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A Critical Review of Factors and Challenges Influencing Non-Medical Prescribers in Primary and Urgent Treatment Care Facilities in England

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ABSTRACT

Background: Non-medical prescribing in England has empow-ered allied health professionals such as nurses, paramedics, and pharmacists working in acute and primary care settings to pre-scribe within their competency area in suitable work settings. The opportunities for non-medical staff to prescribe in respec-tive clinical areas of expertise have increased substantially and continue to do so. Prescribing is now an integral part of ad-vanced clinical practice, which is not limited to just nurses but has expanded to other allied health professionals.

Purpose: To analyse the factors and challenges influencing prescribing for non-medical prescribers, during consultations with patients in primary and urgent treatment centre facilities

Methods: This study employed a critical systematic review of relevant articles chosen from electronic databases including CINAHL, Medline, Cochrane library, and Scopus. Keywords were used to formulate a search pattern using Boolean operators and suitable qualitative studies relevant to the inclusion criteria were selected

Results: Thematic analysis of the articles concluded that there were a lot of sub-themes including a lack of protocols to support decision-making, peer support, and difficult patients which were interdependent posing as a potential barrier or acting as a facilitator in certain consultations

Conclusion: The findings have provided adequate reassurance that non-medical prescribers were aware of the facilitators and barriers to non-medical prescribing. Organizational support and continued professional development are key components of the barriers and enablers for non-medical prescribers working in urgent and primary care settings.

1. Introduction

Non-medical prescribing (NMP) was adopted into the United Kingdom's national healthcare system in 1989 (Department of Health, 2006). A lot of reforms have happened since its inception over 2 decades ago, and the benefits of empowering allied health professionals with independent prescribing have explored new ways of working (Health Education England, 2015). Introducing prescribing into their practice has allowed allied health professionals to be more clinically challenged in their roles, further enabling autonomy, and enhancing job satisfaction. However, the medical fraternity interpreted this approach with caution and concern that they were more likely to make mistakes (Day, 2005). This enhanced clinical responsibility invoked the need for non-medical prescribers to thoroughly understand the consultation process to improve their clinical and diagnostic reasoning skills and enable independent decision-making outcomes (Franklin, 2017). Prescribing decisions form one of the cornerstones of patient safety and is a complex and challenging aspect of advanced practice. Practitioners with prescribing abilities must use it in the best interest of patients using practically the same prescribing rights, held by medical counterparts (Pearce, 2016). The future of the health force in the United Kingdom (UK) relies on workforce transformation and recognizing contributions from these highly trained and skilled multi-disciplinary professionals. The 2019 NHS long-term plan has highlighted the benefits of non-medical prescribing in advanced clinical practice. Extending prescribing responsibilities to allied healthcare professionals have enabled them to deal with minor illnesses and injuries that might need pharmacological interventions, without having to refer them to a medical modality, releasing time for medical clinicians to engage in complex medical decisions which will not form the remit of advanced non-medical practitioners (NHS England, 2019).

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NMP has developed to include other allied professionals not just in the UK but also in the United States of America, Canada, New Zealand, Finland, Sweden, and Republic of Ireland. In the majority of these countries, they work collaboratively with supervising medical clinicians to deal with patients presenting with pre-specified conditions and established diagnoses (Stewart et al., 2012). As non-medical prescribers are required to have many years of experience engaging with patients before beginning their prescribing training, it is reasonable to assume that this experience, together with specialised prescribing training and evaluation of competency, will result in a safer and more appropriate prescribing (McIntosh et al., 2016). Integrated care was the proposal put forward to bring in improved ways of working by challenging traditional pathways and using the most appropriate healthcare professional for the task at hand. The need for patient-centred care in a responsive approach in urgent care settings was highlighted long before from 2014 in the Five years NHS forward view (NHS England, 2014). Adequately trained NMPs were integral to these developments. Health Education England (Health Education England, 2015) proposed the benefits of non-medical prescribing in primary care to support medicine optimisation for long-term patients hence streamlining care for patients. NMPs who have undertaken enhanced qualifications in consultation and assessment are also responsible for diagnosis and prescribing for a wide range of acute, chronic, and complex conditions in urgent and primary care settings (Graham-Clarke et al., 2019). The benefits of non-medical prescribing by advanced clinical practitioners have been highlighted in numerous studies and reports. However, the challenges and factors faced by NMPs in Urgent care settings are yet to be fully understood (Courtenay et al., 2017). The specific question of prescribing behaviour and the challenges faced by NMP, especially in consultations with patients with minor illnesses is even less explored (Nelson et al., 2019). The scope of this study will be limited to systematically reviewing articles exploring the influences on prescribing decisions by various health professionals including advanced nurses, pharmacists and paramedics working in secondary settings, urgent and primary care settings.

The focus of this review will be on non-medical prescribers, therefore articles pertaining to this specific topic have been considered for review. The studies chosen for this have originated from the United Kingdom as they offer in-depth analysis and the impact across all areas where non-medical prescribers independently review patients presenting with minor illnesses. The various gaps in knowledge and how it affects current practice will also be explored. The literature search will be discussed, and the chosen articles will be critically reviewed explaining the methodology and also the limitations. Recommendations for future research will also be highlighted and discussed.

1.1. Background

This chapter gives a descriptive review of the larger context of the obstacles and enablers affecting non-medical prescribers in primary and urgent care settings. The concept of primary care networks, non-medical prescribing and independent prescribing will be discussed to provide a wider perspective. There is a large body of literature on the prescription behaviour of non-medical prescribers, but very few studies examine this topic in the context of primary and urgent care consultations.

1.2. Primary Care Networks

The prevalence of chronic diseases like diabetes and heart disease, as well as mental health problems, means that more individuals may need to make use of their community healthcare facilities. To satisfy these demands, practices have started forming primary care networks with their local communities, mental health services, social care providers, pharmacies, hospitals, and volunteer agencies (The King's Fund, 2019). One of the most consequential practical attempts to maintain the NHS's survival in a time of major change and a desire for improved efficiency is the expanding role of the non-medical prescriber (NHS England, 2018). Independent prescription (IP) by nurses, pharmacists, and allied health professionals is a crucial element of workforce transformation in the UK healthcare system, particularly in primary care networks, in order to address staff shortages and the increased demand for pharmaceutical interventions (Edwards et al., 2022). Since its adoption, the role of prescribing for nurses and pharmacists has constantly expanded and evolved, significantly improving patient care and cost-effectiveness (Magowan, 2020). The aim of this innovation was to free up medical practitioners consulting time to focus on more complex cases, thus reducing waiting times for appointments and preventing further harm to patients presenting with minor illnesses (NHS England, 2018). However, Hacking and Taylor (2010) have mentioned that clinicians who were assisting NMPs with their clinical decisions and prescribing outcomes had a sizeable time and commitment added to their work.

1.3. Non-medical Prescribing and Independent Prescribing

The conventional doctor-led prescribing format did not keep up with the growing demands in primary care, hence seeking out new methods of prescribing by allied professionals, became necessary to sustain patient access

to prescription medications (Armstrong et al., 2021). The number of NMPs in England, with independent prescribing rights, has significantly risen in the last decade. Courtenay et al approximately estimate that over 90,000 independent non-medical prescribers are practising in the United Kingdom, and exercising their prescribing rights to clinically appropriate presentations (Courtenay et al., 2017). However, Wider adoption of nonmedical prescribing practice is frequently hindered by local regulatory obstacles and opposition from the medical community, which has raised concerns about professional autonomy, patient safety, the diagnostic competency of nonmedical prescribers, and costs (Robertson, 2022). There are two kinds of NMP in the United Kingdom: supplemental prescribing (SP) and independent prescribing (IP). SP, which was launched in 2003, is described as a "voluntary collaboration between an independent prescriber and a supplemental prescriber to execute an agreed patient-specific clinical management plan with patient consent" (Stewart et al., 2017). SP designation is now conferred to those who qualify as independent prescribers. The introduction of IP in 2006 was a later development (Courtenay & Griffiths, 2022) and described as "prescribing" by a practitioner (e.g., doctor, dentist, nurse, pharmacist) responsible and accountable for the evaluation of patients with undiagnosed or diagnosed diseases and for choices about clinical care, including prescribing.

It has been determined that allied health professionals such as physiotherapists, podiatrists, nurses, paramedics, pharmacists, and radiographers play a crucial role in this essential transformative shift (Edwards et al., 2022). NMPs are required to address these gaps as a result of the decline of Practitioners (GP) and the changing methods of working in primary care (Winter, 2019). Independent prescribing by paramedics working in advanced roles has been adopted into the prescribing remit for NMPs since 2018, with the exclusion of prescribing controlled drugs (NHS England, 2018).

1.4. Statement of the Problem

The influence of NMP on patients, practitioners and organisations has been the focus of many studies on the topic so far. Job satisfaction, increased autonomy, and opportunities to improve patient care have been the main factors associated with a rise in prescribing practice (Courtenay et al, 2018). The competency framework devised by the Royal Pharmaceutical Society (Royal Pharmaceutical Society, 2016) specifies the requirements of all prescribers and supersedes the previous guidelines by National Institute for Healthcare Excellence (NICE, 2012) enabling all allied practitioners, who have satisfactorily completed an approved prescribing course to prescribe within their scope of practice. Despite this solid framework, there are still substantial variations in how independent prescribers use their prescribing qualifications, with some preferring only to prescribe in certain circumstances or not at all (Nuttall, 2018). Due to an ageing population, complicated polypharmacy requirements, and an increase in co-morbidities, all prescribers face significant challenges. To stay current on new medications and potential interactions, non-medical prescribers must actively develop and maintain their competence to prescribe (Royal Pharmaceutical Society, 2016), which can extend beyond the confinements of their domain of expertise. However, the challenges and factors influencing non-medical prescribers are yet to be fully understood. Prescribing within limits of practice and knowledge is appropriate to newly qualified prescribers who are experienced practitioners, but new to the prescribing remit (Stewart et al., 2017).

Anti-microbial resistance (AMR) is a global public health threat and overuse is the main driver for the development of drug-resistant pathogens (WHO, 2021). The consequence of increased drug resistance is that infections are becoming increasingly difficult or often impossible to treat. 80% of antimicrobial prescribing occurs in primary care settings, where non-medical prescribers from nursing and other allied health sectors are actively involved in prescribing decisions (Beech, 2015). A growing number of non-medical prescribers often inappropriately prescribing antibiotics can potentially cause an increase in this resistance. Responsible and appropriate prescribing of anti-biotics will require commitment and engagement from the wider group of prescribers including non-medical prescribers (Courtenay et al., 2017). As the number of prescribing nurses, pharmacists, and AHCPs grows at an ever-increasing rate, problems regarding access to Continuing Professional Development support, and organisational infrastructure continue to slow down the acceptance of non-medical prescribing practice (Nuttall, 2018). Hence further research is required to enable NMPs to grow and extend their scope and remit of prescribing practice, and for this crucial service to thrive. The bulk of support for prescribing activity comes from colleagues and other members of the multidisciplinary team, as well as resources such as NICE Clinical Knowledge Summaries and a variety of programme-integrated support tools (Hubbard, 2019). However, there are challenges with evidence-based practice, as well as independent factors that influence its use in Non-Medical Prescribing. Evidence that is of poor quality, fragmentary, or inconsistent has an impact on the quality of the scientific data and hence may affect NMP (Booth, 2016). The technique of utilising evidence

by NMPs must be more fluid and dynamic (Griffith & Tengnah, 2014). Another criticism of evidence-based practice is its frequently irrelevant connection to clinical governance (Lim et al., 2017).

Smith et al. (2014) found that the challenges and enablers to prescribing for NMPs operating in Primary care and the acute sector were comparable. This is counterintuitive as NMPs working in primary care are nearly often direct employees of the General Practice and the company they operate, but NMPs working in secondary care are part of major NHS organisations working with standardised protocols and agreed frameworks (Bryant-Lukosius et al., 2016). In addition to helping administrators strategically plan for the growth of NMPs and the improvement of the infrastructure to accommodate this growth, gaining a deeper understanding of the unique challenges encountered by primary care NMPs may open up new doors of opportunity for practitioners in this field (Park et al., 2018). According to Harvey & Kitson (2015), holistic patient care may be achieved by integrating several factors, including evidence, experience, the viewpoint of patients, and the use of available resources (Harvey & Kitson, 2015). However, the emphasis of training for nurses and other non-medical prescribers should be on enhancing their confidence and ability to treat patients in the urgent care setting without relying solely on pharmaceutical interventions (Rowbotham et al., 2012). The main scope of this study is independent prescribing behaviour by non-medical prescribers, therefore articles pertaining to prescribing by independent prescribing NMPs in primary and urgent care settings will be considered for review. This review will attempt to identify the themes influencing prescribing practice in urgent and primary care settings during minor illness presentations. This study was conducted in accordance with strict ethical ideals and principles. As stated by Beauchamp & Childress (2019), the researcher adhered to stringent ethical principles and ideals while conducting this investigation.

2. Methodology

This section includes a summary of several techniques, research designs, and paradigms. It emphasises the essential strategies utilised in establishing the assessment of the variables and obstacles affecting prescribing by non-medical prescribers during consultations with patients with a variety of minor illness presentations in primary and urgent care facilities. This section will describe the methodology along with the strategy used to collect, examine, and evaluate the methodology of the articles included in the research. The purpose of this section is to build a rigorous procedure for verifying and producing reliable data, which will be addressed in the succeeding sections. This established the groundwork for later sections that addressed the research question.

2.1. Research Question

A critical literature review must begin with a query, as well as a defined purpose and reason (Polit & Beck, 2017). Developing a clear and succinct purpose is essential when determining a research topic (Booth & Carrol, 2015) and it is the best approach for any literature review. The specific research question of this review is: What are the factors and challenges influencing prescribing by non-medical prescribers during consultations involving patients with various minor illness presentations in primary and urgent treatment care facilities.

2.2. Aims and Objectives

The study's goals and objectives should be stated in a way that the reader may grasp them quickly and readily (Kumar, 2010), while also making sure that they are clear and related to the research issue (Offredy & Vickers, 2010). The aim of this literature review is to identify specific challenges faced by NMPs, particularly in primary and urgent care facilities. This information may be utilised to empower the prescribing behaviour of NMPs by strengthening and supporting the practice of independent prescribing in order to promote patient-centred, safe, effective, and efficient pharmacological treatments during patient consultations.

2.3. Specific Objectives

1. Formulate a search strategy to identify pertinent research articles on the factors influencing NMP prescribing behaviour in urgent and primary care consultations.
2. Conduct a critical review that will identify specific challenges faced by NMPs during patient consultations.
3. Discuss the implications of the themes and sub-themes identified during the critical review of the chosen articles.
4. Explore the current strategies and interventions in place to support NMPs to effectively deal with challenges in prescribing practice through systematic review of the chosen articles.
5. To discuss the implications of the findings to support the suggestions to enable NMPs to confront the determinants and barriers impacting prescribing behaviour.

2.4. Search Strategy

The entirety of a systematic review's quality is decided by the breadth and calibre of the literature found during the search (Gerrish & Lacey, 2013). A high-quality, systematic,

critical literature review incorporates broad search tactics to guarantee the inclusion of the largest proportion of the most relevant original research publications available (Aveyard, 2018). Clear documentation of the search strategy ensures that the process is methodical, unambiguous, and repeatable (Greenhalgh, 2010). The Population, Exposure, and Outcome (PEO) framework was used as shown in table 1 below to develop keywords and to search for qualitative research publications pertaining to the determinants and obstacles impacting prescription behaviour in NMPs in Urgent care consultations (Bettany-Saltikov & McSherry, 2016).

Table 1: PEO framework.

PEO Criteria	Keywords
Population	Non-medical prescribers in prescribing settings
Exposure	Minor illness, Urgent care, and primary care
Outcome	Barriers and Facilitators

This tool is a basic technique for formulating the search query despite critiques over its inability to locate relevant literature materials (Brun, 2013). Aveyard et al., (2021) emphasised that one instrument is not preferable to another and that a single tool often cannot provide all the required literature. The search for qualitative publications is also challenging, labour-intensive, time-consuming, and difficult to repeat Booth (2016). The search was accomplished by combining topics and free terms using the "AND" and "OR" Boolean operators as shown in table-2 below. The fundamental words and their synonyms were included throughout all electronic databases, including CINHAL, SCOPUS, and Medline, to provide more targeted and prolific outcomes. During the search, truncations such as asterisks (*) and parentheses () were also used. As shown in Table 3 and 4 below, the search was limited to studies within the United Kingdom as that was the specific demographic being explored in the research question. Due to a lack of accessible resources to translate and understand them, the search was restricted to English-language articles only. There was a methodical search of databases for pertinent literature.

Table 2: Summary of the search phrases using Boolean operator.

	Population (P)	Exposure (E)	Outcome (O)
Boolean operator		and	and
	Non-medical prescribing	Facilitators	Urgent care
and	Non-medical prescriber	Barriers	Primary care
or	Non-medical independent prescriber	Challenges	Minor illness

2.5. Inclusion and Exclusion Criteria

Due to the paucity of published studies on the issue, primary research utilising qualitative studies addressing the facilitators and obstacles to non-medical prescription was incorporated to broaden the scope and emphasis of the study.

Table 3: Inclusion Criteria.

1. Qualitative research
2. Dated within 10 years
3. Primary studies
4. English papers
5. Semi-structured Interviews

Table 4: Exclusion Criteria.

1. Quantitative research
2. Dated above 10 years.
3. Secondary studies.
4. Non-English papers.
5. Service evaluations.

The huge volume of results from the database and search engine posed one of the greatest obstacles throughout the search for relevant material. To be able to assess the most relevant research, the author spent a great deal of time acquiring a broad range of subject-matter expertise.

Accessing journals and articles that required a subscription or payment was another obstacle. Access to many recent articles and publications was restricted, which posed a challenge to the ability to comprehend the most current information on the topic at hand. Following an exhaustive search of all databases, 148 articles were discovered. To ensure that the search was exhaustive and that no research was overlooked or excluded mistakenly, 13 more publications were uncovered using the reference lists of included papers and a general search (Parahoo, 2014). 91 papers did not match the requirements for inclusion. After a careful critical evaluation of the selected publications, ten main studies pertinent to this literature review were selected. The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) standards for Systematic Reviews (Moher et al., 2009) flowchart in Figure-1 depicts the comprehensive selection process of research identification, review, inclusion and exclusion.

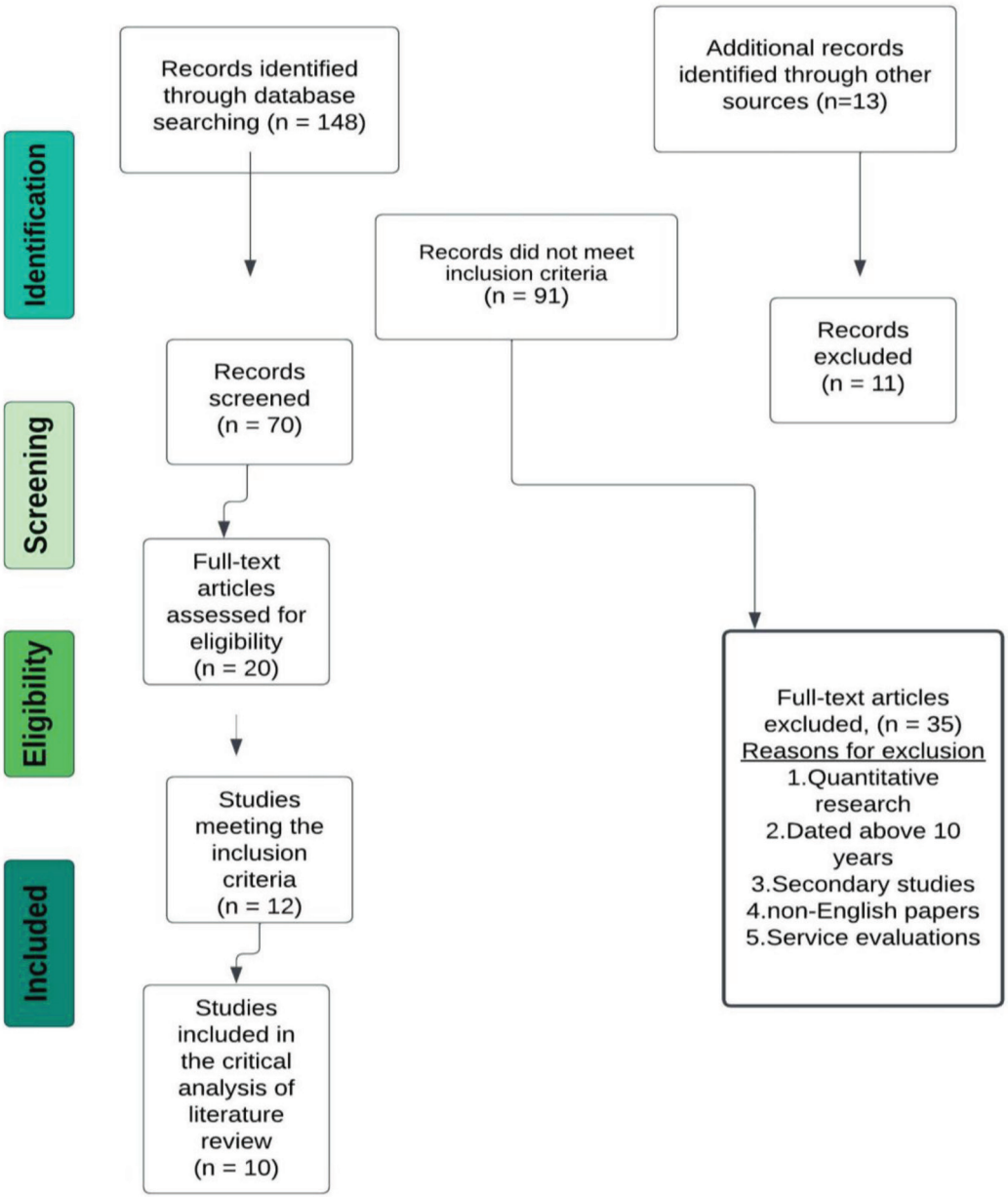

Figure 1: PRISMA flow Diagram.

Table-5: Characteristics and Themes from selected studies.

SL	Author and Year	Title and DOI	Design	Participant group	Themes	
					Facilitators	Barriers
1.	Louise Cope, Mary Tully, Jason Hall. 2019	An exploration of the perceptions of non-medical prescribers, regarding their self-efficacy when prescribing, and their willingness to take responsibility for prescribing decisions. https://doi.org/10.1016/j.sapharm.2019.05.013	Cross-sectional survey. Framework Analysis.	*Nurse, Pharmacist and physiotherapist NMP.*	Length of time qualified as NMP. The professional role of the NMP	Lack of confidence. Lack of teaching around clinical versus legal responsibility when prescribing

2.	Roisin Lennon and Anne Fallon. 2018	The experiences of being a registered nurse prescriber within an acute setting. https://doi:10.1111/jocn.14087.	Semi-structured interviews.	*Nurse Independent prescribers.*	Enhanced and complete episodes of patient care. Improved service and safe prescribing. Autonomy and Increased job satisfaction.	Increased workload. Unawareness of role of the non-medical prescriber. Lack of recognition. Lack of resources.
3.	Samantha Rowbotham, Rosemary Lim, Sarah Peters, Kathryn Yates, Angel charter. 2019.	Examining influences on antibiotic prescribing by nurse and pharmacist prescribers: a qualitative study using the Theoretical Domains Framework and COM-B http://dx.doi.org/10.1136/bmjopen-2019-029177	Semi-structured interviews using the Theoretical Domains Framework and Capability, Opportunity and Motivation for Behaviour.	*Pharmacist and Advanced Nurse Practitioner Non-medical prescribers.*	Knowledge of current prescribing guidelines. Clinical examination skills.	Lack of confidence in newly qualified prescribers. Time limitations on consultations. Emotions (Tiredness, stress, empathy). Fear of complaints as a consequence of non-prescribing.
4.	Emma Graham-Clarke, Alison Rushton, John Marriott. 2021.	A Delphi study to explore and gain consensus regarding the most important barriers and facilitators affecting physiotherapist and pharmacist non-medical prescribing. https://doi.org/10.1371/journal.pone.0246273	Delphi technique using Questionnaires.	*Pharmacist and Physiotherapist Independent non-medical prescribers.*	Independent mode of working. Streamlined care for patients. Improved patient care-reduced waiting times.	Lack of support and time to develop skills. Lack of acquisition of clinical skills. Personal confidence in prescribing skills. Prescribing legislation and indemnity requirements.
5.	Nicky Wilson, Catherine Pope, Lisa Roberts, Robert crouch. 2020.	Limited pharmaceuticalisation: a qualitative case study of physiotherapist prescribing practices in an NHS Trust in England following the expansion of non-medical prescribing in the UK https://doi.org/10.1111/1467-9566.13050	Semi-structured Interviews.	*Physiotherapist Independent Non-medical prescribers.*	Delivering integrated care.	Lack of knowledge base. Lack of jurisdictional boundaries in prescribing for physiotherapist non-medical prescribers. Reduced Follow-up capacity. Time pressures. Lack of communication between the medical fraternity and non-medical prescribers.
6.	Robert Weglicki, Julie Reynolds, Peter Rivers. 2015.	Continuing professional development needs of nursing and allied health professionals with responsibility for prescribing. http://dx.doi.org/10.1016/j.nedt.2014.08.009	Semi-structured interviews.	*Nurse independent prescribers, Physiotherapists and Pharmacist non-medical prescribers.*	Optimise skills of the workforce within primary, acute and community sectors.	Personal Anxiety undermining confidence to prescribe. External factors including a lack of CPD training sessions. Need for support from medical and non-medical colleagues and clinical supervisors. Increased accountability and responsibility that prescribing confers upon NMPs.
7.	Maddox, C., Halsall, D., Hall, J. and Tully, M.P 2016.	Factors influencing nurse and pharmacist willingness to take or not take responsibility for non-medical prescribing https://doi.org/10.1016/j.sapharm.2015.04.001	Nurse and Pharmacist NMPs.	*Semi-structured Interviews using the critical incident technique.*	Improving access to medicines while maintaining patient safety.	Underpinning cautiousness. Risk of making errors. Vulnerable to exposure and criticism from regulators and the public. Lack of supportive clinical supervision. Lack of mentoring support from medical colleagues.

8.	Ali M. K. Hindi, Elizabeth M. Seston, Dianne Bell, Douglas Steinke, Sarah Willis. 2019	Independent prescribing in primary care: A survey of patients', prescribers' and colleagues' perceptions and experiences https://doi.org/10.1111/hsc.12746	Semi-structured interviews.	*Nurse Independent prescribers, Podiatrist and pharmacist non-medical prescribers.*	Competence and confidence to prescribe. Support from multi-disciplinary healthcare team. Cohesive team working. The convenience of independent prescribing for patients. Valuable addition to the team.	Lack of competence in certain areas. Inadequate Training. Organisational barriers due to workload pressures. Lack of independent awareness.
9.	Aseel Abuzour, Penny Lewis, Mary Tully. 2017	A qualitative study exploring how pharmacist and nurse-independent prescribers make clinical decisions https://doi.org/10.1111/jan.13375	Think-aloud methodology and semi-structured interviews.	*Nurse and Pharmacist independent prescribers.*	Opportunity for conjoint decision-making with patients. Better concordance to treatment along with health promotion and support. Contextual influences on clinical reasoning enabling individualised decision-making skills.	Lack of adequate knowledge in clinical assessment skills. Depending on other MDT to reach a treatment plan for prescribers not competent in certain assessment skills.
10.	Sally Jarmain. 2022.	Describing prescribing identities: a qualitative study exploring non-medical prescriber identity https://doi.org/10.12968/jprp.2022.4.7.300	Semi-structured interviews.	*Non-medical prescribers including nurses, pharmacists and physiotherapists.*	Using role modelling to enhance own prescribing practice. Consolidating the new identity and adopting best practices from other NMPs. Greater sense of belonging.	Insecurities about the prescribing role about complaints from other modalities. Concerns that other health professionals will question their right to prescribe. Collectivity versus isolation in working. Increased level of anxiety about the new identity and perception by other health professionals.

3. Results

According to Kokosi & Harron, (2022) Synthesis is a type of analysis that contrasts and compares, requiring the author to work with two or more summaries found in the literature to produce a conclusion. Furthermore, they state that the author would employ data from multiple analyses to reach a different conclusion. Additionally, merging, synthesising, and extracting data from several research is a systematic review that goes beyond a standard literature review (Munn et al., 2014). Data analysis seeks to make sense of all gathered data and streamline the complex narrative (Williamson & Whittaker, 2017). Following data extraction, a narrative review utilising thematic analysis was conducted to identify recurring themes. The author of this systematic review intends to perform a data synthesis utilising theme analysis as part of this evaluation. According to Mays et al. (2005), thematic analysis is the most effective method for extracting themes from narrative reviews and bringing them together. The results of several qualitative research were combined to form a synthesis, and the themes emerged from the sub-themes. Thematic analysis is a way

of doing qualitative research that is both thorough and comprehensive, and using this strategy helped the themes become more integrated and less fragmented (Parahoo, 2014). The chosen papers were evaluated to see whether it had a clear description of the research's purpose, its relevance and significance, and whether the methodology and research design were adequate and justified. Clear and deliberate checks were performed to evaluate how themes were created from the data, as well as to determine whether the analysis was thorough enough, with adequate data to support the conclusions. The articles were also investigated to determine whether they included any contradicting data or whether there was a possibility of bias.

Table 6: Facilitators and Barriers Identified from Studies.

Facilitators	Barriers (Current limitations of non-medical person for clinical practice in England)
Conjoint decision-making.	Lack of confidence and adequate knowledge in consultation skills.
Autonomous mode of working.	Increased workload.
Improved service and safe prescribing.	Role clarity.
Use of role models/ mentors.	Insecurity about the prescribing role.
Opportunities for advanced practice.	Reduced opportunities for follow-up.

3.1. Themes Identified from the Selected Studies

Theme 1: Confidence: This analytical theme demonstrates how crucial confidence in prescribing during the post-qualification transition phase for new prescribers. It also highlighted how critical it is for new prescribers who are already established clinicians in their field to have supervision and formal and informal support during the didactic phase. Cope et al. (2019) argue that the length of time qualified as an NMP has a positive influence on the confidence in prescribing; however, Lennon et al. (2018) argue that this can also pose a barrier by placing an increased workload on experienced prescriber practitioners. Rowbotham et al (Rowbotham et al., 2012) illustrate "lack of confidence" in newly qualified prescribers as a major barrier, whereas Maddox et al. (2016) argue that personal emotions and fear of complaints as a result of non-prescribing are major barriers to prescribing in primary care settings. Most of the participants who participated in the research by Jarmain, (2022) used different role models to assist them recognise their identities as prescribers. This role modelling was a major factor in boosting confidence especially in new prescribers. However, there were not enough good medical role models for some specialties and professions, especially when NMPs worked in a relatively new discipline of practice (Weeks et al., 2016).

Theme 2: External barriers**:** Demonstrating external barrier interdependence, the absence of coaching ties with physicians hindered the chance for informal assistance, prohibited prescription, and limited competency with certain medications or clinical situations (Graham-Clarke et al, 2021). In turn, this prompted the re-engagement of GP referral for prescribing and resulted in disproportionate patient medication management (Jarmain, 2022).

Wilson et al. (2020) and Weglicki et al. (2015) discovered similar themes in their research about how external factors such as inadequate communication and a lack of follow-up arrangements put NMPs under pressure to use effective pharmacological interventions. Hindi et al. (2019), on the other hand, valued the reassurance of having approachable and available GPs for advice. However, according to Abuzour et al. (2017), the administrative staff in primary care practices played an important role in facilitating independent prescribing by directing appropriate patients to NMPs.

Theme 3: Competency**:** Access to formal, educational practise updates and resources, as well as the availability of peer support, was acknowledged as vital for continuing prescribing proficiency (McHugh et al, 2020). According to Jarmain, (2022), independent prescribers believed that NMPs could not successfully prescribe without extensive training and experience. This lack of training opportunities was especially felt by those participants who were unable to discuss prescribing dilemmas (Maddox, et al, 2016). As a result, they lost confidence in their abilities and were occasionally hesitant to prescribe. Hindi et al. (2019), on the other hand, discussed how prescriptive authority improved daily clinical practice by improving expert and lateral thinking abilities and knowledge. These skills were not only useful to the NMPs, but they also meant that the patients received advanced care.

Theme 4: Improved Quality of care**:** This is the most universally occurring theme in most of the existing research on this topic. The provision of individualised, holistic treatment was regarded as fundamental to their prescribing responsibility (Berry et al, 2007). McIntosh et al. (2016) accentuates that prescribing was not considered as a task-based activity, but rather as a crucial component of their role that enabled NMPs to provide high-quality, patient-centred care and maximise health outcomes in the shortest time available. Adoption of non-medical prescribing is likely to result in a variety of improvements in patient care and professional practise (Rowbotham et al, 2019). Wilson et al. (2020) also highlight that non-medical prescribing enabled better continuity of care for patients discharged into the

community with primary care follow-up, allowing NMPs to modify or tweak pharmacological interventions, saving time for both patients and secondary care providers.

Theme 5: Higher autonomy and Job satisfaction: Prescribing, according to the NMPs, enabled them to be independent, responsible, and accountable practitioners who delivered a comprehensive package of responsive and safe care to their service users (Hubbard, 2020). The sense of satisfaction, according to Lennon et al (2018), was evident in the feelings of pride and accomplishment expressed by the participants in their comments about what prescribing meant to them. The increase in professional autonomy that resulted from prescribing authority was discussed favourably by nine of the participants in the research article on pharmacist and nurse-independent practitioner clinical prescribing decisions (Abuzour et al, 2017). According to Park et al. (2018), if a practitioner is truly accountable for their prescribing practise, they ought to be granted the required autonomy and freedom to make their own judgements by utilising the full remit of independent prescribing and should not be constrained in this endeavour by local regulatory guidelines. However, it has been established that situations of clinical ambiguity generate worry for NMPs (Rowbotham et al., 2012). Qualitative studies tend to validate the hypothesis that NMPs are less affected by non-clinical factors, such as patient expectations, to prescribe antibiotics than medical prescribers (Courtenay et al, 2017), and instead rely on protocols and guidelines while making prescribing decisions.

4. Discussion

Prescribing practices are influenced by several factors, and interventions are not likely to address all of them. The findings of this study do not demonstrate a clearly defined pattern of NMP behaviour that influences prescribing behaviour in primary and urgent care facilities, although there are some recurring themes that guide NMP decision-making in these clinical settings. However, this research revealed that non-medical prescribers' decision-making processes were affected by factors such as their belief in their own competence, confidence, the influence of external barriers, and the increased autonomy in their role, as well as the perceived job satisfaction it offered practitioners, during consultations in primary and urgent treatment care facilities. The expanding role of the non-medical prescriber undoubtedly constitutes one of the most substantial potential initiatives aimed at ensuring the sustainability of the NHS at a time of significant change and a drive for improved efficiency (Winter, 2019). In order to maximise the expertise of the workforce in general practise, the acute and community sectors, commissioning authorities will likely be urged to use non-medical prescribers from all professional domains (Weglicki, 2015). NMPs work in primary and urgent care facilities in a variety of locations and capacities. Despite the fact that these prescribers often manage patients and are in charge of 8% of all primary care antibiotic prescriptions, very little study has examined their prescribing practices (Courtenay, 2018). Ambiguity regarding the "proper" prescription behaviour was accentuated by time constraints, limited follow-up capacity, inadequate discussion about prescribing between the physiotherapists and operating physicians, and the anticipation of a therapeutic outcome (Abuzour et al, 2017).

According to the results of this research, participants focused much of their early training on achieving the competency frameworks set by their regulating organisations (Diggle, 2018). As soon as they were given the right to prescribe, however, some NMPs found themselves at a loss for where to go for continuing education in order to keep up with the field or develop their skills (Herklots et al., 2015). It was difficult to locate training courses that catered specifically to NMPs, probably due to the tiny size of the NMP population that would benefit from such offerings. This absence of training opportunities was felt most keenly by participants who were unable to discuss prescribing concerns and errors with colleagues and engage in reflective debriefings (Weglicki, 2015). The subsequent lack of self-assurance and consequent reluctance to prescribe was a direct result of the above. In circumstances where they had previously prescribed, they resorted to measures such as referring patients or seeking further guidance (Jarmain, 2022). Lack of communication between professionals can cause inter-professional conflict and effort duplication, which will slow down workflow and lower the standard of patient care (Graham-Clarke et al., 2019). However, Hindi et al. (2019) highlights that Independent primary care practitioners enjoyed the effective collaboration between NMPs and other members of the healthcare team, which was a significant facilitator to independent prescribing. A team approach to prescribing with peer support and encouragement from medical colleagues helped enhance members' confidence (Cope et al., 2019) Henceforth, participants emphasised how important it is to communicate effectively with the healthcare team, as this facilitated the practitioners' transition into their responsibilities, integration with the larger unit, and ability to function as a cohesive unit (Courtenay et al, 2019).

There was also evidence of a heuristic approach from NMPs, who were shown to depend more on their own intuition and past experiences than on evidence-based pharmacological expertise when addressing clinical problems (Whelehan et al., 2020). According to Abuzour et al. (2017), existing NMPs have indicated a need for continued professional development in the field of pharmacology and medication interactions. This research also discovered that

NMPs did not always want to take full responsibility for giving prescriptions for "high-risk" patients at either end of the age range when they didn't know enough and went against protocols, guidelines, formularies, and approved management plans in primary care consultations (Weiss et al., 2015). NMPs also didn't feel comfortable writing prescriptions for people who were on poly-pharmacy prescriptions and suffered from complex co-morbidities. The risk of prescribing without sufficient patient information resulted in a reluctance to prescribe for these category of patients (Armstrong et al., 2021).

4.1. Recommendation

This review revealed a paucity of evidence on the prescribing decisions made by NMPs in primary care and urgent care facilities. The major objective of the examined research was to examine and explain the prescribing decisions of NMPs. Small sample sizes, primary care settings in the United Kingdom, and the inclusion of virtually entirely nurse prescribers in particular studies all restrict the transferability of the findings of this analysis. This review has conceptualised, using a behavioural perspective, a wide variety of variables and obstacles that require addressing, which may serve as viable targets for behaviour modification strategies to assist non-medical prescribing practice, especially in the primary and urgent care sector (Winter, 2019). Therefore, it is imperative that interventions to improve prescribing practice must be innovated and implemented in a methodical manner, based on grounded data, and guided by evidence-based concepts (Chater, 2020). The most effective method for increasing prescribing confidence involved a blended learning strategy. Ineffective communication between or within primary or secondary care settings is indeed an external obstacle that could also undermine the confidence of non-medical prescribers (Abuzour et al., 2017). Echoing previous research, this study suggests that one way to improve NMPs' competence may be to improve clinical support with opportunities to work alongside established and experienced prescribing practitioners including medical colleagues.

The opportunities and challenges that are faced by NMPs who are employed in primary care are inextricably intertwined, and they are all connected to the concept of continued support for training and continuing professional development (Magowan,2020). The individual NMP, their employer, educational institutions, and providers all have a responsibility to come up with innovative solutions to address the acknowledged need to update and improve clinical and prescribing procedures that are based on evidence-based processes (Darvishpour et al,2014). However, the utilisation of evidence-based practise is influenced by a number of different factors that are not immediately correlated to the approach itself. Evidence of poor quality, insufficient evidence, or evidence that contradicts itself all have an impact on the quality of the evidence-base. Hence, the use of evidence in practise has to be redefined in order to make it more malleable and flexible in the future to enhance prescribing behaviour in NMPs (Hubbard, 2019).

5. Conclusion

Although NMP practice is becoming an integral part of healthcare delivery in the United Kingdom and around the world, there is still a substantial dearth of appropriate data on the enablers and barriers experienced by non-medical prescribers, especially in urgent and primary care settings (Beech, 2015). The continuity of care that NMPs provide, particularly in primary care, which frequently has a large turnover of physicians, has had a good influence on the quality of treatment; clinically incorrect prescriptions are avoided or remedied by specialised non-medical clinicians who have embraced the prescribing role in their field of practise (Diggle, 2018). To ensure that NMP is fully empowered, all facets must be thoroughly scoped before introducing alterations to the scope and practice of non-medical prescribing (Brett and Palmer,2022). Additionally, there must be clear routes of assistance and supervision for the prescriber, with the objective of fostering support. Clinical supervision and evidence-based practice are effective methods for achieving this objective. Failure to do so may restrict the effective utilization of prescribing skills and contribute to a demotivated workforce (Edwards et al, 2022). In conclusion, this study highlights findings related to NMPs working in primary and urgent care settings, arguing for increased supportive interventions to aid NMPs in developing and upgrading their practice to promote high standards of patient care in these settings.

5.1. Limitations of the Study

There is a plethora of data discussing the influences on NMP prescribing behaviour. However, the authors have chosen only a few qualitative studies to focus on the specific research question, which may have prevented from delving deeper into the topic. In addition, unindexed papers may have been missed from the review inadvertently despite the use of a robust search method to identify relevant publications in the databases using well-considered keyword combinations.

Most of the research focused on prescribing decisions for acute diseases; hence, the findings were not always applicable to individuals with chronic disorders or complex co-morbidities. The studies on prescribing in primary and urgent care settings demonstrates, however, that prescribing decisions are complicated and impacted by several factors, some of which may be contradictory and confound subsequent decision-making. The lack of a comprehensive description of

the decision-making process leading to the formulation of a prescription strategy, evaluation, and solution definition is a limitation of the research studies included in this review.

6. Data Availability Statement

All data underlying the results are available as part of the article and no additional source data are required

7. Competing Interests

The authors have no conflict of interest to report

8. Funding

No funding was used to support this research and the preparation of the manuscript

9. Ethics Declaration

The authors have taken sufficient steps to make sure that the work is ethically compliant and adhering to the legal requirements

10. Use of Artificial Intelligence and Adherence to Plagiarism Policy

Part of this work was undertaken as part of a previous UK university continuous professional development program by the first author. If any high Turnitin similarity issues are noticed, the authors declare that it is their our own work

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