et al. 2012, Murfet, Allen et al. 2013, Prasad, Dunn et al. 2014). Although the majority of studies reporting on use of services found promising results, two studies reported statistically insignificant results related to changes in the use of hospital and general practitioner services (Tung, Kaufmann et al. 2012, Sawatzky, Christie et al. 2013). Severity of patient comorbidities was attributed to the statistically insignificant reduction in service use (Tung, Kaufmann et al. 2012, Sawatzky, Christie et al. 2013).

Discussion

The work of nurse practitioners in community settings appeared to be underpinned by the foundational philosophy of primary health care. That is, they all 'provided essential health care based on practical, scientifically sound and socially acceptable methods and technology' (World Health Organisation 1978). How this was enacted did not always address the principles of equity, social justice and empowerment laid out in the Declaration of Alma Ata (1978). These principles are as important today as they were in 1978, being reaffirmed in 2011 by the World Health Organisation (2011) call for global action using a social determinant of health approach to reduce health inequities, and most recently in the 2030 Agenda for Sustainable Development (United Nations 2015).

This review found that the majority of nurse practitioners working in community settings did so within a selective model of primary health care with a few examples of nurse practitioners contributing to comprehensive primary health care. In a selective

or primary care model, the focus is predominantly on treating illness and preventing exacerbation of existing conditions (Labonte, Sanders et al. 2008). In these roles the nurse practitioners predominantly worked with populations identified by their illness, such as diabetes and asthma and worked with structured protocols for curative and rehabilitative care. The primary care work related to children included managing asthma, eczema, concomitant asthma and sickle cell disease, anxiety and obesity.

Where nurse practitioner roles focused on the delivery of biomedical care they perpetuated a model that operated to ensure that control over health is maintained by health professionals rather than one that empowers individuals and supports them to take control of their own health (Baum 2008). Supporting empowerment and health equity require implementation of a comprehensive primary healthcare approach. Recommended by the Commission on Social determinants of Health (2008) a comprehensive primary health care approach prioritises addressing the determinants of health.

The review identified a number of nurse practitioner led programs that attended to the social determinants of health through care that combine promotive, preventative and rehabilitative activities. Those specifically related to children include for example, the Social Paediatrics Initiative in Vancouver (Lynam et al 2010; Wong et al 2012) that offered services to children and their families experiencing vulnerabilities due to poor social and material resources. Respondents were cited as being disproportionately poor, with education lower education than the provincial average and many having children with developmental delay or a chronic health condition (Wong et al 2012). As an inter-sectoral and interdisciplinary community outreach program it resulted in improved service access and increased parental empowerment. The nurse practitioner led intervention for teenage girls in Minnesota (Edinburgh and Saewyc 2009) resulted in lower pregnancy rates, decreased Sexually Transmitted Infections, number of sexual partners, self-harm and substance abuse. Whilst the activities in these programs remained at individual and community levels, the outcomes included, salutogenic characteristics of empowerment for social change. This is of particular importance for the health of women and girls where an explicit aim of the Sustainable Development Goals is to ‘realize the human rights of all and achieve gender equality and the empowerment for all women and girls’ (United Nations 2015).

The enhanced skills displayed by the nurse practitioners included coordination, collaboration, education, counselling, connecting and advocacy. These skills enable nurse practitioners to support clients to enact change in managing known conditions during curative and rehabilitative nursing care. More definitively, these skills mark the difference between nurse practitioners and medical officers, who traditionally practice in a more discrete biomedical model. Additionally, where it is argued that the nurse practitioner role was developed in response to a shortage of General Practitioners (Bonsall and Cheater 2008) this review identified that the scope for nurse practitioners is unique in comprehensive primary health care, and not a replacement role for society's most vulnerable peoples.

Article 23 of the Sustainable Development Goals (WHO 2015 p. 7) States that

> 'People who are vulnerable must be empowered. Those whose needs are reflected in the Agenda include all children, youth, persons with disabilities (of whom more than 80 per cent live in poverty), people living with HIV/AIDS, older persons, indigenous peoples, refugees and internally displaced persons and migrants'.

This review identified that nurse practitioner have the capacity to work with, and empower people rendered vulnerable due to ethnicity, Aboriginal identity, socioeconomic disadvantage, remote location, gender and aging. It also identified that positive individual and community health outcomes resulted from this work. For policy makers and service providers, evidence of cost savings through the use of nurse practitioner is notable. The review found both direct and indirect cost savings through the use of nurse practitioner in primary care roles. Baum (2013) argues that a more economically sustainable health care service with reduced hospital costs is urgently needed and that improvement in overall community health can deliver this. This review found that there is evidence that nurse practitioners can enhance service delivery models that bridge the gap between tertiary and community health care in cost-effective ways.

In 1982, Berman argued that despite the World Health Organisation call for a social determinants approach to health policy, leaders in developed nations chose a selective

rather than comprehensive model of primary health care as it appeared efficient and sufficient (Berman 1982). Lawless et al. (2014) argue that implementation of comprehensive primary health care remains difficult with primary health care being enacted on 'a continuum from primary medical care to selective PHC to partial implementation of CPHC'. As the 2030 Agenda for Sustainable Development Goals are considered for implementation in an environment of globalised market driven health care systems (Labonte, Sanders et al. 2008) it is more important than ever for policy makers and public service providers to revisit the various merits of these approaches. This review identified that nurse practitioners working in both selective and comprehensive models of primary health care can improve the health and care of vulnerable peoples.

Limitations

The review was limited by the broad range of methodological approaches that made comparison and synthesis difficult. Evidence was also limited by small sample size. One common weakness of many quantitative studies was small or non-representative samples that were limited to one geographical region. As such, they may not be generalizable to the work of nurse practitioners in other areas. The qualitative studies frequently did not adequately outline their data analysis methods or consider the relationship between the researcher and the researched.

Conclusion

This review described how nurse practitioners work in primary health care settings in developed countries and presented evidence on how their work contributed to health improvement. It found that nurse practitioners worked in a broad range of community settings providing care that can be targeted towards specific population groups or disease processes as well as implementing programs that more broadly address the social determinants of health. The findings generally support the efficacy of nurse practitioner programs, although there are some exceptions that relate to the complexity of clients' social problems and medical co-morbidities. These cases were argued to be improved by nurse practitioners working within multidisciplinary teams. Further research is warranted to explore the role of the nurse practitioner in comprehensive primary health care teams, including roles that combine curative

protocol based interventions with rehabilitative and preventative roles that specifically address the social determinants of health.

What is known about the topic?

-Nurse practitioners are advanced practice nurses who work autonomously and collaboratively in a range of practice settings

-The role has typically been implemented to substitute medical primary care work or to enhance the work of medical professionals

What this paper adds?

-Nurse practitioners' work in community settings results in individual, community and societal benefits for people rendered vulnerable due to ethnicity, Aboriginal identity, socioeconomic disadvantage, remote location, gender and aging.

- Nurse practitioners' work in communities resulted in cost savings, increased access to care and salutogenic benefits of empowerment for change

- Nurse practitioner enhanced skills of coordination, collaboration, education, counselling, connecting and advocacy enabled curative, and rehabilitative and promotive nursing care in community settings.

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