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Nurse-led interventions to manage hypertension in general practice: A systematic review protocol

Abstract

Aim: This systematic review seeks to synthesise randomised controlled trials reporting the impact of interventions delivered by nurses in primary care to enhance blood pressure control and minimise lifestyle risk factors in hypertensive patients. **Background:** Given the growing demand for chronic care management, there has been a rapid increase in the primary care nursing workforce and emerging diversity in their roles. The primary care nurse's role has evolved to work in collaboration with general practitioners to manage patients with chronic conditions like hypertension. Despite the nurse's role in lifestyle modification and behaviour change, there is limited evidence exploring the impact of primary care nurse-initiated interventions for lifestyle modification in those with hypertension. **Design/methods:** A systematic review of randomised controlled trials will be conducted. Electronic databases will be searched from January 2000 to January 2019, using a structured search strategy. Two reviewers will review title and abstract, screen full-text papers and extract data. The Meta-Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI) will be used to appraise study quality. Data will be synthesised using either meta-analysis or narrative synthesis depending on the heterogeneity of included studies. **Discussion:** This review will assist in understanding the evidence available on the impact of general practice nurse interventions to manage hypertension. The findings will assist in informing effective nurse-directed interventions for controlling hypertension and will identify gaps in the literature for future research to address.

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Nurse-led interventions to manage hypertension in general practice: A systematic review protocol

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Conflict of interest

The authors declare no conflict of interest.

Funding statement

This research has received no specific funding from any agency.

Abstract

Aim: This systematic review seeks to synthesise randomised controlled trials reporting the impact of interventions delivered by nurses in primary care to enhance blood pressure control and minimise lifestyle risk factors in hypertensive patients.

Background: Given the growing demand for chronic care management, there has been a constant increase in the primary care nursing workforce and emerging diversity in their roles. The primary care nurse's role has evolved to work in collaboration with general practitioners to manage patients with chronic conditions like hypertension. Despite the nurse's role in lifestyle modifications, there is limited evidence exploring the impact of primary care nurse-initiated interventions for lifestyle modification in those with hypertension.

Design/Methods: A systematic review of randomised controlled trials will be conducted. Electronic databases will be searched from January 2000 to January 2019, using a structured search strategy. Two reviewers will review title and abstract, screen full-text papers and extract data. The Meta-Analysis of Statistics Assessment and Review Instrument (JBI-MASARI) will be used to evaluate study quality. Data will be synthesised using either meta-analysis or narrative synthesis depending on the heterogeneity of included studies.

Discussion: This review will assist in understanding the evidence available on the impact of general practice nurse interventions to manage hypertension. The findings will assist in informing effective nurse-directed interventions for controlling hypertension and will identify gaps in the literature for future research to address.

Summary of relevance

Issue or problem

This review seeks to critically synthesise published randomised controlled trials which measure the impact of primary care nurse-directed interventions for blood pressure control and lifestyle risk factor reduction in hypertensive patients.

What is already known

To date there has been limited synthesis of the literature around nurse-directed interventions to support lifestyle risk factor modification and hypertension management in primary care.

What this paper adds

To identify the extent of the evidence base around primary care nurse-directed interventions for blood pressure control and lifestyle risk factor reduction in hypertensive patients.

To identify key features of successful nurse-directed interventions for blood pressure control and lifestyle risk factor reduction in hypertensive patients in primary care.

1. Introduction

Internationally, an exponential growth in chronic health conditions have placed significant pressure on the primary health care workforce (Beaglehole et al., 2011). To meet the growing burden of health, the primary care nursing workforce has experienced significant growth internationally across several countries including Canada, United Kingdom, New Zealand, and Australia (Halcomb et al., 2016). The rapid development of primary care nursing has diversified the role of general practice nurses who are increasingly considered to be integral partners in the coordinated care team and have the scope to manage chronic health conditions and deliver interventions (Desborough et al., 2015; Nelson et al., 2009; Oelke et al., 2014).

General practice nurses are equipped with a broad spectrum of skills in clinical care delivery, health education, health promotion, care coordination and data management (Furler et al., 2014; Halcomb et al., 2014; Phillips et al., 2009). Primary care patients perceive the nurse's role to form an accepted and integral part of care delivery within the general practice team (Halcomb et al., 2015; Halcomb et al., 2013; Mahomed et al., 2012; Voogdt-Pruis et al., 2010). While research indicates the vital role of primary care nurses in chronic disease management, it is imperative that they are supported to perform to the top of their scope of practice (Halcomb et al., 2014; McInnes et al., 2015; Merrick et al., 2014). A systematic review is proposed to synthesise evidence of the impact of general practice

nurse-directed interventions to support management of hypertension as a guide for evidence-based practice in this area.

2. Background

Hypertension is a global public health crisis causing 9.4 million deaths annually (World Health Organization, 2013). It is a chronic condition that leads to more premature deaths and chronic diseases than any other biomedical risk factor (National Heart Foundation of Australia, 2008). Approximately, one quarter of the Australian population are currently classified as hypertensive, with their blood pressure measuring more than 140/90mmHg (National Heart Foundation of Australia, 2016). Lifestyle factors like smoking, high alcohol intake, low physical activity and inadequate nutrition are each associated with hypertension (Australian Institute of Health and Welfare, 2014; Ezzati et al., 2013). People with hypertension have a greater tendency to have concurrent lifestyle risk factors which further leads to poor blood pressure control (Morris et al., 2016).

Although evidence-based hypertension management guidelines (National Heart Foundation of Australia, 2008) are available for general practices to inform care pathways, blood pressure control is sub-optimal in primary care (Beilby et al., 2007; Kotchen, 2010; Krum et al., 2001). Poor hypertension management is linked to poor practice adherence to clinical guidelines (Khatib et al., 2014) and improper prescribing of anti-hypertensive medications, particularly in the elderly and newly diagnosed (Gallego et al., 2013; Krum et al., 2001). Practitioner behaviour/attitudes (Armario et al., 2013; Howes et al., 2010) and patient factors, such as non-adherence and poor self-management are also associated with poor hypertensive management in primary care (Gascón et al., 2004; Khatib et al., 2014; Kotchen, 2010). Improving blood pressure control among this high risk group will improve health outcomes and reduce costs associated with poor blood pressure control (National Heart Foundation of Australia, 2016; National Vascular Disease Prevention Alliance, 2012).

Evidence-based guidelines suggest that a combination of behavioural/lifestyle modification strategies and pharmacological treatment is most likely to improve blood pressure control among primary care patients (National Heart Foundation of Australia, 2008). Models of primary care which supports reduction of lifestyle risk factors delivered by a competent and skilled healthcare workforce are vital in improving the management of hypertension in the community (Howes et al., 2010; Kotchen, 2010; Nichols et al., 2014). There is growing recognition that primary care nurses play an important role in this kind of work (Halcomb et

al., 2007; Halcomb et al., 2017). A systematic review of nurse interventions for cardiovascular risk reduction in primary care demonstrated that although results were inconsistent across included studies, most studies reported some reduction in blood pressure, and improvements in diet quality, cholesterol level and physical activity (Halcomb et al., 2007). However, the heterogeneity among study participants and intervention components made it difficult to draw firm conclusions. Considering this gap in the literature, the importance of inadequate blood pressure control and its close association with poor health outcomes, it is timely to understand the evidence around nurse-directed interventions that addressed lifestyle risk factors in hypertensive primary care patients.

3. The Study/Review

3.1 Aims

This systematic review aims to critically review the international evidence on the impact of interventions delivered by the primary care nurse to enhance blood pressure control and decrease lifestyle risk factors in patients with hypertension.

A Prospero search was carried out on 09/05/2019 to identify any protocols that sought to review international evidence on the topic area. No similar review was found to be in preparation. The search terms 'nursing intervention' or 'nurse-led intervention' retrieved irrelevant results. 'Nurse-led intervention and hypertension' yielded no results whereas 'nursing intervention and hypertension' retrieved two results which were irrelevant. This protocol was, therefore, lodged with Prospero for registration.

This protocol is prepared following the Preferred Reporting Items For Systematic Review and Meta-Analysis Protocols 2015 Statement (PRISMA_P) (Shamseer et al., 2015) (Appendix 1 in Supplementary Material).

4. Questions

This systematic review aims to locate and critically synthesise available evidence around interventions delivered in primary care by a general practice nurses to support lifestyle risk factor reduction amongst patients with hypertension. Therefore the following questions will be explored:

- What nurse-directed interventions to support lifestyle risk factor reduction amongst patients with hypertension in general practice have been trialled and reported using a randomised controlled trial method?
- How effective were the interventions reported in reducing blood pressure and lifestyle risk factors?
- Were there common features of successful interventions?

These questions will inform the data analysis within the review.

5. Design/Methodology

The standards outlined in the Joanna Briggs Institute Reviewers' Manual: 2014 edition will inform the conduct of the review (Joanna Briggs Institute, 2014).

5.1 Information Sources

The Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline and Scopus databases will be searched for eligible publications published from January 2000 to January 2019. This time period has been selected due to changes in hypertension definitions, screening, and management that make older literature difficult to interpret and compare. The reference lists of relevant papers retrieved in this search will be checked for additional literature.

5.2 Eligibility Criteria

Studies will be included in this review if they are:

- published in the peer-reviewed literature in English language
- reporting a randomised controlled trial
- reporting an intervention delivered in primary care by general practice nurses for patients with hypertension
- study outcomes involve improving cardiovascular health status and controlling lifestyle risk factors (i.e. blood pressure, smoking status, cholesterol, body weight)

Studies are to be excluded if they are:

- published in the grey literature
- reporting interventions delivered by nurse practitioners or specialist cardiac nurses
- not randomised trials

5.3 Search Strategy

A systematic search strategy has been planned to identify eligible publications. The search strategy will apply the following keywords, employing Boolean operator OR and AND where necessary: 'general practice' OR 'primary care' OR 'community' OR 'family practice'; 'smoking cessation' OR 'cholesterol' OR 'diet', 'exercise' OR 'alcohol' OR 'physical activity' OR 'blood pressure'; 'nursing intervention' OR nurs* OR office nurs*; and, clinical trial OR comparative study OR randomised controlled trial OR evaluation research OR prospective study OR random*. The full search strategy is provided in Appendix 2 (in the Supplementary Material).

5.4 Resource Management

Abstracts of all retrieved papers will be imported into Endnote Version X8.2 and all duplicates removed. Endnote will then be used to screen papers for inclusion and retrieve full text PDFs where required for screening of full-text.

6. Identification of data

It is anticipated that the literature uses several different phrases to refer to the kinds of nurse-directed interventions that we are seeking for this review. This will be considered during the processes of screening and identifying and extracting data. If a paper is found to test an appropriate nurse-directed intervention, even though different terminology is used, we will include this literature and clearly document this to facilitate future replication of the review.

7. Screening

7.1 Title and abstract

CS and SC will independently screen the titles / abstracts of all retrieved publications against the inclusion criteria for this systematic review. If there is an uncertainty, the full paper will be retrieved and evaluated against the inclusion criteria. Any conflict in determining the inclusion of a study will be resolved by discussion between SC and CS, or by SM or EH.

7.2 Full-text

SC and CS will evaluate the full-texts of papers separately against the inclusion criteria. Any conflict in determining the inclusion of a study will be resolved by discussion between SC and CS, or by SM or EH.

8. Data-Extraction and analysis

8.1 Quality control

The Meta-Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI) critical appraisal tool for randomised controlled trials will be used to extract data and critically appraise study quality (Joanna Briggs Institute, 2014)(Appendix 3 Supplementary Material). Based on the outcomes of this appraisal a decision will be made about excluding papers that are of very poor methodological quality. Where there is significant variation in study quality this will be considered in the presentation of results.

8.2 Data extraction

As this systematic review will only include randomised controlled trials the data is likely to be quantitative. Data items are reasonably predictable and are expected to include; sample size and description, intervention description and duration, follow-up intervals, outcomes measures, and findings. These items will be extracted into a summary table to facilitate analysis.

8.3 Presenting and Reporting the Results

The review results will be presented as described by the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines (Appendix 1 Supplementary Material). A complete PRISMA flow diagram will be produced and a table for all included studies will be provided in the final review.

8.4 Data analysis

It would be optimal to undertake a meta-analysis to synthesise the data across included studies. However, given the findings of previous similar reviews (Halcomb et al., 2007; Halcomb et al., 2019), we anticipate heterogeneity among the included studies. The first stage of analysis will involve testing for homogeneity to ascertain if meta-analysis is possible. If the included studies are heterogeneous, we will employ a narrative synthesis approach to guide the analysis.

8.5 Ethical considerations

Should any misconduct be revealed in the research that we review, for example publication of the same study in several journals, we will report this to the journal editors involved or the relevant university. Should it become apparent that any potentially included studies have been retracted these will be excluded from the review.

8.6 Validity and reliability/rigour

This review will be undertaken following standard guidelines for conducting a systematic review (Joanna Briggs Institute, 2014).

9. Discussion

This systematic review will assist in better understanding the evidence available on the impact of interventions delivered by general practice nurses to manage hypertension and reduce lifestyle risk factors. The findings from this review will further facilitate the improvement in the development and designing of an effective intervention strategy of a nurse-led intervention for controlling hypertension in general practices. Furthermore, we anticipate to that the review will identify gaps in the current literature. We will relay this information to inform future research and policy development for wider understanding of the impact of primary care nurse interventions and their implementation in practice.

8.1 Limitations

This review will focus only on randomised controlled trials given their place as the gold standard of evidence. While resource constraints precluded translation, this raises the issue of potential language bias by drawing on only English publications. The risk of bias in included papers is minimised by providing a transparent search strategy and evaluation of paper quality using a robust quality appraisal tool. Despite our best efforts to gather all studies meeting the inclusion criteria, it is possible that not all relevant data will be retrieved. Also publication bias is likely to mean that papers with positive findings are more likely to be published than the outcomes of studies with less positive outcomes. Finally, any bias in our interpretation of the data will be mitigated through the multiple perspectives of team members participating in the review process.

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