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Barriers and facilitators in nurse prescribing practices: a protocol for qualitative meta-synthesis from nurses' perspectives

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ABSTRACT

Introduction With the development of the medical system and the diversification of patient needs, nurse practitioners (NPs) play an increasingly important role in medical practice, assuming more responsibilities and powers, including the right to prescribe. However, in the process of exercising the right to prescribe, NPs may face various obstacles, and there are also some promoting factors. Therefore, this study aims to deeply explore the obstacles and promoting factors in the prescription process of NPs through a qualitative meta-analysis and comprehensive method, so as to provide a basis for improving the prescription practice of NPs, improving nursing quality and patient satisfaction.

Methods and analysis This study will adhere to the Joanna Briggs Institute framework and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols. A comprehensive literature search and analysis of studies on nurse are prescribed via PubMed, Embase, Web of Science, CINAHL and the Cochrane Library. Two independent reviewers will select articles, extract data and appraise study quality. Content analysis will be used to synthesise outcomes, and methodological quality and evidence quality will be assessed. The quality of the articles will be assessed using the 10-item Joanna Briggs Institute Critical Appraisal Checklist for Qualitative Research.

Ethics and dissemination Ethical approval will not be required for this study, as it solely encompasses data derived from previously published research. The findings will be disseminated through publication in a peer-reviewed journal. In addition, the results will be actively shared at major academic conferences focused on nursing research and healthcare policy to ensure that the study's outcomes reach key stakeholders, including healthcare practitioners, policymakers and researchers. This targeted dissemination strategy aims to promote the integration of the findings into practice and future research. This protocol is registered with the PROSPERO prospective database of systematic review.

PROSPERO registration number CRD42023398567.

STRENGTH AND LIMITATIONS OF THIS STUDY

⇒ This study will employ a qualitative meta-synthesis approach to integrate findings from multiple studies, aiming to provide a comprehensive view of the barriers and facilitators in nurse practitioner (NP) prescribing practices.
⇒ In addition to identifying key factors, this study will explore how these barriers and facilitators are expected to influence NPs' prescribing behaviour and will aim to highlight strategies to enhance their prescribing skills.
⇒ The findings are anticipated to offer actionable recommendations for policymakers and educators to optimise NP training and practice environments, potentially improving prescribing practices.
⇒ The study's reliance on existing literature rather than primary data may limit the ability to capture nuanced insights that could be obtained through direct data collection.
⇒ Variations in geographic, cultural and healthcare system contexts among the included studies may limit the generalisability of the findings to regions and contexts not represented.

INTRODUCTION

As the population ages and living standards improve, there is a significant increase in demand for healthcare services, while global healthcare resources remain severely limited. In response to this challenge, countries worldwide have expanded the scope of nursing practice since the 1960s by authorising nurses to prescribe medication across various categories. This move primarily addresses the shortage of medical resources and inadequate medical service coverage by doctors.[1]

The prescription refers to the process of ordering or authorising a medication or treatment plan for a patient by a qualified healthcare professional, and the definition of nurse prescribing refers to the ability of nurse practitioners (NPs) to prescribe medications, order diagnostic tests and initiate treatments under their authority or in collaboration with a physician.[2 3] Another definition describes an NP as a registered nurse who is educated and authorised to practice both autonomously

and collaboratively in an advanced, expanded clinical role.[4]

Numerous studies have confirmed the advantages of nurse prescribing. According to a report by the WHO in 2016, nurse prescribing has been shown to improve patient outcomes, increase access to healthcare services and reduce healthcare costs.[5] Courtwright's research indicates that health policies granting Pediatric Nurse Practitioners prescriptive privileges are associated with shorter hospital stays, reduced costs, comparable care quality to that provided by physicians and an increased emphasis on health promotion, particularly for medically underserved children.[6] NPs are often involved in chronic care delivery due to their unique nursing training and education, which integrates knowledge and skills related to patients, families and communities. This holistic approach enables NPs to address the diverse needs of individuals with chronic illnesses.[7] In many studies, nurse prescribing has been found to have the potential to alleviate the workload of doctors, improve access to treatment and enhance the quality of care while also optimising the use of medical resources. It also offers greater autonomy to nurses, reduces reliance on other healthcare professionals, and has been associated with high levels of patient satisfaction. Furthermore, it may contribute to greater efficiency in patient care and support a broader enhancement of healthcare services. Differences in training, governance and scope of practice, however, may influence how nurse prescribing is implemented in different contexts, depending on specific goals, caseloads, staffing profiles and resources.[8–12] Ultimately, this can benefit the healthcare industry as a whole. Nurse prescribing implementation can better meet the personalised needs of patients, empower nurses to use their professional skills and clinical experience more effectively, and improve the specificity and effectiveness of medical services.[13] It can also enable nurses to offer patients additional guidance and advice on health management and disease prevention, fostering patients' health management and self-care abilities, leading to lower healthcare costs and reduced waste of medical resources.[14] Additionally, nurse prescribing can effectively alleviate the inconvenience and burden that patients may experience due to difficulties, high costs or long wait times for medical care.[15] This can enhance patient access and improve the overall quality of medical services.

However, the practice of nurse prescribing also faces some controversy and challenges. Concerns exist about whether nurses have sufficient professional competence and knowledge to prescribe medication and whether nurse prescribing could increase the risks of drug abuse, such as the abuse of prescribing authority or the production of counterfeit drugs.[16] Safety issues associated with nurse prescribing include prescription errors, allergic reactions or adverse drug reactions.[17] Moreover, the education level and professional quality of nurses vary widely. Research has shown that their professional quality and career development level are closely related to their education level and work experience. Therefore, strict management and supervision are necessary to ensure that nurse prescribing is practiced within a safe and effective scope.[18]

The concept of nurse prescribing has been implemented in various countries worldwide, including the UK, Australia, the USA and Canada.[19–21] In the UK, nurse prescribing has been implemented since 1992 and has proven highly effective in improving patient outcomes; many believe that nurse prescribing in the UK improves access to medications for patients by increasing the availability of healthcare providers who can prescribe and represents a more efficient use of skills through utilising the existing expertise within the nursing workforce.[22] Similarly, Australia adopted nurse prescribing in 2010, making it a valuable addition to the healthcare workforce; specifically, nurse prescribing in cancer and palliative care has been shown to support nurses' ability to provide care in community settings and has the reciprocal benefit of instilling patient confidence in the care they receive.[23 24] In the USA, advanced practice nurses have had prescriptive authority since 1990; NPs provide a wide range of healthcare services including assessment, diagnosis, management of health problems, prescribing medication and treatment, health education and health promotion, as well as counselling individuals and families.[25] Despite the potential benefits, there is limited research and policy development on nurse prescribing in developing countries such as China and India, as well as in regions with limited healthcare resources. While scholars have examined nurse prescribing rights, there remains a lack of evidence from the nurses perspectives, especially in these global contexts.[26 27]

This study aims to integrate existing qualitative research to clarify the challenges and enabling factors in implementing nurse prescribing, providing valuable insights for policy-making and enhancing clinical practices globally. By examining diverse healthcare settings, this research seeks to offer practical guidance that can inform policies and support the effective implementation of nurse prescribing rights in both developed and developing countries.

Study aims

The aim of this study is to conduct a qualitative meta-synthesis to identify and synthesise the barriers and facilitators affecting registered nurse-led prescribing practices across different healthcare settings. Specifically, this review seeks to address the following research questions:

1. *What are the main barriers that registered nurses encounter when engaging in prescribing practices?*
2. *What factors facilitate the ability of registered nurses to effectively carry out prescribing roles?*

By addressing these questions, the study aims to provide a comprehensive understanding of the factors that influence nurse-led prescribing, thereby informing the development of supportive policies, training programmes

and clinical guidelines to enhance prescribing practices among registered nurses.

METHOD

Registration

To enhance the transparency and completeness of the reporting, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P) guidelines have been followed.[28–30] In line with these guidelines, the brief version of the protocol has been registered on the International Prospective Register of Systematic Reviews (PROSPERO) (Registration number: CRD42023398567). This meta-synthesis will also follow the PRISMA guidelines.

Design

This is a protocol for a qualitative meta-synthesis.

Eligibility criteria

Inclusion criteria

We will include the following:

- Peer-reviewed studies that are in the English language due to limited financial resources for translation.
- Qualitative studies or mixed method studies containing qualitative research components, such as phenomenology, grounded theory, action research, ethnography and other qualitative research designs.
- Studies published between the establishment of the database and 31 December 31, 2024.
- Studies that focus on NPs who work in hospitals or communities and have the authority to prescribe medication.
- Studies that aim to explore and understand NPs' experiences, perceptions, and attitudes related to medication prescription.

Exclusion criteria

- Qualitative studies published in non-peer-reviewed venues or grey literature, such as conference abstracts, government reports and unpublished theses, will be excluded to maintain the methodological integrity of the synthesis.
- Quantitative studies (those focusing solely on statistical data without qualitative analysis) will be excluded.
- Secondary research, including systematic reviews, meta-analyses and any other forms of aggregated studies will be excluded to focus on primary qualitative research.
- Articles with incomplete data or those that do not provide adequate information to assess the barriers and facilitators in nurse-led prescribing practices will be excluded.

Type of phenomena of interest

The synthesis will encompass studies that concentrate on descriptions and interpretations of NPs' experiences with prescribing authority, as reported by the NPs themselves.

Type of outcomes studied

This encompasses examining their emotions and personal experiences with the subject matter.

Search strategy

The Joanna Briggs Institute (JBI) three-step search strategy will be used for the literature search. For step 1, a preliminary search of the PubMed database will be performed on June 2024, analysing the titles, abstracts and subject terms in the articles. For step 2, a comprehensive search will be undertaken across all included databases using keywords and index terms; the databases will include PubMed (Medline), CINAHL, Embase, Web of Science and Cochrane Library. For step 3, all reference lists of the included literature published before 31 December 2024 will be searched to complement other relevant literature. Search strategies will be formulated in consultation with a literature search expert to ensure the correctness of the relevant studies included. The scoping stage serves to familiarise oneself with existing literature, refine search parameters, identify MeSH terms and keywords, and test the preliminary search strategy (table 1). Please refer to the attached document for detailed retrieval procedures (see online supplemental appendices 1; 2).

The search results from each database will be imported into EndNote, and duplicate documents will be removed. To establish an unbiased and consistent data collection strategy, 10% of studies will be independently screened by three members of the review team based on title and abstract. Following this, two members of the team will screen all studies based on title and abstract (see online supplemental appendix 3). Any studies that meet the inclusion criteria will undergo full-text screening by the same two members of the team.

To further enhance the search strategy, we will adopt a second approach. This involves manually reviewing the reference lists of the included articles to identify any additional relevant studies that might have been missed during the initial screening. Additionally, we will manually review any relevant literature reviews, regardless of their design, that were retrieved during the initial screening phase. This will help us identify primary studies that might meet our inclusion criteria and provide a more comprehensive overview of the existing literature.

In cases where there are disagreements between reviewers during the abstract or full-text screening phase, these will be resolved through discussion until a consensus is reached (see online supplemental appendix 4). If necessary, a third reviewer will be consulted to help resolve any discrepancies. This approach, known as investigator triangulation, aims to reduce biased decisions and ensure that decisions are made collaboratively.

Before progressing to the next stage of the review, all reviewers will inspect the final list of included studies to ensure that it is accurate and complete. This step is essential to minimise the risk of errors and ensure that all relevant studies have been identified and included in the review.

Table 1 Search strategy example (PubMed)

Search step	Search query
#1	'Nurses'(MeSH]
#2	((((((((((Nurse(Title/Abstract)) OR (Nursing Personnel(Title/Abstract))) OR (Personnel, Nursing(Title/Abstract))) OR (Registered Nurses(Title/Abstract))) OR (Nurse, Registered(Title/Abstract))) OR (Nurses, Registered(Title/Abstract))) OR (Registered Nurse(Title/Abstract))) OR (nurse prescribers(Title/Abstract)))) OR (advanced practice nurse(Title/Abstract))) OR (advanced registered nurse(Title/Abstract))) OR (nurse practitioner(Title/Abstract))
#3	#1 OR #2
#4	'Prescriptions'(Mesh]
#5	((((((((((Prescription(Title/Abstract)) OR (Prescriptions, Non-Drug(Title/Abstract))) OR (Non-Drug Prescription(Title/Abstract))) OR (Non-Drug Prescriptions(Title/Abstract))) OR (Prescription, Non-Drug(Title/Abstract))) OR (Prescriptions, Non Drug(Title/Abstract))) OR (Prescriptions, Nondrug(Title/Abstract))) OR (Nondrug Prescription(Title/Abstract))) OR (Nondrug Prescriptions(Title/Abstract))) OR (Prescription, Nondrug(Title/Abstract))) OR (non- medical prescribing(Title/Abstract))
#6	#4 OR #5
#7	((((((((((((((((qualitative research(Title/Abstract)) OR (qualitative study(Title/Abstract))) OR (focus group(Title/Abstract))) OR (interview(Title/Abstract))) OR (semi-structured interview(Title/Abstract))) OR (unstructured interview(Title/Abstract))) OR (narration(Title/Abstract)OR narrative(Title/Abstract)OR hermeneutic(Title/Abstract))) OR (phenomenolog(Title/Abstract))) OR (phenomenological research(Title/Abstract))) OR (ethnographic research(Title/Abstract))) OR (thematic analys(Title/Abstract))) OR (content analys(Title/Abstract))) OR (grounded theory(Title/Abstract))) OR (experience(Title/Abstract))) OR (facilitator(Title/Abstract))) OR (barrier(Title/Abstract)))
#8	#3 AND #6 AND #7

Selection of studies

All search results will be combined and imported into the EndNote bibliographic software (V.9, Clarivate Analytics, Philadelphia, Pennsylvania, USA). After screening and removing duplicates, the remaining articles' titles, abstracts and summaries will be assessed against the established eligibility criteria by two independent researchers R1 and R2. Two authors will evaluate the titles and abstracts of the retrieved references in a blinded manner to determine their potential suitability. Reasons for exclusion will be documented at the full-text screening stage. If consensus cannot be reached, a third reviewer, who is also a study team member, will be consulted to achieve a consensus-based decision on whether the record should be retained or excluded (R3). This evaluation will consider whether the studies meet all predetermined criteria, including (1) research design, (2) participant characteristics, (3) explored interventions or phenomena, and (4) assessed outcomes. The selection procedure will be depicted in a PRISMA flow diagram, as illustrated in figure 1.

Data extraction

The data extraction form will be designed to capture information about the selected studies, including author and year, aim, study setting, study population, exposure and outcome. This information will be included in the appendix (see online supplemental appendix 6).

To ensure accuracy and consistency, two reviewers will independently complete the data extraction form for each study. Both reviewers will compare their completed forms to identify any discrepancies and resolve them through discussion and consensus. This process will ensure the accuracy and completeness of the extracted data. The form will include the following fields:

1. General information: author names, year of publication and study aim.
2. Participants: sample size, demographic characteristics, methods of participant recruitment and selection.
3. Setting: type of healthcare, conditions and countries where the study was conducted.

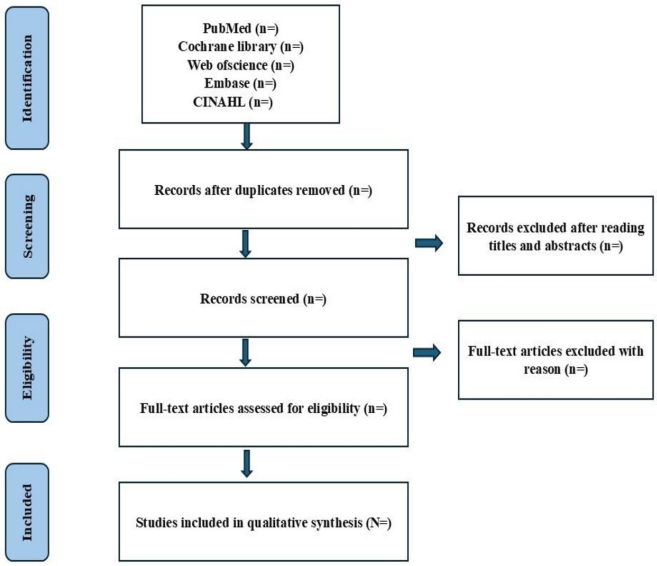

Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram of the study selection process.

4. Method of data collection: type of qualitative research design (eg, phenomenology, grounded theory, ethnography), data collection methods (eg, interviews, focus groups) and data analysis methods.
5. Outcome themes: key findings related to NPs' experiences, perceptions, and attitudes towards medication prescription.

Quality appraisal

The review team will conduct a critical appraisal of all the included articles, with each article being assessed independently by two members using the 10-item Joanna Briggs Institute Critical Appraisal Checklist for Qualitative research to evaluate their quality.[31 32] The appraisal process will be conducted by two researchers. In case of any discrepancy in the scoring results, a third independent reviewer will be used for arbitration (see online supplemental appendix 5).

Data synthesis

The analysis will consist of three main stages following Thomas and Hardens' three-stage thematic synthesis approach.[33–35] First, relevant texts will undergo line-by-line coding, with first author generating initial codes inductively for ideas in the data over several iterations until no new codes are necessary to capture ideas. Single data fragments may be assigned multiple codes for accuracy, with a second author checking a randomly selected 10% of coded data for coding accuracy. Disagreements will be discussed and resolved by drawing on another author.

Second, codes will be organised into descriptive themes, with two authors independently categorising individual codes into broader themes. The two authors will then collaborate to compare and reconcile their thematic categorisations, ultimately agreeing on a unified set of *descriptive themes* that best represent the data. These descriptive themes will be discussed with the broader author group to ensure their comprehensiveness and accuracy. Themes will be iteratively refined until they optimally reflect the data. Lastly, the authors will develop analytical themes, which will be interpretative and seek to generate new ideas. Two authors will independently re-examine the data organised into descriptive themes to identify barriers and facilitators to the prescription of NPs. This phase will rely on the authors' subjectivities and a reflexive approach will be taken to minimise problems in interpretation and improve transparency in analysis. Two authors will meet to compare their analytical themes, and descriptive and analytical themes will be tabulated and paired with exemplary data fragments. A separate table will display how the data from each study is represented in the coding. NVivo (V.12) will be used to assist in processing and analysing text to generate more standardised and convenient codes and topics.

Assessment of confidence in the evidence

The Confidence in the Evidence from Reviews of QUALitative research (GRADE-CERQual) approach will be used to establish the degree of confidence that may be placed in the findings from this systematic review and qualitative synthesis. The GRADE-CERQual approach was chosen as the preferred method for evaluating the quality of evidence due to its specific emphasis on qualitative research, its incorporation of multiple interdependent components in the assessment of evidence confidence and its alignment with other established GRADE approaches frequently used for appraising evidence quality. The GRADE-CERQual approach is designed to evaluate the confidence in individual review findings by appraising the methodological limitations of the included studies, coherence (ie, the alignment between primary data and the review finding), data adequacy and relevance (ie, the extent to which data from primary studies supporting a review finding apply to the context specified in the review question). The overall confidence in each review finding (ie, for each generated theme) will be rated as high, moderate, low or very low. GRADE-CERQual assessments will be conducted independently by two authors, R2 and R3. Any disagreements will be resolved through discussion until a consensus is reached.

Patient and public involvement

The involvement of patients and healthcare professionals will play a key role in shaping the study protocol to ensure its relevance and impact. To ensure a balanced perspective, we will engage a diverse group of patients, including those who have received nursing-led care as well as those who did not receive such care or who had negative experiences with it in local healthcare settings. Additionally, we will engage healthcare professionals experienced in nurse prescribing practices, including professionals from regions with established nurse prescribing frameworks and areas where this practice is emerging.

To gather comprehensive insights, we will conduct semistructured interviews and focus group discussions with these diverse stakeholders, ensuring we capture a wide range of experiences, both positive and negative, with nurse-led care. Their feedback on the barriers and facilitators of nurse prescribing will help us capture factors that may not be fully addressed in existing literature, particularly those related to both successful and challenging aspects of nurse-led care.

Their insights, including both positive and critical perspectives, will be used to refine the research questions and inform the development of inclusion criteria for the meta-synthesis. Additionally, participants will review the preliminary study design in a series of two feedback sessions to offer input on theme selection and suggest modifications that may enhance the study's real-world relevance and applicability. Including patients with diverse experiences will ensure the study design addresses both the benefits and potential challenges of nurse-led care.

Publishing the protocol

This protocol is being published in a peer-reviewed journal to ensure transparency, credibility and quality in our research process. Publishing the protocol also allows the academic community to provide constructive feedback, thereby enhancing the rigour of the study. Furthermore, this publication will help increase the visibility of the findings and contribute to the advancement of nurse-led prescribing practices research.

Ethics and dissemination

Since this review involves a retrospective analysis and secondary use of publicly available data, external ethical approval is not required. However, we will adhere to ethical guidelines for conducting systematic reviews. The findings from this review will be disseminated through several channels,such as publication, conference presentations, patient and public involvement.

Study Status

The review is ongoing and is expected to be completed by the end of 2024.

DISCUSSIONS

This qualitative meta-synthesis review aims to comprehensively synthesise existing research on nurse prescribing, specifically focusing on the barriers and enablers identified in the literature. The findings from this synthesis will be valuable for informing and improving the future education of nurses. Specifically, the results can inform efforts to strengthen the training of nurses in pharmaceutical knowledge and clinical skills.

Authorising nurses to prescribe can help alleviate the issue of insufficient medical resources.[36] By enabling nurses to perform certain basic medical services, this approach can reduce the workload of doctors and ease the problem of medical resource scarcity. Furthermore, empowering nurses to prescribe can enhance the efficiency of medical services.

For the diagnosis and treatment of minor and common illnesses, there is evidence suggesting that nurses possess sufficient medical skills to provide patients with treatment recommendations and medication prescriptions promptly. This capability can significantly improve the speed and efficiency of medical services.[37 38]

While authorising nurses to prescribe medication has numerous benefits, it also presents challenges. Nurses must possess a certain level of medical knowledge and professional skills to prescribe safely. Currently, the qualifications and knowledge levels of nurses vary greatly, and some may lack the necessary expertise to prescribe medication effectively. This variability may increase the risk of drug misuse, including the inappropriate use of prescription drugs or the production of counterfeit medications. Additionally, due to their limited understanding and use of medications compared with physicians, safety concerns may arise, including inappropriate medication use and adverse reactions.[39 40]

This qualitative synthesis offers valuable insights into these concepts, particularly in relation to an important target population: the future nursing workforce and their training programmes. By addressing these issues, we can better prepare nurses for the responsibilities of prescribing, ultimately enhancing patient care and safety.

Implications

The findings of this synthesis will have significant implications for future research, clinical practice and policy development, both locally and globally. This synthesis provides a comprehensive overview of current barriers and facilitators to nurse prescribing, which can inform clinical policy guidelines in various healthcare contexts.

Globally, the evidence from this review can serve as a foundation for countries considering expanding nurse prescriptive authority, helping to shape policies that enhance the role of nurses in healthcare delivery. By identifying key challenges and enablers, this synthesis supports the development of strategies to improve the efficiency and quality of medical services, reduce waiting times, and better meet the needs and expectations of patients across different healthcare systems.

Furthermore, this work can contribute to the global discussion on optimising nurse prescribing practices and guide nurse practitioners (NPs) to work more effectively within diverse regulatory frameworks, ensuring their role is maximised to benefit healthcare systems worldwide.

Contributors The conception and design of this study were developed by contributors KS and YL, who also drafted the initial version of the protocol. KS, CL, XZ, HL and YL made significant contributions to refining the protocol and preparing subsequent drafts. CL acted as the guarantor, assuming responsibility for the overall content and integrity of the study. All authors have reviewed and approved the submitted protocol and are accountable for its content.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, conduct, reporting or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics approval Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data sharing not applicable as no datasets generated and/or analysed for this study.

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