IMPROVE fundamental nursing care!

The journey towards facilitating an evidence-based quality improvement learning culture

Jeltje Helene Giesen

The Work presented in this thesis was carried out within the Radboudumc Research Institute for Medical Innovation. We gratefully acknowledge the financial support by a grand from ZonMw, The Netherlands Organisation for Health Research and Development, File number 80-83900-98-854. The printing of this thesis was financially supported by the Radboud Institute for Health Science of the Radboudumc university medical centre.

IMPROVE fundamental nursing care! The journey towards facilitating an evidence-based quality improvement learning culture
Jeltje Helene Giesen

Radboud Dissertation Series
ISSN: 2950-2772 (Online); 2950-2780 (Print)

Published by RADBOUD UNIVERSITY PRESS
Postbus 9100, 6500 HA Nijmegen, The Netherlands
www.radbouduniversitypress.nl

Design: Proefschrift AIO | Guus Gijben
Cover: Vilans, kennisorganisatie voor zorg en ondersteuning
Printing: DPN Rikken/Pumbo

ISBN: 9789465151205
DOI: 10.54195/9789465151205
Free download at: https://doi.org/10.54195/9789465151205

RADBOUD
UNIVERSITY
PRESS

IMPROVE fundamental nursing care!

The journey towards facilitating an evidence-based quality improvement learning culture

Proefschrift te verkrijging van de graad van doctor
aan de Radboud Universiteit Nijmegen
op gezag van rector magnificus prof. dr. J.M. Sanders,
volgens besluit van het college voor promoties
in het openbaar te verdedigen op

woensdag 17 september 2025
om 12.30 uur precies

door

Jeltje Helene Giesen
geboren op 25 januari 1987
te Haarlem

Promotor
Prof. dr. H Vermeulen
Dr. G.J. Huisman-de Waal

Copromotoren
Dr. M.G.M.C. Berings
Dr. A. van Vught (Nederlandse Zorgautoriteit)

Manuscriptcommisie
Prof. dr. M.H.W.A. van den Boogaard
Prof. dr. E.J. Finnema (Universitair Medisch Centrum Groningen)
Dr. M.S. Nieuwboer

Paranimfen
Annick Bakker-Jacobs
Ashley Zantkuijl

Voor mijn Beppe

Jouw trotse woorden over mijn keuze voor het verpleegkundig vak draag ik voor altijd met me mee.

TABLE OF CONTENT

CHAPTER 1

GENERAL INTRODUCTION

General introduction

Nurses are a vital profession in healthcare. They are the largest group of professionals within the healthcare system and play a key role in delivering care, including prevention (1). Operating across all healthcare sectors, nurses provide fundamental care and support to patients at every stage of life. Given their critical role, they are vital in sustaining and improving the quality of patient care (2). However, the endeavour to maintain the quality of care faces substantial pressure. This is due to considerable challenges confronting the healthcare system, which substantially burdens nurses to ensure accessible, high-quality care (3).

Challenges in healthcare

The challenges healthcare faces are primarily driven by an aging population due to advancements in medical technology and living conditions. This results in a higher life expectancy in combination with multiple health issues and increasing care complexity (2, 4). In the Netherlands, the demographic shift of the aging population is anticipated to peak around 2040, resulting in a substantial rise in demand for healthcare services. An expanded workforce- particularly in nursing- is required to address this demand within the current care delivery model. One in six Dutch citizens is already employed in the healthcare sector. Without intervention, this proportion may need to rise to one in four over the next 40 years. Furthermore, the Netherlands allocates 13% of its national income to care and welfare, which is projected to increase to 19–21%. The two aforementioned scenarios are both unfeasible and undesirable (5). Compounding these challenges, the healthcare sector already faces significant staff shortages, and evidence indicates that many nurses leave the profession early in their careers (3). To keep nurses engaged and ensure that high-quality care remains accessible and affordable, a care transformation is necessary (4, 6).

This thesis, therefore, examines other ways of working within nursing to provide care that optimally contributes to accessible and high-quality care. And in a way that is attractive and retains nurses for healthcare. We refer to this way of working as contributing to appropriate care.

Appropriate care

Since 2022, the Dutch government has committed to providing more appropriate care to transform the healthcare sector and ensure future healthcare sustainability. In the Netherlands, appropriate care is patient-centred, where patients and providers collaborate to determine the most suitable treatment plan. Where possible, it is organised close to the patient and encompasses not only the treatment of diseases

but also the promotion of well-being and prevention. Appropriate care is practical, straightforward, and considers cost efficiency and sustainability (4, 7).

To advance the delivery of appropriate care, three focal points have been formulated for the period 2022–2050. The first focuses on prevention through the optimisation of citizens' lifestyles. This is particularly important given the anticipated rise in obesity and the ongoing pressures on the mental health of young people, among other groups. Prevention aims to reduce waiting lists and future care needs through early intervention. The second focal point addresses the optimisation of care and support, tackling challenges such as staff shortages and the increasing complexity of care needs. Enhancing the efficiency of care delivery mitigates the demand for additional staff. The third focal point centres on fostering a healthy living environment, addressing factors such as climate, infection control, and the physical and social quality of the environment. The approach of this third focal point is a form of prevention but adopts a more national and public perspective (8). Studies in this thesis mainly focus on the second focal point. To optimise healthcare and address the increased complexity of care, nurses must provide more fundamental care.

Fundamental Care

Fundamental care (FC) encompasses all essential care patients require, irrespective of the healthcare setting in which they are treated (9). To facilitate the effective delivery of FC, Kitson et al. (10) devised the Fundamentals of Care (FoC) framework. This framework encapsulates the essence of the nursing profession, offering guidance to nurses in providing care that is effective, safe, and of the highest quality (10).

The FoC framework is structured into three layers, each addressing distinct aspects of care: 1) the nurse-patient relationship, 2) the integration of care, and 3) the context of care (see Figure 1). The central core focuses on establishing trusting relationships between nurses and patients, emphasising patient-centred care, and anticipating patients' needs. The middle layer addresses patients' physical needs, such as ensuring comfort and adequate nutrition; psychosocial needs, such as promoting well-being and preserving dignity; and relational care actions, including active listening and the demonstration of empathy. The outermost layer pertains to the broader context of care, encompassing policy-level considerations such as regulation and accreditation and system-level factors like leadership and organisational culture (9). Over the past decade, the delivery of FC and implementation of the FoC framework have garnered attention in research, clinical practice, and nursing education (11). Although several topics within the FoCF have been extensively discussed and studied, pain interventions have received little attention in existing studies to date. Nevertheless, pain interventions are an

important topic in nursing. Therefore, this thesis will pay special attention to this topic to support nurses' delivery of high-quality care.

Figure 1: Fundamentals of care framework (20)

High-value care

High-value care is characterized by robust evidence of effectiveness, population-wide health benefits, and cost-efficiency. It is often embedded within clinical guidelines (12). Examples of high-value fundamental nursing care are: 'use a pressure-relieving air mattress if a change of position is not possible (by patients with pressure ulcers), 'use a screening tool to support the determination of psychosocial care needs' and 'start postoperative oral feeding as soon as possible, preferably within 6 hours and after 24 hours at most unless contraindicated by the surgeon' (13-16). High-value care is not always offered or delivered as it should. It is known that updating guidelines often takes too long, therefore not reflecting the most recent evidence (17). In addition, adhering to guidelines and recommendations by healthcare providers is suboptimal (17, 18), resulting in the delivery of low-value care that can compromise the quality of care (19).

Low-value care

Low-value care in nursing refers to healthcare services that offer minimal benefit to patients relative to their cost, potentially exposing them to unnecessary risks and, in some cases, causing more harm than good. In addition, patients identified duplicate and unnecessary care, care that should not have been provided, and care failing to meet their needs as forms of low-value care. They attributed such care to healthcare professionals adhering too rigidly to protocols and guidelines at the expense of tailoring care to individual patient needs. It is frequently linked to poor communication between healthcare professionals and patients (21).

Delivering low-value care contributes to the overuse of healthcare services or facilities that fail to enhance patient outcomes and escalate healthcare costs (21, 22). An example of low-value care is the overuse of bladder catheters. These are still routinely inserted in patients without a clear clinical indication. Such practice causes unnecessary patient discomfort, elevates the risk of urinary tract infections, and incurs additional costs associated with the materials used. While the primary advantage might be the convenience afforded to healthcare professionals, this consideration should not justify using catheters (23, 24). The persistence of low-value care and overuse arises from a range of factors. These may include entrenched practices where caregivers perceive action as preferable to inaction or experience discomfort with refraining from intervention. It may also stem from insufficient clinical guidelines or financial incentives within healthcare organisations. Furthermore, patients themselves can play a role, often driven by the belief that receiving more care equates to better care, thereby advocating for its provision (25).

Next to posing risks to patients and consuming valuable resources, low-value care also negatively impacts time management. Delivering low-value care is time-consuming, and nurses need to get more focus on de-implementing low-value care.

Reducing low-value care by de-implementation

Reducing low-value care can enhance the quality of care, improve patient experiences, and concurrently alleviate nurses' workloads. Therefore, the de-implementation of low-value care is an essential aspect that contributes to achieving appropriate care delivery.

Numerous initiatives have been implemented globally in recent years to understand better the prevalence of low-value care and strategies for its reduction. For instance, the Choosing Wisely campaign, aimed at de-implementing low-value care, was launched in the United States and has since been adopted in over 20 other countries (26). Another notable example is the development of the first Dutch "do-not-do" list for nursing care in 2017, which identifies 66 low-value nursing care interventions derived from medical guidelines. This list offers nurses

clear guidance on practices to avoid, including recommendations such as *"Do not clean acute wounds with disinfectants"* and *"Do not use physical restraints in cases of delirium"* (23). Similar initiatives have been undertaken in Australia, Canada, and the United States to increase awareness of low-value care practices. De-implementing low-value care has the advantage that it can lead to more time spent on quality improvement to support the delivery of high-value care and can reduce the proportion of missed care.

Missed care

Missed care, or care left undone, encompasses essential nursing tasks that are delayed or incomplete, typically due to an excessive workload, insufficient staffing, or ineffective communication. This phenomenon of missed care permeates nearly every aspect of FC, including timely medication administration, hygiene care, and the provision of emotional support. The consequences of missed care are detrimental to patient outcomes, leading to an increased risk of complications such as infections, pressure ulcers, and falls (27). Research highlights that nurses frequently grapple with this issue, defined as care left undone during a shift (28). Evidence indicates that nurses are more likely to leave the profession when overburdened, and the likelihood of missed essential care rises (3, 29). This contributes to reduced patient satisfaction and overall care quality (29). Missed care negatively affects patients' dignity and need for support, rest, sleep, and access to proper information (30).

To address the issues of low-value care and missed care and to enable nurses to deliver more high-value care, FC has been incorporated into the strategic agenda of the Dutch Nursing Association (Verpleegkundigen en Verzorgenden Nederland - V&VN). This agenda prioritises enhancing the quality of care, fostering the professional development and career progression of nurses, promoting increased autonomy in nursing practice, and focusing on integrating evidence-based practice (EBP) (12).

Evidence-Based Practice

The principles of EBP refer to applying the latest scientific evidence, incorporating patient preferences, and using the clinical expertise of healthcare professionals to ensure high-quality care delivery. The importance of integrating EBP into nursing practice and education has been recognised and emphasised for many years (31-33). Therefore, a significant proportion of novice nurses in the Netherlands are trained by the innovative, future-oriented Bachelor of Nursing 2020 (BN2020) curriculum. These "new style" nurses are educated to function as health promoters, quality improvement practitioners, reflective professionals, collaborative partners, and organisers, in which EBP has a prominent role (34). Other already graduated nurses have mastered

the principles of EBP during a nursing specialisation, education to become a nurse practitioner, or refresher courses and CZO-accredited programs. However, the EBP competencies are seldom utilised effectively in daily practice (34-36). Nurses fail to apply their EBP skills after graduation, and they are experiencing barriers to working on EBQI in practice (35, 36). The lack of practical reinforcement makes it challenging for nurses to retain and build upon their newly acquired skills, often eroding these competencies. Consequently, nurses frequently perform roles like those trained at the intermediate vocational education level, focusing predominantly on direct patient care (35-37).

The main problem of not utilizing their EBP skills is that experienced nurses often adhere to traditions and rituals rather than grounding their approach on the latest available evidence and passing on this approach to novice nurses (23, 38). Traditions and rituals can be meaningful in guiding the care process, particularly in challenging circumstances (39). However, it becomes problematic when they prevent the delivery of high-value care and perpetuate the delivery of low-value and missed care (40). In addition, the persistent imbalance between the roles of nurses and physicians does not facilitate the effective implementation of evidence-based practice. Too often, physicians are regarded as decision-makers, while nurses are seen merely as executors of these decisions. This deeply rooted cultural aspect of healthcare hinders the recognition of nurses' competencies. It prevents them from fully realising their profession's potential, such as applying EBP principles (41). Although there are many barriers among nurses and within nursing teams, in previous years, more literature has become available about how to stimulate nurses to work according to the principles of EBP. Several critical factors were mentioned.

Firstly, access to and utilisation of relevant evidence are essential to support the required changes. Secondly, the context within which these changes are introduced must be conducive to their success. Thirdly, nurses require adequate support and resources to successfully integrate these changes into their practice (42, 43). The latter could be indicated as evidence-based quality improvement (EBQI), widely recognised as an effective approach to achieving these objectives.

Evidence-based quality improvement

The approach of EBQI integrates Evidence-Based Practice (EBP) with Quality Improvement (QI), emphasising the importance of team-based innovation and problem-solving in everyday clinical practice (44).

The evidence-based (EB) component of EBQI focuses on the delivery of care grounded in EBP principles. The application of EBP advances the nursing profession by fostering clinical reasoning and reflective practice, enabling nurses to be confident that they are 'doing the right thing' (33). The quality improvement (QI) component of EBQI involves the application of systematic and continuous methods to enhance care delivery, improve system performance, and optimise patient outcomes. Moreover, QI processes contribute to the professional development of nurses (45). The application of QI ensures that 'the right way is used.' By integrating these two components, EBQI stimulates the delivery of accessible, high-quality personalised care and ensures that 'the right things are done the right way'. Effectively embedding EBQI into nurses' daily practice requires a culture in which a critically reflective attitude is embedded in everyday practice, a culture of continuous learning.

Learning culture

Developing a learning culture contributes to sustainable team-based innovations and enhances problem-solving capacity in daily clinical practice. Working within a learning culture encourages nurses to evaluate their current practices critically and continuously. This enables them to implement necessary adjustments to improve the quality of care (46, 47).

Workplace learning - also called learning on the job - is central to a learning culture. Workplace learning is crucial to ensure that changes are developed directly within practical settings and are immediately embedded into practice (48, 49). Learning activities associated with workplace learning include acquiring skills through routine tasks, applying new concepts in practice, engaging in social interactions with colleagues, gaining knowledge through theory or guidance, and reflecting on experiences (48).

To establish a sustainable learning culture focused on EBQI, nurses must receive comprehensive support and guidance (18, 50). This is to help nurses bridge the gap between theoretical knowledge and practice (51). Facilitating an EBQI-learning culture involves supporting and enabling nurses to improve their practice. This guidance must be provided both at an individual and a group level. Furthermore, the support must align with the context in which the changes are implemented (52). Therefore, it is necessary to have insight into how nurses can be adequately facilitated in developing an EBQI-focused learning culture to perform high-quality fundamental care and de-

implement low-value care (23, 53). Moving towards future-proof care by creating an EBQI-learning culture in nursing teams is important across health care. Nevertheless, the research presented in this thesis primarily focuses on nurses working in hospital and community care settings. The two domains are closely interconnected, mainly somatic-oriented care, and frequently collaborate or exchange patients.

Hospital and community care

In recent years, an increasing amount of healthcare has been shifted from hospitals to community care, a trend expected to continue. This transition entails greater care integration across both sectors, with a growing proportion of healthcare provided in the community rather than hospitals. This development is supported by the national policy 'The Right Care in the Right Place,' which forms a key component of the broader concept of 'appropriate care.' (7). The shift highlights the importance of understanding how nurses in both settings address FC and the subsequent impact on care quality. Examples of care transitioning to community settings include prevention and treatment efforts, particularly in areas such as pain management and complex wound care, which align with the principles of FC care (2, 54).

Despite the necessity of integrating healthcare more effectively, the working environments in hospitals and community care differ, each presenting unique challenges and opportunities for nurses. In hospitals, nurses typically operate within teams, requiring extensive collaboration and communication among nursing colleagues and interdisciplinary teams (55, 56). This collaborative environment can be challenging, as physicians in hospital settings often hold a dominant role in decision-making processes, which can sometimes undermine nurses' autonomy. Such dynamics may negatively affect the quality of care, as nurses hesitate to assert control over their practice for fear of potential repercussions from physicians (41). Additionally, hospital care tends to adopt a more biomedical focus than community care, leading to a predominantly task-oriented approach among nurses. This emphasis often prioritises addressing patients' physical well-being, with comparatively less attention given to their emotional well-being (57).

Professionals in community care often work more independently, as they provide care within the context of patients' homes. This independent working environment can be complex and demands creativity to ensure the delivery of appropriate and effective care (58). Community nurses are also involved in neighbourhood-focused prevention, self-reliance, and similar initiatives. They consider the environment in which residents live, including their informal support network. Compared to the hospital, where the focus is primarily on care—recovery, and the restoration of function—community nursing places greater emphasis on life, aiming at maintaining and restoring function. The patient population in

community care tends to be older, leading to a greater focus on maintaining or improving quality of life rather than achieving a cure. Palliative care pathways are frequently utilised, addressing not only physical needs but also placing significant emphasis on the psychosocial needs of patients(59). Another notable difference is the composition of the workforce in community care. This sector employs a broader range of healthcare professionals with varying levels of education, and the physician's role is less central compared to the hospital setting (60).

In the future, healthcare in the two settings will become increasingly interdependent, necessitating closer collaboration. Therefore, developing knowledge for both sectors is crucial, as it can enhance cooperation between hospital and community care. Furthermore, there is still limited knowledge about high- and low-value care in both settings and how an EBQI-learning culture can be developed.

Gap of Knowledge

To help nurses provide appropriate care, generating new knowledge is essential, which allows them to base their practice on the latest scientific evidence. However, the knowledge about effective nursing interventions is currently insufficient. Furthermore, when evidence about nursing intervention is available, it is not self-evidence that they apply it. Therefore, it is essential to understand the barriers nurses face when implementing EBP and what they require to integrate its principles into their daily routines. Despite receiving education on EBP, many nurses struggle to incorporate it into their routine care effectively. Nurses need support with practical tools that are directly applicable to clinical practice. For instance, there is a need for an updated version of the 'do-not-do' list, initially developed in 2017, to prioritise actions based on urgency and expand its recommendations with care interventions that contribute to high-quality care. However, merely having access to evidence is insufficient for nurses to achieve appropriate care. They require adequate support to guide them in transforming healthcare practices. Developing an EBQI-learning culture within nursing teams is a promising approach. Nevertheless, there is still limited knowledge on which coaching elements contribute to fostering an EBQI-learning culture within nursing teams and how patients can be actively engaged.

The studies in this thesis will, therefore, focus on generating evidence on the prioritised care topic of pain management, gaining insight into what nurses need to work more effectively according to EBP principles, and further developing the 'do-not-do' lists. Subsequently, studies will be conducted on patients' preferences regarding communication about care changes and on identifying the coaching elements that support the development of an EBQI-learning culture. Together,

these studies will enable nurses to deliver more appropriate care, supporting the transition towards sustainable healthcare.

Outline of the Thesis

The Netherlands faces the critical challenge of ensuring that healthcare remains accessible and that the quality of care is maintained now and in the future. This task is complex due to pressing issues such as workforce shortages, an aging population, and the growing complexity of patient needs. Nurses play a crucial role in delivering appropriate care. However, adequate resources and support are essential for them to fulfil this role effectively.

This thesis begins with an insight into what appropriate care is from a nursing perspective and what nurses need to deliver appropriate care. Establishing an EBQI-learning culture within nursing teams from the hospital and community care setting can contribute to this effort. By integrating continuous learning with EBP and QI, nurses can be empowered to enhance their practice and deliver FC systematically. Key components of providing appropriate care are reducing low-value care, preventing missed care, and promoting high-value care interventions. Nevertheless, achieving the delivery of appropriate care requires more substantial evidence for nursing interventions. It is essential to explore how nurses prefer to receive and engage with this knowledge to ensure its practical application and help nurses move beyond traditional practices and habits. Therefore, this thesis focuses on generating knowledge on pain interventions. A topic highly prioritized by Dutch nurses and related to the physical aspect of the FoCF being comfortable. But also tailor existing knowledge specifically for nurses and facilitate the development of an EBQI-learning culture (See Figure 2).

The following research aims were examined:

1. To identify the scope of pain interventions carried out by nurses for adult patients in hospital and community care settings and asses their quality
2. To explore the perceived needs of nurses and student nurses for improving engagement in the use of EBP in hospital and community care settings
3. To systematically assess Dutch guidelines and quality standards relevant for nurses from 2017 to 2023 to identify low-value and high-value care recommendations. The secondary aim of this study was to prioritize low-value care recommendations and determine which low-value care practices are high on the de-implementation agenda, according to nurses.
4. To explore patients' needs and wishes towards being involved in care processes that nurses can use in developing an evidence-based quality improvement learning culture
5. To explore how coaching can facilitate the development of an EBQI-learning culture within nursing teams in the hospital and community care setting. Identifying the factors that influence this process.

The chapters of this thesis are structured as follows:

Chapter 2 addresses the knowledge gap between science and practice concerning fundamental care, focusing on nursing interventions for pain management. A scoping review was conducted to evaluate the risk of bias in the included studies. This approach was chosen not only to encompass the breadth of nursing interventions for pain management but also to provide readers with insight into the methodological robustness of the included studies.

Chapter 3 investigates what nurses require to integrate the principles of EBP more effectively into their work. This chapter aims to tailor knowledge for practical application by nurses in daily practice. The study employed focus group interviews with nurses and nursing students to achieve this objective. The insights gained from this research can help address the needs of current and future generations of nurses, thereby promoting the integration of EBP into nursing practice and facilitating the provision of high-value care.

Chapter 4 is focused on tailoring knowledge to ensure it is accessible to nurses. The study identified both low- and high-value recommendations for nursing practice. Dutch medical guidelines were analysed to extract these recommendations, with low-value recommendations prioritised generally and by sector. The findings provide critical insight into recommendations requiring urgent de-implementation.

Chapter 5 examines patients' needs and preferences for involvement in care processes, which nurses can use in fostering an EBQI-learning culture. As patient

insights are a key component of EBP, incorporating them is essential for driving quality improvement and supporting the development of an EBQI-learning culture in nursing teams. Effective communication tailored to the patient's level of understanding promotes acceptance of changes and contributes to their successful implementation.

Chapter 6 explores the role of coaching in fostering the development of an EBQI-learning culture within nursing teams in hospital and community care settings. An action research approach was used to achieve this goal. The study offers valuable insights into how coaching can support nurses in cultivating a learning culture and the factors that facilitate or hinder this process. Applying these findings to create an EBQI-learning culture will enhance the quality of care, supporting the transition toward appropriate care delivery. Developing such a culture enables nurses to de-implement low-value care and sustainably implement high-value care effectively.

Chapter 7 presents the research's main findings and discusses its strengths, limitations, and implications for practice and future research.

The addendum of this thesis provides a comprehensive overview of tailored actions and materials developed during the project to facilitate the integration of research findings into daily nursing practice. It includes practical, tailored knowledge of care recommendations that can be directly applied in practice and tools to support nurses in implementing change and fostering an EBQI-learning culture. Hyperlinks will provide tools with a digital source.

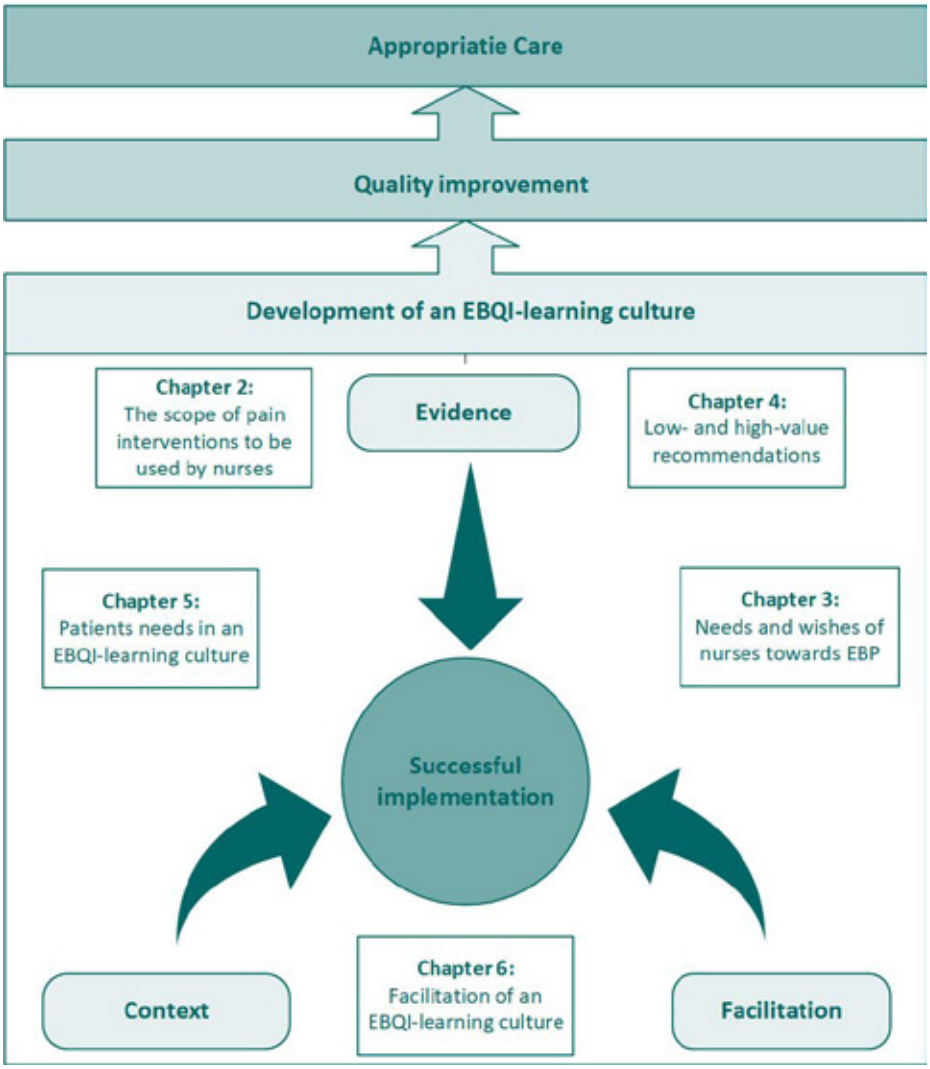


Figure 2: **Visual of the conducted studies**

References

1. Beks H, Clayden S, Wong Shee A, Manias E, Versace VL, Beauchamp A, et al. Low-value health care, de-implementation, and implications for nursing research: A discussion paper. Int J Nurs Stud. 2024;156:104780.
2. WHO. State of the World's nursing 2020: investing in education, jobs, and leadership: World Health Organization 2020; 2020.
3. Visser M, de; Boot, A.W.A; Werner, G.D.A.; Riel, A. Van; Gijsberts, M.I.L. Sustainable healthcare, a matter of choice. People, resources, and public support. In: Policy TNSCfG, editor. The Hague2021. p. 25.
4. Kievit JB, A.; Polder, J.; Wagner, C. Rapport 'Begrippenkader Gepaste Zorg en Praktijkvariatie'. In: ZINL Z, FMS en NFU editor. Leiden2015. p. 29.
5. VWS. Integraal Zorg Akkoord - Samen werken aan gezonde zorg 2020 [Available from: https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/rapporten/2022/09/16/integraal-zorgakkoord-samen-werken-aan-gezonde-zorg/integraal-zorg-akkoord.pdf.
6. Robertson-Preidler J, Biller-Andorno N, Johnson T. What is appropriate care? An integrative review of emerging themes in the literature. BMC Health Serv Res. 2017;17.
7. Zorginstituut-Nederland. Kader passende zorg 2022:[21 p.]. Available from: file:///C:/Users/z263200/Downloads/Kader+Passende+Zorg.pdf.
8. Broeder Ld, Couwenbergh C, Hilderink H, Polder J. Opgaven voor volksgezondheid en zorg op weg naar 2050. Vooruitblik Volksgezondheid Toekomstverkenning 2024. Public health and health services missions in the period to 2050 A look ahead to the Public Health Foresight Study 2024: Rijksinstituut voor Volksgezondheid en Milieu RIVM; 2023.
9. Kitson A, Robertson-Malt S, Conroy T. Identifying the fundamentals of care within Cochrane Systematic reviews: the role of the Cochrane Nursing Care Field Fundamentals of Care Node. Int J Nurs Pract. 2013;19(2):109-15.
10. Feo R, Conroy T, Jangland E, Muntlin Athlin Å, Brovall M, Parr J, et al. Towards a standardised definition for fundamental care: A modified Delphi study. J Clin Nurs. 2018;27(11-12):2285-99.
11. Savoie C, Rey S, Yokota S, Dallaire C, Kimura S, Takatani S, et al. Fundamental Care's state of knowledge around the world: Where are we now? A scoping review. J Adv Nurs. 2023;79(3):865-84.
12. Elshaug AG, Rosenthal MB, Lavis JN, Brownlee S, Schmidt H, Nagpal S, et al. Levers for addressing medical underuse and overuse: achieving high-value health care. Lancet. 2017;390(10090):191-202.
13. Verpleegkundigen&Verzorgenden-Nederland. Alle richtlijnen 2024 [Available from: https://www.venvn.nl/richtlijnen/alle-richtlijnen/?guidelineStatus=geautoriseerd-door-venvn.
14. Shi C, Dumville JC, Cullum N, Rhodes S, McInnes E, Goh EL, et al. Beds, overlays and mattresses for preventing and treating pressure ulcers: an overview of Cochrane Reviews and network meta-analysis. Cochrane Database Syst Rev. 2021;8(8):Cd013761.
15. Bussmann S, Vaganian L, Gerlach AL, Kusch M, Labouvie H, Cwik JC. Screening and assessment for cancer patients' psychosocial support needs: Development and validation of the psychosocial risk questionnaire. Eur J Oncol Nurs. 2023;63:102240.
16. van Noort HHJ, Eskes AM, Vermeulen H, Besselink MG, Moeling M, Ubbink DT, et al. Fasting habits over a 10-year period: An observational study on adherence to preoperative fasting and postoperative restoration of oral intake in 2 Dutch hospitals. Surgery. 2021;170(2):532-40.
17. Shekelle P, Eccles MP, Grimshaw JM, Woolf SH. When should clinical guidelines be updated? BMJ. 2001;323(7305):155-7.

18. Grimshaw J, Eccles M, Thomas R, MacLennan G, Ramsay C, Fraser C, et al. Toward Evidence-Based Quality Improvement. Journal of General Internal Medicine. 2006;21(S2):S14-S20.
19. Jackson D. Missed nursing care, low value activities and cultures of busyness. Journal of Advanced Nursing. 2023;79(12):4428-30.
20. Feo R, Conroy T, Alderman J, Kitson A. Implementing fundamental care in clinical practice. Nurs Stand. 2017;31(32):52-62.
21. Verkerk EW, Boekkooi JAH, Pels EGM, Kool RB. Exploring patients' perceptions of low-value care: An interview study. Patient Educ Couns. 2023;111:107687.
22. Brownlee S, Chalkidou K, Doust J, Elshaug AG, Glasziou P, Heath I, et al. Evidence for overuse of medical services around the world. The Lancet. 2017;390(10090):156-68.
23. Verkerk EW, Huisman-de Waal G, Vermeulen H, Westert GP, Kool RB, van Dulmen SA. Low-value care in nursing: A systematic assessment of clinical practice guidelines. Int J Nurs Stud. 2018;87:34-9.
24. Rubi H, Mudey G, Kunjalwar R. Catheter-Associated Urinary Tract Infection (CAUTI). Cureus. 2022;14(10):e30385.
25. Morgan DJ, Brownlee S, Leppin AL, Kressin N, Dhruva SS, Levin L, et al. Setting a research agenda for medical overuse. BMJ. 2015;351:h4534.
26. Born KB, Levinson W. Choosing Wisely campaigns globally: A shared approach to tackling the problem of overuse in healthcare. J Gen Fam Med. 2019;20(1):9-12.
27. Kalisch BJ, Landstrom GL, Hinshaw AS. Missed nursing care: a concept analysis. Journal of Advanced Nursing. 2009;65(7):1509-17.
28. Ball JE, Murrells T, Rafferty AM, Morrow E, Griffiths P. 'Care left undone' during nursing shifts: associations with workload and perceived quality of care. BMJ Qual Saf. 2014;23(2):116-25.
29. Griffiths P, Recio-Saucedo A, Dall'Ora C, Briggs J, Maruotti A, Meredith P, et al. The association between nurse staffing and omissions in nursing care: A systematic review. J Adv Nurs. 2018;74(7):1474-87.
30. Jangland E, Teodorsson T, Molander K, Muntlin Athlin Å. Inadequate environment, resources and values lead to missed nursing care: A focused ethnographic study on the surgical ward using the Fundamentals of Care framework. J Clin Nurs. 2018;27(11-12):2311-21.
31. Kitson A, Carr D, Conroy T, Feo R, Grønkjær M, Huisman-de Waal G, et al. Speaking Up for Fundamental Care: the ILC Aalborg Statement. BMJ Open. 2019;9(12):e033077.
32. Ubbink DT, Vermeulen H, Knops AM, Legemate DA, Oude Rengerink K, Heineman MJ, et al. Implementation of evidence-based practice: outside the box, throughout the hospital. Neth J Med. 2011;69(2):87-94.
33. Baker JD. Nursing Research, Quality Improvement, and Evidence-Based Practice: The Key to Perioperative Nursing Practice. AORN J. 2017;105(1):3-5.
34. Verpleegkunde Loo. Bachelor nursing 2020 - Een toekomstbestendig opleidingsprofiel 4.02020. Available from: https://www.venvn.nl/media/aadklpzc/opleidingsprofiel-bachelor-of-nursing-2020.pdf.
35. Lam CK, Schubert C. Evidence-Based Practice Competence in Nursing Students: An Exploratory Study With Important Implications for Educators. Worldviews Evid Based Nurs. 2019;16(2):161-8.
36. Skela-Savič B, Gotlib J, Panczyk M, Patelarou AE, Bole U, Ramos-Morcillo AJ, et al. Teaching evidence-based practice (EBP) in nursing curricula in six European countries-A descriptive study. Nurse Educ Today. 2020;94:104561.

37. Lehane E, Leahy-Warren P, O'Riordan C, Savage E, Drennan J, O'Tuathaigh C, et al. Evidence-based practice education for healthcare professions: an expert view. BMJ Evid Based Med. 2019;24(3):103-8.
38. Zwakhalen SMG, Hamers JPH, Metzelthin SF, Ettema R, Heinen M, de Man-Van Ginkel JM, et al. Basic nursing care: The most provided, the least evidence based - A discussion paper. J Clin Nurs. 2018;27(11-12):2496-505.
39. Anderson D, De Souza J. The importance and meaning of prayer rituals at the end of life. Br J Nurs. 2021;30(1):34-9.
40. Kitson A, Carr D, Feo R, Conroy T, Jeffs L. The ILC Maine statement: Time for the fundamental care [r]evolution. J Adv Nurs. 2024.
41. Theys S, Lust E, Heinen M, Verhaeghe S, Beeckman D, Eeckloo K, et al. Barriers and enablers for the implementation of a hospital communication tool for patient participation: A qualitative study. J Clin Nurs. 2020;29(11-12):1945-56.
42. Harvey G, Kitson A. PARIHS revisited: from heuristic to integrated framework for the successful implementation of knowledge into practice. Implement Sci. 2016;11:33.
43. Kitson AL, Rycroft-Malone J, Harvey G, McCormack B, Seers K, Titchen A. Evaluating the successful implementation of evidence into practice using the PARiHS framework: theoretical and practical challenges. Implement Sci. 2008;3:1.
44. Hempel S, Bolshakova M, Turner BJ, Dinalo J, Rose D, Motala A, et al. Evidence-Based Quality Improvement: a Scoping Review of the Literature. J Gen Intern Med. 2022;37(16):4257-67.
45. Piggott T, Langendam MW, Parmelli E, Adolfsson J, Akl EA, Armstrong D, et al. The GIN-McMaster guideline tool extension for the integration of quality improvement and quality assurance in guidelines: a description of the methods for its development. J Clin Epidemiol. 2023;154:197-203.
46. Henderson A, Briggs J, Schoonbeek S, Paterson K. A framework to develop a clinical learning culture in health facilities: ideas from the literature. Int Nurs Rev. 2011;58(2):196-202.
47. McCormack B, Slater P. An evaluation of the role of the clinical education facilitator. J Clin Nurs. 2006;15(2):135-44.
48. Berings M, Poell R, Gelissen J. On-the-job learning in the nursing profession: Developing and validating a classification of learning activities and learning themes. Personnel Review - PERS REV. 2008;37:442-59.
49. van Lierop MEA, Meijers JMM, van Rossum E, Rutten JER, Thoma-Lürken T, Zwakhalen SMG. How to establish workplace learning in long-term care: results from a World Café dialogue. BMC Nurs. 2022;21(1):241.
50. Lovink MH, Verbeek F, Persoon A, Huisman-de Waal G, Smits M, Laurant MGH, et al. Developing an Evidence-Based Nursing Culture in Nursing Homes: An Action Research Study. Int J Environ Res Public Health. 2022;19(3).
51. Lambert V, Glacken M. Clinical education facilitators: a literature review. J Clin Nurs. 2005;14(6):664-73.
52. Dogherty EJ, Harrison MB, Graham ID. Facilitation as a role and process in achieving evidence-based practice in nursing: a focused review of concept and meaning. Worldviews Evid Based Nurs. 2010;7(2):76-89.
53. Rietbergen T, Spoon D, Brunsveld-Reinders AH, Schoones JW, Huis A, Heinen M, et al. Effects of de-implementation strategies aimed at reducing low-value nursing procedures: a systematic review and meta-analysis. Implement Sci. 2020;15(1):38.
54. Kitson AL, Conroy T, Kuluski K, Locock L, Lyons RF, editors. Reclaiming and redefining the Fundamentals of Care: Nursing's response to meeting patients' basic human needs2013.

55. Eddy K, Jordan Z, Stephenson M. Health professionals' experience of teamwork education in acute hospital settings: a systematic review of qualitative literature. JBI Database System Rev Implement Rep. 2016;14(4):96-137.

56. Piers RD, Versluys KJJ, Devoghel J, Lambrecht S, Vyt A, Van Den Noortgate NJ. A Typology of Interprofessional Teamwork in Acute Geriatric Care: A Study in 55 units in Belgium. J Am Geriatr Soc. 2017;65(9):2064-70.

57. van Belle E, Giesen J, Conroy T, van Mierlo M, Vermeulen H, Huisman-de Waal G, et al. Exploring person-centred fundamental nursing care in hospital wards: A multi-site ethnography. J Clin Nurs. 2020;29(11-12):1933-44.

58. Brenne BA, Hedlund M, Ingstad K. Exploring home-based care nurses' mindset for nursing practices: a phenomenological study. BMC Nurs. 2022;21(1):291.

59. Chan HY-l, Chung CK-m, Tam SS-c, Chow RS-k. Community palliative care services on addressing physical and psychosocial needs in people with advanced illness: a prospective cohort study. BMC Palliative Care. 2021;20(1):143.

60. Grijpstra D, De Klaver P, Meuwissen J. De situatie op de arbeidsmarkt in de wijkverpleging. Panteia: Zoetermeer, The Netherlands. 2020.

CHAPTER 2

OVERVIEW OF PAIN INTERVENTIONS FOR HOSPITAL- AND COMMUNITY CARE NURSES: A SYSTEMATIC SCOPING REVIEW

Identifying the scope of pain interventions executed by nurses for adult patients in hospital-and community care settings to help formulate future evidence-based recommendations for the nursing-sensitive outcome pain

Jeltje Giesen
Annick Bakker-Jacobs
Anneke van Vught
Hester Vermeulen
Getty Huisman-De Waal

International Journal of Nursing and Health Care Research (2021); 4: 1265
https://doi.org/10.29011/26889501.101265

Abstract

Objective: Identifying the scope of pain interventions executed by nurses for adult patients in hospital and community care settings.

Background: In health care settings, patients are prone to experience pain. Nurses play a vital role in pain prevention, treatment and make patients feel comfortable. Nursing care is the most provided care, but the least evidence based, which results in over- or under-treatment. Identifying the scope of nursing pain interventions can contribute to promote a better quality of care and use of evidence-based practice.

Design: Systematic scoping review

Methods: Medline, CINAHL, EMBASE, PsycINFO, Cochrane and Web of Science were searched up to November 2019. Western, controlled intervention studies executed by nurses involving adult patients in the hospital and community care setting were eligible for inclusion. The reviewers independently screened the title/abstract and full text, performed a structured data extraction and methodologically assessed the quality of the studies with the Cochrane Risk of Bias 2.0 tool.

Results: Out of 5,697 studies**,** 47 were included. Selected interventions were divided into three categories: (a) distraction interventions, like listening to music; (b) health education interventions, like improving self-management; and (c) pain prevention interventions, like numbing sprays or pain-preventing devices. Risk of bias assessment resulted in two studies with a high score, 28 studies with a moderate score and 17 with a low score on methodological quality.

Conclusion: This systematic scoping review provides an overview of the scope of pain interventions carried out by nurses. More research is necessary to determine the full value these interventions.

Keywords: Fundamental care; nursing interventions; nursing sensitive outcome; pain; hospital; community care; systematic scoping review.

What does this paper add?

- This paper provides an overview of the scope of interventions carried out by nurses that address pain. In addition, we provided an overview of the quality of the included studies.
- Three main categories of pain interventions were found: distraction, health education and pain prevention interventions.
- Insight in the quality and results of interventions, like music or self-management interventions or application of warmth or cold, provides a basis for systematic reviews that can be used to determine their final value for the nursing profession.

Introduction

Meeting patients' basic human needs and guiding them to address themselves is the key task of the nursing profession. Essential care that all patients require is captured in the Fundamental of Care Framework by Kitson et al. (1). The Fundamental of Care Framework provides guidance for holistic and patient-centred nursing care, in which enabling or hindering factors of the context of care are considered for the delivery of high-quality care (2). The relation between nurse and patient is the central point in the Fundamental of Care Framework in which empowering patients is an important aspect. Kitson et al. (1) divide nursing care into three dimensions: physical needs like keeping the patient safe or fed; psychosocial needs like keeping the patient involved or hopeful; and relational aspects for the establishment of a working patient–nurse relationship.

A key aspect of the physical needs dimension is keeping the patient comfortable and free of pain (1). The International Association for the Study of Pain defines pain as*: 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage' (3).* Pain is an important nursing-sensitive outcome because of its tremendous impact on a patient's comfort and quality of life (4, 5). Intensity, pain-related distress and functional impairment influence the severity of pain. The treatment depends on the cause of the pain, pain perception and pain behaviour, all of which differ from patient to patient (3).

Pain starts acutely and is often treated by taking away the cause of the pain, for example, with surgery, or to treat symptoms with analgesics like paracetamol, non-steroidal anti-inflammatory drugs or opiates. In addition, regional analgesia of continuous peripheral nerve blocks has become an acute treatment. Finally, there are non-pharmacological approaches, like transcutaneous electrical nerve stimulation or the use of distraction, like music, books or videos (6). When pain is

persistent or recurrent and lasts longer than 3 months, it is classified as chronic. This form of pain can be divided into several subcategories: chronic primary pain, chronic cancer pain, chronic postsurgical and posttraumatic pain, chronic neuropathic pain, chronic headache and orofacial pain, chronic visceral pain and chronic musculoskeletal pain (7). Chronic pain treatment is focused on remedying or minimising the pain and includes pharmaceutical interventions, surgery, physical therapy or a combination of an interdisciplinary therapy (8).

Adequate pain treatment and prevention is essential because pain seriously impacts a patient's well-being, quality of life and even recovery after surgery (4, 9, 10). Boekel et al. (11) found that 55% of patients experience moderate to severe pain on the first post-operative day and patients with unacceptable pain had more complications (adjusted odds ratio 2.17, 95% confidence interval [CI] 1.51–3.10, $p < 0.001$). Unfortunately, pain treatment is often suboptimal and since the mid-1990s, opioid use in Europe has increased rapidly. For example, approximately 20% of the population worldwide experiences chronic pain. Between 1990 and 2017, a quarter of this population was using opioid analgesics as a treatment. The percentage of patients using opioids has not changed over time (12). Bosetti et al. (13) stated that more attention needs to be paid to pain management to avoid misuse or abuse of pain medication.

Hospital and community care nurses have an important role in helping their patients to be comfortable and pain free to improve quality of life. Although nursing care is the most provided form of care, it is the least evidence based (14). Nurses are often guided by experience, intuition and tradition (15). This can result in the use of low-value care that is harmful, inadequate or incomplete and affects a patient's safety or health outcomes (16, 17). Replacing low-value care by evidence-based interventions, also known as high-value care, improves the quality of care. Verkerk and colleagues (17) first identified low- and high-value nursing interventions by assessing Dutch clinical nursing practice guidelines. As a result, they identified 66 low-value care practices often used in clinical practice. For example, for pain they found that subcutaneous, transdermal, oral or intramuscular opioid administration is unsuited for post-operative pain management and intravenous administration is preferred because of its rapid and predictable effects (17). In addition, to improve pain management by health care professionals, Berben et al. (18) recommended that aspects like adequate knowledge, attitude, professional communication, organisational aspects and patient input should be taken into account.

To increase the quality of care and to further professionalise nursing, it is necessary to reduce the level of low-value care and increase the level of high-value care (17). To achieve this goal, first of all we need insights into into the scope

nursing interventions that address pain. A systematic scoping review will guide this endeavour.

Aims

The aim of this systematic scoping review is to identify the scope of pain interventions carried out by nurses for adult patients in hospital and community care settings and asses their quality.

Methods

To identify pain interventions that are carried out by nurses we used a systematic scoping review as an approach. This approach is suitable to identify interventions in a broad field of evidence when the scope is not clear and helps researchers with inclusion criteria for full systematic reviews (19). In addition, we assessed the quality of the included to help research in prioritising interventions for further research. This systematic scoping review follows the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) for Scoping Reviews* (20) and the *Cochrane Handbook for Systematic Reviews of Interventions* (21). In October 2019, we submitted a PROSPERO registration, ID CRD4202153093. This systemic scoping review was performed by the Improve! project team, which includes five nursing scientists, an educational scientist and a researcher.

Search strategy

We worked together with an experienced medical librarian to define a comprehensive systematic search strategy. This included both MeSH and free text terms related to nursing interventions focused on pain care, like 'pain management', 'pain measurement' and 'pain perception', in combination with 'nursing' and a special controlled trail filter; no additional limits were added (Supporting Appendix S1). Medline, CINAHL, EMBASE, PsycINFO, Cochrane and Web of Science were searched up to November 2019. In addition, we checked the references of the included articles for additional studies.

Eligibility criteria

Original research articles written in English or Dutch, published in peer journals in or after 2010 were eligible. We chose only to select studies published after 2010 to ensure inclusion of recent and up-to-date scientific nursing outcomes. According to the guidance of the Cochrane Effective Practice and Organization of Care group, studies were included if the data could be compared with a control or baseline measure, such as randomised controlled trials, controlled before-and-after studies or interrupted time series methods. In addition, the studies had to include interventions of a Western origin, be focused on pain care performed by a nurse and include adult patients > 18 years. Finally, studies had to be conducted in a hospital or community care setting or contain an intervention transferable to these settings and executed in an Organisation for Economic Co-operation and Development country. Studies involving women in labour or breastfeeding and/or Chinese, alternative or non-Western interventions were excluded.

Screening process

All databases were searched separately in November 2019. All the resulting articles were imported to Endnote version X9.2. After removing duplicates automatically and by hand, Rayyan QCRI – a web and mobile app for systematic reviews (22) – was used for independent title/abstract and full text screening with a team of four researchers. Studies were screened by a research couple and discrepancies were discussed until a consensus was reached; if needed, a couple consulted a third researcher.

Data extraction and synthesis

Using a structured format, the following data were extracted: author, year, country, study design, aim, participants, setting, study group, intervention, measurement scale and point and results. One research assistant extracted the data; one of the authors subsequently checked the extraction. Discrepancies were discussed until a consensus was reached, or a third team member was consulted.

Quality appraisal

To give the reader an overview of the quality of the included studies we used the The Cochrane Risk of Bias (RoB) 2.0 tool (23), This was done independently by three researchers. Again, studies were assessed by an research couple and discrepancies were discussed until a consensus was reached or a third researcher was consulted. All assessment data were recorded in the RoB 2.0 Excel form and the algorithm function was used to determine the level of bias. In addition, a study was scored as high-quality when there was no risk found for the five bias assessment items. If at

least one item had some concerns, the study was of moderate quality; when one or more items had some concerns, the study was scored as low quality (23).

Results

Description of the included studies

The database searches resulted in 13,061 hits. After removing duplicates, the titles and abstracts of 5,697 papers were screened in Rayyan QCRI (24); in total, 227 full-text papers were screened for eligibility. Finally, 47 papers (25-69) met the inclusion criteria (Figure: 1). No additional records were identified after checking the references of the included articles.

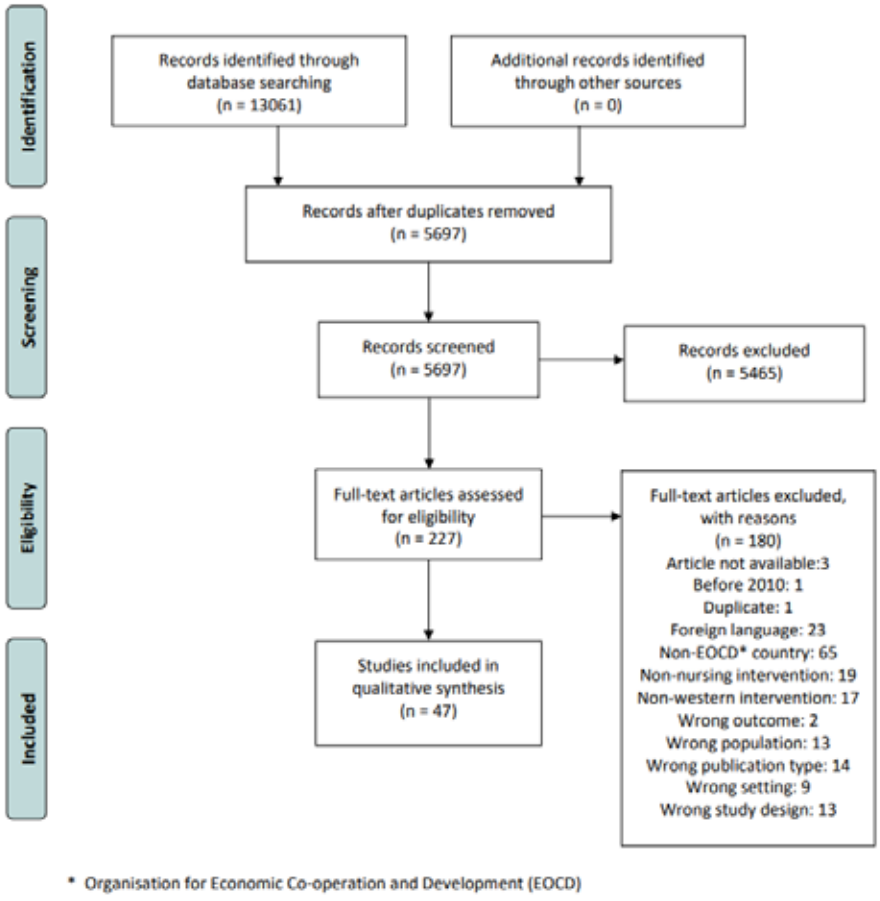


Figure 1: PRISMA Flowchart – Pain interventions

The 47 included studies were performed in 14 different countries. Most studies were performed in Turkey (n = 14) (37, 41, 46, 51, 52, 56-58, 61, 62, 65, 67, 69, 70) and the United States (n = 12) (28, 30, 31, 38-40, 43, 45, 60, 66, 68, 71). In addition, four were performed in South Korea (49, 50, 54, 61, 64), four in Italy (25-27, 59), two in Germany (36, 53), two in France (33, 35) and two in the United Kingdom (34, 47). Finally, countries where one study was performed were: Australia (29), Canada (63), Denmark (32), Greece (44), Finland (42), Norway (55) and Spain (48).

In total, 37 studies had a randomized controlled trial design (25, 27-29, 31-34, 36-41, 43, 44, 46-48, 51-53, 55, 57, 59-67, 69-71), of which two studies were pilot randomized controlled trials (26, 53) and 10 studies used a quasi-experimental design (30, 35, 42, 45, 49, 50, 54, 56, 58, 68). Most studies were performed in a hospital (n = 39) (25-27, 29, 32, 35-39, 41-48, 51-54, 56-66, 69-71) or a specialized care Centre (n = 7) (28, 30, 31, 33, 34, 40, 55); one study included patients from a hospital and community care Centre (55). In addition, one study was performed amongst nursing students of a university (67) but contained an intervention transferable to the hospital and community care setting and was therefore included. In 44 studies inpatients were involved, and in the remaining three studies outpatients were involved (30, 55, 70). In total, there were > 5,581 participants in the included studies, with a range from 17 to 497 per study. In one study exact number of participants was not reported (45). The age of the participants approximately ranged from 19 to 78 years, four studies did not mention the range of age of the participants(45, 58, 66, 68). In addition, approximately 33.6% of the participants were male, 58.6% female and for 7.8% gender was not reported(45, 49, 50, 58, 66, 68). After data analysis, three pain intervention subgroups emerged: distraction (n = 19), health education (n = 13) and prevention (n = 19). These subgroups were used to describe the study the results and quality scores (Table: 1).

Table 1: Overview of the included studies

Countries		Design		Setting		Patients		Interventions	
Turkey	14	RCT	35	Hospital	39	>5,581 (range)	17–497	DistractionMusic	14
United	12	Pilot RCT	2	SC centre	7	Age, years	19–78	VR	2
States	4	Quasi-	10	CC centre	1	(range)	33.6%	Other distractions	3
South	4	experimental		University	1	Male	58.6%	Health educationSelf-management	7
Korea	2					Female	7.8%	Educational information	6
Italy	2					Not reported	44	Prevention Numbing spray	4
Germany	2					Inpatients	3	Special positions	3
France	1					Outpatients	1	Application of cold/warmth	6
United	1					CC	1	'Buzzy' device	3
Kingdom	1					University		Other devices	3
Australia	1								
Canada	1								
Denmark	1								
Greece	1								
Finland									
Norway									
Spain									

Abbreviations: CC, community care; RCT, randomised controlled trial; SC, specialised care; VR, virtual reality

Results of distraction interventions

The distraction intervention subgroup included 16 studies that tested 14 music interventions (25-29, 31-33, 35, 42, 44, 70, 71), two virtual reality interventions (30, 43) and three 'other' interventions, namely watching an DVD, distraction by an nurse and using a stress ball (34). All studies were performed in a hospital or specialised treatment centre. In total, 1,452 participants were included with a range from 17 to 398 participants per study and an average age of 41 years (range 3–78 years).

Music interventions

Music therapy as a distraction intervention included patients with fibromyalgia (70), patients receiving haemodialysis (25, 26), patients with chronic pain (33), patients on mechanical ventilators (35), patients with obesity, patients who underwent abdominal surgery (31, 44), patients who received a total knee arthroplasty (71), patients who underwent laparoscopic cholecystectomy (32), patients with cancer undergoing chemotherapy (26), patients with cervical cancer (28), post-operative patients in the intensive care unit (29) and patients undergoing conscious surgery (34) (Table: 2 and Appendix: 2).

In 11 studies, an audio tape or music video was used with a duration varying between 20 and 30 minutes. Patients could select the music of choice in these studies. In seven studies, the patients listened to music after the procedure (28, 31, 33, 42, 44, 45, 71) with a variation of listening of one time or multiple times a day and at home. In three studies, music was listened to before/after and during the procedure (32, 35, 72) and in one study it was listened to only during surgery (34). In six studies, there was a significant reduction in pain ($p < 0.05$, 95% CI not reported) in the intervention group compared with the control group (28, 31, 33, 35, 44, 70). Allred et al. (71) reported a significant effect in the intervention group, but not between groups. Cook et al. (29) and Hutson et al. (34) found no effect. In addition, Vaajoki et al. (42) showed only significant results on day two and Graverse et al. (32) on day 7, although the intervention was performed on day one. Therefore, a confounder should be considered (Table: 2 and Appendix: 2).

In three studies, 15 minutes of live singing or saxophone music performed by the nurse was used (25-27). Measurements were performed directly before and after the intervention that was preformed once an week. There was a significant reduction in the level of pain in the intervention group ($p < 0.05$, 95% CI not reported) (25-27). However, Burrai et al. (26) did not find a significant effect between groups. In addition, in one study (25) there was a significant reduction in systolic blood pressure ($p < 0.001$, 95% CI not reported) and diastolic blood pressure ($p = 0.045$, 95% CI not reported) (Table 2 and Appendix 2).

Virtual reality interventions

Two studies had a virtual reality intervention including patients with an haematologic disease (30) and patients with pain (43). Patients wore virtual reality googles during the procedure (30) or for 15 minutes three times a day or as needed (43). In both studies patients could choose a virtual reality programme they liked. There was significant pain reduction ($p < 0.04$, 95% CI not reported) up to 72 hours post-intervention in hospitalised patients with pain (43). However, Glennon et al. (30) reported that patients who wore virtual reality googles during the procedure showed no significant decrease in pain experience (Table: 2 and Appendix: 2).

Other distraction interventions

Hudson et al. (34) evaluated patients with varicose veins listening to music, watching a DVD, interacting with nurses and using a stress ball during conscious surgery. Distraction by a nurse ($p = 0.022$, 95% CI not reported) and using a stress ball ($p = 0.002$, 95% CI not reported) reduced pain significantly compared with the control group. There was no effect found for listening to music ($p = 0.17$) and watching a DVD ($p = 0.18$, 95% CI not reported) (Table: 2 and Appendix: 2).

Results of health education intervention results

This subgroup included 13 studies (31, 36, 45-51, 53-56), of which seven tested a self-management intervention (31, 36, 47, 49, 50, 53, 55) and six provided educational information (45, 46, 48, 51, 54, 56). All studies were performed in a hospital or specialised medical centre. One study was also performed in a community care setting(55). Studies included >1,943 patients, with an estimated range of 39–436 patients per study and an age range of 41–70 years, one study did not provide the exact numbers of participants (45).

Self-management

The studies focused on health education by stimulating self-management included patients undergoing knee replacement (47), abdominal (31) or gynaecological (49, 50) surgery as well as patients with cancer (36, 53, 55). The interventions focused on patient-directed self-management of pain (47), teaching for pain management (31), a structured educational programme on patient-controlled analgesia (49, 50), a modular transitional nursing intervention (36), the Pain Self-management Support Intervention (53) and the Pro-Self Pain Control Program (55). There was a significant effect of the intervention ($p < 0.05$, 95% CI not reported) reported in two studies focusing on patient-controlled analgesia (49, 50) and the Pro-Self Pain Control Program (55). In the other four studies, there was no significant effect (31, 36, 47, 53) (Table: 2 and Appendix: 2).

Educational information

The studies focusing on health education by providing educational information included patients with various medical-surgical diagnoses (45), patients who underwent thoracotomy or pulmonary procedures (51), patients who underwent digestive cancer surgery (54), patients with lung cancer (46), women undergoing breast screening exams (48) and women who underwent mastectomy/breast conserving surgery (56). Interventions used were a script-based communication intervention (45), patient education booklet (46), face-to-face information/ emotional support (48), active patient participation in the management of daily nursing goals (54) and information about surgical pain and analgesics (56). All six studies had a significant effect on pain ($p < 0.05$, 95% CI not reported) (Table: 2 and Appendix: 2).

Results of pain prevention intervention

This subgroup included 19 studies: four focused on using a numbing spray (59, 60, 66, 68); three assessed a specific position to reduce pain (38, 58, 64); five examined the application of cold (39, 52, 61, 63, 65); one examined the application of warmth (62); three evaluated a 'Buzzy' device (37, 40, 69); and one each focused on changing the needle (57), using a shot-blocker (67) and using a transcutaneous electrical nerve stimulation device (41). All studies were performed in a hospital or specialized centre and one study on a university. In total, 2186 participants were included with a range from 32-497 participants per study and an average age of 51.50 years (range 19-63 years).

Numbing sprays

Of the studies focused on using a numbing spray to prevent pain during intravenous catheterisation (59, 60, 66, 68), two reported a significant effect (p=.001, 95% CI not reported)(59) and (p<.001, 95% CI not reported)(60). Edwards and Noah (66) found no difference in the pain levels of the intervention and control groups and Falitico and Rayn (68) actually found increased pain in the intervention group (p=.049, 95% CI not reported) (Table: 2 and Appendix: 2).

Specific positioning

A specific position to prevent pain was used in three studies (38, 58, 64). The exaggerated lithotomy position, in which patients lie on their back with legs in the air to relieve pain after a laparoscopic cholecystectomy, had a significant effect (p.000, 95% CI not reported) (58). Choi and Chang (64) found a significant increased incidence of backache due to a resting intervention in patients who underwent dural puncture (p=.007, 95% CI not reported), but no differences in the incidence of headaches. In

addition, raising the head of the bed did not have a significant impact on pain or discomfort in patients subjected to angiography (38) (Table: 2 and Appendix: 2).

Application of cold and warmth

Application of ice bags was used for patients subjected to femoral catheter removal(61), sternal incision pain(63), chest tube removal(65), chest tube incision(52) and spinal infusion(39). In three out of the five studies, the application of cold reduced pain significantly ($p < 0.05$, 95% CI not reported) (52, 61, 63); the other two studies reported no effect (39, 65). In one study, heat was used to reduce pain during catheter incision in patients receiving chemotherapy; pain reduction was significant ($p = 0.011$, 95% CI not reported) (62) (Table: 2 and Appendix: 2).

Special devices ('Buzzy')

In these studies, a combination of cold and vibration delivered by a 'Buzzy' device was used by patients receiving an intramuscular injections (40, 69) or intravenous catheterisation (37). In all three studies, there was a significant reduction in pain ($p < 0.05$, 95% CI not reported) (37, 40, 69) (Table: 2 and Appendix: 2).

Special devices (other)

In trauma patients receiving intramuscular diclofenac sodium, the two-needle technique significantly reduced pain ($p < 0.001$, 95% CI not reported) compared with not changing the needle (57). In addition, in students receiving an intramuscular vaccination, a shot-blocker device, to prevent too deep of a needle puncture, no effect on pain prevention (67). Finally, in patients who underwent inguinal herniorrhaphy, transcutaneous electrical nerve stimulation significantly reduced pain up to 24 hours ($p < 0.001$, 95% CI not reported) (41) (Table: 2 and Appendix: 2).

Table 2: Results

Author (year)	Participants	Measurement scale	Points of measurement	Outcome	p-value
Distraction interventions					
					Music
Allred et al. (2010)	56	VAS (1–100) MPQ-SF BP (mmHg)	20 min before, directly after and 20 min after PhT Pre-operative Post-operative 20 min before/ after PhT	Level of pain (IG vs CG) Level of pain (IG) Level of pain (CG) Pain (MPQ-SF) Blood pressure	0.337 0.001* 0.001* NR 0.01*
Alparslan et al. (2016)	37	VAS (1–10)	Day 1, 7, 14	Level of pain (IG vs CG) Level of pain (IG) Level of pain (CG)	0.022* 0.026* 0.853
Burrai et al. (2014a)	52	VAS (1–10) Blood pressure (mmHg)	Week 1 before I or C Week 2,3,4 after I or C	Level of pain (IG vs CG) Level of pain (IG) Level of pain (CG) Blood pressure (syst) Blood pressure (dia)	0.136 0.001* 0.148 0253 0.223
Burrai (2014b)	114	VAS (1–10) BP (mmHg)	Week 1 before I or C Weeks 2, 3, 4 after I or C	Level of pain (IG vs CG) Level of pain (IG) Level of pain (CG) Blood pressure (syst) Blood pressure (dia)	< 0.001* < 0.001* 0.317 0.463 0.939
Burrai et al. (2019)	24	VAS (1–10) BP (mmHg)	Before/after I or C	Level of pain (IG vs CG) Level of pain (IG) Level of pain (CG) Blood pressure (syst) Blood pressure (dia)	< 0.05* < 0.001* NR < 0.001* 0.045*
Chi et al. (2015)	60	VRS (0–100)	Before and after the four I and C sessions	Level of pain (IG vs CG) Level of pain (IG) Level of pain (CG)	0.027* 0.054 NR (NS)
Cooke et al. (2010)	17	NRS (0–10)	15 min before I and after I	Discomfort	0.12
Graversen et al. (2013)	75	VAS (0–10) NRS (1–10)	Prior, 1 h, 3 h after surgery days 1, 7	Level of pain (3 h) Level of pain (day 14)	0.207 0.014*
Guetin et al. (2012)	87	VAS (0–10)	Days: 0, 5, 10, 60 and 90	Pain difference (D0–60) Pain difference (D0–90)	< 0.001* < 0.001*

Mean (SD)/Mean Range (R) percentage points (%) (CG)	Mean (SD)/M range (R) percentage points (%) (IG)	Mean difference (MD)	SD	95% confidence interval (CI) lower and upper limits	
45.1 (31.2) (SD)	41.2 (25.8) (SD)	3.9↓	NR	NR	NR
36.2–46.4 (R)	.	.	NR	NR	NR
.	36.5–52.4 (R)	.	NR	NR	NR
10.3–14.9 (R)	13.4–15.9	3.1-1↑	NR	NR	NR
92.7–88.3	95.8–90.3	2-3.1↓	NR	NR	NR
NR	NR	1.31↓	NR	NR	NR
.	5.45–4.14	0.85↓	NR	NR	NR
6.25–5.40	.		NR	NR	NR
1.4 (0.5)	0.7 (1.1)	0.7↓	NR	NR	NR
.	1.8–0.7	1.1↓	NR	NR	NR
1.3–1.4	.	0.1↑	NR	NR	NR
104.6 (14.2)	108.0 (12.0)	3.4↑	NR	NR	NR
68.4(6.7)	70.7 (6.2)	2.3↑	NR	NR	NR
3.5 (3.1)	1.04 (2.2)	2.46↓	NR	NR	NR
.	2.7–1.04	1.66↓	NR	NR	NR
3.6-3.5	.	0.1↓	NR	NR	NR
134.5 (26.2)	132.54 (25.8)	1.96↓	NR	NR	NR
69.2 (12.5)	69.6 (14.1)	0.4↑	NR	NR	NR
NR	NR	.	NR	NR	NR
NR	NR	.	NR	NR	NR
NR	NR	.	NR	NR	NR
123.0 (5.6)	119.4 (3.5)	3.6↓	NR	NR	NR
65.3 (3.2)	67.3 (2.2)	2↑	NR	NR	NR
25.66 (15.37)	17.21 (13.52)	8.45↓	NR	NR	NR
NR	NR	.	NR	NR	NR
NR	NR	.	NR	NR	NR
2.8	3.6	0.8↓	-0.04	-1.2	0.5
2.0 (1.0–3.0)	2.0 (0.25–3.0)	0.0	NR	NR	NR
0.0 (0.0–1.25)	1.0 (1.00–2.0)	1.0↓	NR	NR	NR
-1.6 (2.2)	-3.4 (2.3)	1.8↓	NR	NR	NR
-1.5 (2.4)	-3.1 (1.9)	1.6↓	NR	NR	NR

Table 2: Continued

Author (year)	Participants	Measurement scale	Points of measurement	Outcome	p-value
Jacq et al. (2018)	60	BPS	Before; during; 30, 60, 120 min after bathing	Pain intensity Pain duration	< 0.0001* < 0.005*
Sfakianakis et al. (2017)	87	VAS (1–10) BP (mmHg)	Before and after I	Level of pain (IG vs CG) Blood pressure	< 0.001* 0.010*
Vaajoki et al. (2012)	168	VAS (1–10)	Day 1, 2 pre/post and day 3 once	Level of pain (day 1) Level of pain (day2) Pain intensity (BR) Pain distress (BR) Pain intensity (DB) Pain distress (DB) Pain intensity (SP) Pain distress (SP) Level of pain (day 3)	> 0.05 < 0.05* 0.02* 0.01* 0.03* 0.04* 0.02* 0.04* NR
Virtual reality					
Glennon et al. (2018)	97	NPS (1–10)	Pre/post I	Level of pain Pain diff (pre-post)	> 0.05 NR
Spiegel et al. (2019)	120	NRS (0–10) HCAHPS	Pre/post I; 48, 72 h after I Discharge	Pain diff (pr-post) Level of pain (48 h) Level of pain (72 h) Sever pain Pain control Pain management by staff	< 0.04* 0.03* 0.04* 0.02* 0.48 0.42
Multiple interventions (music IG1, watching a DVD IG2, distraction by an nurse IG3, stress ball IG4)					
Hudson et al. (2015)	398	NRS (0–10) SF-MPQ	Before/after surgery	Level of pain (IG1 vs CG) Level of pain (IG2 vs CG) Level of pain (IG3 vs CG) Level of pain (IG4 vs CG) Sensory pain (procedure) Sensory pain (I type) Affective pain (procedure) Affective pain (I type)	0.17 0.18 0.022* 0.002* 0.89 0.27 0.57 0.94

Mean (SD)/Mean Range (R) percentage points (%) (CG)	Mean (SD)/M range (R) percentage points (%) (IG)	Mean difference (MD)	SD	95% confidence interval (CI) lower and upper limits	
10 [4.3;18.0]	2.0 [0.3;4.0]	8.0↓	NR	NR	NR
3.5 [2.0;6.0]	1.5 [0;3.0]	2.0↓	NR	NR	NR
-0.22	-1.78	1.56↓	NR	NR	NR
96.48 (12.81)	92.04 (14.23)	4.40↓	NR	NR	NR
NR	NR	.	NR	NR	NR
NR	NR	.	NR	NR	NR
1.5	1.0	0.5↓	NR	NR	NR
1.5	0.9	0.6↓	NR	NR	NR
1.9	1.3	0.6↓	NR	NR	NR
1.8	1.3	0.5↓	NR	NR	NR
3.3	2.5	0.8↓	NR	NR	NR
3.2	2.5	0.7↓	NR	NR	NR
NR	NR	.	NR	NR	NR
4 (2.7)	3.9 (2.3)	0.1↓	NR	NR	NR
1.1 (2.1)	1.62 92.3)	0.52↓	NR	NR	NR
-0.46 (3.01)	-1.72 (3.56)	1.26↓	NR	NR	NR
NR	NR	.	-0.59	-1.13	-0.06
NR	NR	.	-0.56	-1.09	-0.03
-0.93(2.16)	-3.04 (3.75)	2.11↓	NR	NR	NR
NR	NR	.	NR	NR	NR
NR	NR	.	NR	NR	NR
4.17 (1.80)	3.94 (2.01)	0.23	NR	NR	NR
4.17 (1.80)	3.95 (1.79)	0.22	NR	NR	NR
4.17 (1.80)	3.49 (1.93)	0.68	NR	NR	NR
4.17 (1.80)	3.26 (1.51)	0.91	NR	NR	NR
NR	NR	.	0.016	NR	NR
NR	NR	.	1.30	NR	NR
NR	NR	.	0.33	NR	NR
NR	NR	.	0.21	NR	NR

Table 2: Continued

Author (year)	Participants	Measurement scale	Points of measurement	Outcome	p-value
Health education interventions					
Self-management					
Deane et al. (2018)	137	VAS (0–100)	4 h before surgery; 72 h, 6 weeks after surgery	Level of pain (static) Level of pain (mobilisation) Level of pain (6 weeks)	0.441 0.228 0.808
Good et al. (2010)	517	VAS (0–100)	5 pre/post I (immediate) and 4 times a day	Level of pain (PT vs C) D1AM Level of pain (PT vs C) D1PM Level of pain (PT vs C) D2AM Level of pain (PT vs C) D2PM Level of pain (PTRM vs C) D1AM Level of pain (PTRM vs C) D1PM Level of pain (PTRM vs C) D2AM Level of pain (PTRM vs C) D2AM Level of pain (RM vs C) D1AM Level of pain (RM vs C) D1PM Level of pain (RM vs C) D2AM Level of pain (RM vs C) D2PM	0.90 0.92 0.33 0.45 0.01* 0.64 0.02* 0.39 0.001* 0.04 0.02 0.86
Hong and Lee (2012)	79	NRS (0–10)	2, 6, 24 h after surgery	Level of pain (2 h) Level of pain (6 h) Level of pain (12 h)	< 0.05* < 0.01 < 0.01*
Hong and Lee (2014)	79	NRS (0–10)	2, 6, 12, 24, 48 h after surgery	Level of pain (2 h) Level of pain (6 h) Level of pain (12 h) Level of pain (24 h) Level of pain (48 h)	< 0.009* < 0.032* < 0.014* < 0.100 < 0.063
Jahn et al. (2014)	207	BQ-II/BPI	Trial inclusion, 0, 7, 14, 28 days after discharge	Pain related barriers Pain intensity (average) Pain intensity (maximum)	0.02 0.75 0.79

Mean (SD)/Mean Range (R) percentage points (%) (CG)	Mean (SD)/M range (R) percentage points (%) (IG)	Mean difference (MD)	SD	95% confidence interval (CI) lower and upper limits	
33.4 (24.0)	30.3 (21.7)	1.1↓	NR	NR	NR
41.2 (28.9)	34.6 (24.9)	6.6↓	NR	NR	NR
25.9 (20.6)	24.4 (19.6)	1.5↓	NR	NR	NR
NR	NR	2.29 (2.196)	NR	NR	NR
NR	NR	2.50 (2.186)	NR	NR	NR
NR	NR	0.42 (2.148)	NR	NR	NR
NR	NR	0.11 (2.140)	NR	NR	NR
NR	NR	3.97 (2.199)	NR	NR	NR
NR	NR	1.01 (2.189)	NR	NR	NR
NR	NR	3.37 (2.186)	NR	NR	NR
NR	NR	0.24 (2.140)	NR	NR	NR
NR	NR	7.03 (2.194)	NR	NR	NR
NR	NR	2.59 (2.194)	NR	NR	NR
NR	NR	3.23 (2.183)	NR	NR	NR
NR	NR	0.15 (2.127)	NR	NR	NR
6.7 (1.97)	5.4 (2.16)	1.3↓	NR	NR	NR
5.8 (1.30)	3.9 (1.50)	1.9↓	NR	NR	NR
4.3 (1.28)	2.9 (1.00)	1.4↓	NR	NR	NR
6.4 (2.2)	5.5 (2.1)	0.9↓	NR	NR	NR
4.9 (2.4)	4.1 (2.3)	0.8↓	NR	NR	NR
4.6 (2.5)	3.8 (1.1)	0.8↓	NR	NR	NR
4.1 (2.2)	3.5 (2.1)	0.6↓	NR	NR	NR
3.6 (2.0)	3.0 (2.0)	.06↓	NR	NR	NR
81	69	12↓	NR	NR	NR
86	75	11↓	NR	NR	NR
87	76	11↓	NR	NR	NR

Table 2: Continued

Author (year)	Participants	Measurement scale	Points of measurement	Outcome	p-value
Koller et al. (2018)	39	BPI/NRS (0–10)	B, 0, 6 weeks after discharge	Pain level (average) Pain level (worst)	0.36 0.55
Rustøen et al. (2012)	179	PES (9 items)	Before I, after study period	Pain experience (group × time) Pain experience (IG) Pain experience (CG)	< 0.0001 < 0.0001
Educational information					
Alaloul et al. (2015)	NR	3 items of the HCAHPS	Once a month, 2 times before, 1 time during and 4 times after intervention	Staff effort (IG) Staff effort (CG) Pain controlled (IG) Pain controlled (CG)	0.022* 0.004* 0.318 0.001*
Cetkin and Tuna (2019)	60	VAS (0–10)	Before/after surgery	Pain level (Resting) Pain level (coughing) Pain level (mobilising in bed) Pain duration	0.001* 0.032* 0.003* 0.031*
Fernández-Feito et al. (2015)	436	VAS (0–10)	Directly, 10 min after I	Level of pain Experience of pain	0.030*
Kol et al. (2014)	70	VCS/BPS	2, 4, 8, 12, 24, 48 h	Perceived pain score Behavioural pain scale scores	< 0.01 < 0.01
Lee et al. (2018)	56	NRS (0–10)	Days 1, 2, 3, 4, 5, 6, 7 after surgery	Level of pain (CG vs IG) Level of pain (over time) Level of pain (group × time)	< 0.001* < 0.001* 0.208
Sayin and Aksoy (2012)	84	VAS (0–10)	0, 1, 2, 3, 4, 5, 6, 12 h discharge after surgery	Level of pain (CG vs IG)	0.002*
Prevention interventions					
Numbing spays					
Balanyuk et al. (2018)	72	NRS (0–10)	Directly after PVC insertion	Level of pain	0.001*
Barbour et al. (2018)	100	Questionnaire	Directly after intervention	Pain experience	< 0.001*
Edwards and Noah (2017)	72	Questionnaire	Before/during incision	Level of pain	0.330
Falotico and Ryan (2016)	100	VAS (0–10)	Before/after IV insertion	Level of pain	0.049*†

Mean (SD)/Mean Range (R) percentage points (%) (CG)	Mean (SD)/M range (R) percentage points (%) (IG)	Mean difference (MD)	SD	95% confidence interval (CI) lower and upper limits	
-3.14 (4.00)	-4.27 (2.41)	1.13↓	NR	NR	NR
-1.71 (1.77)	-2.45 (1.51)	0.74↓	NR	NR	NR
2.97	-21.45	24.42↓	NR	NR	NR
.	53.48–74.93	21.45↓	NR	NR	NR
51.38 - 54.35	.	2.97↑	NR	NR	NR
NR	NR	.	NR	NR	NR
NR	NR	.	NR	NR	NR
NR	NR	.	NR	NR	NR
NR	NR	.	NR	NR	NR
7.13 (1.87)	5.48 (1.59)	1.65↓	NR	NR	NR
8.83 (1.19)	8.12 (1.32)	0.71↓	NR	NR	NR
8.60 (1.27)	7.40 (1.70)	1.20↓	NR	NR	NR
6.96 (1.79)	5.83 (2.17)	1.13↓	NR	NR	NR
1.48 (2.29)	0.98 (2.28)	0.50↓	NR	NR	NR
26%	19%	5%↓	0.44 (OR)	0.24	0.81
1.60- 4.88 (R) (3.26)	1.02-3.40 (R)	0.88↓	NR	NR	NR
2.45-7.77 (R)	2.00-5.42 (R)	1.90↓	NR	NR	NR
3.33-4.81 (R)	2.48-4.55 (R)	0.25–0.84	NR	NR	NR
3.33-4.81 (R)	2.48-4.55 (R)	0.25–0.84	NR	NR	NR
.	.	.	.	.	.
44.22 (10.48)	50.24 (6.68)		NR	NR	NR
1.86 (1.73)	0.69 (1.26)	1.17↓	NR	NR	NR
14%	76%	62%↓	NR	NR	NR
2.5 (0–10)	2 (0–9)	0.5↓	NR	NR	NR
22.94 (20.03)	31.17 (22.54)	8.23↑	NR	NR	NR

Table 2: Continued

Author (year)	Participants	Measurement scale	Points of measurement	Outcome	p-value
Specific positioning					
Aydemir et al. (2018)	102	VAS (0–10)	Before/after positioning	Level of pain	0.000*
Choi and Chang (2018)	119	PDPH (1–4)/ VAS (0–10)	Days 1, 2, 3, 4, 5	Incidence headache Incidence headache (4h) Incidence headache (6h) Incidence backache Incidence backache (4h) Incidence backache (6h)	0.879 0.695 0.643 0.007* 0.839 0.013*†
Pool et al. (2015)	71	VAS (0–10)	Before/after intervention	Level of pain (CG vs IG1) Level of pain (CG vs IG2)	0.11 0.09
Application of cold or warmth					
Bayındır et al. (2017)	104	NRS (0–10)	Before/during/ after I	Level of pain	< 0.001*
Biyik Bayram and Caliskan (2016)	80	VAS (0–10)	Before/after catheterisation	Level of pain (CG vs IG) Level of pain (IG) Level of pain (CG)	0.011* 0.314 0.021
Chailler et al. (2010)	32	NRS (0–10)	Before/after I	Level of pain	< 0.001*
Demir and Khorshid (2010)	90	VAS (0–10)	Before, directly, 15 min after removal	Level of pain (CG vs PG vs IG) Level of pain (IG) Level of pain (PG) Level of pain (CG)	0.270 0.251 0.342 0.408
Kol et al. (2013)	40	VCS/BPS	Before/after intervention	Level of pain (mobilisation) Level of pain (breathing) Level of pain (coughing)	0.003* 0.519 0.677
Quinlan et al. (2017)	74	NRS	12 pain checks	Level of pain	0.589
Special devices ('Buzzy')					
Pakiş Çetin and Çevik (2019)	100	VAS (0–10)	Before/after intervention	Level of pain	< 0.001*

Mean (SD)/Mean Range (R) percentage points (%) (CG)	Mean (SD)/M range (R) percentage points (%) (IG)	Mean difference (MD)	SD	95% confidence interval (CI) lower and upper limits	
4.098 (0.831)	1.784 (1.006)	2.314↓	NR	NR	NR
.	.	.	NR	NR	NR
11.1%	12.5%	1.4%↑	1.268 (OR)	0.389	4.161
11.1%	8.6%	2.5%↓	0.726 (OR)	0.187	2.811
.	.	.	NR	NR	NR
0.0%	10.0%	10.0%↑	1.143 (OR)	0.314	4.160
0.0%	20.6%	20.6%↑	5.250 (OR)	1.426	19.329
NR	NR	NR	NR	NR	NR
NR	NR	NR	NR	NR	NR
6.0 (4.0–7.0)	4.0 (3.0–4.0)	2.0↓	NR	NR	NR
2.82 (2.57)	0.80 (1.65)	2.02↓	NR	NR	NR
.	1.15 (3.20)	.	NR	NR	NR
-0.25 (2.15)	.	.	NR	NR	NR
3.44-3.84	2.56-2.72 (R)	1.12-0.88↓	NR	NR	NR
NR	NR	.	1.313	NR	NR
.	2.03-3.27-6.77	.	NR	NR	NR
2.73-3.27-7.13	.	.	NR	NR	NR
2.73-3.07-7.23	.	.	NR	NR	NR
90%	55%	35%↓	NR	NR	NR
45%	35%	10%↓	NR	NR	NR
85%	80%	5%↓	NR	NR	NR
-1.0 (0.8)	-1.1 (0.8)	0.1↓	NR	NR	NR
5.32 (1.64)	1.04 (0.96)	4.28↓	NR	NR	NR

Table 2: Continued

Author (year)	Participants	Measurement scale	Points of measurement	Outcome	p-value
Redfern et al. (2019)	497	VAS (0–10)	Before/after vaccination	Level of pain	0.035*
Şahin and Eşer (2018)	65	VAS (0–100)	Before/after injection	Level of pain	< 0.05*
Special devices (other)					
Ağaç and Güneş (2011)	100	NRS (0–10)	Pain during injection	Level of pain	< 0.001*
Emel et al. (2017)	242	VAS (0–10)	Before/after vaccination	Level of pain	0.796
Yılmaz et al. (2019)	52	VAS (0–10)	0, 2, 4, 8, 24 h before/after	Level of pain 2 h Level of pain 4 h Level of pain 8 h Level of pain 24 h	< 0.001* < 0.001* < 0.001* < 0.001*

Abbreviations: Physical therapy (PhT); post-dural headache (PDHA); patient teaching (PT); relaxation and music (RM); systolic (Syst); diastolic (Dia) Randomised controlled trail (RCT), Intervention group 1 (IG1), Intervention group 2 (IG2), Intervention group 3 (IG3), Intervention group 4 (IG4); Day 1 morning (D1AM); Day 1 evening (D1PM); Day 2 morning (D2AM); Day 2 Evening (D2PM); four hours (4h); six hours (6h); bed rest (BR); deep breathing (DB); shifting position (SP) Intravenous catherization (IV); control group (CG); intervention group (IG); control (C); intervention (I); not reported (NR)
Measurement scales: Behavioural Pain Scale (BHP); Brief Pain Inventory (BPI); blood pressure (BP); Behavioural Pain Scale (BPS); Barriers Questionnaire (BQ-II); Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS); McGill Pain Questionnaire Short Form (MPQ-SF/SF-MPQ); Numeric Rating Scale (NRS);, Numeric Pain Scale (NPS); Pain Experience Scale(PES); Visual Analogue Scale (VAS); Verbal Category Scale (VCS);, Visual Rating Scale (VRS)
*Significant result
† result in negative direction

	Mean (SD)/Mean Range (R) percentage points (%) (CG)	Mean (SD)/M range (R) percentage points (%) (IG)	Mean difference (MD)	SD	95% confidence interval (CI) lower and upper limits	
	1.12 (0.10)	0.87 (0.07)	0.25↓	NR	NR	NR
	17.69 (9.85)	4.67 (4.94)	13.02↓	NR	NR	NR
	6.43 (1.35)	5.53 (1.64)	0.9↓	NR	NR	NR
	33.0 (23.87)	33.8 (26.05)	0.8↑	NR	NR	NR
	3.0 (3.0–4.25)	2.0 (1.0–3.0)	1.0↓	NR	NR	NR
	5.0 (4.0–6.0)	2.0 (1.0–3.0)	3.0↓	NR	NR	NR
	5.0 (5.0–6.0)	2.0 (1.75–3.0)	3.0↓	NR	NR	NR
	4.0 (2.0–4.0)	1.0 (1.0–1.0)	3.0↓	NR	NR	NR

Risk of bias

Of the 15 studies researching a distraction intervention, eight were scored moderate quality because of concerns regarding the risk of bias for one or two of the assessment items (25-27, 32-34, 71). In addition, seven had high risk of bias on one or more items and were therefore scored low quality (28-30, 42-44, 70). None of the studies was considered high quality because blinding to the distraction interventions was not possible (Table: 3).

Of the health education interventions, nine of the 13 were scored moderate quality (45, 46, 48-51, 53-55) and four low quality (31, 36, 47, 56). Blinding patients for the health education interventions was also not possible, and therefore none of the studies were considered high quality (Table: 3).

For the pain prevention interventions, two of the 19 were considered high quality due to a low risk of bias on all assessment items (57, 66), 11 were moderate quality (52, 58-63, 65, 67-69) and six were low quality (37-41, 64). Because blinding of patients was possible for some of the pain prevention interventions, a high-quality score in this intervention category was possible (Table: 3).

Table 3: Assessment of the risk of bias

Author (Year)	Randomisation process	Deviations from intended interventions	Missing outcome data	Measurement of the outcome	Selection of the reported result	Overall
Distraction interventions						
			Music			
Allred et al. (2010)	+	+	/	/	+	/
Alparslan et al. (2016)	+	-	-	/	+	-
Burrai et al. (2014a)	+	+	+	/	+	/†
Burrai (2014b)	+	+	+	/	+	/†
Burrai et al. (2019)	+	+	+	/	+	/†
Chi et al. (2015)	+	+	-	-	+	-
Cooke et al. (2010)	+	-	+	/	+	-
Graversen et al. (2013)	+	+	+	/	+	/†
Guetin et al. (2012)	+	+	+	/	+	/†

Table 3: Continued

Author (Year)	Randomisation process	Deviations from intended interventions	Missing outcome data	Measurement of the outcome	Selection of the reported result	Overall
Jacq et al. (2018)	/	+	+	/	+	/
Sfakianakis et al. (2017)	/	+	-	/	+	-
Vaajoki et al. (2012)	/	-	+	/	+	-
Virtual reality						
Glennon et al. (2018)	/	-	+	/	+	-
Spiegel et al. (2019)	/	+	-	/	+	-
Multiple interventions (music IG1, watching a DVD IG2, distraction by a nurse IG3, stress ball IG4)						
Hudson et al. (2015)	+	+	+	/	+	/†
Health education interventions						
Self-management						
Deane et al. (2018)‡	+	+	-	-	+	-
Good et al. (2010)	+	-	-	+	+	-
Hong and Lee (2012)	/	+	+	/	+	/
Hong and Lee (2014)	+	+	+	/	+	/†
Jahn et al. (2014)#	/	+	-	/	+	-
Koller et al. (2018)	+	+	+	/	+	/†
Rustøen et al. (2012)	+	+	+	/	+	/†
Educational information						
Alaloul et al. (2015)	/	+	+	/	+	/
Cetkin and Tuna (2019)	/	+	+	/	+	/
Fernández-Feito et al. (2015)	+	+	+	/	+	/†
Kol et al. (2014)	/	+	+	/	+	/

Table 3: Continued

Author (Year)	Randomisation process	Deviations from intended interventions	Missing outcome data	Measurement of the outcome	Selection of the reported result	Overall
Lee et al. (2018)	/	+	+	/	+	/
Sayin and Aksoy (2012)	/	+	+	-	+	-
Pain prevention interventions						
Numbing spays						
Balanyuk et al. (2018)‡	+	+	+	/	+	/†
Barbour et al. (2018)	+	+	+	+	/	/
Edwards and Noah (2017)	+	+	+	+	+	+
Falotico and Ryan (2016)	/	+	+	+	+	/
Specific positioning						
Aydemir et al. (2018)	/	+	+	/	+	/
Choi and Chang (2018	+	+	-	/	+	-
Pool et al. (2015)	+	-	-	-	+	-
Application of cold/warmth						
Bayındır et al. (2017)	+	+	+	/	+	/†
Biyik Bayram and Caliskan (2016)	/	+	+	/	+	/
Chailler et al. (2010)	+	+	+	/	/	/
Demir and Khorshid (2010)	+	+	+	/	+	/†
Kol et al. (2013)	+	+	+	/	+	/†
Quinlan et al. (2017)	+	+	-	/	/	-

Table 3: Continued

Author (Year)	Randomisation process	Deviations from intended interventions	Missing outcome data	Measurement of the outcome	Selection of the reported result	Overall
Special devices ('Buzzy')						
Pakiş Çetin and Çevik (2019)	+	+	+	-	+	**-**
Redfern et al. (2019)	+	+	+	-	-	**-**
Şahin and Eşer (2018)	/	+	+	/	+	**/**
Special devices (two needle-technique, shot-blocker, transcutaneous electrical nerve stimulation)						
Ağaç and Güneş (2011)	+	+	+	+	+	**+**
Emel et al. (2017)	+	+	+	/	/	**/**
Yılmaz et al. (2019)	+	+	-	+	+	**-**

Note. ‡ Intention to treat principle; + low risk of bias; / some concerns; - high risk of bias; † blinding not possible.
Abbreviations: IG, intervention group

Discussion

Summary of evidence

Our systematic scoping review provides an overview nursing of interventions to prevent and to treat the pain of hospital or community patients; each has been studied in a controlled design. In total, 47 studies were included from a comprehensive search through six databases up to December 2019; we also checked the references included studies. We were able to identify three main categories of nursing interventions: distraction interventions (like listening to music, using virtual reality, talking to a nurse, watching a DVD or squeezing a stress ball), health education interventions (like promoting self-management and providing educational information) and pain prevention interventions (using a numbing spray, placement of the patient in a specific position, applying cold or warmth, a 'Buzzy' device, the two-needle technique, a shot-blocker and a transcutaneous electrical nerve stimulation device). For quality assessment, we used the RoB 2.0 (23). The inability to blind patients and nurses from the intervention was a main problem in the assessment of the risk of bias.

Comparison with other studies

When comparing our results with other studies, we found that distraction reduces pain, which is caused by shifting a patient's attention to more pleasant stimuli. A combination of audio and visual distractions has a higher effect than audio distraction alone (73). This supports the application of easy-to-use distraction interventions like listening to self-selected music, being immersed in virtual reality or having a conversation with a nurse in which the preferences of the patients should be considered. Another distraction intervention is live music performed by a nurse. Not all nurses can play an instrument – it is time consuming and does not fall within the scope of the nursing profession. These doubts need to be taken into consideration when researching and applying new interventions and attention needs to be given to the work context (74, 75), especially considering that one of the main barriers found for implementing evidence-based nursing care is insufficient time on the job (76). Ball (77) found that 86% of the surveyed nurses reported one or more important care activities left undone due to lack of time. In addition, we found two studies focusing on virtual reality. A recent systemic review on the effect of virtual reality on depression, anxiety, fatigue and pain showed that virtual reality can be an effective intervention for pain in adults and paediatric patients with burn injury and to reduce acute or chronic pain from medical procedures. Although the quality of the studies was not consistent, the patients found virtual reality to be a pleasant experience (78).

When comparing the health education interventions, self-management and providing educational information, we found a strong connection with the psychosocial and relational aspects of the Fundamental of Care Framework, like keeping the patient informed and involved and ensuring goals are set (1, 79). By using these aspects, nurses can keep the patient comfortable and pain free. This is an example of how the three dimensions are connected. Nevertheless, nurses in the hospital setting are mainly focused on tasks and not yet able to integrate the physical, relational and physical elements of care and promote person-centred fundamental care (80).

Studies on pain prevention like application of cold (cryotherapy) and warmth and a 'Buzzy' device have shown significant results on pain reduction and are easy-to-use interventions for nurses. In their narrative review, Garcia et al. (81) found that these procedures are beneficial for chronic pain and appear to be a safe therapy with minimal adverse effects. However, for application of a 'Buzzy' device by nurses, we found only additional evidence in research with children; this was the same for application of numbing sprays (82).

Limitations

Some limitations should be taken into consideration when reading this systemic scoping review. First, almost all studies were performed in the hospital setting. In three studies, outpatients were involved and in only two studies in the health education category patients received an intervention after admission or at home. We did not find rigorous evidence for interventions in the community care setting. However, interventions like music, virtual reality, distractions by a nurse, application of hot or cold and other special devices do not seem to be limited to the hospital setting and could be applied by community care nurses. The health education interventions are often more complex, and it is advisable to assess them for applicability in the community care setting. Second, the algorithm function was used to determine the risk of bias in the RoB 2.0 tool (23). In total, 14 out of the 47 studies scored moderate quality because blinding patients was not possible due to the nature of the intervention. Therefore, using the RoB 2.0 tool may not be suitable for assessment of the quality of nursing studies. We chose to use the algorithm function for transparency, but this approach was perhaps too strict for our kind of research. Third, all studies presented limited statistical results, including almost no standard deviations or confidence intervals; hence, it is hard to determine the impact of effects. Fourth, this study was designed to identify nursing intervention around pain. Therefore, we could not give a final answer whether the interventions should be valued as high- or low value care. However, we did identify interesting research areas and gave an overview of the quality of the

studies that can be used as a basis for systematic reviews. To be able to identify all studies about pain interventions of interest of nurses, one should avoid the nursing filter in the search strategy. In addition, when a search strategy without an nursing filter is used special attention is required on applicability of the intervention in the nursing profession. Finally, we focused on Western medicine and excluded alternative medicine. Sandvik et al.(83) found, in their scoping review on pain relief in patients in the intensive care unit, interventions like hypnosis, simple massage, spiritual care, passive exercise and acupuncture as non-pharmacological options for pain treatment. However, not all of these interventions fall within the scope of the nursing profession or they would require nurses to receive additional, extensive training.

Areas for further research

We identified the scope of pain interventions that are easy to use and can be carried out by nurses, like virtual reality, providing educational interventions and application of cold. To confirm their status as high- or low-value care more systematic reviews on the individual pain intervention topics are necessary. In addition, almost all studies were performed in a hospital. Although multiple interventions like application of cold or listening to music seem to be applicable in the community care setting or other areas, it is advisable to research the transferability of these pain interventions. Moreover, patient comfort and quality of life should be addressed.

Conclusion

In this systemic scoping review, we assessed 47 studies on nursing pain interventions, mostly performed in the hospital setting. We identified three main categories: distraction interventions, health education interventions and prevention interventions. These include interventions like listening to music, promoting self-management and application of hot and cold. The overall quality of pain interventions researched was moderate to low. We recommend systematic reviews in clusters of pain interventions that can be carried out by nurses, to determine their status as high or low value care.

Relevance to clinical practice

Identifying the scope of pain interventions executed by nurses for adult patients in hospital and community care settings gives insight in relevant research areas for the nursing profession. This systematic scoping review is the first step to help

formulate evidence-based recommendations for nursing-sensitive outcomes and to assess their full value.

Acknowledgements

We thank clinical librarian On Ying Chan (OYC), PhD, for her contribution to the search strategy; Marloes van der Heijden (MvdH), RN, MSc, for her contribution to the screening process and quality appraisal; and Anita Oude Bos (AOB) for her contribution to the data extraction.

Funding

This work was supported by ZonMw, the Netherlands Organization for Health research and Development [dossier no. 80-83900-98-854].

References

1. Kitson A, Conroy, T, Kuluski, K, Locock, L & Lyons, R. Reclaiming and redefining the Fundamentals of Care: Nursing's response to meeting patients' basic human needs. Adelaide, South Australia: School of Nursing, the University of Adelaide; 2013.
2. Feo R, Conroy T, Alderman J, Kitson A. Implementing fundamental care in clinical practice. Nurs Stand. 2017;31(32):52-62.
3. Loeser JD, Melzack R. Pain: an overview. The Lancet. 1999;353(9164):1607-9.
4. Dubois CA, D'Amour D, Brault I, Dallaire C, Déry J, Duhoux A, et al. Which priority indicators to use to evaluate nursing care performance? A discussion paper. J Adv Nurs. 2017;73(12):3154-67.
5. Burston S, Chaboyer W, Gillespie B. Nurse-sensitive indicators suitable to reflect nursing care quality: a review and discussion of issues. J Clin Nurs. 2014;23(13-14):1785-95.
6. Schug SA, Palmer GM, Scott DA, Halliwell R, Trinca J. Acute pain management: scientific evidence, fourth edition, 2015. Med J Aust. 2016;204(8):315-7.
7. Treede RD, Rief W, Barke A, Aziz Q, Bennett MI, Benoliel R, et al. A classification of chronic pain for ICD-11. Pain. 2015;156(6):1003-7.
8. Gatchel RJ, McGeary DD, McGeary CA, Lippe B. Interdisciplinary chronic pain management: past, present, and future. Am Psychol. 2014;69(2):119-30.
9. Bair MJ, Robinson RL, Katon W, Kroenke K. Depression and pain comorbidity: a literature review. Arch Intern Med. 2003;163(20):2433-45.
10. Michaelides A, Zis P. Depression, anxiety and acute pain: links and management challenges. Postgrad Med. 2019;131(7):438-44.
11. van Boekel RLM, Warle MC, Nielen RGC, Vissers KCP, van der Sande R, Bronkhorst EM, et al. Relationship Between Postoperative Pain and Overall 30-Day Complications in a Broad Surgical Population: An Observational Study. Ann Surg. 2019;269(5):856-65.
12. Wertheimer G, Mathieson S, Maher CG, Lin CC, McLachlan AJ, Buchbinder R, et al. The Prevalence of Opioid Analgesic Use in People with Chronic Noncancer Pain: Systematic Review and Meta-Analysis of Observational Studies. Pain Med. 2021;22(2):506-17.
13. Bosetti C, Santucci C, Radrezza S, Erthal J, Berterame S, Corli O. Trends in the consumption of opioids for the treatment of severe pain in Europe, 1990-2016. Eur J Pain. 2019;23(4):697-707.
14. Zwakhalen SMG, Hamers JPH, Metzelthin SF, Ettema R, Heinen M, de Man-Van Ginkel JM, et al. Basic nursing care: The most provided, the least evidence based - A discussion paper. J Clin Nurs. 2018;27(11-12):2496-505.
15. Richards DA, Hamers JP. RCTs in complex nursing interventions and laboratory experimental studies. Int J Nurs Stud. 2009;46(4):588-92.
16. Simpson KR, Lyndon A. Consequences of Delayed, Unfinished, or Missed Nursing Care During Labor and Birth. J Perinat Neonatal Nurs. 2017;31(1):32-40.
17. Verkerk EW, Huisman-de Waal G, Vermeulen H, Westert GP, Kool RB, van Dulmen SA. Low-value care in nursing: A systematic assessment of clinical practice guidelines. Int J Nurs Stud. 2018;87:34-9.
18. Berben SA, Meijs TH, van Grunsven PM, Schoonhoven L, van Achterberg T. Facilitators and barriers in pain management for trauma patients in the chain of emergency care. Injury. 2012;43(9):1397-402.

19. Munn Z, Peters MDJ, Stern C, Tufanaru C, McArthur A, Aromataris E. Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. BMC Med Res Methodol. 2018;18(1):143.
20. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med. 2018;169(7):467-73.
21. Higgins JPT TJ, Chandler J, Cumpston M, Li T, Page MJ, Welch VA. Cochrane Handbook for Systematic Reviews of Interventions version 6.2 (updated February 2021) Available from www.training.cochrane.org/handbook: Cochrane; 2021 [
22. Mourad Ouzzani HH, Zbys Fedorowicz, and Ahmed Elmagarmid.. Rayyan — a web and mobile app for systematic reviews. Systematic Reviews (2016) 5:210, DOI: 10.1186/s13643-016-0384-4.
23. Higgins JPT, Altman DG, Gøtzsche PC, Jüni P, Moher D, Oxman AD, et al. The Cochrane Collaboration's tool for assessing risk of bias in randomised trials. BMJ. 2011;343:d5928.
24. Ouzzani M, Hammady H, Fedorowicz Z, Elmagarmid A. Rayyan-a web and mobile app for systematic reviews. Syst Rev. 2016;5(1):210.
25. Burrai F, Lupi R, Luppi M, Micheluzzi V, Donati G, Lamanna G, Raghavan R. Effects of Listening to Live Singing in Patients Undergoing Hemodialysis: A Randomized Controlled Crossover Study. Biol Res Nurs. 2019;21(1):30-8.
26. Burrai F, Micheluzzi V, Bugani V. Effects of live sax music on various physiological parameters, pain level, and mood level in cancer patients: a randomized controlled trial. Holist Nurs Pract. 2014;28(5):301-11.
27. Burrai F, Micheluzzi V, Zito MP, Pietro G, Sisti D. Effects of live saxophone music on physiological parameters, pain, mood and itching levels in patients undergoing haemodialysis. Journal of renal care. 2014;40(4):249-56.
28. Chi GC-H-L, Young A, McFarlane J, Watson M, Coleman RL, Eifel PJ, et al. Effects of music relaxation video on pain and anxiety for women with gynaecological cancer receiving intracavitary brachytherapy: A randomised controlled trial. Journal of Research in Nursing. 2015;20(2):129-44.
29. Cooke M, Chaboyer W, Schluter P, Foster M, Harris D, Teakle R. The effect of music on discomfort experienced by intensive care unit patients during turning: a randomized cross-over study. Int J Nurs Pract. 2010;16(2):125-31.
30. Glennon C, McElroy SF, Connelly LM, Lawson LM, Bretches AM, Gard AR, Newcomer LR. Use of Virtual Reality to Distract From Pain and Anxiety. Oncology Nursing Forum. 2018;45(4):545-52.
31. Good M, Albert JM, Anderson GC, Wotman S, Cong X, Lane D, Ahn S. Supplementing relaxation and music for pain after surgery. Nurs Res. 2010;59(4):259-69.
32. Graversen M, Sommer T. Perioperative music may reduce pain and fatigue in patients undergoing laparoscopic cholecystectomy. Acta Anaesthesiol Scand. 2013;57(8):1010-6.
33. Guetin S, Ginies P, Siou DKA, Picot MC, Pommie C, Guldner E, et al. The Effects of Music Intervention in the Management of Chronic Pain A Single-Blind, Randomized, Controlled Trial. Clinical Journal of Pain. 2012;28(4):329-37.
34. Hudson BF, Ogden J, Whiteley MS. Randomized controlled trial to compare the effect of simple distraction interventions on pain and anxiety experienced during conscious surgery. European journal of pain (london, england). 2015;19(10):1447-55.

35. Jacq GM, K. Bezou, M. Foucault, L. Courau Courtois, J. Cavelot, S. Lang, A. Bedos, J. Le-Boeuf, D, Boussard, J. Legriel, S.. Music for pain relief during bed bathing of mechanically ventilated patients: a pilot study. PLoS One. 2018;13(11).

36. Jahn P, Kuss O, Schmidt H, Bauer A, Kitzmantel M, Jordan K, et al. Improvement of pain-related self-management for cancer patients through a modular transitional nursing intervention: a cluster-randomized multicenter trial. Pain. 2014;155(4):746-54.

37. Pakiş Çetin S, Çevik K. Effects of Vibration and Cold Application on Pain and Anxiety During Intravenous Catheterization. Journal of PeriAnesthesia Nursing. 2019;34(4):701-9.

38. Pool JD, M. Hanson, B. Heiman, L. Li, Y. Schraeder, K. Pat Schultz, M. Ziglinski, S. Ebberts, M. The Effect of Head of Bed Elevation on Patient Comfort After Angiography. The journal of cardiovascular nursing 30 (6) (pp 491-496), 2015 Date of publication: 01 nov 2015. 2015.

39. Quinlan P, Davis J, Fields K, Madamba P, Colman L, Tinca D, Cannon Drake R. Effects of Localized Cold Therapy on Pain in Postoperative Spinal Fusion Patients: a Randomized Control Trial. Orthopedic nursing. 2017;36(5):344-9.

40. Redfern RE, Micham J, Seegert S, Chen JT. Influencing Vaccinations: A Buzzy Approach to Ease the Discomfort of a Needle Stick-a Prospective, Randomized Controlled Trial. Pain Management Nursing. 2019;20(2):164-9.

41. Yilmaz E, Karakaya E, Baydur H, Tekin I. Effect of Transcutaneous Electrical Nerve Stimulation on Postoperative Pain and Patient Satisfaction. Pain Management Nursing. 2019;20(2):140-5.

42. Vaajoki A, Pietilä AM, Kankkunen P, Vehviläinen-Julkunen K. Effects of listening to music on pain intensity and pain distress after surgery: an intervention. J Clin Nurs. 2012;21(5):708-17.

43. Spiegel B, Fuller G, Lopez M, Dupuy T, Noah B, Howard A, et al. Virtual reality for management of pain in hospitalized patients: A randomized comparative effectiveness trial. PLoS One. 2019;14(8):e0219115.

44. Sfakianakis MZ, Karteraki M, Panayiota K, Christaki O, Sorrou E, Chatzikou V, Melidoniotis E. Effect of Music Therapy Intervention in Acute Postoperative Pain among Obese Patients. International Journal of Caring Sciences. 2017;10(2):937-45.

45. Alaloul F, Williams K, Myers J, Jones KD, Logsdon MC. Impact of a Script-based Communication Intervention on Patient Satisfaction with Pain Management. Pain Manag Nurs. 2015;16(3):321-7.

46. Cetkin HE, Tuna A. How Does Health Education Given to Lung Cancer Patients Before Thoracotomy Affect Pain, Anxiety, and Respiratory Functions? Journal of cancer education: the official journal of the American Association for Cancer Education. 2019;34(5):966-72.

47. Deane KHO, Gray R, Balls P, Darrah C, Swift L, Clark AB, et al. Patient-directed self-management of pain (PaDSMaP) compared to treatment as usual following total knee replacement; a randomised controlled trial. BMC Health Serv Res. 2018;18(1):346.

48. Fernandez-Feito A, Lana A, Cabello-Gutierrez L, Franco-Correia S, Baldonedo-Cernuda R, Mosteiro-Diaz P. Face-to-face Information and Emotional Support from Trained Nurses Reduce Pain During Screening Mammography: results from a Randomized Controlled Trial. Pain management nursing. 2015;16(6):862-70.

49. Hong SJ, Lee E. Comparing effects of intravenous patient-controlled analgesia and intravenous injection in patients who have undergone total hysterectomy. J Clin Nurs. 2014;23(7):967-75.

50. Hong S-J, Lee E. Effects of a structured educational programme on patient-controlled analgesia (PCA) for gynaecological patients in South Korea. Journal of Clinical Nursing (John Wiley & Sons, Inc). 2012;21(23):3546-55.

51. Kol E, Alpar SE, Erdogan A. Preoperative Education and Use of Analgesic Before Onset of Pain Routinely for Post-thoracotomy Pain Control Can Reduce Pain Effect and Total Amount of Analgesics Administered Postoperatively. Pain Management Nursing. 2014;15(1):331-9.
52. Kol E, Erdogan A, Karslı B, Erbil N. Evaluation of the outcomes of ice application for the control of pain associated with chest tube irritation. Pain management nursing. 2013;14(1):29-35.
53. Koller A, Gaertner J, De Geest S, Hasemann M, Becker G. Testing the Implementation of a Pain Self-management Support Intervention for Oncology Patients in Clinical Practice: a Randomized Controlled Pilot Study (ANtiPain). Cancer Nurs. 2018;41(5):367-78.
54. Lee J, Seo E, Choi J, Min J. Effects of patient participation in the management of daily nursing goals on function recovery and resilience in surgical patients. Journal of Clinical Nursing (John Wiley & Sons, Inc). 2018;27(13):2795-803.
55. Rustøen T, Valeberg BT, Kolstad E, Wist E, Paul S, Miaskowski C. The PRO-SELF(©) Pain Control Program improves patients' knowledge of cancer pain management. J Pain Symptom Manage. 2012;44(3):321-30.
56. Sayin Y, Aksoy G. The effect of analgesic education on pain in patients undergoing breast surgery: within 24 hours after the operation. Journal of Clinical Nursing (John Wiley & Sons, Inc). 2012;21(9):1244-53.
57. Agac E, Gunes UY. Effect on pain of changing the needle prior to administering medicine intramuscularly: a randomized controlled trial. J Adv Nurs. 2011;67(3):563-8.
58. Aydemir O, Aslan FE, Karabacak U, Akdas O. The Effect of Exaggerated Lithotomy Position on Shoulder Pain after Laparoscopic Cholecystectomy. Pain Manag Nurs. 2018;19(6):663-70.
59. Balanyuk I, Ledonne G, Provenzano M, Bianco R, Meroni C, Ferri P, Bonetti L. Distraction Technique for pain reduction in Peripheral Venous Catheterization: randomized, controlled trial. Acta Biomed. 2018;89(4-S):55-63.
60. Barbour T, O'Keefe S, Mace SE. Patient and Health Care Provider Responses from a Prospective, Double-Blind, Randomized Controlled Trial Comparing Vapocoolant Spray versus Placebo Spray in Adults Undergoing Venipuncture in the Emergency Department. Pain Manag Nurs. 2018;19(4):391-9.
61. Bayındır SK, Çürük GN, Oguzhan A. Effect of Ice Bag Application to Femoral Region on Pain in Patients Undergoing Percutaneous Coronary Intervention. Pain research & management. 2017;2017:6594782.
62. Biyik Bayram S, Caliskan N. Effects of local heat application before intravenous catheter insertion in chemotherapy patients. J Clin Nurs. 2016;25(11):1740-7.
63. Chailler M, Ellis J, Stolarik A, Woodend K. Cold therapy for the management of pain associated with deep breathing and coughing post-cardiac surgery. Journal canadien en soins infirmiers cardio-vasculaires [Canadian journal of cardiovascular nursing]. 2010;20(2):18-24.
64. Choi JS, Chang SJ. A Comparison of the Incidence of Post-Dural Puncture Headache and Backache After Spinal Anesthesia: a Pragmatic Randomized Controlled Trial. Worldviews Evid Based Nurs. 2018;15(1):45-53.
65. Demir Y, Khorshid L. The effect of cold application in combination with standard analgesic administration on pain and anxiety during chest tube removal: a single-blinded, randomized, double-controlled study. Pain management nursing. 2010;11(3):186-96.
66. Edwards C, Noah C. A Randomized, Double-Blind Trial to Determine if Vapocoolant in the Adult Population Improves Patient Perception of Pain With Peripheral Intravascular Access. Adv Emerg Nurs J. 2017;39(4):288-94.

67. Emel T, Nese C, Leyla K. Effects of ShotBlocker on Relief of Pain Due to Hepatitis B Vaccine Injection into Deltoid Muscle. International Journal of Caring Sciences. 2017;10(3):1669-75.

68. Falotico PG, Ryan L. Will Patients Perceive a Numbing Spray to Be an Effective Method of Anesthetizing an Intravenous Site? Journal of perianesthesia nursing: official journal of the American Society of PeriAnesthesia Nurses. 2017;32(1):22-7.

69. Şahin M, Eşer İ. Effect of the Buzzy Application on Pain and Injection Satisfaction in Adult Patients Receiving Intramuscular Injections. Pain management nursing. 2018;19(6):645-51.

70. Alparslan GB, Babadag B, Ozkaraman A, Yildiz P, Musmul A, Korkmaz C. Effects of music on pain in patients with fibromyalgia. Clin Rheumatol. 2016;35(5):1317-21.

71. Allred KD, Byers JF, Sole ML. The effect of music on postoperative pain and anxiety. Pain Manag Nurs. 2010;11(1):15-25.

72. Cooke M, Chaboyer W, Schluter P, Foster M, Harris D, Teakle R. The effect of music on discomfort experienced by intensive care unit patients during turning: a randomized cross-over study. Int J Nurs Pract. 2010;16(2):125-31.

73. Aghbolagh MG, Bahrami T, Rejeh N, Heravi-Karimooi M, Tadrisi SD, Vaismoradi M. Comparison of the Effects of Visual and Auditory Distractions on Fistula Cannulation Pain among Older Patients Undergoing Hemodialysis: A Randomized Controlled Clinical Trial. Geriatrics (Basel). 2020;5(3).

74. Wallin L. Knowledge translation and implementation research in nursing. Int J Nurs Stud. 2009;46(4):576-87.

75. Battaglia C, Glasgow RE. Pragmatic dissemination and implementation research models, methods and measures and their relevance for nursing research. Nurs Outlook. 2018;66(5):430-45.

76. Kajermo KN, Boström AM, Thompson DS, Hutchinson AM, Estabrooks CA, Wallin L. The BARRIERS scale -- the barriers to research utilization scale: A systematic review. Implement Sci. 2010;5:32.

77. Ball JE, Murrells T, Rafferty AM, Morrow E, Griffiths P. 'Care left undone' during nursing shifts: associations with workload and perceived quality of care. BMJ Qual Saf. 2014;23(2):116-25.

78. Ioannou A, Papastavrou E, Avraamides MN, Charalambous A. Virtual Reality and Symptoms Management of Anxiety, Depression, Fatigue, and Pain: A Systematic Review. SAGE Open Nurs. 2020;6:2377960820936163.

79. Kitson A, Robertson-Malt S, Conroy T. Identifying the fundamentals of care within Cochrane Systematic reviews: the role of the Cochrane Nursing Care Field Fundamentals of Care Node. Int J Nurs Pract. 2013;19(2):109-15.

80. van Belle E, Giesen J, Conroy T, van Mierlo M, Vermeulen H, Huisman-de Waal G, Heinen M. Exploring person-centred fundamental nursing care in hospital wards: A multi-site ethnography. J Clin Nurs. 2020;29(11-12):1933-44.

81. Garcia C, Karri J, Zacharias NA, Abd-Elsayed A. Use of Cryotherapy for Managing Chronic Pain: An Evidence-Based Narrative. Pain Ther. 2021;10(1):81-100.

82. Ballard A, Khadra C, Adler S, Trottier ED, Le May S. Efficacy of the Buzzy Device for Pain Management During Needle-related Procedures: A Systematic Review and Meta-Analysis. Clin J Pain. 2019;35(6):532-43.

83. Sandvik RK, Olsen BF, Rygh LJ, Moi AL. Pain relief from nonpharmacological interventions in the intensive care unit: A scoping review. J Clin Nurs. 2020;29(9-10):1488-98.

Appendix 1: Search strategy

Example: Medline Search 25 November 2019

Appendix 1: Search strategy - Medline search: nursing pain interventions

#	Searches	Results
1	Pain Management/ or Pain Measurement/ or exp Pain Perception/ or (exp pain/ and exp "Surveys and Questionnaires"/) or ((Pain* or Arthralgia* or Dysmenorrhea* or Earache* or Failed Back Surgery Syndrome or Glossalgia* or headache* or Mastodynia* or Metatarsalgia* or migrain* or Myalgia* or Neuralgia* or Physical Suffering or Renal Colic* or Sciatica* or Toothache*) adj3 (relief or manag* or intensit* or perception* or sens* or assessment* or test or tests or testing or scale* or score* or rating* or questionnaire* or Reliev* or Improv* or Alleviat* or Lower levels or decreased levels or index or inventry or measure*)).ti,ab,kf.	258293
2	nursing.fs. or exp Nursing/ or nurses/ or nurse administrators/ or exp nurse specialists/ or nurses, community health/ or nurses, international/ or nurses, male/ or nurses, public health/ or exp Nursing Staff/ or exp Nursing Care/ or nursing process/ or exp nursing assessment/ or Licensed Practical Nurses/ or (Nurse or Nurses or nursing).ti,ab,kf.	661413
3	(exp clinical trial/ or (Randomi#ed or Placebo or Randomly or Quasi-experimental or Experimental group* or Intervention group* or Control group* or Clinical trial or Quasiexperimental or Semiexperimental or Semi-experimental or Nonrandomized group*).ti,ab,kf. or trial. ti. or clinical trials as topic/) not (exp animals/ not humans/)	1657320
4	1 and 2 and 3	**2648**

Appendix 2: Summary of study characteristics of pain interventions

Author (year), Country	Study design	Aim	Participants/ Study group / setting			Intervention
Distraction interventions						
Music						
Allred et al. (2010), USA	RCT	Determining effectiveness of listening to music and/or having a quiet rest period on pain before and after first ambulation on postoperative day 1	Patients with total knee arthroplasty - Hospital Total: n=56 IG: n=28 CG: n=28	Age: years (SD): IG: 64.3 (9.6) CG: 63.5 (9.6)	Gender: n (%): IG: M 14 (50,0)/ F 14 (50,0) CG:M 11 (39.3)/F 17 (60.7)	IG: listening to music (20 min.) before and after first ambulation, one day CG: quiet rest group (20 min.) before and after first ambulation, one day
Alparslan et al. (2016), Turkey	RCT	Determining effectiveness of music on pain in patients with fibromyalgia	Fibromyalgia outpatients - Rheumatology outpatient clinics Total: n=37 IG: n=21 CG: n=16	Age: years (SD): IG: 42.95 (9.94) CG: 44.43 (11.02)	Gender: n (%): IG: M 1 (4.8)/F 20 (95.2) CG: M 1 (6.3)/F 15 (93.8)	IG: listening to music (25 min) twice a day for 14 days at home CG: Care as usual
Burrai et al. (2014a), Italy	RCT (pilot)	Determining effectiveness of live saxophone music on cancer pain	Cancer patients on chemo treatment - Hospital Total: n=52 IG: n=26 CG: n=26	Age: years (SD): IG: 64.3 (12.9) CG: 64.6 (12.8)	Gender: n (%): IG: M 1 (3.8)/F 25 (96.2) CG: M 8 (30.7) F 18 (62.3)	IG: Listening to live saxophone music therapy (30 min.) For 4 weeks. once a week. CG: Care as usual
Burrai et al. (2014b), Italy	RCT	Determining effectiveness of live saxophone music on pain of patients undergoing hemodialysis	Hemodialysis patients - Hospital Total: n=114 IG: n=57 CG: n=57	Age: years (SD): IG: 68.9 (9.5) CG: 67.4 (13.7)	Gender: n (%) IG: M 25 (43.9)/ F 32 (56.1) CG: M 24 (42.1) F 33 (57.9)	IG: Listening to live saxophone music therapy (30 min.) For 4 weeks, once a week. CG: Care as usual
Burrai et al. (2019), Italy	RCT	Determining effectiveness of listening to live singing on pain in patients undergoing hemodialysis	End-stage kidney disease patients during hemodialysis - Hospital Total: n=24 IG: n=12 CG=12	Age total group: years (SEM): 62.3 (2.8)	Gender total group: n (%) M: 15 (62.5) F: 9 (37.5)	IG : listening to live singing (15 min), for 2 weeks. once a week. CG Care as usual
Chi et al. (2015), USA	RCT	Determining effectiveness of music relaxation video on pain severity during intracavitary brachytherapy	Cervical cancer patients receiving intracavitary brachytherapy – Cancer Centre Total: n=60 IG: n=31 CG: n=29	Age total group: years (SD): 45.85 (10.55)	Gender total group: n (%) F: 60 (100%)	IG: watching a music relaxation video (30 min.) 4 times during the first 44 hours after brachytherapy GG: Care as usual

Appendix 2: Continued

Author (year), Country	Study design	Aim	Participants/ Study group / setting			Intervention
Cooke et al. (2010), Australia	RCT	Determining effectiveness of music on discomfort experienced by intensive care unit patients during turning procedure	Postoperative ICU-patients being turned in an intensive care unit - Hospital Total: n=17	Median age: years (min-max): 72 (19-7)	Gender: n (%) M: 12 (71)/ F: 5 (29)	IG: listening to music (15 min.) before and during one turning procedure GG: Care as usual
Graversen & Sommer (2013), Denmark	RCT	Determining efficacy of perioperative music on reducing pain in patients undergoing laparoscopic cholecystectomy	Patients undergoing laparoscopic cholecystectomy - Hospital Total: n=75 IG: n=40 CG: n=35	Age: years (IQR): IG: 50 (35–57) CG: 44 (36–58)	Gender: n (%) IG: M: 12 (30)/F: 28 (70) CG: M: 8 (22)/F: 27 (77)	IG: soft music (peri- and postoperative) played by a music pillow. Until discharge (one day). GG: Care as usual
Guétin et al. (2012), France	RCT	Determining effectiveness of a music intervention in the management of chronic pain	Patients with chronic pain - Pain Assessment and Treatment Centre and post discharge Total: n=87 IG: n=44 CG: n=43	Age: years (SD): IG: 47.8 (10.3) CG: 49.9 (11.6)	Gender: n (%) IG: M: 9 (20.5)/ F: 35 (79,5) CG: M: 10 (23,3) F: 33 (76.7)	IG: 20 to 30 listening to music in a relaxed position twice a day (in the hospital 10 days and at home 50 days) GG: Care as usual
Jacq et al. (2018), France	Quasi-experimental	Assessing effectiveness of music on pain during morning bed bathing of mechanically ventilated patients	Mechanically ventilated patients in an intensive care unit - Hospital Total: n=60 IG: n=30 CG: n=30	Age: years, median: IG: 78 (63;80) CG: 65 (59;77)	Gender: n (%) IG: M: 11 (36.7) F: 19 (63.3) CG: M: 20 (66.7) F: 10 (33.3)	IG: Listening to music during bathing and 30m in after (Mozart) GG: Care as usual
Sfakianakis et al. (2017), Greece	RCT	Assessing effectiveness of Music Therapy Intervention in acute postoperative pain	Obese patients who underwent a major abdominal surgery - hospital Total: n=87 IG: n=45 CG: n=42	Age: years (SD): IG: M: 43.13 (12.54) /F 41.30 (11.59) CG: M: 44.81 (9.97) /F: 43.35 (12.47)	Gender: n (%) IG: M: 15 (33,0)/F: 30 (66,0) CG: M: 16 (38,0)/ F: 26 (61,0)	IG: Listening to music therapy twice postoperative (30 min) (classical music) GG: Care as usual

Appendix 2: Continued

Author (year), Country	Study design	Aim	Participants/ Study group / setting			Intervention
Vaajoki et al. (2011), Finland	Quasi-experimental	Evaluating effectiveness of listening to music on pain intensity and pain distress after surgery	Abdominal surgery patients - Hospital Total: n=168 IG: n=83 CG: n=85	<u>Age: years (SD):</u> IG: 60 (13) CG: 63 (12)	<u>Gender: n (%)</u> IG: M: 42 (50,6)/ F: 41 (49,4) CG: M: 48 (56,5)/ F 37 (43,5)	IG: listen to music of choice for 30 min on post-operative day 1 and 2 GG: Care as usual
Virtual reality						
Glennon et al. (2018), USA	Quasi-experimental	Determining effectiveness of a virtual reality intervention on pain in patients undergoing a bone marrow aspiration and biopsy procedure	Patients with a hematologic disease - Outpatient cancer center Total: n=97 IG: n=49 CG: n=48	<u>Age: years (SD):</u> IG: 51.4 (12.4) CG: 48.9 (12.8)	<u>Gender: n (%)</u> IG: M: 30 (61,0)/ F: 19 (38,0) CG: M: 22 (45,0)/ F: 26 (54,0)	IG: use of virtual reality goggles during procedure GG: Care as usual (watching and listening to a television)
Spiegel et al. (2019), USA	RCT	Comparing effectiveness of virtual reality (VR) vs. "health and wellness" television for management of pain in hospitalized patients	Patients with pain - Hospital <u>Total: n=120</u> IG: n=61 CG: n=59	<u>Age: years (SD):</u> IG: 51.6 (15.1) CG: 50.0 (15.9)	<u>Gender: n (%)</u> IG: M: 30 (49.1)/F: 31 (50.9) CG: M: 30 (50.8)/F: 29 (49.2)	IG: library of 21 VR experiences, thrice daily for 10 min or as needed GG: "health and wellness" television programming
Multiple interventions (music IG1, watching a DVD IG2, distraction by an nurse IG3, stress ball IG4,)						
Hudson et al. (2015), UK	RCT	Comparing efficacy of simple distraction interventions on pain during conscious surgery	Patients with varicose veins - Private clinic. <u>Total: n=398</u> IG1: n=84 IG2: n=80 IG3: n=78 IG4: n=80 CG: n=76	<u>Age: years (SD):</u> IG1: 53.71 (13.17) IG2: 50.51 (12.23) IG3: 52.1 (14.49) IG4: 53 (13.01) CG: 55.06 (11.86)	<u>Gender: n</u> IG1: M: 18 (21,0)/F: 66 (78,0) IG2: M: 13 (16,0)/F: 67 (83,0) IG3: M: 20 (25,0)/F: 58 (74,0) IG4: M: 21 (26,0)/F: 59 (73,0) CG: M: 18 (23,0)/F: 58 (76,0)	IG1: Listening to music IG2: Watching a DVD IG3: Interaction with nurses IG4: Touch (squeeze stress balls) CG: Treatment as usual (TAU)
Health education interventions						
Self-management						
Deane et al. (2018), UK	RCT	Comparing efficacy of patient-directed self-management of pain (PaDSMaP) vs. treatment as usual following total knee replacement	Elderly patients after total knee replacement surgery - Hospital <u>Total: n=137</u> IG: n=68 CG: n=69	<u>Age: years (SD):</u> IG: 70.0 (8.7) CG: 69.7 (7.5)	<u>Gender: n (%)</u> IG: M: 29 (42.6)/F: 39 (57.4) CG: M: 30 (43.5)/F: 39 (56,5)	IG: self-medication of oral analgesics (PaDSMaP) GG: nurse controlled oral analgesia (TAU)

Appendix 2: Continued

Author (year), Country	Study design	Aim	Participants/ Study group / setting	Intervention
Good et al. (2010), USA	RCT	Testing an intervention of patient teaching for pain management (PT) and compare it with RM for immediate and general effects on postoperative pain.	Patients scheduled for abdominal surgery - Hospital Total: n=517 PT: n=129 RM: n=132 PTRM: n=129 CG: n=127 Age total group years (SD): 48.67 (12.11) Gender total group: n (%) M: 164 (32)/F: 353 (68)	PT-group: preoperative patient teaching for pain management RM-group: relaxation and music PTRM-group: combination of PT and RM CG: Resting quietly
Hong & Lee (2012), South Korea	Quasi-experimental	Determining the effectiveness of a structured educational program on patient-controlled management of postoperative pain	Patients who have undergone gynecological surgery - Hospital Total: n=79 IG: n=39 CG: n=40 Age: years (SD): IG: 42.31 (11.37) CG: 41.65 (11.47) Gender: n (%) Not reported	IG: structured preoperative education on the patient-controlled analgesia device GG: general instruction for the PCA
Hong & Lee (2014), South Korea	Quasi-experimental	Determining the effectiveness of a structured educational program on patient-controlled management of postoperative pain	Patients who have undergone gynecological surgery - Hospital Total: n=79 IG: n=39 CG: n=40 Age: years (SD): IG: 42.31 (11.37) CG: 41.65 (11.47) Gender: n (%) Not reported	IG: structured preoperative education on the patient-controlled analgesia device GG: general instruction for PCA
Jahn et al. (2014), Germany	RCT	Improving pain-related self-management for cancer patients through a modular transitional nursing intervention	Cancer-patients with pain - Hospital and post discharge Total: n=207 IG: n=102 CG: n=105 Age: years (SD): IG: 57.75 (11.97) CG: 55.90 (12.62) Gender: n (%) IG: M: 59 (57.8)/F: 43 (42.2) CG:M: 60 (57.1)/F: 45 (42.9)	IG: Self Care Improvement through Oncology Nursing (SCION)-PAIN program GG: care as usual
Koller et al. (2018), Germany	RCT (pilot)	Assessing effectiveness of a Pain Self-management Support Intervention on pain in oncology patients	Oncology patients - Hospital and post discharge Total: n=39 IG: n=20 CG: n=19 Age: years (SD): IG: 55.3 (10.2) CG: 58.1 (11.2) Gender: n (%) IG: M: 8 (40.0)/F: 12 (60.0) CG: M: 12 (63.2)/F: 7 (36.8)	IG: ANtiPain intervention (cancer pain self-management support intervention based on the PRO-Self Plus Pain Control Program GG: standard care
Rustøen et al. (2012), Norway	RCT	Evaluating the effectiveness of the Pro-Self Pain Control Program in improving patients' knowledge of cancer pain management	Adult oncology outpatients with bone metastases - Cancer center/ community care Total: n=179 IG: n=87 CG: n=92 Age: years (SD): IG: 64.32 (11.4) CG: 67.38 (11.4) Gender: n (%) IG: M: 41 (47.1)/F: 46 (52.9) CG: M: 51 (55.4)/ F: 41 (44.6)	IG: Pro-Self Pain Control Program GG: booklet about cancer pain management

Appendix 2: Continued

Author (year), Country	Study design	Aim	Participants/ Study group / setting			Intervention
Educational information						
Alaloul et al. (2015), USA	Quasi-experimental	Evaluating patient satisfaction with pain management when nursing staff used a pain management intervention	Patients with a variety of medical-surgical diagnoses of 2 units - Hospital			IG: Script-based Communication intervention CG: Care as usual
			All patients of 2 units	Age: Not reported	Gender: Not reported	
Cetkin & Tuna (2019), Turkey	RCT	Determining effectiveness of Health Education given to lung cancer patients before thoracotomy on postoperative pain level.	Lung cancer patients indicated for pulmonary resection - Hospital			IG: patient education booklet GG: usual clinical nursing information
			Total: n=60 IG: n=30 CG: n=30	Age: years (SD): IG: 62.47 (4.77) CG: 60.90 (11.56)	Gender: n (%) IG: M: 25 (83.3)/F: 5 (16.6) CG: M: 29 (96.6)/F: 1 (3.4)	
Fernández-Feito et al. (2015), Spain	RCT	Determining effectiveness of Face-to-face Information and Emotional Support from Trained Nurses in reducing pain during screening mammography	Women undergoing a breast screening exam - Hospital			IG: face-to-face Information and emotional support GG: usual care
			Total: n=436 IG: n=231 CG: n=205	Age: years (SD): IG: 59.13 (5.58) CG: 59.38 (5.57)	Gender: n (%) F: 436 (100,0%)	
Kol et al. (2014), Turkey	RCT	Evaluating effectiveness of preoperative pain management education before the onset of pain postoperatively	Thoracotomy and pulmonary patients with chest tube insertions - Hospital			IG: preoperative education pain management and the pharmacological methods used after surgery GG: no education
			Total: n=70 IG: n=35 CG: n=35	Age: years (SD): IG: 52.74 (11.01) CG: 49.91 (11.62)	Gender total group: n (%) M: 49 (70)/ F: 21 (30)	
Lee et al. (2018), South Korea	Quasi-experimental	Assessing effectiveness of active patient participation in the management of daily nursing goals (DNG) on function recovery and resilience in surgical patients	Patients recovering from digestive cancer surgery in a surgical ward - Hospital			IG: daily nursing goal (DNG) (goal setting and registration) GG: routine care
			Total: n=56 IG: n=29 CG: n=27	Age: years (SD): IG: 64.19 (10.42) CG: 58.44 (15.26)	Gender: n (%) IG: M: 15 (51.7)/F: 14 (48.3) CG: M: 13 (48.1)/F: 14 (51.9)	
Sayin & Aksoy (2012), Turkey	Quasi-experimental	Assessing effectiveness of analgesic education on pain in patients undergoing breast surgery	Patients undergoing a mastectomy/breast-conserving surgery – Hospital			IG: information about surgical pain and analgesics used postoperatively GG: information as usual
			Total: n=84 IG: n=42 CG: n=42	Age total: 63.1% were 38–57 years of age	Gender: n (%) F: 84 (100,0)	

Appendix 2: Continued

Author (year), Country	Study design	Aim	Participants/ Study group / setting			Intervention
Pain prevention intervention						
Numbing spray						
Balanyuk et al. (2018), Italy	RCT	Comparing efficacy of distraction vs. anesthetic cream (EMLA) for the reduction of pain during Peripheral Venous Catheterization (PVC)	Computerized Tomography (CT) or Nuclear Magnetic Resonance (NMR) patients - Hospital Total: n=72 IG: n=36 CG: n=36	Age: years (SD): IG: 61.9 (16.2) CG: 63.0 (13.25)	Gender: n (%) IG: M: 21 (58.3)/F: 15 (41.7) CG: M: 25 (69.4)/F: 11 (30.6)	IG: distraction technique (simple questions on different subjects) GG: application of EMLA
Barbour et al. (2018), US.	RCT	Comparing efficacy of vapocoolant spray vs. placebo in reducing venipuncture pain	Adult patients undergoing venipuncture - Hospital Total: n=100 IG: n=50 CG: n=50	Age: years (SD): IG: 53.0 (13.4) CG: 51.5 (11.5)	Gender: n (%) IG: M: 19 (38)/F: 31 (62) CG: M: 27 (54)/F: 23 (46)	IG: vapocoolant spray GG: placebo spray (sterile water)
Edwards & Noah (2017), USA	RCT	Comparing efficacy of Vapocoolant Spray vs. placebo spray in reducing pain during peripheral intravenous (PIV) catheter insertion.	Adult patients undergoing intravenous catheter insertion - Hospital Total: n=72 IG: n=38 CG: n=34	Age: not reported	Gender: not reported	IG: vapocoolant spray (topical anesthetic) GG: placebo spray
Falotico & Ryan (2016), USA.	Quasi-experimental	Determining effectiveness of a numbing spray for anesthetizing an intravenous injection site	Same-day surgery patients needing an intravenous catheter - Hospital Total: n=100 IG: n=50 / CG: n=50	Age: not reported	Gender: not reported	IG: numbing spray (topical anesthetic) GG: standard care
Special positioning						
Aydemir et al. (2018), Turkey	Quasi-experimental	Determining effectiveness of exaggerated lithotomy position on postoperative shoulder pain after laparoscopic cholecystectomy	Elective laparoscopic cholecystectomy patients - Hospital Total: n=102 IG: n=51 CG: n=51	Age: not reported	Gender not reported	IG: exaggerated lithotomy position GG: analgesic

Appendix 2: Continued

Author (year), Country	Study design	Aim	Participants/ Study group / setting			Intervention
Choi & Chang (2018), South Korea	RCT	Comparing the incidence of post-dural puncture headache (PDPH) and backache after different periods of bed rest following spinal anesthesia	Patients who experienced a dural puncture - Hospital Total: n=119 IM : n=45 4BR: n=40 6BR: n=34	Age: years (SD): IM: 55.4 (14.8) 4BR: 56.7 (14.5) 6BR: 53.1 (15.6)	Gender: n (%) IM: M: 23 (51.1) /F: 22 (48.9) 4BR: M: 19 (47.5)/ F: 21 (52.5) 6BR: M: 18 (52.9)/ F: 16 (47.1)	IM group: immediate mobilization 4BR group: 4-h. bed rest 6BR group: 6-h. bed rest
Pool et al. (2015), USA	RCT	Determining if raising the Head of Bed (HOB) during the first hour of bed rest to 15 degrees would impact patient comfort after cardiac angiography	Angiography patients in a cardiovascular recovery unit - Hospital Total: n=71 IG A: n=23 IG B: n=24 CG C: n=24	Age: years (SD): IG A: 62.8 (12.5) IG B: 64.0 (13.1) CG C: 66.2 (11.8)	Gender: n (%) IG A: M: 18 (78.3)/F: 5 (21.7) IG B: M: 15 (62.5)/F: 9 (37.5) CG C: M: 17 (70.8)/F: 7 (29.2)	IG A: first 30 min. HOB: 15 degrees next 30 min. HOB: 0 degrees IG B: first 30 min. HOB: 0 degrees next 30 min. HOB: 15 degrees CG C: entire hour HOB: 0 degrees
Application of cold and warmth						
Bayındır et al. (2017), Turkey	RCT	Compare the efficacy of ice bag applications versus standard care in reducing catheter removal pain	Patients undergoing percutaneous coronary intervention – Hospital Total n = 104 IG: n = 52 CG: n = 52	Age, years (SD): IG: 62.1 (13.4) CG: 61.6 (12.7)	Gender, n (%) IG: M: 39 (75.0)/F: 13 (25.0) CG: M: 38 (73.1)/F: 14 (26.9)	IG: ice bag application to the femoral region (20 min) CG: standard care
Biyik Bayram and Caliskan (2016), Turkey	RCT	Determine the effectiveness of local heat application before intravenous catheter insertion on pain	Patients receiving chemotherapy – Hospital Total n = 80 IG: n = 40 CG: n = 40	Age, years (SD): IG: 55.22 (14.59) CG: 54.00 (10.23)	Gender, n (%) IG: M: 21 (52.5)/F: 19 (47.5) CG: M: 25 (62.5)/F: 15 (37.5)	IG: heat application (10 min) to the arm before intravenous catheter insertion CG: standard care
Chailler et al. (2010), Canada	RCT	Determine the effectiveness of cold therapy for the management of pain associated with deep breathing and coughing (DB &C) after cardiac surgery	Cardiac patients with sternal incisions – Hospital Total n = 32	Age total group, years (SD): 66 (7.17)	Gender total group, n (%) M: 25/F: 7	Group 1: begin the DB & C sessions with frozen gel pack (20 min) Group 2: begin without frozen gel pack

Appendix 2: Continued

Author (year), Country	Study design	Aim	Participants/ Study group / setting			Intervention
Demir and Khorshid (2010), Turkey	RCT	Determine the effectiveness of cold application on pain during chest tube removal (CTR)	Patients recovering from cardiac surgery or sternotomy procedures – Hospital Total n = 90	Age total group, years (SD): 53.40 (14.04)	Gender total group, n (%) M: 53 (58.9)/F: 37 (41.1)	IG: cold application pack CG1: room-temperature pack, placebo CG2: no application
Kol et al. (2013), Turkey	RCT	Evaluate the effectiveness of ice application for the control of pain associated with chest tube irritation	Patients who underwent thoracotomy with chest tube placement – Hospital Total n = 40 IG: n = 20 CG: n = 20	Age, years (%): IG: 51.95 (12.8) CG: 55.05 (11.4)	Gender, n (%) IG: M: 13 (65)/F: 7 (35) CG: M: 14 (70)/F: 6 (30)	IG: cold gel packs CG: no cold therapy
Quinlan et al. (2017), United States	RCT	Evaluate the effects of localised cold therapy on pain in post-operative spinal fusion patients	Post-operative spinal fusion patients – Acute care facility Total n = 148 IG: n = 74 CG: n = 74	Age, years (SD): IG: 62.4 (11.7) CG: 61.4 (14.9)	Gender, n (%) IG: M: 32 (43.2)/F: 42 (56.8) CG: M: 26 (35.1)/F: 48 (64.9	IG: cold therapy (cold packs) CG: no cold therapy
Special devices ('Buzzy')						
Pakiş Çetin and Çevik (2019), Turkey	RCT	Determine the effectiveness of vibration and cold application on pain during intravenous catheterisation (IV)	Adult patients who underwent intravenous catheterisation – Hospital Total n = 100 IG: n = 50 CG: n = 50	Age, years (SD): IG: 52.12 (12.47) CG: 47.04 (14.73)	Gender, n (%) IG: M: 30 (60.0)/F: 20 (40.0) CG: M: 28 (56.0)/F: 22 (44.0)	IG: vibration and cold gel pack before IV (Buzzy) CG: standard procedure
Redfern et al. (2019), United States	RCT	Evaluate the effectiveness of thermomechanical stimulation (Buzzy) on post-procedure pain during vaccination	Adult employees presenting to annual influenza – Hospitals and community health centres Total n = 497 IG: n = 250 CG: n = 247	Age, years (SD): IG: 44.4 (13.4) CG: 41.7 (12.9)	Gender, n (%) IG: M: 44 (17.6)/F: 206 (82.4) CG: M: 40 (16.2)/F: 206 (83.4)	IG: Buzzy device (cold, vibration, and distraction) CG: standard injection protocol

Appendix 2: Continued

Author (year), Country	Study design	Aim	Participants/ Study group / setting			Intervention
Şahin and Eşer (2018), Turkey	RCT	Assess the effectiveness of the Buzzy application on pain during intramuscular injections	Adult patients receiving intramuscular injections – Hospital Total n = 65 IG: n = 33 CG: n = 32	Age, years (SD): IG: 51.58 (13.7) CG: 52.79 (12.9)	Gender, n (%) IG: M: 13 (39.39)/F: 20 (60.61) CG: M: 10 (31.25)/F: 22 (68.75)	IG: Buzzy device (cold, vibration, and distraction) CG: standard injection protocol
Special devices (two needle technique, shot-blocker, transcutaneous electrical nerve stimulation (TENS))						
Ağaç and Güneş (2011), Turkey	RCT	Compare the one-needle and two-needle techniques in reducing pain during administration of an intramuscular injection	Trauma patients receiving diclofenac sodium intramuscularly – Hospital Total n = 100 IG: n = 50 CG: n = 50	Age total, years, range (SD) 43.2, 18-54 (9.8)	Gender total, n (%) M: 65 (65.0)/F: 35 (35.0)	IG: two-needle technique CG: one-needle technique
Emel et al. (2017), Turkey	RCT	Determine the effectiveness of a shot-blocker on relief of pain due to hepatitis B vaccine injection into the deltoid muscle	First-year students in need of a hepatitis B vaccine – University Total n = 242 IG: n = 121 CG: n = 121	Age, years (SD): IG: 19 (1.69) CG: 19 (1.35)	Gender, n (%) IG: M:21 (17.4)/F:100 (82.6) CG: M:21 (17.4)/F:100 (82.6)	IG: Shot-blocker (small, flat plastic device applied to skin for blocking pain signals) CG: routine vaccination
Yılmaz et al. (2019), Turkey	RCT	Assess the effectiveness of transcutaneous electrical nerve stimulation (TENS) on post-operative pain after inguinal herniorrhaphy	Patients who had inguinal herniorrhaphy – Hospital Total: n = 52 IG: n = 26 CG: n = 26	Age, years (SD): IG: 44.96 (14.48) CG: 50.04 (15.04)	Gender, n (%) IG: M: 24 (49.0)/F: 2 (66.7) CG: M: 25 (51.0)/F: 1 (33.3)	IG: transcutaneous electrical nerve stimulation CG: electrodes placed, but device not started

CHAPTER 3

WHAT IS NEEDED FOR NURSES TO WORK WITH EVIDENCE-BASED PRACTICE? A QUALITATIVE STUDY

Identifying the current needs and wishes for working with the principles of EBP among hospital and community care (student) nurses and how they can be met to contribute to future-proof nursing

Jeltje Giesen
Annick Bakker-Jacobs
Anneke van Vught
Marjolein Berings
Hester Vermeulen
Getty Huisman-De Waal

Contemporary Nurse (2024)
https://doi.org/10.1080/10376178.2024.2369660

Abstract

Background: Transformation of healthcare is necessary to ensure patients receive high-quality care. Working with the evidence-based practice (EBP) principles enables nurses to make this shift. Although working according to these principles is becoming more common, nurses base their actions too much on traditions and intuition. Therefore, to promote EBP in nursing practice and improve related education, more insight into nurses' needs is necessary to overcome existing EBP barriers.

Objective: To identify the current needs to work with EBP principles among hospital and community care nurses and student nurses.

Design: A qualitative, exploratory approach with focus group discussions Methods: Data was collected between February and December 2020 through 5 focus group discussions with 25 nurses and student nurses from a hospital, a community care organisation, and nursing education schools (bachelor and vocational). Data were analysed using reflexive thematic analysis, and the main themes were synchronised to the seven domains from the Tailored Implementation for Chronic Diseases (TICD) checklist.

Results: Nurses and student nurses experience EBP as complex and require more EBP knowledge and reliable, ready-to-use evidence. They wanted to be facilitated in access to evidence, the opportunity to share insights with colleagues and more time to work on EBP. The fulfilment of these needs serves to enhance motivation to engage with evidence-based practice (EBP), facilitate personal development, and empower nurses and student nurses to take more leadership in working according to EBP principles and improve healthcare delivery.

Conclusion: Nurses experience difficulties applying EBP principles and need support with their implementation. Nurses' and student nurses' needs include obtaining more EBP knowledge and access to tailored and ready-to-use information. They also indicated the need for role models, autonomy, incentives, dedicated time, and incorporation of EBP in daily work practice.

Keywords: Community health services; evidence-based nursing; healthcare; hospitals; leadership; nurses; students

Impact statement

An understanding of the needs of nurses and student nurses regarding the application of EBP principles will help to empower them and to enable institutions to be more responsive to their needs. This, in turn, will result in the promotion of evidence-based quality of care.

Plain language summary

Healthcare must change to maintain high quality care for patients. Following the principles of Evidence-Based Practice (EBP) can contribute to this transformation. However, nurses often find it difficult to implement EBP insights in their practice because they face challenges such as lack of time, skills, knowledge and resources. Therefore, it is necessary to explore their needs for working according to EBP principles to help overcome the barriers they currently experience. Through group discussions with nurses and student nurses, it has been identified that they have specific needs in relation to the application of EBP. Nurses and student nurses experience EBP as complex and therefore need more knowledge and training in EBP. They would like more time to work on EBP in daily practice and the opportunity to discuss it with colleagues. In addition, they would like more tailored ready-to-use evidence that is easily accessible and, if possible, in their native language. Meeting these wishes helps to increase their motivation to work with EBP and contributes to their personal growth. They therefore require organisational support in terms of time to implement EBP, training and access to all available knowledge. Which is crucial for increasing the use of EBP and helping them to take leadership in applying EBP in practice. Doing so will allow them to provide better care.

Introduction

Transforming healthcare is necessary to ensure patients receive high-quality care (1). The need for transformation is led by the increasing demand for care alongside a labour shortage (2). Nurses constitute the largest group of care providers and administer the majority of care (3), therefore they can play a pivotal role in the transformation by de-implementing low-value care (4) and offering appropriate care. This is care that is focused on providing person-oriented care, organised in a setting that is close to the patient's home and which is cost-efficient. In addition, this care is aimed at prevention and promoting self-management next to cure (5). Nurses can assess and change the way they provide care by incorporating evidence-based practice (EBP) principles into daily nursing routines (6), which contributes to improving the quality of care (7). EBP is an approach grounded in integrating the

best available evidence, clinical expertise, and patient values and preferences when making care decisions (8).

Over the years, nurses have gained a more positive attitude towards EBP and recognize its importance in delivering appropriate care. The application of EBP has become more common in nursing practice, and EBP principles have been incorporated into the bachelor nursing curriculum. Present-day students can recognize fundamental EBP competencies, such as searching for evidence (9). Nevertheless, nurses (still) frequently encounter difficulties integrating EBP into their daily routines (10) and nursing students often struggle to apply their EBP knowledge after graduation (11). Previous research identified barriers (student) nurses encounter while using EBP related to their skills, knowledge, resources, professional relationships, and the absence of authority (12, 13). Furthermore, not having enough time to work on EBP (14) – and a high workload can lead to a genuine scarcity of time – can hinder the application of EBP (13, 15). However, a 'shortage of time' can reflect a socially accepted response that mirrors the expected behaviour in an environment with heavy workloads, not the actual barrier to EBP that they face (16).

Further insight into the barriers to EBP is necessary for developing integrated teaching strategies that promote EBP knowledge and skills of nurses in practice, to foster an EBP learning culture (17) and can enable the transition to the delivery of appropriate care. In addition, insights into EBP barriers can contribute to filling the gaps' in the nursing education curriculum and encourage the new generation of nurses to become clinical leaders in adopting EBP principles. Therefore, this study aims to identify the current needs in order to work with EBP principles among hospital and community care (student) nurses.

Methods

Design

The study used a qualitative, exploratory approach with focus group interviews to gain an in-depth understanding of the needs to work with EBP principles among (student) nurses in hospital and community care settings. The standards for reporting qualitative research (SRQR) was used for reporting the study.

Study setting and recruitment

Nurses from hospitals or community care organizations and nursing students from bachelor's and vocational nursing schools in the eastern region of the Netherlands were purposefully selected to participate in focus group interviews. These healthcare organizations offer services to patients in both urban and rural settings. Nurses were contacted through email, while nursing students were approached during lectures. Five homogeneous groups with a maximum of 10 participants were created to ensure participants felt comfortable speaking out. In total, there were 25 participants (21 female, four male), aged 18–48 years, and with work experience of 6 months to 12 years (see Table 1).

Table 1: Characteristics of participants

No.	Profession	Participants (N)	Gender (F/M)	Age (range)	Work experience in years (range)
1	Vocational-educated nursing students	3	2/1	19–21	NA
2	Vocational-educated nurses who are currently studying to be bachelor-educated nurses	9	7/2	22–48	3–12*
3	Bachelor-educated nursing students	5	5/0	18–22	NA
4	Hospital nurses	4	3/1	27–47	6–27
5	Community care nurses	4	4/0	25–31	0.5–7
	Total	**25**	**21/4**	**18–48**	**0.5–27**

*If provided; NA: not applicable

Data collection

Focus group interviews were conducted by the main researcher (JG) between February and December 2020 and observed by a researcher (MvdH) or educational science student (MM). The researchers are female and hold the title of level 6 healthcare nurses (RN) and health scientists (MSc) with experience conducting qualitative research. There was no connection to the included participants. Before the focus group interviews commenced, an interview guide was developed. This guide was discussed with an advisory panel of four nursing researchers, six nurses from hospital and community care settings, three experts in nursing education, and three advisors from professional nursing associations. Interviews were semi-structured to allow the researchers to anticipate specific topics during the discussions. At the initiation of each focus group session, a moment was taken to

facilitate introductions, ensure that all participants understood the purpose of the interviews, and got to know each other. The interview started with the question: '*Could you talk about where you search for evidence for working EBP principles?*' and focused on where (student) nurses search for evidence, what challenges they encounter, and their needs for evidence use in daily practice. All focus groups were audio-recorded and verbally transcribed, and a member check was performed. All participants agreed to the summary of the transcripts.

Data analysis

Data collection and analysis of the one-hour interviews was an iterative process. An initial analysis using an inductive data-driven approach was conducted. The analysis followed the following six steps: 1). becoming familiar with the data; 2). generating initial codes; 3). identifying themes; 4). reviewing themes; 5). defining and naming themes; and 6). producing the report (18). 'All the transcripts independently used open coding by the main researcher (JG) or research assistants (ABJ and AO), and ATLAS.Ti version 8.4.20 was used. Codes were discussed until a consensus was reached or a third researcher consulted. As coding progressed, a correlation was established with the seven domains of the factors outlined in the Tailored Implementation for Chronic Diseases (TICD) checklist (19). Consequently, the decision was made to proceed with a framework synthesis based on the TICD checklist. Data saturation was reached as no new codes emerged from the last interview.

Ethical considerations

The research ethics committee of the Radboudumc determined that ethical approval was not required under Dutch law (CMO no. 2020-6136). Nevertheless, all participants signed an informed consent stating they were informed about the purpose of the study, voluntary participation, and the right to withdraw from the study at any given time without disclosing a reason, and that confidentiality and anonymity of recordings and transcripts were assured.

Results

The open codes from the focus group interviews synthesized using the TICD checklist (19) are captured in a mindmap (see Figure 1). The codes in the results text have been formatted in bold to enhance clarity and highlight the discussed concepts. The domains of 'guideline factors' and 'patient factors' from the TICD checklist did not align with any of the codes obtained and will not be further described.

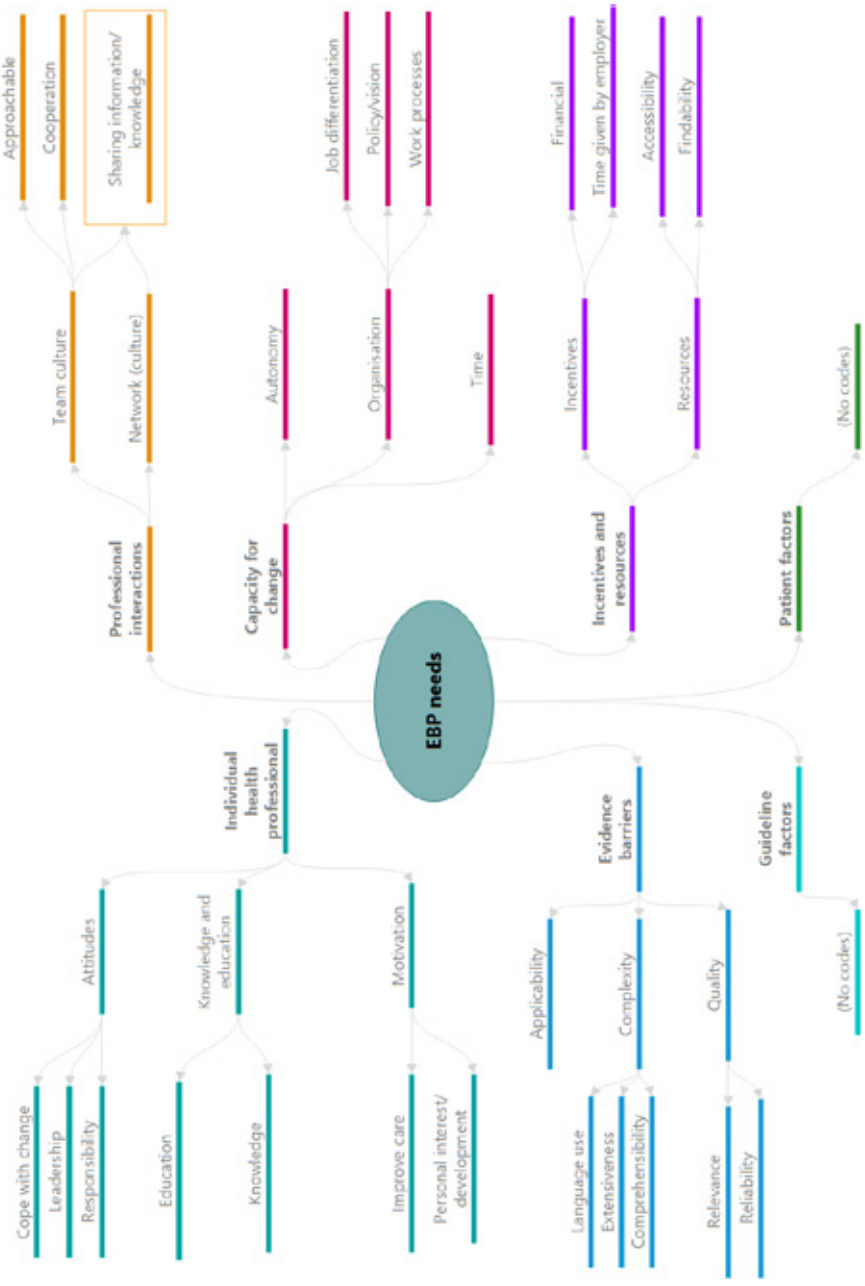


Figure 1: Mindmap EBP needs

Evidence barriers

Within the domain of evidence barriers, three distinct themes emerged: **complexity**, **applicability**, and **quality** of the evidence. Participants address the desire to develop knowledge to work with scientific articles and EBP principles. They say it is essential to utilize these skills, or they diminish over time. However, evidence in a non-native **language** can make it **complex** to use. Participants prefer evidence or a summary in their native **language**, which enhances their understanding of the evidence. However, participating students encountered fewer difficulties with the language in research, as they frequently use English daily and report receiving more comprehensive EBP education.

> *Although preferable, all the research translated into Dutch also feels a bit excessive since I watch everything in English on Netflix. [Nursing student]*

In addition, participants express the need for tailored evidence pertaining to the field of nursing work that is readily **applicable** in practice. This enhances usability and helps them effectively use their available time. This overcomes their feeling of not having the capability to interpret statistical results and research findings that are often too scientific.

> *There is a need to apply EBP information. But preferably when it has been tested in practice,* [is] *immediately applicable, and works well. [Community care nurse]*

Participants state that the availability of tailored information could help overcome the feeling of evidence **extensiveness** and reduce reading time. Participating students share the desire for tailored evidence despite possessing more EBP. They frequently encounter a sense of being overwhelmed due to the quantity of available evidence.

> *It can be a lot sometimes because research outcomes can be contradicting, which can make you clueless. [Community care nurse]*

The tailored evidence should be **reliable**, as participants consider it crucial to use high-quality information. To assess the quality, they require precise details about the information's source, research methodologies, authors, publication year, and sponsors.

I always look at how research is conducted. Do they use a small number of participants, or is it of low quality? Then it is less trustworthy. [Nursing student]

Individual health professionals

The domain of individual health professionals encompasses three themes: motivation, attitude, and knowledge to work with the EBP principles. All participants possess a positive **attitude** toward EBP. They feel responsible for delivering the best possible care and are **motivated** to **improve care**. It is part of their job and essential for job development**.** Nevertheless, they acknowledge that research enthusiasm is a personal matter and understandably not universally shared among all colleagues. Therefore, they seek colleagues with a positive attitude towards EBP collaboration.

Colleagues must […] be open to it. At internships, I often hear, 'We always do it like this,' and they do not want to be open to possibly changing it. [Nursing student]

To increase their **motivation**, participants require inspiration from colleagues or the opportunity to pursue further **education** or refresher courses, which is also beneficial for their **personal development**. Education should focus on how and where to find evidence and get experience in implementing EBP principles. In particular, vocational students need more knowledge as they have fewer qualifications and consider EBP a bachelor nurse task.

Education is the first step so questions can be answered, and an EBP tool (EBP model and EBP processes) to proceed independently can be helpful to guide me and colleagues. [Hospital nurse]

Participants are inclined to collaborate as they perceive it as the **responsibility** of both bachelor- and vocational-educated nurses to enhance care quality through EBP. To achieve this, they recognize the necessity for increased **leadership** and the consideration of individual roles. This is significant due to their experiences with hands-on colleagues, assigning EBP to a bachelor-educated nurse or a document manager.

Professional interactions

The professional interactions domain has two themes: team culture; and network (culture).

Participants say it is team culture to first ask colleagues or workgroups for solutions. The need to obtain a quick answer takes precedence and they rely on their colleague's knowledge.

> *I ask colleagues, and they often have an answer. I don't know whether that is EBP, but I rely on their expertise. [Hospital nurse]*

Participants want to **share knowledge** within **networks**, both within their organizations and beyond. This is already more common in hospitals. However, the reluctance of colleagues to embrace change and the fear of receiving constructive criticism is an obstacle to this **knowledge exchange**. Additionally, student nurses emphasize the necessity for support and **cooperation** to work with EBP as their suggestions for care changes are not always appreciated and they feel they are disregarded.

Incentives and resources

The incentives and resources domain focused on incentives from the organization and resources to work with the principles of EBP. **More time** to work on EBP is an **incentive** addressed by participants**.** Now organizations focus on providing bedside care, especially in the community care setting.

> *Due to staff shortages, we do not have time to work on EBP. Organizations focus on maximizing bedside care, hours that can be claimed. [Community care nurse]*

Participants want to be **financially** compensated for their time searching for evidence. Community care nurses in particular need more **resources** to access reliable evidence anywhere and anytime. In addition, the **findability** and **accessibility** of evidence is challenging. Go-getters are creative in obtaining reliable evidence. Others turn to non-scientific Internet pages like Facebook, which offers quick and readable information.

> *I don't read* journals *so often, although they are available. When I see something interesting on my Facebook app, I will likely read it. [Nursing student]*

Capacity for change

The capacity for the change domain contains three themes: organization; lack of time; and autonomy. Participants are confused in terms of the expectations

regarding EBP, which is caused by an unsuccessful implementation of **job differentiation**. Although EBP is in their job descriptions, it is not incorporated into daily **work processes.**

> *It is not part* [of] *my daily work to be busy* [with] *EBP. It's not that I think, oh let me work on that. [Community care nurse]*

Participants find it difficult to incorporate more EBP due to a high workload, staff shortages, and having **insufficient time**. They express that discussing and solving care problems with EBP positively influences team spirit and quality of care. Therefore, they need **more time** and **autonomy** to put EBP into practice. This can be supported by the provision of a guiding person', a well-defined EBP vision, and an organizational policy.

Discussion

This study aimed to explore the needs of (student) nurses regarding working with the EBP principles and which can be used to transform healthcare. The analysis yielded insights into the desire for ownership and taking leadership to work with EBP principles. To foster a culture of learning, (student) nurses must be supported by their organizations through provisions of time, resources for locating evidence, and clear expectations of applying EBP in practice. There exists a need for tailored, high-quality evidence related to nursing care that is easily accessible. Furthermore, nurses need education aimed at refining their EBP skills, which can be used to provide more appropriate care.

The findings indicate that increased ownership and leadership play a significant role in fostering a positive attitude toward the utilization of EBP principles and resources should be allocated towards this endeavour. This is supported by the study by Stokke et al (2014) which affirms that positive attitudes of nurses toward EBP, having enough EBP knowledge, and being involved in EBP working groups increase its implementation (20). In addition, the study by Hoegen et al. (2022) states that the promotion of self-efficacy and outcome expectancy of nurses in EBP improves participation, and the implementation of EBP can be promoted by an active nurse leader and supportive work environment (21). Furthermore, the study by Kieft et al. (2014) confirms that nurses need to be able to take control of their nursing practice, work autonomously, and be clinically competent to improve patient care.

Besides the opportunity to show more leadership, healthcare organizations should provide access to evidence, a condition for working with EBP. Nurses often experience insufficient access to evidence because not all research is published with open access or because organizations do not have subscriptions. In addition, students lose access to evidence after graduation and thus the opportunity to put their competencies into practice. Nurses need a clear vision from their organization about working with EBP and to be given time to put EBP into practice. This is consistent with the studies by Bianchi et al. (2018) and Friesen-Storms et al. (2017) that underpin the role of nurse managers as gatekeepers that can promote EBP use and facilitate more knowledge and resources, using transformational leadership.

Nursing leaders knowledgeable with EBP methodology and research experience can help promote EBP in organizations. However, in Dutch hospitals and community care, in daily practice (still) little distinction between vocational-educated nurses and bachelor-educated nurses is made (22). To use (student)nurses' full potential and promote leadership, it is essential to continue job differentiation and clarify expectations with regard to using EBP in daily practice.

More education of (student)nurses contributes to overcoming barriers, improving EBP competencies, and supporting job differentiation. This is important, given that searching for and interpreting research remains challenging for nurses due to insufficient education or not using previously learned EBP skills. The educational need is consistent with the study by Vaajoki et al. (2023), which states that nurses still require practical education and support to effectively recognize clinical issues and apply evidence-based practices in their daily patient care routines. In addition, there should be opportunities to foster a team approach to EBP. This can contribute to the cultivation of a culture of continuous learning. The study by Lovink et al. (2022) confirms that facilitating workplace learning for nurses can promote the use of EBP in quality improvement and daily practice (23). This can help bridge the gap between the different educational work approaches and motivate (student) nurses to work with EBP (24, 25).

The attitudes of (student) nurses can challenge creating a learning culture, such as the fear of being judged, being reluctant or simply not being open for change in practice. Jylhä et al. (2017) support these findings and found that an unsupportive work environment stagnates (student) nurses' personal growth and their being able to reach their full EBP potential (26). This results in lower compliance and satisfaction in their job, and nurses are more likely to leave the nursing profession early (27). Therefore, personal interest in aspects of EBP principles should be addressed, and newly graduated nurses should be guided to put their EBP knowledge into practice. This corresponds with the findings of the WHO report from 2017 that states that nurses are more empowered if

they believe in and use their capacities to deliver high-quality care, and this contributes to more cohesion in nursing teams and promotes EBP use (Jylhä et al., 2017).

Finally, the study results reinforce the requirement for a (further) bridging between research, education, and nursing practice. The research conducted by Thompson et al. (2019) substantiates the necessity for nursing scientists to act as knowledge brokers. They can establish and maintain partnerships, facilitate knowledge application, generate new evidence, and promote EBP in nursing teams (28).

Strengths and limitations of the work

The strength of this study lies in its ability to provide an overview of the needs of (student) nurses regarding evidence-based practice (EBP). This information is crucial for promoting the integration of the EBP principles into daily practice and can aid in cultivating a quality improvement learning culture within nursing teams. In addition, more insight into the barriers and facilitators conducted in this study is essential as the implementation of EBP in nursing practice is still complex and requires more attention. Furthermore, by involving nursing students, the aspirations of future nurses regarding EBP are captured, and the use of the TICD framework for data analysis offers insights into modifiable factors for the implementation of EBP by nurses.

The limitations of this study were governmental COVID-19 regulations that limited the number of participants to be included and forced a transition from in-person to digital focus groups. Furthermore, only hospital and community care (student) nurses were included. Therefore, further research should validate the applicability in other healthcare settings. Moreover, only the perspectives of (student) nurses regarding EBP were included in this study. Incorporating interviews with managers or coaches could offer a more comprehensive viewpoint, given that individuals might not always be fully aware of the underlying professional, team, and organizational culture. Lastly, it is plausible that our results might exhibit bias due to participants' more positive attitudes towards EBP and their generally young age as they might have been more inclined to participate.

Recommendations for further research

Future research should focus on extending our findings by involving nursing managers and other nursing areas such as nursing homes, care for disabled people, and mental health facilities. In addition, research should pay attention to developing practical interventions that meet the need to work with EBP principles for nurses and organizations. Finally, research should ensure that findings are accessible, understandable, and usable to put into practice.

Conclusion

EBP has attracted more attention in nursing practice over the years and its importance is widely acknowledged. However, nurses still experience difficulties applying EBP principles and need support with their implementation. Nurses express various needs to lower the threshold for implementing EBP principles. These predominantly revolve around obtaining more EBP knowledge, access to tailored and ready-to-use information, and having the opportunity, time, and space to discuss issues and research findings with colleagues. To enhance working with EBP principles within organizations, implementing strategies fostering and facilitating an EBP-learning culture is necessary, in which nurses are empowered to address EBP requirements and be encouraged to utilize and share their EBP knowledge in everyday practice. This will overcome EBP barriers and improve EBP decision-making, contributing to the transition to appropriate care to make care future-proof.

CRediT authorship contribution statement

Jeltje Giesen: Conceptualisation, Methodology, Investigation, Formal analysis, Writing – original draft, Writing – review & editing. Annick Bakker-Jacobs: Conceptualisation, Methodology, Formal analysis, Writing – review & editing. Anneke van Vught: Funding acquisition, Conceptualisation, Methodology, Writing – review & editing, Supervision. Marjolein Berings: Funding acquisition, Conceptualisation, Methodology, Writing – review & editing, Supervision. Hester Vermeulen: Funding acquisition, Conceptualisation, Methodology, Writing – review & editing, Supervision. Getty Huisman-de Waal: Funding acquisition, Conceptualisation, Methodology, Formal analysis, Writing – review & editing, Project administration, Supervision.

Acknowledgments

We would like to thank A. Oude Bos and M. van der Heijden for their help in coding the data. Additionally, we wish to thank all participating organisations, nurses and professional caregivers who participated in this study.

Funding

This work was supported by ZonMw, the Netherlands Organization for Health research and Development [dossier no. 80-83900-98-854].

References

1. Robertson-Preidler J, Biller-Andorno N, Johnson T. What is appropriate care? An integrative review of emerging themes in the literature. BMC Health Serv Res. 2017;17.
2. Visser M, de; Boot, A.W.A; Werner, G.D.A.; Riel, A. Van; Gijsberts, M.I.L. Sustainable healthcare, a matter of choice. People, resources, and public support. In: Policy TNSCfG, editor. The Hague2012. p. 25.
3. WHO. State of the world's nursing 2020: investing in education, jobs and leadership: World Health Organization 2020; 2020.
4. Zwakhalen SMG, Hamers JPH, Metzelthin SF, Ettema R, Heinen M, de Man-Van Ginkel JM, et al. Basic nursing care: The most provided, the least evidence based - A discussion paper. J Clin Nurs. 2018;27(11-12):2496-505.
5. Kievit JB, A.; Polder, J.; Wagner, C. Rapport 'Begrippenkader Gepaste Zorg en Praktijkvariatie'. In: ZINL Z, FMS en NFU editor. Leiden2015. p. 29.
6. Visser M, de; Boot, A.W.A; Werner, G.D.A.; Riel, A. Van; Gijsberts, M.I.L. Sustainable healthcare, a matter of choice. People, resources, and public support. In: Policy TNSCfG, editor. The Hague2021. p. 25.
7. Burston S, Chaboyer W, Gillespie B. Nurse-sensitive indicators suitable to reflect nursing care quality: a review and discussion of issues. J Clin Nurs. 2014;23(13-14):1785-95.
8. Melnyk BM, Gallagher-Ford L, Fineout-Overholt E. Implementing the evidence-based practice (EBP) competencies in healthcare: a practical guide for improving quality, safety, and outcomes: Sigma Theta Tau; 2016.
9. Lam CK, Schubert C. Evidence-Based Practice Competence in Nursing Students: An Exploratory Study With Important Implications for Educators. Worldviews Evid Based Nurs. 2019;16(2):161-8.
10. Lehane E, Leahy-Warren P, O'Riordan C, Savage E, Drennan J, O'Tuathaigh C, et al. Evidence-based practice education for healthcare professions: an expert view. BMJ Evid Based Med. 2019;24(3):103-8.
11. Skela-Savič B, Gotlib J, Panczyk M, Patelarou AE, Bole U, Ramos-Morcillo AJ, et al. Teaching evidence-based practice (EBP) in nursing curricula in six European countries-A descriptive study. Nurse Educ Today. 2020;94:104561.
12. Kajermo KN, Boström AM, Thompson DS, Hutchinson AM, Estabrooks CA, Wallin L. The BARRIERS scale -- the barriers to research utilization scale: A systematic review. Implement Sci. 2010;5:32.
13. Jabonete F, Roxas R. Barriers to Research Utilization in Nursing: A Systematic Review (2002–2021). SAGE Open Nursing. 2022;8:237796082210910.
14. Mallion J, Brooke J. Community- and hospital-based nurses' implementation of evidence-based practice: are there any differences? Br J Community Nurs. 2016;21(3):148-54.
15. Maaskant JM, Knops AM, Ubbink DT, Vermeulen H. Evidence-based practice: a survey among pediatric nurses and pediatricians. J Pediatr Nurs. 2013;28(2):150-7.
16. Thompson DS, O'Leary K, Jensen E, Scott-Findlay S, O'Brien-Pallas L, Estabrooks CA. The relationship between busyness and research utilization: it is about time. J Clin Nurs. 2008;17(4):539-48.
17. Horntvedt MT, Nordsteien A, Fermann T, Severinsson E. Strategies for teaching evidence-based practice in nursing education: a thematic literature review. BMC Med Educ. 2018;18(1):172.
18. Braun V, Clarke V. Using thematic analysis in psychology. Qualitative Research in Psychology. 2006;3:77-101.

19. Flottorp SA, Oxman AD, Krause J, Musila NR, Wensing M, Godycki-Cwirko M, et al. A checklist for identifying determinants of practice: a systematic review and synthesis of frameworks and taxonomies of factors that prevent or enable improvements in healthcare professional practice. Implement Sci. 2013;8:35.
20. Stokke K, Olsen NR, Espehaug B, Nortvedt MW. Evidence based practice beliefs and implementation among nurses: a cross-sectional study. BMC Nurs. 2014;13(1):8.
21. Hoegen P, Vos M, van Oostveen C, de Bot C, Echteld MA, Maaskant J, Vermeulen H. Nurse Leadership and Work Environment Association with Outcome Expectancy and Self-Efficacy in Evidence-Based Practice among Hospital Nurses in The Netherlands: A Cross-Sectional Study. Int J Environ Res Public Health. 2022;19(21).
22. Van Kraaij J, Lalleman P, Walravens A, Van Oostveen C, consortium RB. Differentiated nursing practice as a catalyst for transformations in nursing: A multiphase qualitative interview study. J Adv Nurs. 2022;78(1):165-75.
23. Lovink MH, Verbeek F, Persoon A, Huisman-de Waal G, Smits M, Laurant MGH, van Vught AJ. Developing an Evidence-Based Nursing Culture in Nursing Homes: An Action Research Study. Int J Environ Res Public Health. 2022;19(3).
24. Hakvoort L, Dikken J, Cramer-Kruit J, Nieuwenhuyzen KM, van der Schaaf M, Schuurmans M. Factors that influence continuing professional development over a nursing career: A scoping review. Nurse Educ Pract. 2022;65:103481.
25. McIntosh K, Collins J, Mick J. Promoting a culture of clinical inquiry in nursing. Nursing. 2022;52(9):31-5.
26. Jylhä V, Oikarainen A, Perälä M-L, Holopainen A. Facilitating evidence-based practice in nursing and midwifery in the WHO European Region2017.
27. Bahlman-van Ooijen W, Malfait S, Huisman-de Waal G, Hafsteinsdóttir TB. Nurses' motivations to leave the nursing profession: A qualitative meta-aggregation. J Adv Nurs. 2023.
28. Thompson MR, Schwartz Barcott D. The Role of the Nurse Scientist as a Knowledge Broker. J Nurs Scholarsh. 2019;51(1):26-39.

CHAPTER 4

LOW-VALUE AND HIGH-VALUE CARE RECOMMENDATIONS IN NURSING: A SYSTEMATIC ASSESSMENT OF CLINICAL PRACTICE GUIDELINES

Identifying low-value and high-value care recommendations relevant for nurses and to prioritize the low-value care recommendations for de-implementation

Wilmieke Bahlman-van Ooijen,
Jeltje Giesen
Annick Bakker-Jacobs
Hester Vermeulen
Getty Huisman-de Waal

Journal of Nursing Scholarship (2024)
https://doi.org/10.1111/jnu.13029

Abstract

Introduction: The World Health Organization defines quality of care as providing effective, evidence-based care and avoiding harm. Low-value care provides little or no benefit to the patient, causes harm and wastes limited resources. In 2017, shortly after the start of the International Choosing Wisely campaign, the first Dutch nursing 'Do-not-do' list was published and has become a widely used practical tool for nurses working in daily practice. However, over the last years new guidelines are published. Therefore, an update of the list is necessary with an addition of high-value care recommendations as alternative care practices for low-value care.

Design/methods: In this study, a combination of designs was used. First, we searched Dutch clinical practice guidelines for low-value or high-value care recommendations. All nursing care recommendations were assessed, and specified to several healthcare sectors, including hospital care, district care, nursing home care, disability care and mental health care. Second, a prioritization among nurses regarding low-value care recommendations was done by a cross-sectional survey for each healthcare sector.

Results: In total, 66 low-value care recommendations were found, like for example 'avoid unnecessary layers under the patient at risk of pressure ulcers' and 'never flush the bladder to prevent urinary tract infection'. Furthermore, 414 high-value care recommendations were selected, such as 'use the Barthel Index to assess and to evaluate the degree of ADL independence', and 'application of cold therapy may be considered for oncological patients with pain'. In total, 539 nurses from all healthcare sectors prioritized the low-value care recommendations, resulting in a top five of low-value care practices per healthcare sector. The top five of low-value care recommendations differed per healthcare sector, although 'do not use physical restraints in case of a delirium' was prioritized by four out off five sectors.

Conclusions: Assessing low-value and high-value care recommendations for nurses will help and inspire nurses to deliver fundamental care for their patients. These initiatives regarding low-value and high-value care are essential to generate a culture of continuous quality improvement based on evidence. This is also essential to meeting the current challenges of the healthcare delivery system.

Keywords: Nursing [Mesh], Practice Guidelines as Topic [Mesh], Low-value care, appropriateness, choosing wisely, clinical guidelines, systematic assessment.

Clinical relevance

- This paper provides an update of low-value care recommendations for nurses based on Dutch guidelines from 2017 to 2023, specified to five healthcare sectors, including hospital care, district care, nursing home care, disability care and mental health care, with an accompanying prioritization of these low-value care recommendations to facilitate de-implementation.
- This paper provides a first overview of high-value care recommendations to reflect on and create alternative care practices for low-value care.
- The recommendations regarding low-value and high-value care are essential to generate a culture of continuous improvement of appropriateness based on evidence, finally leading to better quality of care and improving patient outcomes.

Introduction

The World Health Organization (WHO) defines quality of care as healthcare that is effective, safe and person-centred (1). This means providing evidence-based healthcare services to those who need them most, avoiding harm to people for whom the care is intended and providing care that responds to individual preferences, needs, and values (1). The International Council of Nurses describes in the Code of Ethics that nurses facilitate a culture of safety in health care environments, recognising and addressing threats to people and safe care in health practices, services and settings (2). To realize the benefits of quality healthcare, health services must be timely, equitable, integrated and efficient, which implies maximizing the benefit of available resources and avoiding waste (1). With nurses being the largest group of healthcare providers (3), they have an important role in current calls for improving the quality of care to provide effective evidence-based care and avoid harm (1).

Quality of care in the nursing profession includes the essential elements of basis care, also known as Fundamental Care. Fundamental Care involves actions on the part of the nurse that respect and focus on a person's essential needs to ensure their physical and psychosocial wellbeing. These needs are met by developing a positive and trusting relationship with the person being cared for as well as their informal caregivers (4). The Fundamental of Care Framework (FoCF) outlines what is involved in the delivery of safe, effective, high-quality fundamental care, and what this care should look like in any healthcare sector (5). The framework emphasizes the need to integrate people's different fundamental needs; namely their physical (e.g., nutrition, mobility, and comfort) and psychosocial needs (e.g., communication,

privacy, dignity), which are mediated through the nurses' relational actions (4). To improve the delivering of fundamental care, it is necessary to conduct high-quality investigations to generate the evidence needed to inform care practices and shape healthcare systems worldwide (6).

To facilitate the transition to fundamental care, it is imperative to integrate EBP principles into daily work processes (7). Evidence-based Practice (EBP) is the joint, mutually informed decision-making in healthcare situations, based on weighing arguments from patients' knowledge, values, and preferences and the best, most current scientific and professional insights, resulting in cost-effective care and better outcomes for individual patients (8). Nurses can play an active role in the integration of EBP by critically evaluating the care provided (5), because evidence is increasing that low-value care might be highly prevalent in nursing (9). Low-value care is care of which evidence shows that it has no or little benefit to the patient considering the costs, available alternatives, and patient preferences. It wastes limited resources and may cause physical, psychological and financial harm to patient (10). A recent study showed that low-value home-based nursing care regularly occurs in the Netherlands (95.9%) and the majority of nurses expected it to occur on a daily basis (59.0%) (11). Low-value care has become a pervasive problem in healthcare, with studies estimating that around 25-30% of care is wasteful, which included the delivery of low-value care (12, 13). The annual costs for low-value medication use, screening, testing or procedures and overuse of end of life care are estimated for $75.7 billion to $101.2 billion (13). Low-value care lead to many negative consequences, such as direct and indirect patients harms, unnecessary workload for healthcare professionals, and wasted healthcare resources (14). Reducing low-value care could have a positive impact on the culture of busyness in healthcare, leading to cost savings and a reduction in missed care (15, 16). Nevertheless, there are some low-value practices existing in nursing care, which implies that further actions should be taken (9).

To reduce low-value care, multiple initiatives around the world have been launched, such as the Choosing Wisely Campaigns from the United States, Canada, Australia, Italy and Spain (17). Choosing Wisely in the Nursing Profession included the development of a Choosing Wisely list with 25 things for nurses and patients to question (18). Examples include 'do not wake the patient for routine care unless the patient's condition or care specifically requires it' and 'do not routinely use graduated compression stockings in surgical patients as mechanical prophylaxis for preventing venous thromboembolism after surgery' (18). In The Netherlands, one of the Choosing Wisely initiatives was the development of the 'Do-not-do' list in 2017, which identified 66 low-value care practices in nursing (19). Examples of the 'Do-not-do' list included 'do not use disinfectants in the daily care of a urethral

catheter' and 'do not use bandages for wounds closed by primary intention'. Another example is the reduction of inappropriate use of peripheral intravenous catheters and urinary catheters in Dutch hospitals, to prevent catheter-related infections and other complications (20). These practices for de-implementation have spread awareness of low-value care amongst nurses and ignited dialogues on de-implementation of low-value care (19). The 'Do-not-do list' is a widely used practical tool for nurses working in daily practice and have led to quality or research projects in various healthcare facilities (11, 21). However, the recommendations of the 'Do-not-do list' are already 6 years old and new guidelines have been published. Therefore, it is time for an update of care recommendations to work according to the last knowledge.

Next to initiatives regarding low-value care and its accompanying de-implementation strategies, it is necessary to know what adds value to nursing care. High-value care is care with strong evidence of effectiveness, population-wide health impact and cost-effectiveness (22). Identification of high-value care recommendations is helpful for nurses to provide evidence based and fundamental care (6). Until now there is no overview of high-value care recommendations available.

The primary aim of this study was to systematically assess Dutch guidelines and quality standards relevant for nurses from 2017 to 2023 to identify low-value and high-value care recommendations. The secondary aim of this study was to prioritize the low-value care recommendations to identify which low-value care practices are high on the de-implementation agenda according to nurses. The updated list of low-value care practices and the prioritization can be used to further stimulate de-implementation of low-value care practices, in order to lead and facilitate them to make changes.

Design

In this study, a combination of designs was used. First, we searched Dutch clinical practice guidelines for recommendations stating that specific nursing care should be avoided, so called low-value care recommendations, and care that should be performed, so called high-value care recommendations. These recommendations were indicated per healthcare sector, including hospital care, district care, nursing home care, disability care, and mental health care. Second, a prioritization regarding low-value care recommendations was done with the help of a cross-sectional survey, among nurses working in these healthcare sectors.

Methods

Inclusion of guidelines

We searched a total of four Dutch databases for guidelines relevant to nursing care: (1) the database of the Dutch Professional Association of Nurses (V&VN), (2) the palliative care platform (Pallialine), (3) the geriatrics platform (Verenso), and (4) the database of guidelines for medical specialists (FMS). These are databases known in The Netherlands that contain guidelines relevant to the nursing profession. All available guidelines in these databases were extracted and screened on their eligibility by two researchers independently [WO, JG, AB or GH]. The inclusion criteria for guidelines included: Dutch guidelineas, published from January 2017 to February 2023, and reported for nurses or nurse assistants, guidelines appropriate for nurses or nurse assistants or composed for healthcare professionals including nurses and nurse assistants. We excluded guidelines from 2016 and older, because these recommendations were included in the Dutch do-not-do list of 2017 (19). Patient versions of guidelines were also excluded. As Dutch guidelines are obtained by a structured process of assessment, no additional quality control of the guidelines was performed by the research group.

Screening of guidelines to include recommendations

The selected guidelines were systematically screened in order to select low-value and high-value care recommendations with predetermined criteria. The inclusion criteria for the recommendations were described as recommendations that targeted nursing care, applicable for hospital care, district nursing care, mental health care, nursing home care and/or disability care healthcare sectors, and suitable for children or adults. We excluded recommendations with no concrete intervention, such as 'inform patients' and 'make a note in the care file', because this belongs to the general duties of a nurse. Recommendations for medical staff or nurse specialists were also excluded, likewise recommendations about organization of care were not taken into account. In guidelines with clear parts of recommendations, only these parts were read, including the paragraph explaining this recommendation. For guidelines without clearly worded recommendations, search terms, such as 'do not do', 'low-value', 'not' and 'avoid' were used to search the full text for low-value care recommendations. For high-value care recommendations, search terms such as 'recommend', 'best', 'good', 'advises' and 'should' were used. All included guidelines were stored, whereby low-value care recommendations were shaded red, and high-value care recommendations were shaded green. In total, twelve guidelines were screened by two researchers independently [WO, JG, AB or GH] to reach consensus about inclusion or exclusion. The other guidelines were checked

by a single researcher, whereby all extracted recommendations were checked by two researchers [WO, JG, AB or GH].

Data extraction of recommendations

All low-value and high-value care recommendations were listed in a data extraction file in Microsoft Excel. The following data was extracted: name of the guideline, year of the guideline, recommendation text, short recommendation text, patient category, care theme of the recommendation, the kind of care according to the Fundamental of Care framework, healthcare sector, and level of evidence (when available). All extracted data were reviewed by two researchers [WO, JG, AB or GH].

The recommendation text was taken verbatim from the relevant guideline, with an explanation of the low-value care practice added only where this was done in the guideline. The short recommendation text was an abstraction of the full recommendation. Patient category was taken from the guideline. The care theme has been added by the research group based on the content of the recommendation, the topic of the guideline from which it originated and the Fundamental of Care Framework.

Furthermore, all recommendations were assessed and one or more suitable Fundamentals of Care categories were allocated. The Fundamentals of Care Framework is a tool for classification of nursing activities developed by Kitson et al. (2010) (23). This categorization was also done for the first Dutch 'Do-not-do' list in order to understand the importance of the fundamentals of care and how they should be provided in daily practice (19).

Next, a categorization was made for the care recommendations regarding five healthcare sectors, including hospital care, district nursing care, mental health care, nursing home care and disability care. All low-value and high-value care recommendations were assessed for their applicability to each of these healthcare sectors and allocated to one or more settings. This specification was made to provide the sectors a clear and uncluttered list of recommendations suitable for their own sector, without recommendations that do not relay to their practice.

We also identified the level of evidence for the care recommendation, but this was not consistently reported in the guidelines. Different scoring methods were used to indicate the level of evidence or only the recommendation was described as consensus-based or evidence-based. Some guidelines referred to the GRADE method, but this was not consistently reported in each guideline. Therefore, we only classified in the lists whether the recommendation was based on evidence, consensus or not provided. 'Evidence' meant that there was a GRADE rating or that the recommendation was clearly supported by a literature search or references. 'Consensus' was indicated if that was explicitly mentioned or the recommendation

included 'the working group recommends…' or 'the working group is of the opinion…'. If there was no clear information provided on what the recommendation was based on, the recommendation was classified as 'not provided'.

Finally, from the selected low-value and high-value care recommendations, low-value care recommendation lists and high-value care recommendation lists were made, including the following subjects: recommendation text, short recommendation text, patient category, care theme and a link o the guideline. Not all extracted data was presented on the lists in order to ensure a clear and structured list. Twelve lists were made in total: one general list of low-value care recommendations, one general list of high-value care recommendations, five healthcare sector specified low-value care recommendation lists, and five healthcare sector specified high-value care recommendation lists.

Prioritizing recommendations

To gain insight into which low-value care recommendations require action according to nurses, a questionnaire was made to prioritize the low-value care recommendations per healthcare sector. We used online surveys to assess the prevalence, time investment and influencing factors of each low-value care practice. The prevalence was assessed on a 5-point Likert scale from 'Never' to 'Always'. Time investment was also represented on a Likert scale with 5 answer possibilities, varying from '0-5 minutes' to '≥31 minutes' and 'not to be determined'. In addition, the participants were asked to select the main reason why the still performed the low value care, which included options like: 'it is written in the care plan', 'it is always done like this' or 'the doctor advices it'. These influencing reasons were based on previous research to reasons for still providing low-value care practices (11). In total, 5 questionnaires were made specifically for each healthcare sector. Therefore, we made a selection of low-value care recommendations per healthcare sector, which are likely to be performed widely. We have chosen for a selection because presenting all low-value care recommendations would result in a too long questionnaire, which may lead to overextension of nurses. This selection was made with the research group [WO, JG, AB and GH] combined with a total of eight additional nursing experts who have access to the one of the healthcare sectors. The selection team consisted of nurse researchers, nurse managers and nurses. The surveys were created in Castor EDC and pilot tested by the (nurse) researchers [WO and AB].

No sample size calculation was done because only descriptive statistics were used to prioritize the low-value care recommendations and we did not apply statistical tests to the data. A convenience sampling strategy was used, due to the limited time available to distribute the questionnaire. The questionnaire was shared via all the stakeholders in the research project, such as the Dutch Professional

Association of Nurses (V&VN), a Dutch knowledge platform/organization for long-term care (Vilans), a Dutch programme for increasing appropriate care (ZE&GG), a Dutch university medical centre (Radboudumc), a Dutch university elderly care network (UNO Amsterdam) and via the personal networks of the researchers, such as LinkedIn. Furthermore, several healthcare organizations were asked to share the questionnaire among nurses.

The data collection took place in April and May 2023. All professionals working in nursing clinical practice were included for participation, such as health- and welfare assistants, certified nursing assistants, registered nurses (both vocationally trained as nurses with a bachelor's degree) and nurse practitioners. There were no exclusion criteria. To gain an insight into the variety of the sample population, demographic characteristics such as gender, age, level of education, healthcare sector, years of work experience, and hours work per week, were asked.

There was no prioritizing made to the high-value care recommendations given the multitude of identified recommendations in guidelines.

Data analysis

Descriptive statistics were used to summarise the demographic characteristics of the respondents, the prevalence of low-value care, the related influencing factors, and the time investment of the low-value care practice. All analyses were performed with IBM SPSS Statistics for Windows, versions 27 or Microsoft Excel (24). To assess the prevalence, data was dichotomized to 'occurrence' and 'no occurrence'. 'Occurrence' was defined as the answer possibilities always, daily, weekly and monthly. 'No occurrence' included the answer possibility never. For prioritization, the first step was to generate a top ten of low-value care recommendations per sector, assuming the dichotomized prevalence. The second step was to weight the frequency with which the recommendation was performed (weekly, monthly, daily or several times a day) and the time required to perform a low-value care practice. For example, in district care, we prioritized 'do not shower too often, not too hot and do not use much soap' over 'do not use physical restraints'. This was done because showering too often was done weekly and took 16-30 minutes while using physical restraints was done monthly and took 0-5 minutes. Finally, we considered the risk or potential harm that the recommendation could cause to the patient. For example, in hospital care, we prioritized 'avoid unnecessary layers of bedding beneath the patient at risk of pressure ulcers' over 'do not disinfect your hands after washing'. This choice was made because this low-value care practice could lead to pressure ulcers for the patient whereas disinfecting and washing hands does not cause harm the patient. The process of prioritization was carefully considered by

the research group, with help of the previously consulted nursing experts from the various healthcare sectors and led to the final prioritization of the top 5.

Ethical approval

The research was exempted from formal medical ethical review in accordance with the Dutch Medical Research Involving Human Subjects Act. All respondents received information about the study purposes and provided written informed consent prior to the start of the questionnaire.

Results

Identification of guidelines

In total, 233 Dutch guidelines were identified. Two guidelines were not retrieved, because they were only available to professionals with special member accounts. Therefore, we assessed 231 guidelines on their relevance by two researchers independently. After excluding 159 guidelines, a total of 72 guidelines from the list of Dutch clinical practice guidelines for nurses and nurse assistants were assessed as relevant. Reasons for the exclusion of guidelines were guidelines outside the field of nursing, guidelines on organization or funding of healthcare and guidelines with no concrete low-value or high-value care recommendations (see Figure 1).

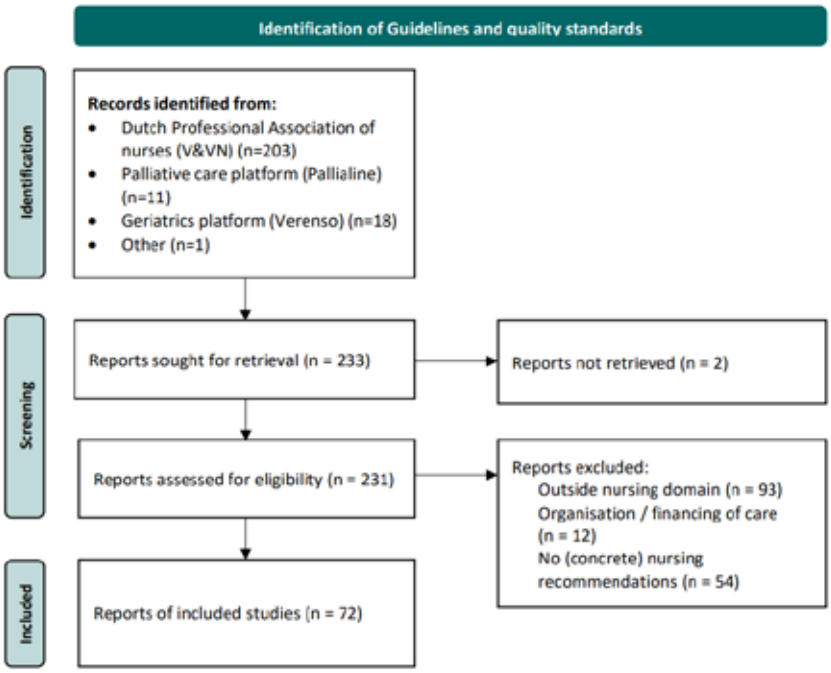


Figure 1: **Flowchart for guideline search**

Identification of low-value and high-value care recommendations

Identification of recommendations

The screening of guidelines lead to the identification of 480 recommendations, whereby 66 low-value care and 414 high-value care recommendations were identified. Nearly all guidelines described high-value and/or low-value care recommendations, only one guideline did not describe a nursing recommendation regarding low-value or high-value care. The low-value care recommendations were from 31 included guidelines, and the high-value care recommendations were retrieved from 68 included guidelines. The overview of low-value and high-value care recommendations per healthcare sector is shown in Table 1. Most recommendations were related to the hospital sector with a total of 432 recommendations (63 low-value and 369 high-value care recommendations). The least recommendations were related to the mental health care sector, with a total of 256 recommendations (54 low-value and 205 high-value care recommendations), concerning a difference of 176 recommendations (9 low-value and 164 high-value care recommendations).

Table 1: Overview of low-value and high-value care recommendations per healthcare sector

Healthcare sector	Low-value care recommendations	High-value care recommendations	Total of care recommendations
All healthcare sectors	**66**	**414**	**480**
Hospital care	63	369	432
District care	59	291	350
Nursing home care	55	245	300
Disability care	57	289	346
Mental health care	54	205	256

Low-value care recommendations

A total of 66 low-value care recommendations were extracted. Examples of low-value care recommendations applicable for all healthcare sectors were: 'do not use physical restraints in case of a delirium', 'avoid unnecessary layers of bedding beneath the patient at risk of pressure ulcers' and 'never flush the bladder to prevent urinary tract infection', 'do not use vitamin C or cranberries to prevent urinary tract infections', 'do not use the Pittsburgh Sleep Quality Index as a screening instrument; this seems more suitable for monitoring ' and 'do not use a catheter (but a conus) for irrigation of a osteotomy'. The general list of low-value care practices is shown in Supplementary File S1.

High-value care recommendations

A total of 414 high-value care recommendations were extracted. Examples of high-value care recommendations applicable to all healthcare sectors were: 'use the Barthel Index to determine and evaluate the degree of ADL independence', 'use a pressure-relieving air mattress if a change of position is not possible (by patients with pressure ulcers)', 'start postoperative oral feeding as soon as possible, preferably within 6 hours and after 24 hours at most unless contraindicated by the surgeon, 'application of cold therapy may be considered in the treatment of pain in patient with cancer' and use a screening tool to support the determination of psychosocial care needs'. The general list of high-value care practices is shown in Supplementary File S2.

Specification of recommendations in the Fundamentals of Care Framework

To gain more insight of the nature of the recommendations, all low-value and high-value care recommendations were specified per element of the Fundamental of Care Framework (FoCF). Due to the substantial disparity in the number of low-quality and high-quality healthcare recommendations, it has been decided to present the specification for the FoCF in percentages. This approach aims to generate a clear

overview for the comparison of allocations regarding the FoCF, as shown in Figure 2. Most low-value and high-value care recommendations were categorized into physical needs of the FoCF. Regarding the physical needs, the category 'comfort' scored highest for both low-value (24.8%) and high-value care (25.2%). Low-value care recommendations also frequently involve aspects of safety (24.8%). High-value care recommendations were more allocated to the psychosocial and relational needs of the FoCF. For high-value care recommendations, emotional wellbeing was the most prevalent fundamental regarding psychosocial and relational needs (13.0%). Eight Fundamental of Care categories received no low-value or high-value care recommendations. These categories all belong to psychosocial or relational care needs (including 'respect', 'dignity', 'privacy', 'being empathic', 'engaging with patients', 'active listening', 'helping patients to stay calm', and 'being compassionate'). This does not mean that there are no recommendations for psychosocial or relational care, but that they are not mentioned in the guidelines screened.

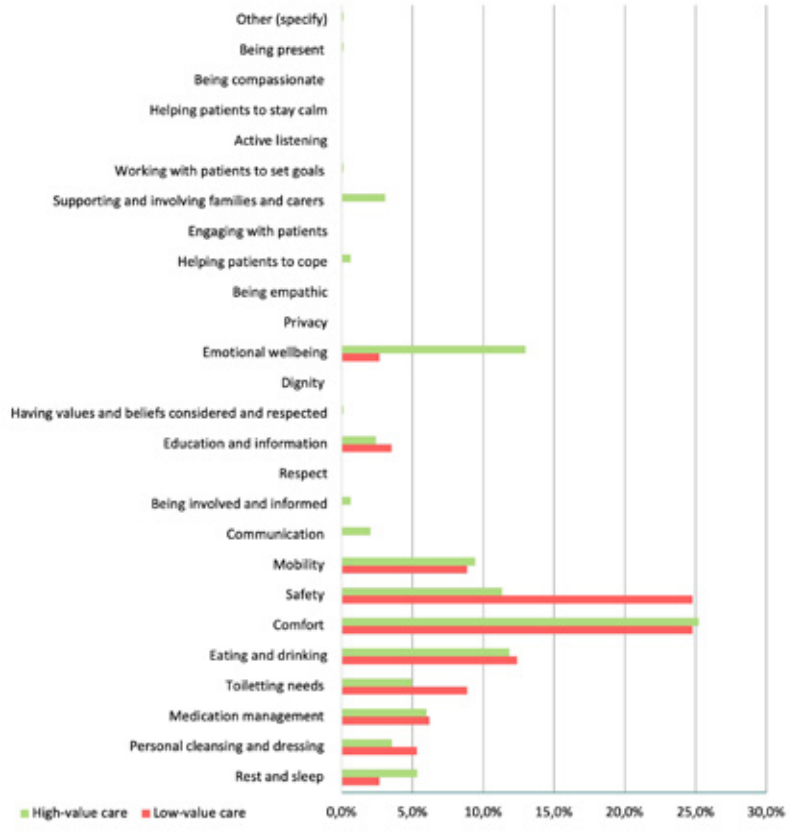


Figure 2: Low-value and high-value care recommendations specified per Fundamental of Care (in %)

Prioritization of the low-value care recommendations

Demographic characteristics

A total of 539 nurses and nurse assistants filled in the survey to prioritize the low-value care recommendations. There is no insight into the level and reasons for non-participation. Only completely filled in questionnaires were taken into account. The majority of the respondents were working in nursing home care (n=240) and the least amount of questionnaires were from nurses working in disability care (n=9). Most participating nurses were female (89.6%). The largest group of nurses were aged between 56-65 years (28.4%) and had a Bachelor of Science (46.4%). Demographic characteristics of the respondents are shown in Table 2.

Prioritized low-value care recommendations

Table 3 shows the top five of prioritized low-value care recommendations per healthcare sector with its prevalence, most common frequency, the average time investment and the most common influencing factor for delivering the low-value care practice.

In all healthcare sectors there is a different recommendation for low-value care in the first place of the top five. The highest prevalence of a low-value care practice was in the nursing home care sector, where almost 80% performed 'urine sediment or dipslide to diagnose a urinary tract infection' monthly or more often. This was mostly done on a monthly basis, because the doctor advised it. In district care, the most common recommendation was 'screening for loneliness and casefinding' (49.6%), mainly occurring on a monthly basis. Nurses working in hospital care prioritized at first 'the use of physical restrains in case of a delirium' (56.4%), because it was written in the patient's care plan. In disability care, the most common low-value care recommendation was 'applying unnecessary layers under the patient at risk of pressure ulcers' (66.7%). Reason for performing this low-value care practice was because it is always done like this. For mental health care, 'giving advice regarding the use of melatonin' (71.4%) was the first prioritized low-value care recommendation in the top five.

Overall, some low-value care recommendations are prioritized by several sectors, such as 'avoid unnecessary layers under the patient at risk of pressure ulcus' (n = 4), 'do not use physical restrains in case of a delirium' (n = 4), 'never flush the bladder to prevent urinary tract infection' (n = 3) and 'do not wash, bath er shower more than once a day' (n = 2).

Table 2: Demographic characteristics

Demographic characteristics	n	%
Gender		
Male	55	10.2%
Female	483	89.6%
I do not want to say/other	1	0.2%
Age		
<25 years	41	7.6%
26-35 years	130	24.1%
36-45 years	102	18.9%
46-55 years	113	21.0%
56-65 years	153	28.4%
Level of education		
Vocational education	191	35.4%
In-service education	38	7.1%
Bachelor of Science	250	46.4%
Master of Science	60	11.1%
Healthcare sector		
Hospital care	149	27.6%
District nursing care	120	22.2%
Nursing home care	240	44.6%
Disability care	9	1.7%
Mental health care	21	3.9%
Years of work experience		
<5 years	86	16.0%
5-10 years	109	20.2%
11-15 years	58	10.8%
16-20 years	57	10.6%
21-25 years	65	12.0%
26-30 years	36	6.7%
>30 years	128	23.7%
Hours per week		
0-16 hours	28	5.2%
17-24 hours	97	18.0%
25-32 hours	300	55.7%
33-36 hours	114	21.1%

Low-value care practices mostly occurred on a monthly or daily basis. Examples of low-value care practices which were performed on daily basis include 'washing, bathing or showering more than once a day', 'the use of physical restrains in case of a delirium', 'applying layers under the patient at risk of pressure ulcers' and 'disinfecting hands after washing'.

Table 3: The top 5 of prioritized low-value care recommendations per healthcare sector

Top 5 of Prioritized Low-value Care Recommendations Per healthcare sector	Prevalence (%)	Most common frequence	Average time investment (minutes)	Most common reason for practicing the low-value care recommendation
Hospital care				
Do not use physical restrains in case of a delirium.	56,4%	Monthly	16-30 minutes	Other reason
Avoid unnecessary layers of bedding beneath the patient at risk of pressure ulcers.	47,0%	Monthly	0-5 minutes	Other reason
Do not disinfect your hands after washing hands.	51,7%	Daily	0-5 minutes	Other reason
Remove materials that contribute to restless behavior or delirium.	36,9%	Monthly	0-5 minutes	The doctor advices it
Do not use bandages for wounds closed by primary intention.	36,2%	Monthly	0-5 minutes	The patient asks for it
District care				
Screening for loneliness and casefinding is not useful.	49,6%	Monthly	16-30 minutes	Other reason
Avoid unnecessary layers of bedding beneath the patient at risk of pressure ulcers.	44,2%	Monthly	0-5 minutes	The client asks for it
Do not shower too often, not too hot and do not use too much soap when itching.	25,2%	Weekly	16-30 minutes	The client asks for it
Do not use physical restrains in case of a delirium.	30,1%	Monthly	0-5 minutes	The client asks for it

Table 3: Continued

Top 5 of Prioritized Low-value Care Recommendations Per healthcare sector	Prevalence (%)	Most common frequence	Average time investment (minutes)	Most common reason for practicing the low-value care recommendation
Never flush the bladder to prevent urinary tract infection.	22,8%	Monthly	6-15 minutes	The doctor prescribes it
Nursing home care				
Do not use urine sediment or dipslide to diagnose a urinary tract infection.	75,8%	Monthly	6-15 minutes	The doctor advices it
Never flush the bladder to prevent urinary tract infection.	41,3%	Weekly	6-15 minutes	The doctor prescribes it
Do not use physical restrains in case of a delirium.	69,2%	Daily	0-5 minutes	It is written in the care plan
Avoid unnecessary layers of bedding beneath the patient at risk of pressure ulcers.	54,2%	Daily	6-15 minutes	The client asks for it
Do not wash, bath or shower more than once a day.	28,7%	Daily	16-30 minutes	To maintain a good relationship with the client
Disability care				
Avoid unnecessary layers of bedding beneath the patient at risk of pressure ulcers.	66,7%	Daily	6-15 minutes	It is always done like this
It is recommended that the PEG catheter is never to be rotated. Starting one week after placement.	77,8%	Daily	0-5 minutes	It is written in the care plan
Do not wash, bath or shower more than once a day.	33,3%	Daily	≥31 minutes	To maintain a good relationship with the client
Do not add medication to tube feeding.	33,3%	Daily	6-15 minutes	It is written in the care plan
Never flush the bladder to prevent urinary tract infection.	33,3%	Monthly	6-15 minutes	The doctor prescribes it
Mental health care				
Do not give advice on the use of melatonin.	71,4%	Daily	0-5 minutes	The client asks for it

Table 3: Continued

Top 5 of Prioritized Low-value Care Recommendations Per healthcare sector	Prevalence (%)	Most common frequence	Average time investment (minutes)	Most common reason for practicing the low-value care recommendation
Do not use physical restrains in case of a delirium.	47,6%	Daily	Not to be determined	Other reason
Do not give medication to prevent delirium.	23,8%	Monthly	0-5 minutes	The doctor prescribes it
Do not clean acute wounds with disinfectants.	23,8%	Monthly	0-5 minutes	It is written in the care plan
Do not use baths as wound cleaning.	23,8%	Monthly	6-15 minutes	The doctor prescribes it

Discussion

In this study, 66 low-value care recommendations and 414 high-value care recommendations were identified by screening 72 Dutch clinical practice guidelines relevant to the nursing profession over a time span of 6 years. The low-value care practices have been prioritized, resulting in a top five of the most common low-value care recommendations per sector. This provides insight into which low-value care practices nurses would like to de-implement to improve day-to-day fundamental care, and identifies which low-value care practices could be adopted by the national de-implementation agenda and can therefore count on short-term action (25). By de-implementing low-value care recommendations, nurses can not only prevent harm, but also save time and money. These savings can be utilized by them to prioritize and implement high-value recommendations, ultimately to improve the quality of care for their patients.

At first, the number of low-value care recommendations is compared with the number of recommendations from the Dutch 'Do-not-Do' list from 2017 (19), as this study was conducted in the same way. The current list of low-value care recommendations includes 49 new recommendations from newly published or updated guidelines. A total of 47 recommendations that were present in the 'Do-not-do' list of 2017 were not included on the current list of recommendation for low-value care. These recommendations were from before 2017 and therefore not selected for the current list. It is remarkable that many guidelines applicable for nurses or nurse assistants have not been updated in recent years. This can result in outdated guidelines with recommendations that are no longer relevant or

evidence based. On the other hand, guidelines prior to 2017 might still contain recommendations that are relevant, valid and still be applicable to daily nursing practice. It could be that these recommendations are missed on the updated list. Therefore, clinical guidelines require regular surveillance and updating to maintain their trustworthiness (26). Dutch guidelines indicate that no fixed time period for revision of a guideline can be indicated, as this is depending on the subject and developments taking place in the field (27, 28). International guidelines recommend that nursing clinical guidelines are reviewed every 3 years, or more frequently if practice changes, to ensure that recommendations are current and evidence based (29). In order to adequately revise guidelines, it is important to consider the necessary resources, define responsibilities, and allocate time and money. This to provide healthcare professionals with recent and evidence based low-value and high-value care recommendations for daily nursing practice.

When comparing the list of low-value care recommendations with international campaigns regarding choosing wisely in nursing, the American Academy of Nurses formulated 25 things nurses and patient could question (18). 'Do not use physical restraints with an older hospitalized patient' and 'do not use physical restraints for long-term care' (18), are recommendations that were also included in our list of recommendations for low-value care, but in a different context. Other recommendations on the American list included 'do not routinely order a CT scan to assess for shunt failure in children with hydrocephalus' and 'do not prescribe opioid pain medication in pregnancy' (18). In the Netherlands, this is not the responsibility of nurses in the and is therefore irrelevant to the Dutch nursing context, but these items may be on medical lists. The Canadian Nurses Association also created a list of nine things nurses and patients should question (30). The list included among others 'do not add extra layers of bedding beneath patients on therapeutic surfaces' (30), which was also presented on our list and prioritized by nurses in four healthcare sectors. The Canadian list also describes 'do not leave in an urinary catheter without daily assessment' (30), which was also included in our list of low-value care recommendations in a different formulation, namely 'limit the use and duration of an indwelling catheter'. In a comparison of methods for selecting low-value care recommendations, the Canadian Nursing Association evaluated 195 low-value items on their relevance for the nursing profession and narrowed them down to a final list of nine items using a modified Delphi process (31). Further, a literature review was conducted to confirm the evidence for these items, and supporting nursing research was added where appropriate (31). This could also be a valuable addition for the prioritized low-value care recommendations in this study, to provide the recommendations with sufficient evidence. However, this can be extremely challenging as research in nursing is often observational, which makes

it difficult to infer strong causal conclusions about the effectiveness of nursing interventions (32, 33). Nursing researchers are therefore called upon to improve the level of evidence and the quality of care and patient outcomes (32, 34).

The high-value care list is a new product, so no comparisons were made with recommendations from guidelines prior to 2017. From previous literature it is known that healthcare providers' adherence to guideline recommendations has proven suboptimal (35). Therefore, it is important to invest in the dissemination of high-value care recommendations, because publication or dissemination of guidelines alone will not ensure its effective use in daily practice (35). Furthermore, it might be useful in the future to prioritize the high-value care recommendations to about five or ten prioritized recommendations per healthcare sector, similar to the low-value care recommendations. When prioritizing, it is essential to consider the potential benefits, the value to the patient, the level of evidence and potential costs.

Regarding the allocation of the low-value and high-value care recommendations to the Fundamentals of Care Framework, it is noteworthy that most low-value and high-value care recommendations were mainly categorized under the physical needs of the FoCF, with 'comfort' and 'safety' being the most common categories. This is consistent with previous findings (19). Most recommendations address physical aspects of care, which is also reflected in the number of guidelines on physical care. In contrast, there are only few guidelines on psychosocial care. When recommendations for psychosocial care are described, they are often not concrete, such as 'inform patients'. Previous research showed that nurses do not incorporate psychosocial care or encourage participation when helping patients with their physical fundamental care needs (36). Psychosocial care is not part of routine nursing care (37), resulting in missed aspects of nursing care, such as communication, information sharing, and emotional- and psychological care, including spiritual support (38). Therefore, it is important to generate specific psychosocial and relational care interventions in nursing guidelines, to improve care delivery with regard to psychosocial and relational care. In addition, de-implementing low-value care makes it possible to focus more on delivering psychosocial and relational care.

The level of evidence of the recommendations was identified as evidence based, consensus based or not provided, because this is often how it is written in the Dutch guidelines. It was not possible to make a classification according to the GRADE method, as only a few guidelines applied this method. Allocating a level of evidence to guideline recommendations is important to give healthcare professionals the opportunity for informed decision-making. There is obviously a need to provide more evidence for nursing interventions in practice (5). Large gaps remain in the evidence for much of what nurses do in the course of their daily work

and what nurses should be doing to assure the best care (5). This is reflected in the overview of systematic reviews available from the Cochrane library (5). Systematic reviews on important basic care themes (i.e. Fundamental Care) are lacking, and are mainly referring to very specific subtopics (5). However, even where systematic reviews are available, it has been shown that 7% of reviews had significant new evidence at the time of publication (39). This is also the case for care guidelines, which are known to be at risk of becoming outdated because they are not systematically updated. It is however plausible that the rate of outdated evidence in nursing care is not as high, because of the lack of systematic reviews and evidence for nursing interventions (5). A recent study of nurses' needs for working with evidence based practice showed that nurses want more tailored ready-to-use evidence that is easily accessible and in their own language (40). The current lists of low-value and high-value nursing care recommendations provide such an overview for nurses and show where there is room for improvement. However, there is a need for an accurate and thorough maintenance of these lists, because of the risk of obsolescence of the recommendations. Therefore, the lists of low-value and high-value care recommendations are transmitted to the Dutch Professional Association of Nurses (V&VN). This means that V&VN is responsible for keeping the lists up to date, which means that the lists are supplemented or revised according to the latest available evidence.

With increasing pressures on the global nursing workforce and the need to optimise nursing care, nurse-led research identifying low-value care and developing approaches to de-implement this care is critical (41). Ingvarsson et al. (42) identified a total of 71 strategies for de-implementation of low-value care in clinical care (42). The most common strategies for de-implementation were 1) training and education stakeholders, 2) evaluative and iterative strategies, such as undertaking auditing and feedback, and 3) supporting clinicians through reminders via digital or analog clinical decision support. Other strategies that were particularly effective for de-implementation were accountability and communication tools (42). Accountability tool provides a hurdle for routine use of low-value care, and the communication tool helps the professional communicate their decision not to use low-value care to patients or their families (42). There is also research on de-implementation specific to the nursing profession (16, 43). Determinants that facilitate or hinder de-implementation of low-value care in nursing are patient and family preferences, belief in evidence-based guidelines, and the philosophy of care (43). Fournier et al. (43) described the importance of raising nurse champions to identify, assess and prioritize the de-implementation of low value care. Rietbergen et al. (16) found that most multifaceted de-implementation strategies for low-value care in nursing care used a strong education component, like for example educational meetings,

material or outreach visits. However, the use of educational components cannot be directly linked to successful de-implementation (16). Educational strategies alone are not sufficient for successful de-implementation (44). Combining education with patient information and/or audit and feedback was more effective in reducing low-value care (44). Further research should extend on existing de-implementation theories, toolkits and frameworks with a focus on the nursing workforce, be nurse-led and collaborative (41).

In addition to considering the right de-implementation strategy to reduce low-value care, it is worth looking at the contextual factors that explain why low-value care recommendations are still performed in daily practice. Our study shows that nurses perform low-value care recommendations mainly because it is written in the care plan, or the doctor prescribes it. Implementation science highlights that evidence-based decision making in clinical practice is highly dependent on such contextual factors (45). For example, leadership is considered critical in creating a supportive environment and facilitating the translation of research evidence into healthcare practice (46). Supportive leadership behaviours are required for institutionalization of evidence-based practice from both formal as informal leaders (47). Informal leaders include point of care staff who are perceived by their colleagues to be credible and influential for influencing change and evidence-based practice (48). Formal leaders, such as managers, have an important role to enable nurses to handle work motivation, control over practice, leadership and autonomy, and culture sensitivity associated with implementing EBP on an ongoing basis (49).

Limitations

First, in this study we used a convenience sampling strategy and did not calculate a sample size, as only descriptive statistics were used. The number nurses in The Netherlands is estimated to be 296.000 including all settings and different levels of education (50). Whether or not a sample size calculation was adjusted, the sample size for the total group of nurses in The Netherlands should have been 384, with a margin of error of 5% and a confidence level of 95%. This is however irrelevant as we did not perform any statistical tests. The generalizability of the data is however of more value. In disability care only 9 nurses completed the questionnaire and in mental health care only 21 nurses completed the questionnaire. We may conclude that these results are possibly not representative for these sectors. In the past, most studies on low-value care were conducted in hospital care, district nursing care or nursing home care settings (41). It is therefore highly recommended that further research is conducted on low-value care in disability care and mental health care, for example by creating another questionnaire for low-value care or organizing an expert meeting to discuss and prioritize low-value care recommendations. We still

chose to make a preliminary prioritization of low-value care recommendations for these sectors, as this could be helpful in providing an initial impulse for awareness of low-value care. In terms of representativeness of the data, demographic characteristics are not remarkable. Further, the data of the prioritization for hospital care, district care and disability care seems representative. Second, the prioritization of low-value care recommendations did not take sustainability into account. This is an important element to consider when prioritizing care recommendations, as health systems have a significant impact on the environment. It is therefore important to minimize the negative impact on the environment and to take advantage of opportunities to improve it, for the benefit of the health and well-being of present and future generations (51).

Implications for practice and research

The overview of low-value and high-value care recommendations is a useful practical tool for nurses as a reference for providing evidence-based care. The list of low-value care recommendations and the associated prioritization provide a clear overview that allows nurses to assess which recommendations are applicable and relevant to de-implement in the daily care of their team. Thereby, it is important to take into account individual patient preferences and to make arrangements within the multidisciplinary team. In addition, it is known that facilitating nursing teams in creating culture of continues learning enables and empowers nurses to work more towards quality improvement on the basis of the latest available EBP (52, 53). A prioritization for high-value care recommendations in the future is necessary to provide alternative care practices for nurses when abandoning low-value care practices. Managers and policy makers have an important role to play in facilitating and motivating nurses, for example by providing the necessary resources and adapting local protocols, as it is known that support from the work environment influences nurses' outcomes expectancies and self-efficacy (54). For nursing research, it is important to provide a basic level of evidence for low-value and high-value care recommendations in guidelines, as the level of evidence varied widely. Further research is also recommended into the factors that facilitate de-implementation of low-value care and the implementation of high-value care recommendations in nursing care. Finally, it is recommended to add evidence from scientific research, such as systematic reviews or meta-analyses, to the lists of low-value and high-value care recommendations. There are recommendations with a higher level of evidence that are not described in current guidelines and therefore are not included in the list of low-value or high-value care recommendations. Examples include the use of antiseptic barrier caps to prevent central line-associated bloodstream infections (55) and the use of an infusion set for up to seven days (56).

Conclusion

In this study, low-value and high-value care recommendations were retrieved from Dutch clinical practice guidelines from 2017 to 2023 for nurses and nurse assistants. These recommendations formed the basis for an updated low-value care recommendation list, a high-value care recommendation list, and healthcare sector related lists. The low-value care recommendations were prioritized by nurses from each healthcare sector to provide five prioritized recommendations for de-implementation in daily practice. This provides insight into which low-value care practices have to be de-implemented and call for short-term action. Prioritizing high-value care recommendations in the future could help to implement high-value care practices and create alternative care practices for low-value care practices.

Funding

This work was supported by ZonMw, a Dutch organization for health Research and Development (grand/order number 50015246).

Clinical resources

- Choosing Wisely. https://www.choosingwisely.org/
- Low-value care in The Netherlands. https://www.venvn.nl/thema-s/beter-laten/
- Dissemination of Initiatives to Analyse Appropriateness in Healthcare https://dianasalud.com/index.phpSALUD
- The International Learning Collaborative. The global voice for fundamental care. https://ilccare.org/

References

1. WHO. Quality of care 2023 [Available from: https://www.who.int/health-topics/quality-of-care#tab=tab_1.
2. ICN ICoN. The ICN Code of Ethics for Nurses. Geneva, Switzerland; 2021.
3. WHO. State of the world's nursing. Investing in education, jobs and leadership. 2020.
4. Feo R, Conroy T, Jangland E, Muntlin Athlin Å, Brovall M, Parr J, et al. Towards a standardised definition for fundamental care: A modified Delphi study. J Clin Nurs. 2018;27(11-12):2285-99.
5. Zwakhalen SMG, Hamers JPH, Metzelthin SF, Ettema R, Heinen M, de Man-Van Ginkel JM, et al. Basic nursing care: The most provided, the least evidence based – A discussion paper. Journal of Clinical Nursing. 2018;27(11-12):2496-505.
6. Kitson A, Carr D, Conroy T, Feo R, Grønkjær M, Huisman-de Waal G, et al. Speaking Up for Fundamental Care: the ILC Aalborg Statement. BMJ Open. 2019;9(12):e033077.
7. de Visser M, Boot AWA, Werner GDA, van Riel A, Gijsberts MIL. Sustainable healthcare, a matter of choice. Wetenschappelijke Raad voor het Regeringsbeleid; 2021.
8. Melnyk BM, Gallagher-Ford L, Fineout-Overholt E. Implementing the evidence-based practice (EBP) competencies in healthcare: a practical guide for improving quality, safety, and outcomes. Indianapolis: Sigma Theta Tau International; 2019.
9. Osorio D, Zuriguel-Pérez E, Romea-Lecumberri S, Tiñena-Amorós M, Martínez-Muñoz M, Barba-Flores Á. Selecting and quantifying low-value nursing care in clinical practice: A questionnaire survey. J Clin Nurs. 2019;28(21-22):4053-61.
10. Brownlee S, Chalkidou K, Doust J, Elshaug AG, Glasziou P, Heath I, et al. Evidence for overuse of medical services around the world. Lancet. 2017;390(10090):156-68.
11. Wendt B, Cremers M, Ista E, van Dijk M, Schoonhoven L, Nieuwboer MS, et al. Low-value home-based nursing care: A national survey study. J Adv Nurs. 2023.
12. Braithwaite J, Glasziou P, Westbrook J. The three numbers you need to know about healthcare: the 60-30-10 Challenge. BMC Med. 2020;18(1):102.
13. Shrank WH, Rogstad TL, Parekh N. Waste in the US Health Care System: Estimated Costs and Potential for Savings. JAMA. 2019;322(15):1501-9.
14. Kool T, Patey AM, Van Dulmen S, Grimshaw JM. How to Reduce Overuse in Healthcare. First edition ed. Hoboken: John Wiley & Sons Ltd 2024. 228 p.
15. Jackson D. Missed nursing care, low value activities and cultures of busyness. Journal of Advanced Nursing. 2023;n/a(n/a).
16. Rietbergen T, Spoon D, Brunsveld-Reinders AH, Schoones JW, Huis A, Heinen M, et al. Effects of de-implementation strategies aimed at reducing low-value nursing procedures: a systematic review and meta-analysis. Implement Sci. 2020;15(1):38.
17. Levinson W, Kallewaard M, Bhatia RS, Wolfson D, Shortt S, Kerr EA. 'Choosing Wisely': a growing international campaign. BMJ Quality & Safety. 2015;24(2):167-74.
18. Brooks JA. The Choosing Wisely Campaign for Nursing. AJN The American Journal of Nursing. 2018;118(12):56-8.
19. Verkerk EW, Huisman-de Waal G, Vermeulen H, Westert GP, Kool RB, van Dulmen SA. Low-value care in nursing: A systematic assessment of clinical practice guidelines. International Journal of Nursing Studies. 2018;87:34-9.

20. Laan BJ, Maaskant JM, Spijkerman IJB, Borgert MJ, Godfried MH, Pasmooij BC, et al. De-implementation strategy to reduce inappropriate use of intravenous and urinary catheters (RICAT): a multicentre, prospective, interrupted time-series and before and after study. The Lancet Infectious Diseases. 2020;20(7):864-72.
21. Verkerk EW, Waal GH, Overtoom LC, Westert GP, Vermeulen H, Kool RB, van Dulmen SA. Low-value wound care: Are nurses and physicians choosing wisely? A mixed methods study. Int J Nurs Pract. 2023:e13170.
22. Elshaug AG, Rosenthal MB, Lavis JN, Brownlee S, Schmidt H, Nagpal S, et al. Levers for addressing medical underuse and overuse: achieving high-value health care. The Lancet. 2017;390(10090):191-202.
23. Kitson A, Conroy T, Wengstrom Y, Profetto-McGrath J, Robertson-Malt S. Defining the fundamentals of care. Int J Nurs Pract. 2010;16(4):423-34.
24. IBM. IBM SPSS Statistics 27 2021 [Available from: https://www.ibm.com/support/pages/downloading-ibm-spss-statistics-27.
25. ZE&GG ZGG. Implementatieagenda Verpleegkunde 2023 [
26. Sanabria AJ, Pardo-Hernandez H, Ballesteros M, Canelo-Aybar C, McFarlane E, Niño de Guzman E, et al. The UpPriority tool was developed to guide the prioritization of clinical guideline questions for updating. Journal of Clinical Epidemiology. 2020;126:80-92.
27. Zorginzicht. Actueel houden van Richtlijnen. 2007.
28. V&VN. Plan van aanpak landelijke invoering en evaluatie kwaliteitsstandaarden verpleegkundigen en verzorgenden. 2019.
29. RCH NRT. Getting Started: Revising a Nursing Clinical Guideline. 2020.
30. Shellian B, Levinson W. When More is Not Always Better: Choosing Nursing Interventions Wisely. Nurs Leadersh (Tor Ont). 2016;29(4):8-9.
31. CNA. Nine Tests and Treatments to Question in Nursing 2020 [
32. Richards DA, Hanssen TA, Borglin G. The Second Triennial Systematic Literature Review of European Nursing Research: Impact on Patient Outcomes and Implications for Evidence-Based Practice. Worldviews Evid Based Nurs. 2018;15(5):333-43.
33. Eskes AM, Chaboyer W, Nieuwenhoven P, Vermeulen H. What not to do: Choosing wisely in nursing care. International Journal of Nursing Studies. 2020;101:103420.
34. Richards DA, Hilli A, Pentecost C, Goodwin VA, Frost J. Fundamental nursing care: A systematic review of the evidence on the effect of nursing care interventions for nutrition, elimination, mobility and hygiene. J Clin Nurs. 2018;27(11-12):2179-88.
35. Grimshaw J, Eccles M, Thomas R, MacLennan G, Ramsay C, Fraser C, Vale L. Toward evidence-based quality improvement. Evidence (and its limitations) of the effectiveness of guideline dissemination and implementation strategies 1966-1998. J Gen Intern Med. 2006;21 Suppl 2(Suppl 2):S14-20.
36. van Belle E, Giesen J, Conroy T, van Mierlo M, Vermeulen H, Huisman-de Waal G, Heinen M. Exploring person-centred fundamental nursing care in hospital wards: A multi-site ethnography. J Clin Nurs. 2020;29(11-12):1933-44.
37. Chen CS, Chan SW-C, Chan MF, Yap SF, Wang W, Kowitlawakul Y. Nurses' Perceptions of Psychosocial Care and Barriers to Its Provision: A Qualitative Study. Journal of Nursing Research. 2017;25(6):411-8.
38. Chaboyer W, Harbeck E, Lee B-O, Grealish L. Missed nursing care: An overview of reviews. The Kaohsiung Journal of Medical Sciences. 2021;37(2):82-91.
39. Shojania KG, Sampson M, Ansari MT, Ji J, Doucette S, Moher D. How quickly do systematic reviews go out of date? A survival analysis. Ann Intern Med. 2007;147(4):224-33.

40. Giesen J, Bakker-Jacobs A, van Vught A, Berings M, Vermeulen H, Waal GH-d. What is needed for nurses to work with evidence-based practice? A qualitative study. Contemp Nurse. 2024:1-14.
41. Beks H, Clayden S, Wong Shee A, Manias E, Versace VL, Beauchamp A, et al. Low-value health care, de-implementation, and implications for nursing research: A discussion paper. Int J Nurs Stud. 2024;156:104780.
42. Ingvarsson S, Hasson H, von Thiele Schwarz U, Nilsen P, Powell BJ, Lindberg C, Augustsson H. Strategies for de-implementation of low-value care—a scoping review. Implementation Science. 2022;17(1):73.
43. Fournier KA, Dwyer PA, Vessey JA. De-adopting low-value care: The missing step in evidence-based practice? J Pediatr Nurs. 2023;69:71-6.
44. Colla CH, Mainor AJ, Hargreaves C, Sequist T, Morden N. Interventions Aimed at Reducing Use of Low-Value Health Services: A Systematic Review. Medical Care Research and Review. 2016;74(5):507-50.
45. May CR, Johnson M, Finch T. Implementation, context and complexity. Implementation Science. 2016;11(1):141.
46. Cummings GG, Estabrooks CA, Midodzi WK, Wallin L, Hayduk L. Influence of organizational characteristics and context on research utilization. Nurs Res. 2007;56(4 Suppl):S24-39.
47. Stetler CB, Ritchie JA, Rycroft-Malone J, Charns MP. Leadership for evidence-based practice: strategic and functional behaviors for institutionalizing EBP. Worldviews Evid Based Nurs. 2014;11(4):219-26.
48. Flodgren G, Parmelli E, Doumit G, Gattellari M, O'Brien MA, Grimshaw J, Eccles MP. Local opinion leaders: effects on professional practice and health care outcomes. Cochrane Database of Systematic Reviews. 2007(1).
49. Bianchi M, Bagnasco A, Bressan V, Barisone M, Timmins F, Rossi S, et al. A review of the role of nurse leadership in promoting and sustaining evidence-based practice. Journal of Nursing Management. 2018;26(8):918-32.
50. Nictiz. DNkvdiidz. Verpleegkundigen en verzorgenden n.d. [Available from: https://nictiz.nl/sectoren/verpleegkundigen-verzorgenden/.
51. WHO WHO. Environmentally sustainable health systems: a strategic document. 2017.
52. Hunter SC, Kim B, Kitson AL. Mobilising Implementation of i-PARIHS (Mi-PARIHS): development of a facilitation planning tool to accompany the Integrated Promoting Action on Research Implementation in Health Services framework. Implement Sci Commun. 2023;4(1):2.
53. Lovink MH, Verbeek F, Persoon A, Huisman-de Waal G, Smits M, Laurant MGH, van Vught AJ. Developing an Evidence-Based Nursing Culture in Nursing Homes: An Action Research Study. Int J Environ Res Public Health. 2022;19(3).
54. Hoegen P, Vos M, van Oostveen C, de Bot C, Echteld MA, Maaskant J, Vermeulen H. Nurse Leadership and Work Environment Association with Outcome Expectancy and Self-Efficacy in Evidence-Based Practice among Hospital Nurses in The Netherlands: A Cross-Sectional Study. Int J Environ Res Public Health. 2022;19(21).
55. Gillis V, van Es MJ, Wouters Y, Wanten GJA. Antiseptic barrier caps to prevent central line-associated bloodstream infections: A systematic review and meta-analysis. Am J Infect Control. 2023;51(7):827-35.
56. Rickard CM, Marsh NM, Larsen EN, McGrail MR, Graves N, Runnegar N, et al. Effect of infusion set replacement intervals on catheter-related bloodstream infections (RSVP): a randomised, controlled, equivalence (central venous access device)-non-inferiority (peripheral arterial catheter) trial. Lancet. 2021;397(10283):1447-58.

Supplementary Files

- S1: Overview of low-value care recommendations (n = 66)
  https://doi.org/10.1111/jnu.13029
- S2: Overview of high-value care recommendations (n = 414)
  https://doi.org/10.1111/jnu.13029

CHAPTER 5

WHAT CAN NURSES LEARN FROM PATIENT'S NEEDS AND WISHES WHEN DEVELOPING AN EVIDENCE-BASED QUALITY IMPROVEMENT LEARNING CULTURE? A QUALITATIVE STUDY

Exploring patients' needs and wishes for person-centered fundamental nursing care that can be used by nurses in developing an EBQI-learning culture, which is an important condition for transforming care

Jeltje Giesen
Ilse Timmerman
Annick Bakker-Jacobs
Marjolein Berings
Getty Huisman-de Waal
Anneke van Vught
Hester Vermeulen

Scandinavian Journal of Caring Sciences
DOI: 10.1111/scs.13252

Abstract

Background: Patient participation is fundamental in nursing care and has yielded benefits for patient outcomes. However, despite their compassionate care approach, nurses do not always incorporate patients' needs and wishes into evidence-based practice, quality improvement, or learning activities. Therefore, a shift to continuous quality improvement based on evidence-based practice is necessary to enhance the quality of care. The patient's opinion is an essential part of this process. To establish a more sustainable learning culture for evidence-based quality improvement, it is crucial that nurses learn alongside their patients. However, to promote this, nurses require a deeper understanding of patients' care preferences.

Objective: To explore patients' needs and wishes towards being involved in care processes that nurses can use in developing an Evidence-Based quality improvement learning culture.

Methods: A qualitative study was conducted in two hospital departments and one community care team. In total, eighteen patients were purposefully selected for individual semi-structured interviews with an average of 15 minutes. A framework analysis based on the fundamental of care framework was utilized to analyse the data deductively. In addition, inductive codes were added to patients' experiences beyond the framework. For reporting this study, the SRQR guideline was used.

Results: Participants needed a compassionate nurse who established and sustained a trusting relationship. They wanted nurses to be present and actively involved during the care delivery. Shared decision-making improved when nurses offered fair, clear, and tailored information. Mistrust or a disrupted nurse-patient relationship was found to be time-consuming and challenging to restore.

Conclusions: Results confirmed the importance of a durable nurse-patient relationship and showed the consequences of nurses' communication on shared decision-making. Insights into patients' care preferences are essential to stimulate the development of an evidence-based quality improvement learning culture within nursing teams and for successful implementation processes.

Keywords: Appropriate care, Community care, Evidence-Based Quality improvement, Fundamental care, Hospital, Nurses, Person-centred care.

Background

The sustainability of the current healthcare delivery model is questionable. Healthcare costs are increasing, and there is a declining interest in working in the healthcare sector. To ensure that high-quality care remains accessible to everyone, a transition to the delivery of appropriate care is necessary (1). This concept revolves around person-centred care (PCC) organized close to the patient. In addition, the provided care is cost-efficient and focuses on promoting self-management and prevention after curing (2). Nurses are the largest group of healthcare providers and are vital in making the transition of care (3). Evidence-based quality improvement (EBQI) is an approach for working towards the delivery of more appropriate care. EBQI combines Evidence-based practice (EBP) and Quality Improvement (QI) to ensure the right things are done correctly (4, 5). EBP is the problem-solving component to improve healthcare delivery sustainably. It includes using the best available evidence, the expertise of professionals, and patients' preferences (6). QI focuses on implementing change systematically, leading to better healthcare outcomes for patients, professional development, and increasing system performance (7).

By developing an EBQI-learning culture in nursing teams, nurses can strengthen their care delivery foundation. It supports them to reflect on their practice systematically (8). When adjusting care, it is essential to take patient preferences into account. To ensures treatment decisions are made collaboratively and promotes PPC (9, 10). Previous research shows that nurses recognize patients' needs and can integrate them into new care approaches. They can design and evaluate care processes while prioritizing quality improvement subjects based on patients' involvement. These competencies are essential for establishing an EBQI-learning culture (11). Nevertheless, it is also known that nurses do not focus enough on encouraging patients to participate in care despite their compassionate approach during care delivery (12). To enhance PCC delivery and improve care quality, the fundamentals of care framework had been developed (FoCF) (13).

The FoCF encompasses three distinct dimensions of care: the relationship, the integration of care, and the care context (14). The first dimension, the relationship, involves developing and maintaining trust, getting to know and focusing on the patient being cared for, and anticipating their needs (14). Nurses can establish a positive nurse-patient relationship by focusing on the patient and developing and maintaining trust (15). The second dimension, the integration of care, includes physical, psychosocial, and relational aspects that all patients require regardless of their clinical condition. It guides a PCC approach (13). The third dimension, the FoCF has been enriched with an outer layer called the context of care that delineates the environment in which caregiving occurs. This layer encompasses policy and

systems-level factors that impact the nurse's capacity to establish a meaningful connection with the person under their care and address their fundamental needs cohesively (13) (Figure 1).

Despite the development of the FoCF to support nurses in providing more PCC, it is known that nurses still do not focus enough on involving patients in quality improvement or learning activities in daily practice (16). More attention is needed to promote Patient-Centered Care (PCC) and ensure high-quality care (17). Therefore, this study aims to explore patients' needs and wishes towards being involved in care processes that nurses can use in developing an EBQI-learning culture.

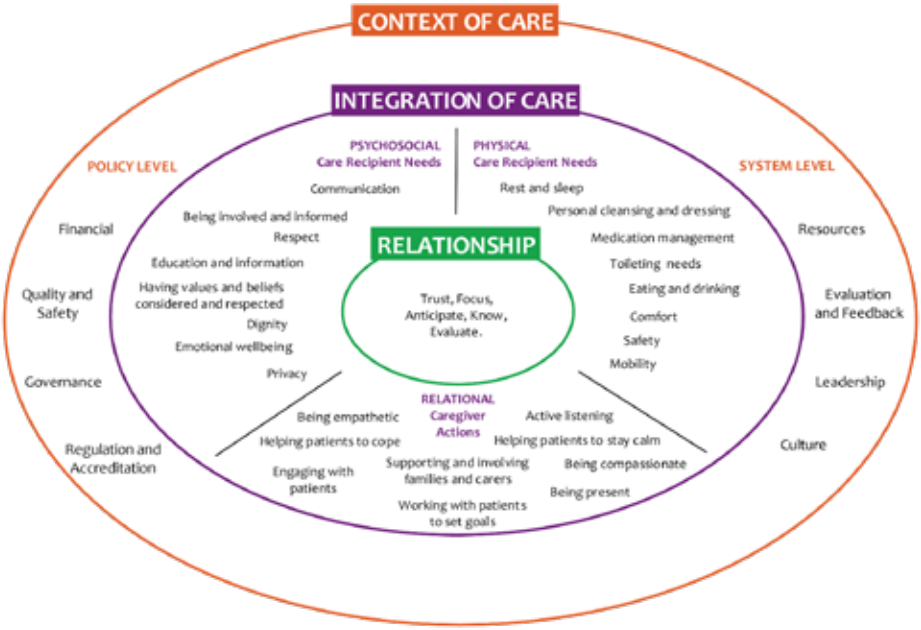


Figure 1: Fundamentals of care framework

Fundamentals of care framework (image obtained from https://ilccare.org/the-framework/)

Methods

Research design

Qualitative research was conducted to explore patients' perspectives on developing a person- centred fundamental EBQI-learning culture. A phenomenological approach with semi-structured interviews was used to gain in-depth information and understand patients' needs and wishes towards being involved in care processes (18). The study was designed by the primary project group consisting of four health scientists with backgrounds in nursing (HV, GHdW AvV, JG), an educationist (MB), and a research assistant (ABJ). Two master-educated nurses with a background in the hospital setting (IT) or community care setting (MWV) were involved in creating the interview guide, interviewing and data analysis. This was to ensure that the interviewing researchers could relate to the patient and understand their situations. All participating researchers had experience with conducting and analysing qualitative research. The standards for reporting qualitative research (SRQR) (18) were used for reporting the study.

Setting

The interviews were conducted between February and March of 2022 in one university hospital from the city of Nijmegen and one community care organization in surrounding of the city of Utrecht in the Netherlands. Both settings were included to gain a broad understanding of patients' preferences and because they often work together or exchange patients. Two departments in the university hospital were purposefully selected to participate: the orthopaedic department (16 beds), where professionals deliver treatment to support the musculoskeletal system and the traumatology department (16 beds), where patients who had acute musculoskeletal injuries were admitted. In addition, one nursing team from the community care organization was selected, that provided fundamental care to approximately 14 elderly patients at home. In all settings, care was administered by bachelor-educated nurses, vocational-educated nurses, and nurse assistants.

Participants

Experienced nurses from the participating departments and the nursing team were informed about the study's purposes and were involved in including participants. These nurses assisted the interviewing researchers with selecting and recruiting eligible patients. Criteria to include participants were being > 18 years old, able to speak and understand Dutch, receiving care from one of the participating nursing teams, and being willing to participate. Patients with cognitive impairment or receiving palliative care were excluded. To ensure a balanced sample, the interviewing researchers, and the leading researcher (JG) made the final selection of

participants based on the study criteria, patients' gender, and admitted department. The selected participants were informed verbally by interviewing researchers and through a written participant information form before the interview. The research group aimed to include between 15 and 24 patients, as they expected to reach saturation within this range (19).

Data collection

The leading researcher and the interviewing researchers developed a guide for the semi-structured interviews based on the FoCF (14). This guide was reviewed and approved by the entire research team. Three interview topics were established: 1. kept updated about proposed and ongoing care, 2. consulted regarding care, and 3. given opportunities to contribute to care decisions. To test the interview, guide a pilot interview (by IT) with a hospital patient from the traumatology department was conducted. No adjustments were necessary. All interviews were carried out during morning shifts, in a quiet room at the hospital or the patient's home. During the study period the interviewing researchers reflected with the leading on their interviewing techniques to ensure they all were carried out in a uniform manner. The interviews were audio recorded and then transcribed verbally. A member check by the interviewing researchers was performed to ensure accuracy and validity. All participants agreed to the summary of their interview transcripts. Data collection and analysis were performed iteratively, allowing for a dynamic and comprehensive understanding of the patient's perspectives.

Data analysis

Two researchers (JG, IT) and an experienced research assistant (ABJ) performed the data analysis. A conceptual framework analysis (20) was utilized to deductively analyse the interview transcripts according to the FoCF (14). First, the analysing researchers familiarized themselves by reading the hospital and community care interview transcripts to get an overview of topics and patterns (20). The hospital interviews were coded independently by IT and ABJ. Those from the community care by JG and ABJ. The codes were thoroughly discussed until a consensus was reached. In case of disagreements, a third analysing researcher was consulted for resolution. In addition, inductive codes were created where participants' experiences extended beyond the framework. This approach allowed the researchers to analyse the data inductively and deductively and ensured no vital information was missed (21). The inductive codes were then categorized and linked to the FoCF (14) (see table 1). Finally, rereading the interviews was performed to verify that no data was missed. Data saturation was achieved after conducting 14 interviews, as no new codes emerged from the data. To ensure the confirmation

of the saturation (19), four additional interviews were carried out. All coding took place with the support of ATLAS.Ti version 9 and resulted in a thematic map.

Table 1: Coding table

Original Fundamental of care	Themes	*Sub themes*
Dimension 1: Relationship		
Anticipate	Anticipating patients' needs	
Evaluate	[a]	
Focus	Focus on patient	
Know	Getting to know the patient	
Trust	Trust	*Technology* *Caregiver*
Dimension 2: Integration of care - Psychosocial needs		
Being involved and informed	Involved	*Decision making* *Participating care* *Patient's own control* *Sufficient*
Communication	Communication	*Feedback*
Dignity/ / Having values and beliefs considered and respected	Dignity and respect	
Education and information	Informed	*Clear* *Fair* *Incorrect/ in complete* *Supportive/supported* *Tailored*
Emotional wellbeing	Emotional	*Being too much* *Support*
Privacy	Privacy	
Dimension 2: Integration of care - Relational needs		
Active listening	Active listening	
Being compassionate	Showing compassion	*Kindness* *Unkindness*
Being empathic	Showing empathy	
Being present	Present	*Point of contact* *Standing up* *Taking time*
Engaging with patients	Engaging with patient	
Helping patients to cope	Helping to cope	
Helping patients to stay calm	Helping to stay calm	
Supporting and involving families and carers	Families/carers	
Working with patients to set goals	Goal setting	

Table 1: Continued

Original Fundamental of care	Themes	*Sub themes*
	Being consistent [b]	
	Dependence [b]	
Dimension 2: Integration of care – Physical needs		
Comfort	[a]	
Eating and drinking		
Medication management		
Mobility		
Personal cleaning and dressing		
Rest and sleep		
Safety		
Toileting needs		
Dimension 3: Context of care		
Policy level	[a]	
System level		

[a] No codes related to the research question, [b] Additional codes

Ethical considerations

All participants were properly informed about the purpose of the study, that participation was voluntary, that confidentiality and anonymity of recordings and transcripts were assured, and that participants had the right to withdraw from the study at any given time without disclosure of a reason. The research ethics committee of the Medical Research Ethics Committee of Arnhem Nijmegen concluded that ethical approval was not required under Dutch law (CMO no. 2021-13317).

Results

In total, 18 patients were included in the study. One patient refrained from participating for general reasons. Ten men and eight women were interviewed, that had an average age of 65 years (SD 13,81). The median length of hospital stay was 3.5 days (range 2–12) at the orthopaedic department and 15 days (range 5–84) at the traumatology. All patients from community care received care for more than two years. Hospital readmission rates varied between 0 and 30 times with a median of 3 three preadmissions. This enriched the data because participants could add information from previous experiences. The mean duration of the interviews was 15 minutes and 7 sec (SD 6.1) (see table 2).

Table 2: Demographic data of the included patients

Participant	Age	Gender	Setting	Length of stay/ Time receiving care	Pre-admissions (n)	Interview duration (min)
P1	63	Man	Traumatology	84 days	0	15.36
P2	41	Woman	Traumatology	16 days	0	14.24
P3	55	Man	Orthopaedics	2 days	2	15.17
P4	42	Woman	Traumatology	13 days	3	14.24
P5	68	Woman	Orthopaedics	2 days	3	15.27
P6	78	Woman	Orthopaedics	2 days	30	22.42
P7	57	Man	Traumatology	16 days	7	26.51
P8	54	Man	Orthopaedics	5 days	10	21.13
P9	81	Woman	Orthopaedics	6 days	2	20.59
P10	54	Woman	Orthopaedics	12 days	5	16.36
P11	67	Man	Traumatology	14 days	0	15.18
P12	63	Woman	Traumatology	5 days	5	21.01
P13	74	Man	Community care	NP	NA	13.10
P14	79	Woman	Community care	> 5 years	NA	12.40
P15	85	Woman	Community care	3 years	NA	12.19
P16	82	Man	Community care	> 5 years	NA	7.56
P17	55	Man	Community care	> 5 years	NA	8.59
P18	80	Woman	Community care	2 years	NA	6.05

Patient (P), Not Applicable (NA), Not provided (NP)

During the interviews, participants predominantly discussed their needs and wishes about their relationship with the nurses. They expressed how these needs were either fulfilled or unmet, particularly regarding the psychosocial (18 codes) and relational (16 codes) aspects of nursing care in the dimension of 'integration of care.' Also, six codes about the dimension 'relationship' of the FoCF were identified in the data analysis. Codes related to the physical aspects of nursing care and from the dimension 'context of care' were excluded from the mindmap and description of the results. Because underlying information did not contribute to answering the research question. To better understand the interrelations among the codes and their association with the dimensions of the FoCF, a mindmap was created to present the findings graphically (see, Figure 2). Furthermore, the codes in the results text have been formatted in bold to enhance clarity and highlight the discussed concepts.

Figure 2: **Mindmap of needs and wishes of patients.**

Dimension 1: The relationship

In general, participants expressed a fundamental need to **trust** their caregivers. Even if nurses displayed slight variations in their approach, or if patients encountered different nurses during their care, they wanted to experience a feeling of **trust**. Participants assumed that if someone holds the nurse's function, they could expect their **caregiver** to be a professional. Participants expressed **trust** in nurses' expertise, particularly when they had positive prior experiences or when the nurse utilized supportive **technologies** such as a medication scanner.

> *"That nurses work differently does not bother me. Because in the end, they all do what I need, and if I ask for something, they do it too. So, I do not care how they do it." [P15-Community Care]*

Participants wished to feel understood and cared for by the nurses. They needed to **know** that the nurse was aware of their current situation. It was comforting for them to perceive that their patient records were reviewed, and relevant information had been transferred. Seeing familiar faces and engaging in informal conversations with nurses also contributed to this sense of connection and understanding, as it indicates that the nurse was **getting to know** the patient personally and prioritized

their well-being. Furthermore, participants valued nurses who **focussed** on and **anticipated on their needs**. They appreciated when nurses were **present**, asked proactive questions about their requirements. While participants understood that nurses may be unable to solve all their problems, they found it helpful when nurses inquired about any concerns and provided information about all available options.

> "*That patients are heard; safety is offered and that they are proactive. So, nurses think along, see things coming in advance, and act accordingly." [P8-Hospital-Orthopeadics]*

Dimension 2: Integration of care

Psychosocial fundamentals of care (care recipients' needs and outcomes)

Participants needed **emotional support** from nurses to establish person-centred care. This became apparent from the positive experiences reported by participants, who found **that being involved** in conversations with nurses contributed to their emotional well-being. In addition, it provided them a sense of being **supported** by the nurse. Some participants specifically emphasized the need to receive comforting conversations when feeling anxious. Similarly, patients in community care settings underlined the importance of meaningful discussions with a **trusted** nurse. However, some patients were aware of the nurses' busy schedules and, thus, were hesitant to burden them with excessive demands for time and attention and were afraid of **being too much**.

> *"I had a confidential conversation with [...]. I could trust her to keep her mouth shut and could discuss everything with her. I do not want to talk to everyone about everything." [P13-Community Care]*

Communication was experienced as an essential need for participants. In information sharing or overall **communication**, most participants mentioned the importance of maintaining a professional attitude among nurses in verbal and non-verbal **communication**. They felt honestly heard when nurses actively listened without interrupting or speaking on their behalf and not filling in for them. This also gave participants a feeling of being **respected**. Moreover, participants appreciated the opportunity to provide **feedback** to the nurses, and they were pleased with the positive reception of their input.

> *"I am not a number. Maybe I am just a patient and a patient number on paper, but I do not want to feel that way here. I do not want to be a number." [P5-Hospital-Orthopeadics]*

Several participants who shared their experiences of facing privacy issues highlighted the significance of **privacy.** The lack of **privacy** was particularly evident in multi-person rooms, where patients experienced limited personal space, especially when they were seriously ill or required assistance with toileting while in bed. Such situations had impacted the patient's **dignity**, humanity, and feeling of being **respected**. To address these **privacy** concerns, it was beneficial for patients to be taken care of by the same nurse consistently. In addition, it helped if they close curtains properly to help create more **privacy** during sensitive moments. Additionally, it was crucial for healthcare professionals not to **engage** in conversations across multi-person rooms but rather to converse with patients at their bedside.

> *"Nurses do not come to your bed. They stand behind the computer and then go past everyone in the room. I do not like that." [P6-Hospital-Orthopeadics]*

Most participants expressed a strong desire to be well-**informed**, and they reported positive experiences with the information provided by the nurses. Patients emphasized receiving **clear** and **fair** information **tailored** to their needs. **Clear** information was crucial because it eliminated questions and alleviated anxiety.

> *"As a patient, you need clarity [...] a feeling that they have it all figured out." [P4-Hospital-Traumatology]*

For example, this consists of **sufficient** explaining the proposed nursing care, including the how, what, and why of the treatments or procedures. In addition, participants highly value **fair** information, and nurses must share their knowledge and information about their medical situation without withholding any relevant information. Participants also mentioned that nurses could meet their needs for **tailored** information by providing information in a way **anticipated** most practical and preferred by the patients. **Tailoring** information increased **clarity** and comprehension. Furthermore, information was perceived as supportive when it met the wishes and requirements of the participants, not only in terms of content but also in the manner of delivery. On the other hand, when patients' need for **clear** and **fair** information was not met, whether due to incomplete or inaccurate information, it seriously harmed **trust** in the nurses.

> *"A nurse that tells lies shouldn't come into my house. I can figure them out in five minutes." [P14-Community care]*

Participants needed the opportunity to participate and be actively **involved** in their care. Participants felt heard and valued when given the chance to participate in the **decision-making** process and were **supported**. However, a few participants described their experience of **decision-making** as not possible, primarily because they were not consulted or included in the process.

> *"As a patient, that gives you the feeling that you can participate, and that gave me the feeling of belonging." [P6-Hospital-Orthopeadics]*

Several participants strongly wished to actively participate in nursing care, believing it promoted their self-reliance and sense of empowerment. They engaged in nursing care by providing instructions or expressing their care preferences. Participants felt in **control** when they were well-**informed** about their current and future care and involved in **decision-making.**

> *"I am a huge supporter of letting people keep their control. Make sure you inform your patients sufficiently." [P12-Hospital-Traumatology]*

Relational fundamentals of care (care provider's actions)

Participants wished that nurses showed **compassion** by **kindly** letting them know they care about the patient. For example, by asking about an upcoming procedure and wishing the patient good luck or doing something extra. Some participants found all nurses being **kind** and **compassionate**. Others found it more diffuse and liked it when nurses actively asked if a patient needed more help. The participants experienced that some nurses were more practical in their care, and others showed more **empathy**. Nevertheless, most participants needed that the nurses **engaged** them actively. They wished to be seen as complete people and not just as a disease or a care problem. Participants who experienced such a relation felt safe and heard.

> *"That they can connect, build and give trust. That I am besides the disease also a feel human. It gives the feeling to be comfortable, safe and heard." [P11-Hospital-Traumatology]*

The participants responses to **unkindness** from caregivers varied in two ways. Some participants reported feeling anger in response to **unkind** treatment. Others avoided further care interactions, attempting to distance themselves from potentially harmful experiences and being reluctant to discuss them.

> *"The nurse said: 'You can do that.' Then I was thinking, you do not feel what I feel. No, I cannot do it and will not do it either. I cannot even get out of bed." [P5-Hospital-Orthopeadics]*

The presence of a nurse who offers human attention was essential for almost all participants, as it provided them with a sense of security. It was particularly beneficial when the nurse was familiar with the participants and readily available as a **point of contact**.

> *"I only have to nod, and they are there to help me. They told me if there was anything I needed, I should ask for it." [P1-Hospital-Traumatology]*

Participants greatly appreciated it when nurses **stood up** for them. Both participants and their relatives valued this support. When nurses took the time and were **present,** avoiding the impression of being rushed, the patients felt that they genuinely matter and were cared for. However, when nurses spoke from behind a computer or were wearing masks, this created a sense of distance. Feeling **dependent** on nurses is challenging for participants, and it takes time to adapt to this vulnerability. Especially in urgent situations and immediate help is required, any delays in assistance lead to feelings of neglect. Participants understood that nurses have busy schedules, consistent completion of tasks or communication with them was essential to reassuring and making them feel **supported**. Uniformity in the way nurses performed was crucial for participants. When tasks were done differently, it caused confusion and insecurity, feeling unsure in what to expect.

> *"It would be more convenient if they finish one thing and then (start) the next. So, every patient gets care in time." [P10-Hospital-Othopeadics]*

Participants needed a nurse to inform **family or caregivers** especially if they could not actively participate in their care. Then participants needed a nurse to inform **family or caregivers** about their maintenance, critical situations, or essential updates. Nurses' functional listening skills played an important role in making participants feel heard and valued. This fostered shared decision-making. Conversely, most participants felt insecure when nurses failed to **listen active** or

dismissed a patient´s concern. The lack of a **consistent** nurses often led to feelings of insecurity among most participants. This feeling intensified, when nurses started a discussion or refused to provide care in a specific manner.

> *"Sometimes a nurse asks me about my care preferences. When I say: "'do not know". They can get irritated and say a need to answer, because they think it is standard answer of mine. This frustrates me because I really do not now it" [P16-Community care]*

Participants wished nurses would **engage with them** based on their ability to perceive the patient's needs and respond accordingly. For instance, recognizing cues for reassurance and providing them when needed is highly valued by patients. Honesty from nurses is appreciated, as participants tended to contemplate all available options, even those that may evoke concerns. Supportive and understanding nurses help **patients cope** with and overcome these insecurities, ultimately fostering **calmness** in participants.

> *"Just tell me honestly how it is. Otherwise, I will start thinking and make assumptions. I will create a whole ghost story in your head. That is the last thing I want because I have enough to worry about." [P4-Hospital-Traumatology]*

Discussion

This study explored patients' needs and wishes towards being involved in care processes that nurses can use in developing an EBQI-learning culture. The analysis, utilizing the FoCF framework, underpins the essence of the nurse-patient relationship, emphasizing the need for patients to entrust the nurses providing care. Patients expressed their desire to be involved in their care process, requiring clear, fair, and tailored information to facilitate shared decision-making. Furthermore, the approach used by the nurse was found to be crucial in ensuring patient involvement and the delivery of tailored information. For example, considering how a patient wishes to be informed about care changes can contribute to successful implementation. With this knowledge, nurses can make informed choices regarding care topics to transform care and adopt suitable approaches for implementing care changes.

For participants in this study, one crucial patient need in the nurse-patient relationship is to trust the nurses who provide care. Trust is critical for the nurse-

patient relationship and is the cornerstone of nursing (22). Participating patients naturally entrust nurses, viewing them as skilled care professionals with the necessary knowledge. This is also confirmed by Dinç & Gastmans (23), who state that patients have a pre-existing sense of trust linked to their familiarity with the healthcare system and past interactions with hospitals and healthcare providers. Furthermore, patients demonstrate confidence and initial trust in nurses due to nurses' extensive education and professional experience (23). However, if faith is compromised during the admission process or by a previous occasion, patients may exhibit resistance and rebuilding the relationship demands considerable time and effort. It is known that trust is hard to rebuild (24). To overcome mistrust among patients, it is essential to engage in open conversations about their health outcomes and acknowledge their expertise regarding their life situation (25). Therefore, nurses should pay attention to establishing the best possible nurse-patient relationship when developing an EBQI-learning culture to drive change in healthcare.

Earning trust from participating patients requires nurses to provide clear, fair, and tailored information. This approach allows patients to feel actively engaged in their care, empowering them to participate in decision-making and gain control over their care process. This complies with the principles of the person-centred nursing framework of Mc Cormack et al (26) that focus on attributes of the nurses (perquisites), the context of care (care environment), care activities (person-centred processes), and results of effective person-centred care (expected outcomes). In addition, Jerofke-Owen et al. (10) state that obtaining, dealing with, understanding, and employing information is an essential catalyst of patient engagement, involvement, and participation. However, when providing information regarding ongoing care or care changes, nurses must remember that patients can't read the nurses' minds. This aligns with patient experiences with physicians, indicating that patients may be unaware of what they do not know and, therefore, require personalized information to make informed health decisions (27). Our findings indicate that delivering tailored information challenges the nurse to estimate patients' wishes and provide this properly. The study by Rørtveit et al. (28) aligns with the earlier points, affirming that building and nurturing trust are interconnected with effective communication. Nurses must demonstrate openness, competence, practicality, interest, concern, confidence, and a willingness to share control. By teaching healthcare professionals how to recognize signals that the patients do not feel heard, communication can be improved and trust built (29).

Nurses should consider patients' needs when working on EBQI and giving information. Having a friendly approach with patients and showing compassion and empathy during interactions is essential. However, this is also challenging given

that medical-technical skills are still valued more highly when assessing the quality of care (30). In addition, previous studies have revealed that nurses face challenges communicating with patients due to their busy schedules, frequent interruptions, and desire for more time to engage in meaningful patient conversations (31). In addition, nurses need to know their patients, take time, empathize with patients, and create a safe and trusted environment (32). Participants also express the need for informal conversations and meaningful interactions. Therefore, nurses should be aware of behaviours, such as withholding information, rushing through interactions, or speaking unkindly, which can undermine trust and damage the nurse-patient relationship. This is confirmed by the study by Tobiano et al. (33) which states that how nurses communicate can hinder patient participation, like when patients feel not listened to.

Finally, establishing a solid relationship with patients is a prerequisite to showing (nursing) leadership and facilitating patient participation. Nurses demonstrate leadership by deliberately building relationships with patients, leading to improved patient participation and positive experiences in healthcare (32). These insights hold significant importance for nurses as they work towards implementing transformative changes and cultivating an EBQI-learning culture, ultimately enabling them to deliver appropriate patient care.

Strengths and limitations

The study's strength lies in providing valuable insights into patients' needs and preferences regarding person-centred fundamental care. Incorporating patients' perspectives is crucial in developing an EBQI-learning culture within nursing teams and working towards more 'appropriate care.' The findings indicate that excluding patients from implementing care changes hampers the success and sustainability of such changes.

One limitation of the study is the relatively short duration of the interviews (mean 16 minutes). This brevity was necessary to consider the patients' well-being and attention span. Secondly, we have asked patients what they need when implementing care changes. Additionally, asking patients about their needs during care changes posed a challenge, especially when they had not experienced such changes or were unaware of them. Nonetheless, they were able to articulate their requirements regarding their care and interactions with nurses, which can be invaluable in transforming care practices. Furthermore, it is essential to acknowledge that this study only included patients from hospital and community care settings due to the project's scope. Finally, a reflective approach using interviews was employed in this study. Combining these with a naturalistic approach, like observations or patient diaries, could yield more favourable

outcomes in addressing patients' needs (11). Therefore, additional research is necessary to confirm results and validate the generalizability of the results in other healthcare settings.

Conclusion

Patients need compassionate and attentive nurses who build and maintain a trusting relationship. Nurses should offer fair, clear, and tailored information to actively involve patients in the care delivery. Meeting these needs and wishes contributes to the development of an EBQI-learning culture within nursing teams and promotes the delivery person-centred fundamental care. Which finally will result the delivery of more appropriate fundamental care and makes nursing care future-proof.

Acknowledgements

We would like to thank MWV for her help in conducting the interviews. Additionally, we wish to thank all participating organizations and patients who participated in this study.

Funding

This paper is part of the Improve! Project that focuses on creating an evidence-based quality improvement (EBQI) learning culture in nursing teams in the hospital and community care settings. The Improve! Project is funded by ZonMw (dossier no. 80-83900-98-854).

References

1. Visser M, de; Boot, A.W.A; Werner, G.D.A.; Riel, A. Van; Gijsberts, M.I.L. Sustainable healthcare, a matter of choice. People, resources, and public support. In: Policy TNSCfG, editor. The Hague2021. p. 25.
2. Kievit JB, A.; Polder, J.; Wagner, C. Rapport 'Begrippenkader Gepaste Zorg en Praktijkvariatie'. In: ZINL Z, FMS en NFU editor. Leiden2015. p. 29.
3. WHO. State of the world's nursing 2020: investing in education, jobs and leadership: World Health Organization 2020; 2020.
4. Khalil H. Evidence-based quality improvement. Int J Evid Based Healthc. 2017;15(3):81.
5. Hempel S, Bolshakova M, Turner BJ, Dinalo J, Rose D, Motala A, et al. Evidence-Based Quality Improvement: a Scoping Review of the Literature. J Gen Intern Med. 2022;37(16):4257-67.
6. Melnyk BM, Gallagher-Ford L, Fineout-Overholt E. Implementing the evidence-based practice (EBP) competencies in healthcare: a practical guide for improving quality, safety, and outcomes: Sigma Theta Tau; 2016.
7. Piggott T, Langendam MW, Parmelli E, Adolfsson J, Akl EA, Armstrong D, et al. The GIN-McMaster guideline tool extension for the integration of quality improvement and quality assurance in guidelines: a description of the methods for its development. J Clin Epidemiol. 2023;154:197-203.
8. Baker JD. Nursing Research, Quality Improvement, and Evidence-Based Practice: The Key to Perioperative Nursing Practice. AORN J. 2017;105(1):3-5.
9. Brennan PF, Strombom I. Improving health care by understanding patient preferences: the role of computer technology. J Am Med Inform Assoc. 1998;5(3):257-62.
10. Jerofke-Owen TA, Tobiano G, Eldh AC. Patient engagement, involvement, or participation - entrapping concepts in nurse-patient interactions: A critical discussion. Nurs Inq. 2023;30(1):e12513.
11. Elg M, Gremyr I. Patient involvement in quality improvement: a survey comparing naturalistic and reflective approaches. BMJ Open Quality. 2023;12:e001981.
12. van Belle E, Giesen J, Conroy T, van Mierlo M, Vermeulen H, Huisman-de Waal G, Heinen M. Exploring person-centred fundamental nursing care in hospital wards: A multi-site ethnography. J Clin Nurs. 2020;29(11-12):1933-44.
13. Kitson AL, Conroy T, Kuluski K, Locock L, Lyons RF, editors. Reclaiming and redefining the Fundamentals of Care: Nursing's response to meeting patients' basic human needs2013.
14. Ryder M, Kitson AL, Slotnes O'Brien T, Timmins F. Advancing nursing practice through fundamental care delivery. J Nurs Manag. 2022;30(3):601-3.
15. Feo R, Conroy T, Jangland E, Muntlin Athlin Å, Brovall M, Parr J, et al. Towards a standardised definition for fundamental care: A modified Delphi study. J Clin Nurs. 2018;27(11-12):2285-99.
16. Pomey M-P, Hihat H, Khalifa M, Lebel P, Néron A, Dumez V. Patient partnership in quality improvement of healthcare services: Patients' inputs and challenges faced. Patient Experience Journal. 2015;2:29-42.
17. Tobiano G, Marshall A, Bucknall T, Chaboyer W. Activities Patients and Nurses Undertake to Promote Patient Participation: Activities to Promote Patient Participation. Journal of Nursing Scholarship. 2016;48.
18. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Acad Med. 2014;89(9):1245-51.
19. Holloway I, Galvin K. Qualitative Research in Nursing and Healthcare: Wiley; 2016.

20. Pope C, Mays N. Qualitative Research in Health Care: John Wiley & Sons, Incorporated; 2019.
21. Braun V, Clarke V. Using thematic analysis in psychology. Qualitative Research in Psychology. 2006;3:77-101.
22. Kitson A, Conroy T, Wengstrom Y, Profetto-McGrath J, Robertson-Malt S. Defining the fundamentals of care. Int J Nurs Pract. 2010;16(4):423-34.
23. Dinç L, Gastmans C. Trust in nurse-patient relationships: a literature review. Nurs Ethics. 2013;20(5):501-16.
24. Canavera K. Rebuilding trust. Patient Educ Couns. 2021;104(5):996-7.
25. Shanahan T, Cunningham J. Keys to Trust-Building with Patients. J Christ Nurs. 2021;38(2):E11-e4.
26. McCormack B, McCance TV. Development of a framework for person-centred nursing. J Adv Nurs. 2006;56(5):472-9.
27. Telfer C. Patient perspectives: Exploring patient values and preferences. Can Fam Physician. 2018;64(1):10-1.
28. Rørtveit K, Hansen B, Leiknes I, Joa I, Testad I, Severinsson E. Patients' Experiences of Trust in the Patient-Nurse Relationship—A Systematic Review of Qualitative Studies. Open Journal of Nursing. 2015;5:195-209.
29. Sarwar F, Crijns T, Ramtin S, Ring D, Reichel L, Fatehi A. Patient symptom exaggeration is associated with communication effectiveness and trust. PEC Innov. 2022;1:100050.
30. Koy V, Yunibhand J, Aungsuroch Y. The quantitative measurement of nursing care quality: a systematic review of available instruments. Int Nurs Rev. 2016;63.
31. van Belle E, Zwakhalen SMG, Caris J, Van Hecke A, Huisman-de Waal G, Heinen M. Tailoring of the Tell-us Card communication tool for nurses to increase patient participation using Intervention Mapping. J Clin Nurs. 2018;27(3-4):621-30.
32. Bahlman-van Ooijen W, van Belle E, Bank A, de Man-Van Ginkel J, Huisman-de Waal G, Heinen M. Nursing leadership to facilitate patient participation in fundamental care: An ethnographic qualitative study. J Adv Nurs. 2023;79(3):1044-55.
33. Tobiano G, Bucknall T, Sladdin I, Whitty JA, Chaboyer W. Patient participation in nursing bedside handover: A systematic mixed-methods review. Int J Nurs Stud. 2018;77:243-58.

CHAPTER 6

FACILITATING AN EVIDENCE-BASED QUALITY IMPROVEMENT LEARNING CULTURE IN NURSING TEAMS THROUGH COACHING AND IDENTIFICATION OF KEY INFLUENCING FACTORS: AN ACTION RESEARCH APPROACH

To explore how coaching can facilitate the development of an Evidence-Based Quality Improvement (EBQI) learning culture within nursing teams in hospital and community care settings

Jeltje Giesen
Marjolein Berings
Annick Bakker-Jacobs
Hester Vermeulen
Getty Huisman-de Waal
Anneke Van Vught

Journal of Advanced Nursing (2024)
DOI:10.1111/jan.16679

Abstract

Aims: To explore how coaching can facilitate the development of an Evidence-Based Quality Improvement (EBQI) learning culture within nursing teams in hospital and community care settings. This study also explores the specific contextual factors that influence effective outcomes.

Design: Action research

Method: Nine teams, including 254 nurses were selected from four hospitals and two community care organisations to participate in the development of an EBQI-learning culture under the guidance of internal and external coaches. Data was gathered from 27 focus groups with 56 unique participants (of whom 31 participated multiple times) and six individual interviews with three external coaches. Transcripts of all interviews were subjected to abductive thematic analysis.

Results: To promote an EBQI-learning culture in nursing teams, it is essential that internal coaches effectively guide their team members. The internal coaches in this study focused on enhancing readiness for EBQI by providing support, encouraging involvement, and motivating team members. They deepened innovation competencies including assessing daily care, implementing well-structured changes in care practices and embedding small steps in the change process in daily routines. It was found that barriers and facilitators within the team's context can influence the development of EBQI-learning culture and therefore need to be considered when seeking to make changes. The presence of external coaches served as a valuable resource and a motivator in supporting internal coaches to apply and improve their coaching skills.

Conclusions: To stimulate the development of an EBQI-learning culture, internal coaches need to focus on team readiness to work with EBQI. Priority needs to be given to enhancing the care change competencies of team members. Barriers to change must also be addressed. Internal coaches require external support and motivation to continually develop coaching skills.

Reporting Method: The Standards for Reporting Qualitative Research

Patient or Public Contribution: No Patient or Public Contribution

Key Words: Action research, Appropriate care, Care transition, Coaching, Community Care, Competences, Evidence-Based Practice, EBP, Evidence-Based Quality Improvement, EBQI, Hospital, Learning Culture, Nursing.

Impact:

- A transformation in healthcare is required to ensure quality and affordable healthcare. EBQI is a promising approach to work towards the delivery of more appropriate care.
- To stimulate an EBQI-learning culture in nursing teams, internal coaches, also called nurse champions, proved to be essential as they focused on increasing readiness for EBQI and strengthening the innovation competencies of team members.
- Internal coaches need guidance and an external motivation to keep the change process going.
- Specific barriers and facilitators within the context of the nursing team can slow down or speed up the development of an EBQI-learning culture.
- Stimulating EBQI helps nurses transition to providing more appropriate care and making healthcare future-proof.

Introduction

The urgent need to transform healthcare is becoming increasingly evident. This is driven by several key factors. These include an ageing population, the increasing prevalence of multimorbidity, the growing scarcity of healthcare professionals, as well as rapid advances in medical care. These developments have created an urgent demand for healthcare professionals, including nurses, who are equipped to navigate the complexities of a rapidly evolving healthcare landscape (1). An Evidence Based Quality Improvement (EBQI) learning culture within nursing teams is an effective way to ensure continuous engagement in learning and improving care. Ultimately, it can transform the care provided. This kind of learning culture focuses on systematic and continuous actions to improve care based on Evidence-Based Practice (2). The general definition of Evidence-Based Practice is the explicit, judicious and deliberate use of the best available (scientific) evidence in making choices and performing actions. It is a proven way to improve the quality and accessibility of care in nursing practice (3). In this study, the term “nurses” is used as an umbrella term for different types of nurses. Types of nurses include nursing assistants, nurses with vocational training, nurses with a bachelor’s degree, and nurses with a master's degree. Where relevant, we distinguish between different types of nurses.

Background

Evidence-Based Practice facilitates nurses' reflection and clinical reasoning by integrating clinical expertise, available evidence, and patient preferences. It has been shown to be a valuable way of improving the quality of care in hospital and community settings. Evidence-Based Practice stimulates nursing teams to critically evaluate their practice and enables them to implement high-value care and eliminate low-value care that is potentially harmful or unhelpful (4, 5). Nevertheless, nurses are known to experience resistance to working with Evidence-Based Practice (6). Nurses still prefer to base their actions on habits, experience and their intuition, rather than basing their actions on currently available evidence (7).

Barriers to working with Evidence-Based Practice principles include perceiving Evidence-Based Practice as being too complex, not having enough knowledge to evaluate evidence, or not feeling supported by employers in terms of time and resources to be able to put new ideas into practice. (8, 9). To overcome these barriers, nurses need to be supported and empowered to embrace transformational leadership. Role modelling is essential (10). Next to including all team members In addition, facilitation by a coach has been identified as essential to developing nursing practice and improving quality of care (11). In nursing practice, coaching consists of supporting nurses as they enter the profession, and then continuing to support the development of knowledge and skills as they progress. (12). Action research involving 12 nursing teams from four nursing homes found that having a motivated nurse as an internal coach, along with support from an external coach, helps create a learning culture within nursing teams. It was also found that it is important to include all team members regardless of their education level. This so the research is embraced by all team members and that everyone's qualities and skills are utilized. (13).

In several countries, internal coaches are also known as nurse champions. These nursing champions are frontline practitioners involved in quality improvement, implementing innovations or changes in care policy (14). Nursing champions show leadership by energising and coaching colleagues. They instil confidence in quality improvement and help engage the right people to grow networks (14). Furthermore, the previous study of White (15) showed that nursing champions can act as change agents in bridging the gap between practice and research, and promote the use of EBQI.

It is not yet clear, however, which specific elements of coaching contribute to the development of EBQI-learning cultures within nursing teams to improve the quality of care. It is also important to understand which environmental factors help or hinder coaching and the development of an EBQI-learning culture. By

understanding the most effective elements of coaching and their influence, nurses can be enabled to coach their team members more effectively in changing their daily practice.

The study

Aim

This study aims to explore how coaching can facilitate the development of an Evidence-Based Quality Improvement (EBQI) learning culture within nursing teams in hospital and community care settings. The study also explores the specific contextual factors that influence effective outcomes.

Methods

Design

A general action research approach, with components of participative action research (PAR), was used to explore which elements of coaching can contribute to developing an EBQI-learning culture within nursing teams. Nine nursing teams were the subject of this research. An action research approach was chosen because it is collaborative, sensitive to context and iterative. This methodology directly engages participants and promotes their involvement and ownership. This is essential to understanding coaching in change the culture. The iterative nature of action research allows for real-time adjustments and refinements, addressing the complexity of healthcare environments (16). Researchers adhered to components of PAR as much as possible because it is important to involve participants to do the research and to change their practice. The four main principles of PAR consist of 1) authority of direct experience, 2) knowledge in action, 3) research as a transformative process, and 4) collaboration through dialogue (17). However, a full PAR could not be conducted for this study. Reasons for this are included in the limitations section.

The Standards for Reporting Qualitative Research (SRQR) checklist was used to prepare the research report and to ensure that all aspect of the research was carefully documented. This checklist was chosen as the research data was of qualitative origin and there is no separate checklist for action research(18).

Project team

The project team included four action-researchers and three experts in action research, EBQI, learning cultures and change management (See table 1). All members of the team had a background in nursing, with experience in a variety of settings. They were also highly experienced in quality improvement as well as the mentoring and coaching of nurses and nursing teams. Three of the four action researchers played the role of external coaches. As external coaches, these researchers implemented the intervention within the teams (see paragraph 4.5). They were selected based on their familiarity of the nursing profession and the community care or hospital setting. The goal of this decision was to foster trust with the participants and to mitigate resistance. The fourth action researcher was responsible for executing the study process. This researcher acted as the primary contact for data collection and data analysis. The roles of the action researchers were separated to guarantee the continuity of the teams. Teams were given a dedicated external coach. The four action researchers worked together closely, and the experts were engaged at all stages of the study process. This included the design of the study, reflection meetings and data analysis.

Study setting and recruitment

The study took place between January 2021 and July 2022, with an average intervention period of 12.3 months. It was conducted in four hospitals (one University Medical Centre and three general hospitals) and two community care organisations from the middle, the east, and the south of [Country name]. The nursing teams were purposively selected by approaching project leaders or directors from the project teams' network and ask them to participate with one or two teams (see Table 2).

Teams from the hospital setting specialised in orthopaedic surgery, trauma surgery, urology surgery and oncology, internal medicine. Teams from the community care setting delivered regular or specialised care that focused on administering intravenous drugs or blood products. All nursing teams had a mixed-educated staff (European Qualification Framework (EQF) levels 1-7 or in other countries referred to as nursing assistants, vocational nurses, bachelor nurses and in some teams master educated nurses).

Table 1: Action research project team

Project member	Role	Expertise	Healthcare setting
Expert 1	Study design, reflection meetings, data analysis	Nurse, nursing scientist, head lecturer, associate professor, EBQI	Nursing Homes, University Medical Centre, general hospital, mental healthcare, primary care, community care
Expert 2	Study design, reflection meetings and data analysis	Educational scientist, advisor, process supervisor workplace learning, coach	University Medical Centre, community care
Expert 3	Study design, reflection meetings and data analysis	Nurse, nursing scientist, head lecturer, full professor, board member, EBQI	Nursing Homes, University Medical Centre, general hospital, mental healthcare, primary care, community care
Action researcher 1	External coach Community care Teams	Nurse, nursing manager, nursing scientist, coach	Community care
Action researcher 2	External coach General hospital teams	Nurse, nurse specialist, nursing scientist, lecturer, coach	General hospital
Action researcher 3	External coach University Medical Centre Teams	Nurse, nursing scientist, lecturer, associate professor, coach	University Medical Centre, community care
Action researcher 4	Study design, reflection meetings, data collection and data analysis	Nurse, nursing scientist, team development	Mental health care, nursing homes, community care, University Medical Centre
Research assistant	Study design, data analysis	Medical and social management assistant	University Medical Centre, community care

Table 2: included teams and intervention period

Organisation	Team	Participants	Specialization	Intervention period	Action researcher
CC 1	Team 1	18	Regular CC	July 2021 – September 2022	External coach 1
	Team 2	23	Specialised CC	September 2021 – September 2022	
CC 2	Team 3	15	Regular CC	October 2021 – October 2022	
GH 1	Team 4	40	Internal medicine - Oncology	September 2021 – October 2022	External coach 2
GH 2	Team 5	30	Urology-oncology/surgery	October 2021 – October 2022	
GH 3	Team 6	27	Oncology surgery	November 2021 – October 2022	
	Team 7	25	Urology - oncology	November 2021 – October 2022	
UMC 1	Team 8	49	Orthopaedic-surgery	August 2021 – September 2022	External coach 3
	Team 9	32	Trauma - surgery	August 2021 – September 2022	

Community Care (CC), General Hospital (GH) University Medical Centre (UMC)

Inclusion and exclusion criteria

Nursing teams that met the following inclusion criteria were eligible for participation: a) committed for a 12 month period of (between May 2021 to September 2022), b) comprised of 10 to 50 nurses, c) providing direct care to adult patients on the ward or at home, d) supported by their management to participate e) have time to work on EBQI, f) have at least two nurses who could fulfil the role of the internal coach. Maternity care, children's care, critical care and the psychiatry departments were excluded from participation. This was because of the distinctive nature of these wards and the unique dynamics of the patient-caregiver relationship.

Inclusion criteria for the internal coaches were: a) possessing a bachelor's (BSc) or master's degree (MSc) in nursing; b) being able to participate in one or more data collection rounds; c) being able to participate in meetings with the external coach; d) affinity with EBQI and with coaching their team members. The internal coaches were selected with the assistance of the team managers. They were selected for their insight into the capabilities of the nurses in question so that they could determine whether the nurses would meet the inclusion criteria.

Study process

The study was conducted in three phases. The pre-phase included the preliminary preparations for carrying out the intervention in the teams. The teams started working on developing a learning culture under the guidance of the internal and external coaches in the intervention phase. Finally, the intervention period finished in the closure phase. (See figure 1).

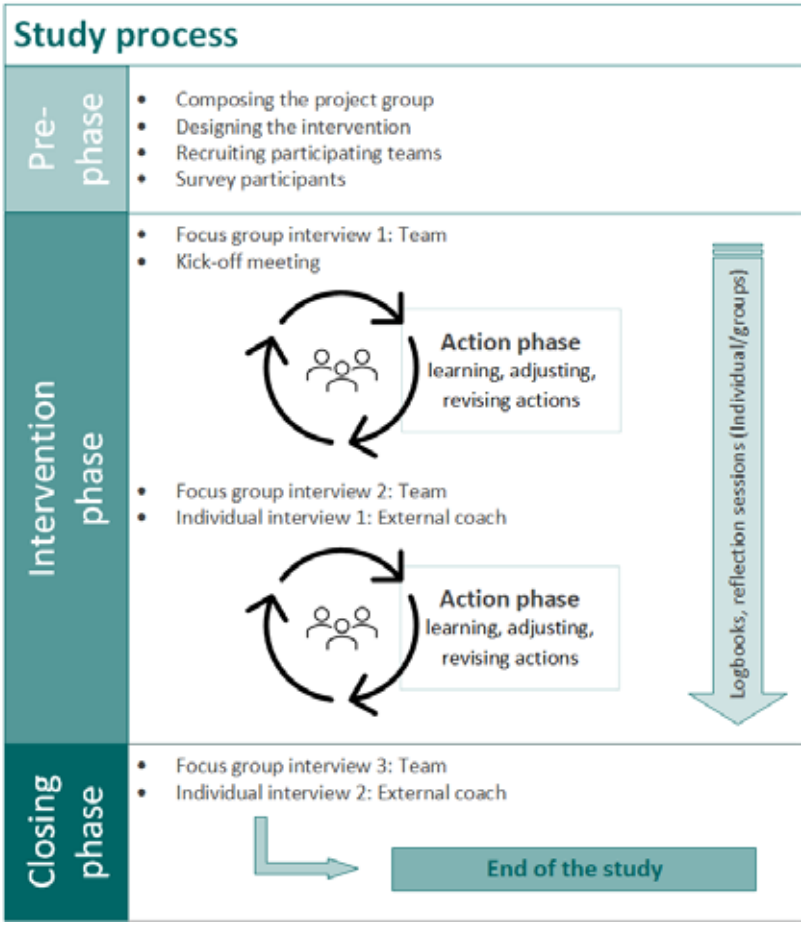


Figure 1: Study process

Pre-phase

The pre-phase started with composing the project group. This was done by adding action researchers serving as external coaches within the teams. These external coaches had a background in hospital and community care. This was to ensure that the study could be effectively integrated into the hospital and district care setting.

The purpose of these external coaches was to offer practical guidance tailored to the needs of the internal coaches. It was aligned with the operational procedures and patient profiles of the departments. Each external coach guided the internal coaches of 2 to 4 teams and had an average of 1.5 hours a week available per team. The coaches could fill these hours at their own discretion, in consultation with the other external and internal coaches. This approach and the intervention of the coaches carried out was based on previous research in nursing home teams. In this research, a learning culture was developed based on Evidence-Based Practice (13). The teams were then recruited and the internal coaches in these teams were selected. Finally, a survey was completed in this phase a survey to get insights in the characteristics of the team was conducted.

Intervention Phase

The intervention phase started with a focus group interview to map team members' attitudes regarding Evidence-Based Practice and Quality Improvement (QI). These insights determined the teams' starting point regarding EBQI and helped their external coach to make a coaching approach. Furthermore, discussing EBQI with nurses represents an initial step towards implementing change. This is because it prompts them to consider their own practice and identify potential areas for improvement. Then a kick-off meeting was set up to introduce the teams to the project. In this meeting, the objective of the intervention and the findings of the focus groups were presented. Furthermore, the external coach and the team's internal coaches were formally introduced, thereby inaugurating the team's intervention period.

During the intervention phase, the teams concentrated on the learning cycle, modifying and re-evaluating their actions as required. During this phase, the external coach provided the internal coaches with online support. They coached on the selection of improvement topics aligned with the patient group, gave guidance on motivating team members for change, and provided direction on EBQI. The external coach also facilitated structured approaches to improvement. The nursing teams were encouraged to work in accordance with the organisation's quality improvement cycles and to utilise relevant supporting Evidence-Based Practice information. Furthermore, the external coaches assisted the internal coaches in developing their leadership abilities, enabling them to provide effective assistance to the team. Furthermore, they assisted the teams in addressing specific queries and challenges, such as the allocation of time for EBQI. In accordance with the complexity of the objectives and the time available for quality improvement (QI), one or more goals were addressed. Key focus areas included the improvement of handover documentation, the promotion of self-management, the enhancement of palliative care, the identification of the optimal pre-operative laxative and the reduction in the

frequency of infusion line changes. The external coaches provided assistance to the internal coaches to facilitate the activation of team members and encourage their engagement in EBQI. They also gave guidance in the selection of appropriate change goals. Action researcher 4 gave the internal coaches a repository of information and resources, including. articles and e-learning materials designed to support the utilisation of EBQI and provide inspiration for improvement goals. Additionally, the project team conducted three sessions with the internal coaches. They facilitated the sharing and discussion of experiences, fostering a collaborative learning environment.

The intervention face also included data collection (see paragraph 4.6). Several meetings were organised such as project group meetings to discuss the purpose of the facilitation process and to exchange ideas about the coaching approaches. In addition, bi-monthly, reflection sessions were held both with the full project team and with the external coaches individually. The purpose of this reflection session was to evaluate the coaching process and to determine if any adjustments were required.

Closing the intervention period

The intervention period was closed during the final focus group interview. In this interview, action researcher 4 discussed with the participants options that could be taken to continue the development of an EBQI-learning culture. This was not part of the official data collection. The interview was conducted with the goal of ensuring sustainable change. The participants were encouraged to share their ideas with their managers, so that they too would be aware of them and could offer their support. Furthermore, individual interviews with the external coaches were conducted to gather data and to reflect on the intervention phase.

Data collection

Multiple sources were used for data collection. Before the intervention period began, a survey to gain insight into the participants' characteristics was sent out to all participants. Qualitative focus group interviews with the participating teams were performed at baseline, after six months, and at the end of the intervention period (see Appendix 1- Interview guide). In the baseline interview, questions were asked about the team composition, their experiences with Evidence-Based Practice and QI, and the objectives they hoped to achieve throughout the project. During the mid-term interview, participants reflected on and gained insights into progress made. Objectives set for the latter part of the intervention period were also examined. The final interview explored what the year had yielded, whether the trajectory had met their expectations, and how they intended to proceed post-intervention to advance their EBQI practice. A total of 56 unique nurses participated in the focus groups. Of these, 19 participated in one round, 21 in two rounds, and 11 in all three rounds. Individual interviews with the

external coaches were performed at six months and the end of the intervention period. During these interviews, the teams' progress, challenges, and areas they needed to address for more progress were discussed. Furthermore, the external coaches kept field notes in a logbook about the coaching process. These reports encompass documentation of the discussions with the internal coaches, focusing on the following key aspects: development of EBQI motivation and skills among team members; observations of the learning and working environment (including the work context, autonomy, connectedness, support); and subsequent interventions carried out by both the internal and external coaches. Focus group interviews and individual interviews were held face-to-face, when possible, and online (due to COVID-19 restrictions).

Action researcher 4, a master-educated nurse and experienced healthcare researcher, performed all interviews. Finally, project members produced field notes (individual) about all meetings with the external and internal coaches. These field notes cover the critical aspects of the meetings and focal points for coaching (see Table 3).

Data analysis

The study made audio recordings of both focus group and individual interviews in the analysis of how coaching could facilitate the development of an EBQI-learning culture within nursing teams. Recordings at baseline and six months were summarised. Recordings of the final interviews of both teams and external coaches were transcribed verbatim. An abductive thematic analysis approach was used to analyse the transcripts of the focus groups and individual interviews (19). Before the start of the study, it was known that creating an EBQI-learning culture involves interventions. These are made through facilitation (20). That is why this study examined the actions of both the internal and external coaches and the elements that arise within the context. The intention was to discover new information and to avoid confirming an existing framework; therefore, all data was coded openly. The steps of the abductive approach were 1) Transcription and Familiarisation, 2) Coding, 3) Codebook, 4) Development of Themes, 5) Theorising, 6) Comparison of Datasets, 7) Data Display, 8) Writing Up (19) (see Figure 2). Action researcher 4 and the research assistant independently coded all transcripts. The coding took place with the help of ATLAS.ti version 8.4.20. Codes were discussed until a consensus was reached. If consensus was not reached, an expert was consulted. The logbooks, field notes and summaries were used to support and check the codes from the final interviews on completeness. Descriptive statistics were used to gain insight into the participants' characteristics, using IBM SPSS Statistics for Windows, version 27.

Table 3: data collection

Data collection type	Total participants (range per focus group) / Participant type	Moment	Document	Purpose data collection
Survey – All participants				
Team survey	182 participants	Baseline	SPSS file (Descriptive statistics)	Insight in Characteristics participants and internal coaches
Focus group interviews				
Focus group interview 1 Individual teams (n=9)	36 participants (range 2-7) - 13 Internal coaches - 23 Team members	Baseline	Summary	Input for kick-off meeting Input for subsequent focus group interview Data analyses (check for additional codes)
Focus group interview 2 Individual teams (n=9)	27 participants (range 2-6) - 13 Internal coaches - 14 Team members	Midway	Summary	Input for subsequent focus group interview Data analyses (check for additional codes)
Focus group interview 3 Individual teams (n=9)	31 participants (range 2-10) - 17 Internal coaches - 14 Team members	Final	Full transcript	Data analysis (full process)
Individual interviews				
Individual interviews 1 – External coaches (n=3)	3 participants	Midway	Summary	Input for subsequent focus group interview Data analyses (check for additional codes)
Individual interviews 2 – Researchers (n=3)	3 participants	Final	Full transcript	Data analysis (full process)
Fieldnotes				
Logbook - External coach (n=9)	not applicable	Continues	Fieldnotes	Monitoring the process and adjusting Data analyses (check for additional codes)
Field notes of meetings (n=3)	not applicable	After a meeting	Fieldnotes	Monitoring the process and adjusting Data analyses (check for additional codes)
Individual reflection – Bi-monthly	Action researchers	After a meeting	Fieldnotes	Monitoring the process and adjusting Data analyses (check for additional codes)
Group reflection – Bi-monthly	All project members	After a meeting	Fieldnotes	Monitoring the process and adjusting Data analyses (check for additional codes)

Data analysis

The study made audio recordings of both focus group and individual interviews in the analysis of how coaching could facilitate the development of an EBQI-learning culture within nursing teams. Recordings at baseline and six months were summarised. Recordings of the final interviews of both teams and external coaches were transcribed verbatim. An abductive thematic analysis approach was used to analyse the transcripts of the focus groups and individual interviews (19). Before the start of the study, it was known that creating an EBQI-learning culture involves interventions. These are made through facilitation (20). That is why this study examined the actions of both the internal and external coaches and the elements that arise within the context. The intention was to discover new information and to avoid confirming an existing framework; therefore, all data was coded openly. The steps of the abductive approach were 1) Transcription and Familiarisation, 2) Coding, 3) Codebook, 4) Development of Themes, 5) Theorising, 6) Comparison of Datasets, 7) Data Display, 8) Writing Up (19) (see Figure 2). Action researcher 4 and the research assistant independently coded all transcripts. The coding took place with the help of ATLAS.ti version 8.4.20. Codes were discussed until a consensus was reached. If consensus was not reached, an expert was consulted. The logbooks, field notes and summaries were used to support and check the codes from the final interviews on completeness. Descriptive statistics were used to gain insight into the participants' characteristics, using IBM SPSS Statistics for Windows, version 27.

Ethical considerations

The research ethics committee of the Radboud University Medical Centre concluded that ethical approval was not required under Dutch law (CMO no. 2021-8211). Before inclusion in the study, all participants signed a form stating that they were informed verbally and in writing about the purpose of the study, that participation was voluntary, and that all recordings, transcripts and surveys were confidential and anonymous. All participants were informed that they had the right to withdraw from the study at any given time without having to disclose a reason.

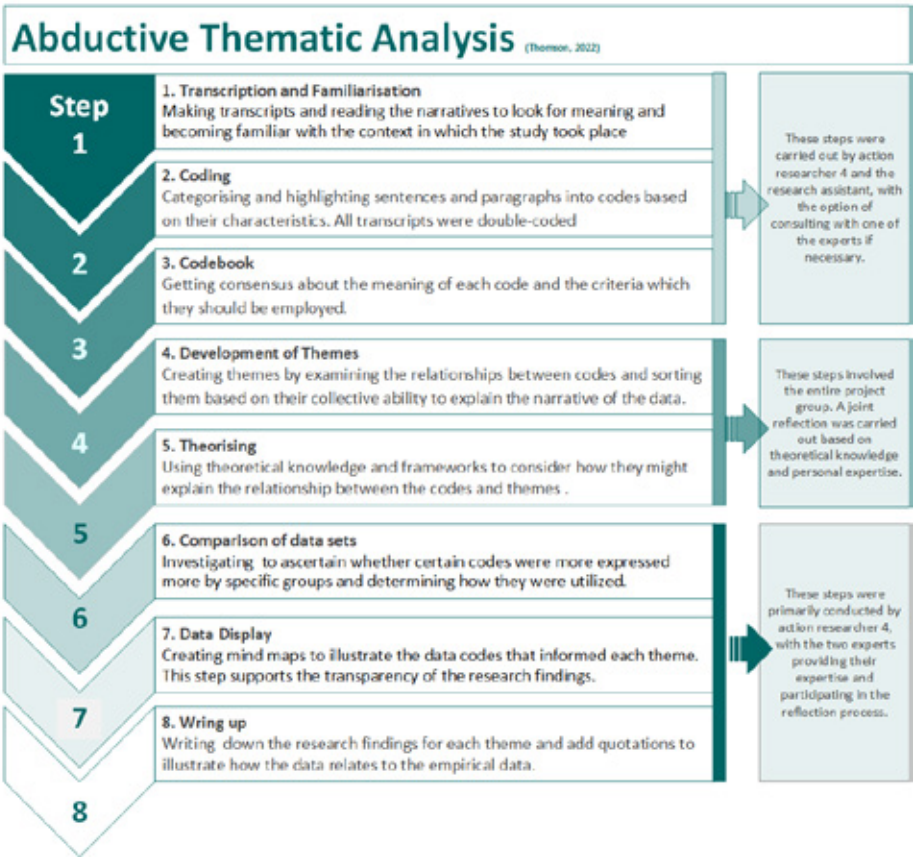


Figure 2: **Coding process**

Findings

Characteristics of participants

Nine nursing teams comprising of 254 nurses were included in this study. At baseline, a questionnaire was sent to all participants (n=254). A total of 182 questionnaires were completed, resulting in a response rate 71.6 %. In total, 173 women, eight men, and one person identified as "other" participated in the study. The mean age of participants was 39.8 years (SD 14.0). Among the nurses, 2.7% had a master's degree (EQF level 7), 36% had earned a bachelor's degree (EQF level 6), and 47.3% were vocationally educated (EQF level 4). In addition, 6.6% were nurse assistants (EQF level 1-3), and 7.1% had some other form of education. However, the distribution differed per nursing team. The average length of their work experience was 16.4 years (SD 13.4), and participants worked 27.8 hours a week on average. (SD 5.4) (see table 4).

Table 4: Characteristics of the participants

Team / Total Participants / response rate (n, %)		Gender (F/M/O)	Age, years mean (SD)	Education level (n, %)					Work experience Mean (SD)	
				Master	Bachelor	Vocational	Nurse ass	Other	Experience (years)	Weekly hours
Total	**182 (71%)**	**(173/8/1)**	**39.8 (14,0)**	**5 (2,7 %)**	**66 (36,3%)**	**86 (47,3%)**	**12 (6,6%)**	**13 (7,1%)**	**16,4 (13,4)**	**27,8 (5,4)**
CCT1	12 (66,7%)	(11/1/0)	43,7 (11,5)	2	3	1	6	0	15,1 (12,9)	28,8 (5,4)
CCT2	21 (91,3%)	(21/0/0)	51,0 (11,6)	0	10	10	0	1	29,6 (11,9)	26,0 (4,9)
CCT3	12 (80.0%)	(12/0/0)	43,9 (13,1)	1	3	2	6	0	21,5 (12,3)	21,0 (5,5)
HT4	36 (90.0%)	(32/4/0)	38,2 (14,0)	0	11	24	0	1	14,0 (11,6)	28,5 (5,3)
HT5	9 (30,3%)	(9/0/0)	38,7 (11,9)	0	4	5	0	0	14,5 (9,8)	28,6 (5,4)
HT6	22 (81,5%)	(22/0/0)	37,5 (13,1)	0	9	12	0	1	13,9 (11,7)	28,6 (5,3)
HT7	22 (88,0%)	(21/1/0)	37,9 (13,3)	0	8	14	0	0	14,4 (12,6)	28,6 (5,4)
HT8	28 (57,1%)	(26/2/0)	37,4 (13,1)	2	9	11	0	6	14,3 (11,8)	28,8 (5,4)
HT9	20 (62,5%)	(19/0/1)	38,8 (12,3)	0	9	7	0	4	14,3 (9,3)	27,9 (5,3)

Community Care Team (CCT), Hospital Team (HT), Female (F), Male (M), Other (O)

In each team, at least two internal coaches were selected and in total 24 nurses fulfilled the role of internal coach (see table 5). Of these coaches 22 were female and two were male. Their average age was 36,2 years' (SD 13,4) and they had an average of 11,7 years' (SD 11,3) work experience. While the experience of the nurses with a bachelor's or master's degree varied, they were all enthusiastic, motivated, and willing to invest time to guide their team members in developing an EBQI-learning culture. During the intervention period, one internal coach from team 1 was not available for an extended period. The role was seamlessly taken up by three nurses involved in the first change cycle. Given that several internal coaches were appointed per team, there was no need to recruit additional coaches in the case of a short-term outage.

Table 5: Characteristics of the internal coaches

Organisation	Team	Gender	Age (Years)	Educational level	Work experience as a nurse (years)
CC Organisation 1	Team 1	Female	49	Master	23
		Female	34	Bachelor	10
	Team 2	Female	54	Bachelor	37
		Female	44	Bachelor	21
CC Organisation 2	Team 3	Female	32	Bachelor	3
		Female	43	Bachelor	5
General Hospital 1	Team 4	Female	38	Bachelor	16
		Female	24	Bachelor	4
		Female	48	Bachelor	25
General Hospital 2	Team 5	Female	23	Bachelor	1,5
		Female	26	Bachelor	3
		Female	25	Bachelor	4
		Female	20	Bachelor	1
		Female	23	Bachelor	2
General Hospital 3	Team 6	Female	27	Bachelor	5,5
		Female	62	Bachelor	42
		Female	29	Bachelor	8
	Team 7	Female	38	Bachelor	14
		Female	NP	Bachelor	7
		Male	60	Bachelor	19
UMC 1	Team 8	Female	25	Bachelor	4
		Female	58	Bachelor	17
	Team 9	Female	25	Bachelor	4
		Male	25	Bachelor	4

Community Care (CC), University Medical Centre (UMC), not provided (NP)

Qualitative findings

From the qualitative analysis of the 27 focus groups with 56 unique nurses and the six individual interviews with the three external coaches, codes emerged that captured the successful elements of coaching by internal and external coaches (see table 3). In addition, it became evident that team members and coaches encountered various factors that both aided and impeded their efforts within their specific context when developing an EBQI-learning culture in their team. Mind maps were created to present the findings graphically (see, figure 3, 4 and 5). Furthermore, the codes in the results text are highlighted in bold to enhance clarity and highlight the discussed concepts.

Facilitation by the internal coach

In relation to the facilitation provided by internal coaches, two distinct themes emerged. The first theme concerns facilitation to encourage team members' readiness to work with EBQI. The second theme encompasses activities that support and enhance team members' skills and abilities to effectively engage with the principles of EBQI (See Figure 3).

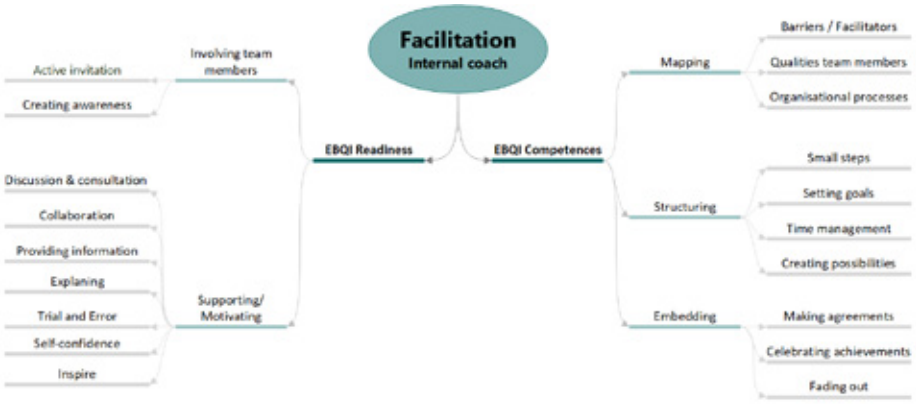


Figure 3: **Mind map internal coach**

Facilitation on enabling readiness

To enable **readiness** to work with EBQI, internal coaches from the hospital and community care setting focused on **involving team members** in the EBQI process. They attempted to **involve** their colleagues right from the start of the EBQI thinking process and during the implementation of the care change by **actively inviting** them to participate.

> *"Keeping team members informed and asking for their input. Involve them and ask: what do you think is important? As an internal coach, it is important not to say: I decide and you must do this." [Internal coach, hospital - transcript 7]*

In addition, internal coaches **involved team members** by giving a presentation about EBQI and then made sure that everyone understood it. EBQI was also talking about during the annual gathering. They also actively invited team members to be involved by avoiding hierarchy and emphasising that their opinions mattered. Internal coaches in the hospitals emphasized the importance of EBQI and started facilitating **readiness** and **involvement of team members** by creating **awareness** about what they were already doing with EBQI. They also asked how team members felt about Evidence-Based Practice and explored why they provided care the way they did. These conversations took place during care delivery.

> *"We need to make team members aware of what they are already doing with Evidence-Based Practice and how they can use it even more. So, it is very conscious decision to focus on the three pillars of Evidence-Based Practice and engage them. Making them aware that Evidence-Based Practice is not just about literature search. That it's also about patient perspectives and what you or other professionals know." [Internal coach, hospital -transcript 9]*

Internal coaches indicated they **supported/motivated** their team members by listening to the issues that arose for them while working with EBQI. They actively asked questions to help them along and organised sessions to **discuss** concerns. They also reported stimulating team members to **consult** with each other or to **discuss** a topic. This also stimulated **collaboration** between team members. Some internal coaches mentioned paying attention to the **collaboration** between team members, workgroups, or interdisciplinary teams.

> *"I hear more often: I have this problem. How can this be solved, or do you have any advice so I can solve it myself?" [Internal coach, hospital -transcript 6]*

Sometimes, the internal coaches **provided** the team with improved access to **information**. For example, by making it clear where information from the organisation was stored or by arranging a subscription to a nursing journal so that the team had more access to Evidence-Based Practice information. Some of the internal coaches from the hospital **explained** to team members about Evidence-

Based Practice and where and how to find evidence. When implementing care changes, some internal coaches told their team members that **trial and error** was a normal part of the process**.** When something didn't work, they **discussed** it with the team members and changed the approach.

> *I talked a lot with team members and experimented. Always was making small improvements and reflected with them: does this work? If the answer was: No, this is not working at all, why not? [Internal coach, Community care nurse - transcript 1)]*

Internal coaches from the community care setting said they focused on **promoting self-confidence** to **support and motivate** their team members. They did this by explaining things, being a positive example, and by working together.

> *"Resistance often comes from fear or ignorance. But after a while the resistance subsides a bit and team members are more willing to join in. So, you go further and further with that. Here we paid a lot of attention to team members' resistance." [Internal coach, community care - transcript 1)*

Internal coaches from the hospital setting said they were more focused on their **support** to **inspire** the team members. They did this by giving their teams insights into exactly what EBQI could yield for them and their patients. This was done by emphasising the importance of genuine change and by giving examples of how such change could positively impact other caretakers or patients. They also said they focused on increasing team members' motivation by taking the time to understand where they were coming from. This included listening to the barriers they faced and gaining insights into how they felt about working with EBQI.

> *"I think all nurses want to provide the best patient care and if you know how to improve something, it becomes easy. That's what we have been working on, getting team members excited about EBQI." [Hospital nurse - transcript 8]*

It is critical to note that internal coaches also need to remain motivated to inspire others to work with EBQI. During this research, one internal coach from a community care team lost **motivation** to work along the principles of EBQI and to **support** team members. This was due to persistent resistance and negative energy within the team. This resulted in the stagnation of the development of the EBQI-learning culture.

Facilitating the development of competencies

Both hospital and community care coaches said they initiated the development of a learning culture by **mapping** what the team was already doing with EBQI, the **barriers** they faced, and identifying **facilitators** that supported a learning culture. This was done by getting insights into how they approached Evidence-Based Practice and QI and what the **qualities of the team members** were.

> *Good advice for other departments is to ask team members: How do you work with Evidence-Based Practice? What are the helpful and hindering factors in applying Evidence-Based Practice? After asking these questions, we made an analysis and identified the stakeholders. We presented those outcomes to the team and said: look, these are the results. Then we involved them in making an action plan. [Internal coach, hospital - transcript 9]*

In addition, the internal coaches asked the team members which topics they would like to change to **map** what should be done. They looked at which working groups already existed and which topics would fit. About half of the internal coaches thought it was a good idea to pay attention to the **organisational process** within the team. For example, to make good use of the workgroups and their focus. They aimed to integrate EBQI into the daily work routines so that it would not become an additional burden and a standalone activity.

The majority of the internal coaches underpinned the importance of **structuring** the EBQI process. This was done by taking small steps, dividing big topics into smaller pieces, and solving them individually. By making the topics small and specific, team members could relate to the need for change and were more willing to participate. For example, a coach helped dividing the topic "promoting self-reliance" into **smaller steps.** The team started with supporting clients to dry themselves after showering.

> *"If you pick a small relevant area of improvement that everyone considers important, team members are more motivated to contribute to it." [Internal coach, community care - transcript 2]*

About half of the internal coaches said they paid extra attention to structuring the EBQI process. For example, by looking at how to incorporate the QI cycles in the change process, or helping to decide which changing topics to prioritise and assess their time investment. Some internal coaches focused on **setting goals,**

such as making an annual agenda or learning objectives. Other coaches used a tool provided by the external coach to pick essential goals for the team.

> *"We have created an annual plan. In the coming year, we want to pay attention to workplace themes in team meetings. This way, they will receive attention and remain topical." [Internal coach, community care - transcript 1]*

Some internal coaches paid attention to **time management** and included instruction on this when they saw it was necessary. They worked with team members on how to assess whether the tasks fitted the available time, and how they could use most effectively use their time. One of the internal coaches from the community care setting paid attention to **creating possibilities** to work on EBQI so that it did not take extra time. For example, by incorporating EBQI into care delivery.

> *"I think we do have to pay attention to productivity and be careful not to spend too many hours a week that we cannot bill. There is no room for that in the schedule either." [Internal coach, community care - transcript 2]*

Internal coaches said that an essential aspect of coaching is to develop the competence to **embed EBQI** in daily practice. A starting point for this was making EBQI a fixed agenda item during their team meetings. Some internal coaches said it was important to go further and ensure that at least one moment was created each day to discuss patient issues related to EBQI. They reported that this approach was successful. EBQI can become a habit if done structurally, over time.

> *"We now have a short meeting at 9.00 AM. This is going well and is now embedded. In this meeting, we briefly discuss how things are going and what everyone needs. We want to also arrange the same for our 3.00 PM meeting. It takes some effort to get used to, however, it's also just a change in mindset." (Internal coach, hospital - transcript 8)*

A small number of the internal coaches paid extra attention to **making agreements** towards actions to embedding EBQI in daily practice. Some internal coaches mentioned that they helped team members **celebrate achievements** to keep a positive flow. They learned this from the external coach.

> *"In the team meeting we continuously discussed small successes. For example, we paid special positive attention to a high response rate to the internal survey on working with Evidence-Based Practice that we had launched." [Internal coach, hospital (transcript 5)].*

Most internal coaches from the community care setting said they took time to **fade out** and let the team members do the work more on their own so that they could experience and develop more ownership.

> *"Withdrawing slowly also allows you to hand over more and more tasks. That way, the team feels ownership and the learning gets embedded into the team." [Internal coach, community care -transcript 3]*

Facilitation by the external coach

Four clear themes emerged in relation to the external coaching. The first theme centred on addressing the personal needs of internal coaches so they could develop themselves as proper EBQI coaches capable of leading a team. The next two themes focused on coaching needs to enable team members' readiness, and identifying the EBQI competencies towards that internal coaches need to discuss with the external coach. Lastly, the fourth theme explores the advantages of having an external coach (see Figure 4).

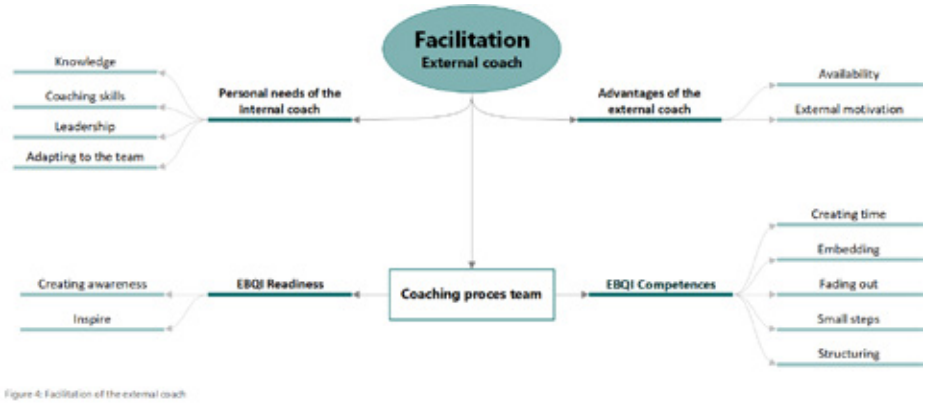


Figure 4: Mind map external coach

External coaches focused on meeting the **internal coaches' personal needs** to become effective EBQI coaches. This included providing the internal coaches with the **knowledge** to tackle a care problem or reactivate it, improving their **coaching skills,** and empowering them to show transformational **leadership.** They

supported the internal coach by providing explanations to them. For example, they discussed team members' resistance and how to improve their **Evidence-Based Practice skills**. The external coaches said they supported the internal coaches by (co)creating a coaching strategy **adapted to the team** and existing organisation processes.

> *"I think an internal coach must be intrinsically motivated to further professionalise the field. If they have enthusiasm, then they can also convey that to colleagues. [External Coach (transcript 12)]*

In addition, the external coaches discussed coaching aspects with the internal coaches. They supported them by creating **awareness** within the team and **inspired** them about working with EBQI**.** They identified suitable topics for care change and broke them down into **small steps**. They gave attention to how internal coaches could help the team approach the EBQI process in a **structured** way and ensure it was embedded in daily practice to create a sustainable EBQI learning culture.

> *"We anchored it within existing structural meetings as this was time efficient and convenient. But we also had to take a moment to think: OK, where are we now and where do we want to go? That is also important. [External coach - transcript 11].*

External coaches spoke with internal coaches about supporting the nursing teams to **create time** by **inspiring** them to de-implement low-value care. The coaches encouraged teams to look at how they organise care delivery within the team and empowered them to ask for time to work on EBQI. An essential part of the work of external coaches is to encourage and inspire internal coaches to work along the principles of EBQI. The availability of external coaches resulted in a deeper commitment from the internal coaches to work on quality improvement based on Evidence-Based Practice.

> *"Because the external coach guided us, we were motivated to plan meetings and made time for it." [Internal coach, community care - transcript 1]*

During the coaching period, the external coaches slowly **faded out**. They did this by helping internal coaches to develop their skills and, step by step, let them coach more independently.

> "*Because I really dare to let them do it themselves, those two teams can really continue on their own. I am so proud of those teams and expect they will be successful" [External coach - transcript 10]*

Finally, the internal and external coaches complemented each other in different ways. The external coach assisted in enhancing the coaching competencies of the internal coach. On the other hand, the internal coach provided insights into the specific barriers and facilitators encountered by the team. The external coach could then discuss with other internal coaches and utilise these insights to support the EBQI development process.

Barriers and facilitators

During the intervention period, it was found that not only actions from the internal and external coaches influenced the development of an EBQI-learning culture within the nursing teams. Essential facilitators and barriers that influenced the EBQI developing process within the teams were identified during data analysis (see Figure 5). These barriers and facilitators are essential, as they provide important guidance for the coaching process used by both internal and external coaches.

Facilitators that promote the development of an EBQI-learning culture

To develop an EBQI-learning culture, internal coaches and team members said there must be **energy to start** within the team. Working on care changes is a **team effort**. It boosts motivation when a team see a care change positively influences the **patients' perspectives,** and they **experience personal advantages** from it. They mentioned that it helps when they have enough **Evidence-Based Practice knowledge,** and there is a balance between the **team members' workload** and **time** spent on EBQI.

> *"An internal coach made a video to show us how to apply compression stockings on a patient. That was great. When I went to a patient, I grabbed that video, and it worked. [Team member CC - transcript 2]"*

It boosts the team members' **self-confidence** if they have a **positive example,** that they were **guided** and shown how to approach a care problem. It also helps when the team uses the **individual team members' quality**. Participants say it helps when they get **attention** from their organisation. It helps when there are **organisational structures,** such as work groups or research facilities, that **support** working on EBQI**.** They can have **influence,** show leadership in their team or the organisation, and have the **autonomy** to make decisions about care changes.

> *"It is more motivating if we can decide the change topics. It gives a feeling of autonomy and is a lot more fun. If a subject is interesting, you are eager to investigate it, and you can find the motivation to work on it. But if the subject does not appeal to you, it becomes a struggle to work on it." [Hospital nurse - transcript 7]*

Both internal coaches and team members highlight the importance of **knowing and trusting each other** and **treating each other as equals** regardless of the level of education. In addition, there must be a team culture in which team members feel secure in addressing and consulting each other. It is important to be able to talk openly. They also find it important that team members show flexibility to create opportunities to work on EBQI.

Barriers that challenge the development of an EBQI-learning culture

Participants also experienced expressed barriers that challenge the development of an EBQI-learning culture. One of the most critical barriers is the **resistance** to change by the team members. This evolves when there is **no basis** within the team or the **organisation** to work on EBQI, or when they don't feel **supported.** In addition, some participants did not **feel responsible** for changing care because they lacked **personal interest** or **insight**. They expressed feeling **insecure** because they previously experienced EBQI as something **complex** due to a **knowledge gap** or **a lack** of QI **structures**.

> *"Our survey showed that colleagues experienced Evidence-Based Practice as complex. They struggle with English language of scientific articles. They think working with Evidence-Based Practice is time-consuming, and do not know how to start." [Internal coach, hospital - transcript 5]*

If change processes were made too large and there was no prospect of solving them was also cited as a barrier. Some shared that this resulted in their motivation being **taken away**. Especially when expectations about outcomes and working on EBQI were mismatched due to an imbalanced workload and available time, they experienced no autonomy or could not persuade **leadership** to change care.

> *"If you must work in a different ward due to Covid-19 restrictions, you do not have time and focus to work on a project. You are just busy with your shift and the things that are happening then. Some colleagues were dealing with so much stress, they could not deal with anything else like a project. That was a horrible time." [Internal coach, hospital - transcript 8]*

Some participants said they felt lost due to COVID-19 restrictions as they had to work in another ward and felt like they were no longer **part of the team**. In addition, due to staff shortages and **schedule** changes, time to work on EBQI was limited, and team members could not meet each other.

Figure 5: Mind map barriers and facilitators

Discussion

The aim of this study was to explore how coaching can facilitate the development of an EBQI-learning culture within nursing teams in hospital and community care settings. It sought to identify which specific context factors influence the process to develop future-proof nursing teams. The data analysis identified the specific elements of coaching that enable the development of an EBQI-learning culture, such as promoting the readiness in working on EBQI in nursing teams. The internal coaches enabled this by involving, motivating, and supporting team members. Additionally, it was important to enhance team members' EBQI competencies, such as how to select feasible change topics, and knowing the importance of taking small steps in the change process. Furthermore, support from an external

motivator was essential for sustaining the EBQI process and aiding internal coaches in developing their coaching skills.

The first step in changing team attitudes towards EBQI starts with gaining insight into the readiness of team members to work on EBQI. The results also show that internal coaches have a key role supporting readiness in teams by engaging, supporting and motivating team members. The study of Hooge et al. (21) supports the notion that mentors are crucial in creating a sustainable Evidence-Based Practice culture. The study also shows that organisational Evidence-Based Practice readiness can be improved through mentoring (21). In addition, improving the motivation of team members by internal coaches to support the readiness is an important aspect of facilitating an EBQI-learning cultures. The self-determination theory supports the importance of being motivated in behavioural changes. It also shows how meeting the psychological needs of having autonomy, being competent and having relatedness promotes intrinsic motivation (22). Also, the study of Bagnasco (2019) supports this finding. Bagnasco found that nurses are more motivated when they are more aware of the importance of Evidence-Based Practice and know how Evidence-Based Practice can contribute to improving the quality of care and patient outcomes (23). Internal coaches can use insights about motivation to advance the readiness to work on EBQI, and to tailor their coaching.

It is essential that the internal coach takes the EBQI competencies of the team into account when developing an EBQI-learning culture. It is particularly important to consider the feasibility of change, which can be ensured by taking small steps towards EBQI. If insufficient attention is given to the feasibility, topics may expand too much and become unsolvable. Nurses find this daunting. negatively impacts their drive to engage with EBQI initiatives and lowers their readiness. This is confirmed by the study of Dixon-Woods et al. (24), which shows that goals that are too ambitious can lead to disillusionment and an early failure to reach goals. Projects often encounter difficulties due to an underestimation of the required resources needed to make the change, including time, financial support, project management skills, or supporting infrastructure (24). In addition, the study of Brugman et al. (25) found that projects that are too ambitious often require a lot of effort and become too complicated, resulting in feelings of disappointment. The advice is to nurture participants' existing motivation, ensure QI project goals are realistic and achievable (25), and consider that nurses' motivation and EBQI competences increases when Evidence-Based Practice is translated understandably (26). This is important as was found that nurses often struggle with understanding research articles in non-native language (Giesen, Bakker-Jacobs (27). These insights support the study finding that if nurses effectively dissect subjects into smaller, more manageable segments or

steps and can address them incrementally, as well celebrate successes along the way, it can foster a positive workflow and keep their motivation and readiness high.

In addition to Evidence-Based Practice competences, leadership remains an important competence of internal coaches. Internal coaches were seen by the nursing team as healthcare leaders. The leaders can positively influence their colleagues in developing an EBQI-learning culture and contribute to strengthening the autonomous role of nurses. The importance of healthcare leaders is confirmed in the review of Hult et al. (2023) stating that transformational leadership has been demonstrated to be of beneficial influence on organisational and departmental culture, as well as on nurses' outcomes. Furthermore, it contributes to high levels of patient satisfaction and safety.

To reach their full potential as coaches, internal coaches need support from an external coach. An external coach can support as well as promote transformational leadership development. The external coach can also enhance the internal coach's knowledge of Evidence-Based Practice and help them gain new coaching skills. The literature review of Richardson et al. (12) found that coaching can support nurses to enhance their leadership capability and improve their performances. Furthermore, the review of Cummins et al (29) highlights the importance of providing guidance and instruction to nurses on how to show nursing leadership. In addition, our findings indicate that external coaches serve an important role as external motivators. This kind of motivation increases internal coaches' (and indirectly that of team members) commitment to, and responsibility for, participating in EBQI efforts. The external coaches help internal coaches to overcome any feelings of being on their own. This is also supported by the review of Richardson et al. (12), which argues that nurses are more at ease discussing concerns with an external coach, thereby contributing to a more trusting work environment. The review also suggests that an external coach can facilitate the generation of new ideas and help maintain objectivity. Furthermore, the study of Lovink et al. (13) confirms the importance of external coaches. The study states that it is the external coaches who are the driving force behind the internal coaches as they guide their teams in the change process.

Contextual aspects, such as promoting Evidence-Based Practice knowledge by providing Evidence-Based Practice education, avoiding too much complexity in projects, ensuring a safe team culture and support from the organization in time and attention can speed up the development process. The EBQI development process is stimulated when nurses are given autonomy and the opportunity to lead. A safe team culture that fosters learning also stimulates the EBQI development process. These insights are supported by the study of Hoegen et al.(30), which underpins the importance of leadership support among nurses and its connection

to their endorsement of Evidence-Based Practice in the context of their work environment. Barriers and facilitators offer valuable information about the team's status concerning readiness and competencies towards EBQI. Insight into resistance in a team can be crucial to successfully developing an EBQI-learning culture. A decline in motivation, especially concerning an internal coach losing motivation, could lead to a complete standstill of the development process. The study by DuBose and Mayo (31) confirms the impact of resistance, which is often amplified by fear of change, mistrust, and communication barriers. The study found that resistance comes from a perceived or actual threat. It is a response to maintain a baseline status and a normal reaction to the unknown (31). These insights can be used to tailor coaching approaches that align with the specific team's needs, which is essential for the successful development of an EBQ- learning culture.

Lastly, healthcare organisations should act and empower nursing teams to take leadership, create a safe working culture, and allocate sufficient time to stimulate the development of an EBQI-learning culture within nursing teams. This is supported by the study of Alatawi et al. (32) stating that providing adequate supervision and resources, as well as support in time management stimulates the implementation of EBQI. This is an important but complex challenge in times of labour shortages.

Strengths and limitations

A strength of this study is the employed research methodology. Using an action research approach ensured that teams had the opportunity, with guidance from coaches, to experience the most effective ways to develop an EBQI-learning culture (16). It also catered to their level and previous experiences with Evidence-Based Practice and QI rather than imposing a standardised intervention set by researchers. In addition, most of the research group, and all external coaches, possessed a background in nursing. This enabled them to connect with the nurses more easily, understand the teams' challenges, and guide them properly.

A limitation of this study is that it was carried out during the COVID-19 pandemic. This made recruiting teams and conducting action research more challenging as the primary focus in that period was on providing COVID-19 care. Organisations were reluctant to expose their teams to an additional burden of research. Consequently, we were compelled to shorten the intervention period from 1.5 years to 1 year. Moreover, hospital nurses were reassigned to COVID-19 departments, causing stagnation in the development process of EBQI. Team members had different responsibilities and were unable to meet each other. Community care teams experienced fewer disruptions in this regard.

Furthermore, arranging in-person appointments was difficult due to the government's COVID-19 measures. Most coaching sessions and data collections took place online. Consequently, this approach could have led to a diminished level of personal interaction compared to what was initially intended.

All participating teams were included based on their willingness to participate and demonstrated a high level of motivation to participate in the study and perceived the value of developing an EBQI-learning culture. Consequently, the findings of our study are particularly applicable to motivated teams and are also a prerequisite for developing an EBQI-learning culture. However, we think the findings are also relevant to less motivated teams, although in these teams more attention will need to be paid to coaching to motivate team members.

With respect to the design, opportunities to involve nurses more actively in all the principles of PAR were limited by the COVID-19 regulations that were applicable during the study period. Nurses experienced an extreme increase in their workload, limiting their ability in cocreating the research and changing their practice. The regulations also adjusted the roles of the action researchers. It was decided to delineate the roles of researcher and coach, which is not common in action research (16). The rationale behind this choice was rooted in our desire to provide the teams with an external coach who was familiar with their work environment and could therefore offer effective and tailored coaching. This approach also offered the advantage that, during the data collection phase, participants were able to openly express their thoughts on the EBQI process and share their experiences with an independent researcher. The independent researcher was also careful to limit the risk of integration to the internal coaches' own preferences and experiences by taking actions such as facilitating reflection sessions.

Finally, in this study we focused on how coaching facilitates an EBQI-learning culture within nursing teams. We did not study the impact of coaching on outcomes related to an improved EBQI-learning culture. Further research should focus on the impact of coaching on quality improvement, in line with the sextuple aim (33).

Conclusion

Tailored coaching is of great value within nursing teams. This has been shown in this research through identification of the specific elements of coaching required to facilitate the development of an EBQI-learning culture. An essential aspect of this coaching is creating readiness for QI. This can be enabled by supporting, involving, and motivating team members. In addition, to stimulate QI using Evidence-Based Practice within teams, it is essential to enhance EBQI competencies. It is also critical

to guide team members to select and approach their change topics systematically. Coaches need to ensure that nursing teams take small steps in the change process, with continuous consideration of feasibility. The use of both internal and external coaches is helpful to overcome any barriers within the nursing community. Coaches serve as excellent motivation for the implementation and growth of EBQI in nursing.

Acknowledgments

We would like to thank the hospitals and community care organisations, nurses and coaches for participating in our study and for putting their effort to developing an EBQI-learning culture in their team and Alice Ramsay for editing the manuscript.

Funding statement

This paper is part of the Improve! Project, which focuses on creating an Evidence-Based Quality Improvement (EBQI) learning culture in nursing teams in the hospital and community care settings. The Improve! Project is funded by ZonMw (dossier no. 80-83900-98-854).

CRediT authorship contribution statement

Jeltje Giesen: Conceptualization, Methodology, Guidance of external coaches, Investigation, Formal analysis, Writing –original draft, Writing –review & editing, Supervision**. Marjolein Berings:** Conceptualization, Methodology, Guidance of external coaches, Writing –review & editing, Funding acquisition, Supervision. **Getty Huisman-de Waal:** Conceptualization, Methodology, External coaching, Formal analysis, Writing –review & editing, Funding acquisition, Project administration, Supervision. **Annick Bakker-Jacobs:** Conceptualization, Methodology, Formal analysis, Writing –review & editing. **Anneke van Vught:** Conceptualization, Methodology, Guidance of external coaches, Writing –review & editing, Funding acquisition, Supervision. **Hester Vermeulen:** Conceptualization, Methodology, Writing –review & editing, Funding acquisition, Supervision.

References

1. Visser M, de; Boot, A.W.A; Werner, G.D.A.; Riel, A. Van; Gijsberts, M.I.L. Sustainable healthcare, a matter of choice. People, resources, and public support. In: Policy TNSCfG, editor. The Hague2021. p. 25.
2. Baker JD. Nursing Research, Quality Improvement, and Evidence-Based Practice: The Key to Perioperative Nursing Practice. AORN J. 2017;105(1):3-5.
3. Straus SE, Richardson, W.S., Rosenberg, W., Haynes, R.B., Sackett, D.L. Evidence-Based Medicine: How to Practice and Teach EBM. Edingburg, UK: Churchill Livingstone:; 2020.
4. Verkerk EW, Huisman-de Waal G, Vermeulen H, Westert GP, Kool RB, van Dulmen SA. Low-value care in nursing: A systematic assessment of clinical practice guidelines. Int J Nurs Stud. 2018;87:34-9.
5. Kitson AL. The Fundamentals of Care Framework as a Point-of-Care Nursing Theory. Nurs Res. 2018;67(2):99-107.
6. Kerr H, Rainey D. Addressing the current challenges of adopting evidence-based practice in nursing. Br J Nurs. 2021;30(16):970-4.
7. Zwakhalen SMG, Hamers JPH, Metzelthin SF, Ettema R, Heinen M, de Man-Van Ginkel JM, et al. Basic nursing care: The most provided, the least evidence based - A discussion paper. J Clin Nurs. 2018;27(11-12):2496-505.
8. Kajermo KN, Boström AM, Thompson DS, Hutchinson AM, Estabrooks CA, Wallin L. The BARRIERS scale -- the barriers to research utilization scale: A systematic review. Implement Sci. 2010;5:32.
9. Jabonete F, Roxas R. Barriers to Research Utilization in Nursing: A Systematic Review (2002–2021). SAGE Open Nursing. 2022;8:237796082210910.
10. Bahlman-van Ooijen W, van Belle E, Bank A, de Man-Van Ginkel J, Huisman-de Waal G, Heinen M. Nursing leadership to facilitate patient participation in fundamental care: An ethnographic qualitative study. J Adv Nurs. 2023;79(3):1044-55.
11. McCormack B, Manley K, Titchen A. Practice development in nursing and healthcare: John Wiley & Sons; 2013.
12. Richardson C, Wicking K, Biedermann N, Langtree T. Coaching in nursing: An integrative literature review. Nurs Open. 2023;10(10):6635-49.
13. Lovink MH, Verbeek F, Persoon A, Huisman-de Waal G, Smits M, Laurant MGH, van Vught AJ. Developing an Evidence-Based Nursing Culture in Nursing Homes: An Action Research Study. Int J Environ Res Public Health. 2022;19(3).
14. Sperling D, Shadmi E, Drach-Zahavy A, Luz S. Nurse champions as street-level bureaucrats: Factors which facilitate innovation, policy making, and reconstruction. Front Psychol. 2022;13:872131.
15. White C. Nurse Champions: A Key Role in Bridging the Gap Between Research and Practice. Journal of emergency nursing: JEN: official publication of the Emergency Department Nurses Association. 2011;37:386-7.
16. Waterman H, Tillen D, de koning K. Action Research: A Systematic Review and Guidance for Assessment. Health Technol Assess. 2001;5:iii-157.
17. Cornish F, Breton N, Moreno-Tabarez U, Delgado J, Rua M, de-Graft Aikins A, Hodgetts D. Participatory action research. Nature Reviews Methods Primers. 2023;3(1):34.
18. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Acad Med. 2014;89(9):1245-51.
19. Thompson J. A Guide to Abductive Thematic Analysis. The Qualitative Report. 2022;27.

20. Harvey G, Kitson A. PARIHS revisited: from heuristic to integrated framework for the successful implementation of knowledge into practice. Implement Sci. 2016;11:33.
21. Hooge N, Allen DH, McKenzie R, Pandian V. Engaging advanced practice nurses in evidence-based practice: An e-mentoring program. Worldviews Evid Based Nurs. 2022;19(3):235-44.
22. Flannery M. Self-Determination Theory: Intrinsic Motivation and Behavioral Change. Oncol Nurs Forum. 2017;44(2):155-6.
23. Bagnasco A, Zanini M, Catania G, Aleo G, Sermeus W, Sasso L. Implications of a wide-scale educational intervention to engage nurses in evidence-based practice: The Italian RN4CAST experience. Nurs Forum. 2019;54(2):183-91.
24. Dixon-Woods M, McNicol S, Martin G. Ten challenges in improving quality in healthcare: Lessons from the Health Foundation's programme evaluations and relevant literature. BMJ Qual Saf. 2012;21:876-84.
25. Brugman I, Visser A, Geerlings S, Eskes A. The Evaluation of an Interprofessional QI Program: A Qualitative Study. Int J Environ Res Public Health. 2022;19:10087.
26. Schuessler Z, Castillo L, Fessler S, Herrmann R, Kuntz D, Spencer B. A Qualitative Description of Nurses' Experiences With Incorporating Research Into Practice. The Journal of Continuing Education in Nursing. 2018;49(7):299-306.
27. Giesen J, Bakker-Jacobs A, van Vught A, Berings M, Vermeulen H, Waal GH-d. What is needed for nurses to work with evidence-based practice? A qualitative study. Contemp Nurse. 2024:1-14.
28. Hult M, Terkamo-Moisio A, Kaakinen P, Karki S, Nurmeksela A, Palonen M, et al. Relationships between nursing leadership and organizational, staff and patient outcomes: A systematic review of reviews. Nurs Open. 2023;10(9):5920-36.
29. Cummings GG, Lee S, Tate K, Penconek T, Micaroni SPM, Paananen T, Chatterjee GE. The essentials of nursing leadership: A systematic review of factors and educational interventions influencing nursing leadership. Int J Nurs Stud. 2021;115:103842.
30. Hoegen P, Vos M, van Oostveen C, de Bot C, Echteld MA, Maaskant J, Vermeulen H. Nurse Leadership and Work Environment Association with Outcome Expectancy and Self-Efficacy in Evidence-Based Practice among Hospital Nurses in The Netherlands: A Cross-Sectional Study. Int J Environ Res Public Health. 2022;19(21).
31. DuBose BM, Mayo AM. Resistance to change: A concept analysis. Nursing Forum. 2020;55(4):631-6.
32. Alatawi M, Aljuhani E, Alsufiany F, Aleid K, Rawah R, Aljanabi S, Banakhar M. Barriers of Implementing Evidence-Based Practice in Nursing Profession: A Literature Review. American Journal of Nursing Science. 2020;9:35.
33. Alami H, Lehoux P, Miller FA, Shaw SE, Fortin J-P. An urgent call for the environmental sustainability of health systems: A 'sextuple aim' to care for patients, costs, providers, population equity and the planet. The International Journal of Health Planning and Management. 2023;38(2):289-95.

Appendix 1: Interview guide

Interview guide: Focus group interviews Teams		
Time	**Question**	**Topic**
Focus group interviews Teams		
Baseline	1. What does the composition of your team and department look like?	- Size - Educational levels - Specialization - Staffing - Culture - Barriers - Facilitators
	2. How do you work on quality improvement in your department?	- Time - Topic - Workgroups - Facilitators - Challenges
	3. How do you use Evidence-based practice in your department?	- Facilitators - Challenges - Embedded in organisation
Focus group interview -Halfway	1. What have you been working on recently within the project?	- Change topics - Process - Actions - Support - Barriers - Facilitators
	2. What worked and what did not work in coaching and why? - How were staff members coached by the internal coach? - How ware the internal coaches coached by the external coach?	- Coaching actions - C ontact
	3. What do you want to work on next period?	- Change topics - Cooperation - Team development
Focus group interview -Final	1. What have you been working on recently within the project?	- Change topics - Process - Actions - Support - Barriers - Facilitators
	2. What worked and what did not work in coaching and why? - How were staff members coached by the internal coach? - How ware the internal coaches coached by the external coach?	- EBQI motivation - Skills team members - Learning culture - Autonomy - Support - Connectedness - Results
	3. How will the project be continued on your department?	- Embedding changes - Sustainability of learning culture

Appendix 1: Continued

Interview guide: Focus group interviews Teams		
Time	**Question**	**Topic**
Individual interviews External coach		
Halfway	1. At what specific issues did the team need coaching to achieve its goals and why?	- Barriers - Facilitators - Organisational level - Team level
	2. What interventions and actions did you use during coaching and why?	- Internal coaches - Team - Coaching actions/ Techniques
	3. What specific issues did the team need coaching for in the near future to promote an EBQI-learning culture, and why?	- Quality improvement - EBP - Leaning culture
Final	1. At what specific issues did the team need coaching to achieve its goals and why?	- Barriers - Facilitators - Organisational level - Team level
	2. What interventions and actions did you use during coaching and why?	- Internal coaches - Team - Coaching actions/ Techniques
	3. What specific issues did the team need coaching for and did the teams developed an EBQI-learning culture?	- Evaluation - Results - Development

GENERAL DISCUSSION

General Discussion

This thesis explores how nurses can generate, tailor evidence, and develop an evidence-based quality improvement (EBQI) learning culture within nursing teams. This is to provide more appropriate care. The research from this thesis responds to current healthcare challenges, such as patients with more complex care needs, rising demand for care, workforce shortages, and the premature departure of nurses from the profession (1).

We started the journey towards appropriate care in nursing with the generation and tailoring of evidence. This is because developing an EBQI-learning culture is impossible without having a strong scientific foundation. Subsequently, insights are presented on how to foster the development of such a culture, including the needs and preferences of patients regarding EBQI. This contributes to high-quality and appropriate care in an environment that supports the engagement, commitment, and retention of nursing staff. Furthermore, establishing an EBQI-learning culture contributes to nurse retention within the profession. It enables nurses to utilise their range of competencies to the full extent and strengthens their ability to demonstrate leadership.

The studies presented in this thesis were conducted using various rigorous research methods. First, the scope of pain interventions for nurses was mapped by systematically reviewing the literature. Secondly, qualitative focus group research was used to identify nurses' needs for working with EBP principles. Thirdly, a guideline search and survey were used to generate an overview of low and high-value care interventions for nurses and prioritize the most urgent low-value care intervention. The fourth method was qualitative research with individual interviews to explore patients' wishes to be involved in care processes. Finally, an action research approach was used to gain insight into how coaching can facilitate an EBQI-learning culture. The general discussion chapter reflects on the key findings of the studies. Considerations regarding methodological choices are outlined. Implications are discussed, and recommendations for future research are provided. The chapter ends with an overall conclusion.

Main findings

This thesis begins by emphasising the importance of evidence for nursing practice. To implement necessary changes in healthcare, it is essential to provide reliable insights on which nurses can base their practice and to activate their problem-solving abilities in combination with supporting nursing leadership. **Chapter 2,**

therefore, generates a systematic scoping review of pain interventions carried out by nurses for adult patients in hospital and community care settings and assesses their quality. The study revealed three main categories related to pain interventions to be used by nurses. These categories included distraction interventions, health education interventions, and pain prevention interventions. Quality assessment showed that most studies were of moderate quality or low quality. The main risk was the inability to blind patients and nurses from the intervention. The systematic scoping review of pain interventions for nurses highlights the importance of further research to validate these interventions (2). To address the needs of nurses and students regarding EBP knowledge (see insights from **Chapter 3**), this thesis places particular emphasis on the translation of our research findings into practical applications. This has resulted in the development various tools, including a poster with recommendations on showering with a primarily closed wound, corresponding to **Chapter 2** (see Addendum 8).

Besides generating evidence, such as for pain interventions, ensuring that this evidence applies to nursing practice is essential. Therefore, **Chapter 3** provides more insight into the needs and wishes of nurses and student nurses to improve engagement in the use of EBP in hospital and community care settings by conducting a qualitative focus group study. The findings highlight several barriers to EBP, including complexity, limited applicability, and concerns over the quality of evidence. Nurses and students expressed their need for tailored, ready-to-use, and accessible evidence, preferably in their native language. They also called for organisational support, including dedicated time, resources, and clear expectations for EBP integration. Participants emphasised the importance of role models, teamwork, and leadership to foster an EBP culture. These insights underscore the necessity for tailored interventions to empower nurses and improve healthcare delivery through EBP (3).

The insights into the needs of nurses and nurse students contribute to tailoring the generated evidence, ensuring its direct applicability in practice as the science of the nursing profession continues to advance. Moreover, this tailored evidence must be regularly updated and expanded to remain relevant and effective. Therefore, **Chapter 4** updates and expands a previous initiative, namely the in 2017 developed do-not-do list. This was accomplished using a dual approach consisting of a systematic guideline search and a national survey. This process identified valuable nursing care recommendations, which were updated, expanded, and prioritized over care with limited added value. The guideline screening yielded 66 low-value and 414 high-value care recommendations. Low-value practices included, for instance, *"avoiding unnecessary layers under patients at risk of pressure ulcers"*, while high-value practices recommended "*using the Barthel*

Index for assessing activities of daily living independence". The low- and high-value care recommendations extracted from 233 guidelines were then categorised by healthcare sector—hospital care, district care, nursing home care, disability care, and mental health care. The survey involved 539 nurses, who ranked the low-value recommendations, resulting in a top five per healthcare sector. Notably, *"Do not use physical restraints in cases of delirium"* was prioritised across most sectors. This systematic prioritisation facilitates targeted de-implementation of low-value care and adoption of evidence-based high-value alternatives to improve nursing care quality (4). To support nurses in implementing the research outcomes, we have created a general infographic on do-not-do recommendations and five sector-specific infographics featuring the five highest-priority recommendations corresponding to **Chapter 4** (see Addendum 9).

Making evidence available and tailoring it to specific needs is the first step towards delivering appropriate care. However, involving patients in introducing healthcare changes is essential to successfully implementing this tailored evidence into practice. As a nurse, you aim to ensure that the interventions you apply are well received by your patients and align with their needs and expectations. Therefore, **Chapter 5** explores patients' needs and wishes for involvement in care processes that nurses can use to develop an evidence-based quality improvement learning culture. This research was conducted using a qualitative individual interview approach with 18 patients. Results emphasised the critical importance of a trusting and compassionate nurse-patient relationship. Patients value clear, fair, and tailored information to facilitate shared decision-making and enhance involvement in care. Effective communication and personalised interactions were key to building trust and fostering patient participation. Emotional support, privacy, and active listening were identified as essential components of care integration. Participants highlighted the need for nurses to demonstrate empathy, engage meaningfully, and consistently involve them in care processes (5).

Finally, to take the actual step toward delivering appropriate care, nurses must receive practical guidance in applying the generated and tailored evidence and incorporating patients' needs. This can be achieved by developing an EBQI-learning culture in which continuous learning, reflection, and collaboration are central. Therefore, **Chapter 6** includes an action research study focusing on how internal and external coaches can facilitate the development of an EBQI-learning culture within nursing teams in the hospital and community care setting. In addition, the study identified barriers and facilitators in the context. Results highlighted that the internal coaches played a pivotal role in fostering team readiness for EBQI by supporting, motivating, and involving team members. They enhanced innovation competencies through small, structured changes embedded in daily routines.

External coaches provided essential support by mentoring internal coaches and fostering transformational leadership. The findings emphasised the importance of internal coaches' leadership and the critical role of external coaches in sustaining motivation and skill development. Barriers to implementing EBQI included resistance to change, workload pressures, and limited time. Facilitators included team cohesion, autonomy, and tailored support. Addressing contextual barriers and enabling a supportive environment was key to cultivating an EBQI-learning culture and working towards delivering more appropriate care(6). To support nurses in fostering an EBQI-learning culture, we have incorporated insights from internal and external coaches and patient perspectives from Chapters 5 and 6 into a practical poster. This poster (see Addendum 10) guides nursing teams step by step in systematically addressing a care-related topic supported by EBP information. Furthermore, all developed tools are supplemented with Dutch-language articles (see Addendum 5).

Reflection on main findings and future directions

The availability of high-quality evidence is fundamental to successfully implementing an EBQI-learning culture in nursing teams. In addition, nurses should have access to this evidence and use it to support care transformations. Additionally, the environment in which these changes are implemented should foster a positive culture open to change. Furthermore, nurses must be adequately facilitated with guidance and resources to effectively implement these changes in their practice (7, 8). The following paragraphs will present and discuss the main findings in the themes of Evidence, Context, and Facilitation. A visual overview of the findings is provided in Figure 1.

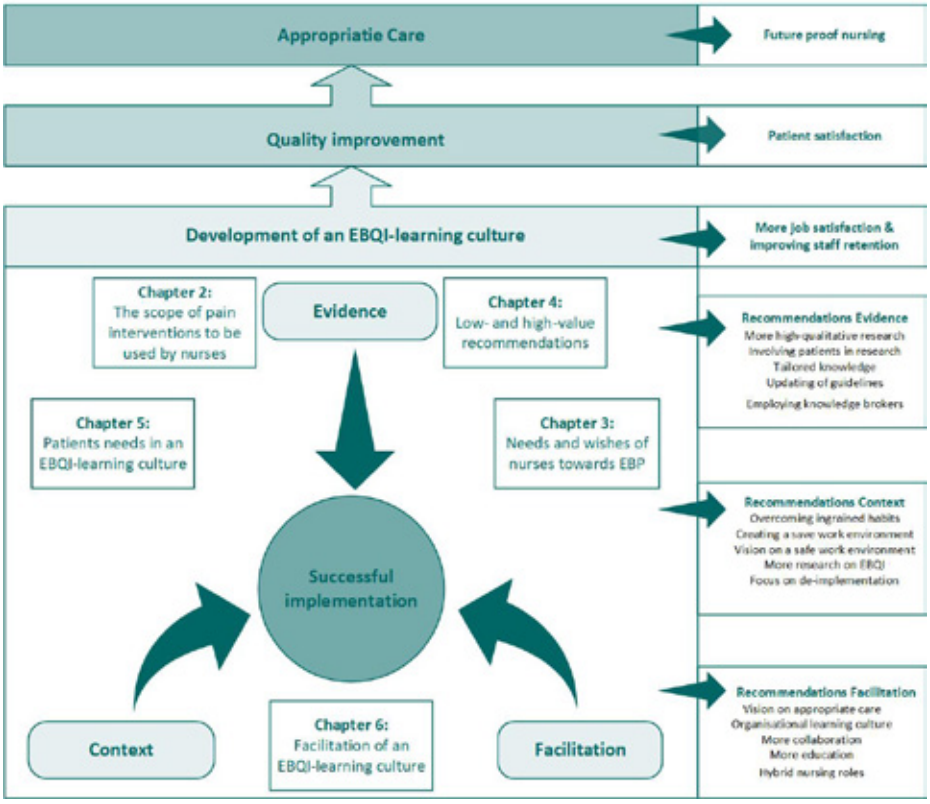


Figure 1: **Overview studies and recommendations**

Evidence

Evidence used to make care changes in an EBQI-learning culture must be rigorous, incorporate professional values, and consider patient's needs (7, 8). It is also known as the three principles of Evidence-Based Practice (9). Knowledge must be available and applicable to enhance the use of evidence in nursing practice (10, 11).

Our action research and interview study with nurses and students also showed that one of the nurses' primary needs in EBQI is the availability of knowledge to underpin their actions (3, 6). In nursing practice, there remains a substantial need for more rigorous research. This was evident in our scoping review of pain interventions for nurses, where a significant proportion of included studies exhibited a lack of robust methodological quality or a limited number of studies available for specific pain (2). A similar pattern was observed in a related review on wound care interventions for nurses, highlighting comparable trends regarding quality and availability (12).

Therefore, performing more high-quality research on nursing interventions in the future is necessary. The need for more high-quality research also became evident in our guidelines search, where many recommendations were based on expert consensus or studies assessed as low-quality (4). In the absence of research on a specific topic, recommendations are currently made based on the experiences of an expert panel. However, these recommendations do not always fit the principles of EBP and often lack information on how to interpret and use them (13). A low GRADE-score means recommendations cannot be strongly endorsed. GRADE uses five factors to determine the quality of evidence. The score decreases due to study limitations, indirectness, imprecision, and publication bias. Within the GRADE methodology, it is possible to upgrade the score. However, this primarily concerns quantitative factors such as the magnitude of the effect, the dose-response relationship, and plausible confounding (14). When nursing research is available, it is usually of qualitative or observational origin, resulting in a lower GRADE-score (14, 15). However, the question remains: is this correct, or should the score depend more on whether the methodology is appropriate for the phenomenon being studied? In addition, the lack of evidence or the availability of proof with only a low GRADE-score leaves nurses uncertain about the best course of action for their patient's care (10). Another problem with a low-GRADE score is that research findings are difficult to incorporate into national policies and initiatives, as they may encounter resistance from other healthcare disciplines due to the lack of robust evidence.

To conduct targeted research, a clear and strong foundation is essential to provide more high-quality care. The fundamental of care framework (FOCF) could serve as a solid foundation for addressing gaps in nursing evidence. The framework encompasses all essential elements for delivering nursing care, including the nurse-patient relationship, care integration, and care context (16). A multinational focus group study on how nurses perceive the FOCF confirmed it as a solid basis, stating that nurses recognise the framework's elements and acknowledge its importance for daily practice (17). Additionally, the FoCF emphasises the importance of the patient's role in healthcare delivery, which should also be reflected in research (18). This is particularly relevant as patients are the ones who undergo the interventions. Integrating patient perspectives is a pillar of EBP principles. It ensures that interventions align better with their needs, experiences, and preferences (11, 19). Our qualitative interview study on patient preferences for developing an EBQI-learning culture confirmed the importance of cooperation between nurse and patient. It stated that patients need clear and honest information tailored to their cognitive level when care is delivered by a nurse (5). Similar results were found in a qualitative study on communication and information provision by nurses during

preoperative admission. This study demonstrated that patients need to be actively involved in their care and receive accurate information. However, some barriers hindered this, such as their illness or the type of treatment they received (20). Beyond generating knowledge to support nursing actions and incorporating patient preferences, it is also vital that nurses learn to apply EBP in daily practice (11). Therefore, we need to know what nurses require to apply the principles of EBP effectively.

This thesis's qualitative focus group study on EBP needs revealed that nurses and nurse students strongly desire tailored, specific, and immediately applicable knowledge in the Dutch language (3). Examples of this tailored, actionable knowledge include 'do-lists' and 'do-not-lists' with prioritization. These tools enable nurses to efficiently select appropriate interventions for their practice, freeing time to identify and address ward-specific areas for improvement (4, 21). Guidelines must be regularly updated, and new evidence must be integrated to ensure that the provided knowledge remains accurate and relevant. However, previous research has shown that updating guidelines often leaves room for improvement (10, 22). Updating the 'do-not-do' list highlighted persistent issues in this area. Our study screened guidelines from 2017 to 2023, resulting in 49 new recommendations compared to the original 2017 list. However, 47 recommendations from the initial list were from guidelines created before 2017, indicating that these guidelines have not been updated in the past six years (4). Research suggests limited attention is given to determining when a guideline should be updated. Assigning a fixed timeframe for updates is challenging, as it largely depends on the volume of new studies conducted on a given topic. Therefore, a model for assessing the need for updates would be valuable (23, 24). Equally important is ensuring that the process of updating guidelines is well-structured and that the appropriate individuals are involved in the revision process.

To generate and tailor evidence, as well as update guidelines. There could be a role for knowledge brokers and organisations specialising in knowledge management. Knowledge brokers are often described as clinical researchers, mid-level managers or sometimes nurse specialists in the role of knowledge developer who focuses on creating knowledge products and bridging the gap between daily practice and academia (25). In addition to translating scientific knowledge into practical resources for nurses, these knowledge brokers can also contribute to generating more evidence. In addition, mid-level managers and registered nurses also play a vital role in knowledge brokering as strategic influencers. A critical interpretive synthesis of the literature states that mid-level managers are pivotal in promoting EBP among team members and emphasising the importance of innovations (26). They can raise awareness of the importance of working towards

EBQI, a crucial initial step in developing an EBQI learning culture, as highlighted in our action research (6, 26). However, mid-level managers often do not appeal to or support nurses' EBP competencies. Our action research revealed that the team's internal coaches and nurses required someone else to monitor their progress. This support helps them remain engaged in the process (6). It is, therefore, essential to integrate these knowledge brokers effectively within healthcare organisations and to ensure they possess the necessary competencies for knowledge brokering, guiding nurses in EBP, and implementing new interventions (27). In addition to focusing on the availability, applicability, and integration of knowledge, it is crucial to address changes in nursing practice to enable nurses to implement these changes effectively.

Future directions for evidence

Future research should focus on generating more evidence to enhance nursing practice and implementing this knowledge through EBQI. It would be advisable to assess the various elements of the FoCF systematically. This will clarify the remaining gaps, enabling targeted research into these nursing themes. Ideally, this research should be conducted within large-scale national healthcare evaluations, thoroughly examining various prioritised complex nursing interventions. In addition, it is essential to focus on the availability and accessibility results, preferably in the native language. Making this tailored knowledge accessible through central, easily navigable platforms will ensure its direct applicability in practice. Investing in knowledge broking and dissemination through existing knowledge institutes is crucial. In addition to generating new knowledge, attention must be paid to distributing existing knowledge and recommendations.

Research should also focus on systematically updating and developing guidelines and quality standards. This contributes to the further development of 'do' and 'do-not-do' lists and expanding these lists with new recommendations. It would be advisable to develop a robust methodology to ensure that the 'do' and 'do-not-do' recommendations are systematically updated or revised when new guidelines or quality standards are published. Given the time lag before guidelines are updated, it is essential that this methodological development also considers how high-quality studies with recommendations for nursing practice can be integrated into these lists. Additionally, it is recommended to evaluate how the current lists are presented and explore ways to make them more user-friendly in the future. For instance, digitalisation could include options to filter recommendations on a website or in an app. This would enable nurses to generate personalised lists tailored to their practice, facilitating the development of an EBQI learning culture in the workplace. Furthermore, investing in the effective deployment of knowledge brokers and how

they can motivate and support nurses in applying EBP knowledge in their daily practice is advisable. This enables master's and bachelor's educated nurses to take on this role, allowing them to implement changes for appropriate care.

Recommendations for Evidence

- Conducting more high-qualitative research to fill research gaps
- Basing research on the elements of the Fundamental of care Framework
- Involving patients in research to facilitate successful implementation
- Focusing on the development of tailored knowledge that is directly applicable in practice
- Investing in the development and systematic updating of guidelines and initiatives such as 'do' and 'do-not-do' lists for nurses (in native language)
- Employing knowledge brokers to translate knowledge into practice and in the role of strategic influencers

Context

Next to the availability of rigorous evidence that is tailored and ready to use in daily practice, the context in which an EBQI-learning culture is developed must be supportive. This context is supportive if the culture in the organisation and on the wards are open for change if strong and supportive leadership is carried out, and if changes are evaluated in quality cycles (7, 8). In other words, an innovative and professional working environment (28).

The facilitators identified in the action research, such as being taken along, trusting your team members, and support from the organisation, highlight the importance of a context open for change. However, in most teams, some nurses experienced resistance to developing an EBQI learning culture. Therefore, the study paid extra attention to this phenomenon. This was done to equip internal coaches with knowledge to navigate better, overcome resistance, and create readiness to work on EBQI within the teams (6). Demonstrating resistance is a well-known phenomenon in organisational change. Research shows that resistance often stems from fear of the unknown and is a natural reaction to protect one's environment (29). It is usually a reaction to change, and the initiation of new projects is frequently encountered. An overload of improvement projects contributes to fatigue and increased workloads among nurses, exacerbating resistance. This phenomenon is referred to as 'change fatigue'(30). In addition, it is also known that nurses often

perform their tasks as they are used to. These sacred cows are persistent because there is a strong tradition in nursing to provide care as it has always been (31). These insights into the causes of resistance highlight the importance of the action research results that focus on raising awareness about the importance of EBQI, taking small steps in the change process, and addressing manageable topics.

Next to resistance, the other barriers found are experiencing feelings of uncertainty, not being part of the team, or a lack of support from the organisation. The unsupportive behaviour of colleagues caused these feelings and contributed to a hostile, unsupportive culture (6). Several studies have shown that nurses exhibit a culture of "eating their young." This refers to a lack of support for novice nurses in the workplace. Such unsupportive behaviour often results in an uneven workload, a lack of guidance from experienced nurses, and even bullying. Consequently, novice nurses, usually best educated for EBQI, frequently feel overwhelmed and inadequately prepared for their roles, negatively affecting their emotional well-being. This is a big problem as it can lead to them leaving the profession prematurely. This is undesirable during staff shortages and increasing demand for healthcare professionals. In addition, this staff turnover threatens the accessibility of care and the mission of delivering appropriate care.

In some teams that participated in the action research, there was a high staff turnover, both in the past and during the study period. Additionally, this study was conducted during the COVID-19 pandemic, which led to nurses being deployed elsewhere in the hospital. Both factors hindered staff retention and the development of an EBQI learning culture, not only because team members were less able to see each other but also because the familiar ward and colleagues were absent (6). A multicenter European study confirmed these hindering factors as it showed that the main reasons for nurses to leave the profession include depersonalisation at work, job dissatisfaction, and a lack of engagement (32). In addition, a recent systematic review on the retention of nurses and physicians in hospital settings highlights six key determinants for retention: *"organisational culture, work relationships, working conditions, employment terms, clear task requirements, and personal employee characteristics."* For nurses, the most important factors were a good work-life balance, opportunities for career development, and job satisfaction (33). Engaging other competencies and implementing effective role differentiation beyond bedside care also contribute to retaining nurses (34). Additionally, when nurses can utilise their skills effectively, they experience greater job satisfaction, which positively impacts preventing early departures from the profession (32, 35). This requires a fundamental cultural shift in nursing to create a professional, innovative work environment.

Factors such as equality, trust, and the ability to provide feedback are supportive and contribute to a professional, innovative work environment for developing an EBQI-learning culture and supporting the delivery of appropriate care (6, 36).

Several literature reviews confirm these supportive factors and identify conditions necessary for a healthy workplace. These include having professional autonomy, effective team collaboration, open and constructive communication, and demonstrating nursing leadership. In addition, opportunities for personal development, recognition, and management support are crucial for a professional, innovative work environment (37-39). The nursing culture must change to support the development of an EBQI-learning culture and ensure that every nurse is involved in the process, regardless of their educational background or level of experience (6). To achieve this change, nurses must take more initiative. This includes demonstrating more leadership and asserting the autonomy to make decisions about their practice. A systematic review of nursing leadership styles shows that transformational leadership improves organizational culture and job satisfaction (40). Taking on leadership roles can also positively influence nurses' involvement in critical care decisions and their autonomy in determining care priorities (41). The importance of nursing leadership is further emphasised in the study by Bahlman-van Ooijen et al. (42), highlighting how leadership can promote EBP by motivating colleagues and positively influencing patient participation. This aligns with our interview study with patients regarding their preferences for involvement in care. Honest, clear, and tailored information fosters communication between patients and nurses and is crucial for implementing changes from EBQI projects (5). In addition, taking patients along in care changes contributes to the delivery of appropriate care by supporting shared decision-making between the patient and healthcare provider(1, 43). This aligns with a study that revealed that empowering patients and providing clear information about care expectations and agreements are essential to improving care quality (44). However, nurses cannot achieve this cultural change in their context alone. They must adequately be facilitated to fully utilise their acquired competencies effectively in EBQI-learning culture and the transition to appropriate care.

Future directions for the context

To develop a functional EBQI-learning culture, sufficient attention must be paid to establishing a professional, innovative work environment within nursing teams. Research should focus on understanding the disruptive mechanisms that cause resistance and investigating what lies beneath the perceived lack of time. These insights can help provide nurses with practical tools, enabling them to break away from ingrained habits and implement sustainable improvements in their daily

practice. Healthcare organisations should prioritise the cultural shift, mainly as a professional, innovative work environment contributes to staff retention and job satisfaction. In addition, a professional, innovative environment is essential to stimulate learning and development in nursing teams, promoting the transition towards more appropriate care delivery. To create a culture of continuous learning, healthcare organisations must formulate a clear vision incorporating aspects such as a professional, innovative work environment, according to EBQI. Furthermore, organisations and nurse managers should give nurses the autonomy to take control over nursing care and foster leadership. Finally, more research is advised into developing an EBQI learning culture to better support nurses in providing appropriate care. It is essential to gain deeper insights into the mechanisms within a learning culture that contribute to the sustainable implementation of quality improvement based on EBP. A stronger focus on de-implementing low-value care practices would be beneficial.

Recommendations for the context

- Addressing resistance to change and the perceived lack of time can help develop practical strategies for overcoming ingrained habits
- Creating a safe work environment to foster an EBQI learning culture and improve staff retention
- Formulating a clear organisational vision that includes a safe work environment, EBQI principles, autonomy, and leadership development
- Enhancing research on EBQI-learning culture to understand the mechanisms that support the transition towards appropriate care
- Focusing on de-implementation of low-value care, to create more time for high-value care

Facilitation

To create a thriving EBQI-learning culture to ensure appropriate care and nurse retention, it is finally essential that both internal and external coaches facilitate nurses. These coaches can help nurses implement sustainable changes in their daily practice (7, 8).

In our action research, we used internal and external coaches to facilitate the development of an EBQI-learning culture within the nursing teams. The internal coaches were registered nurses with a strong affinity with EBP, quality improvement, and coaching their team members (6). Research shows that these coaches demonstrate leadership, are engaged in healthcare policy, and serve as role models for other nurses. In other countries, these internal coaches are called 'nurse champions' and are crucial in bridging the gap between research and clinical practice, acting as change agents (45, 46). Our external coaches were highly trained professionals in coaching and had experience as nursing educators, nursing managers, or researchers. They all started their careers as nurses and, therefore, knew the culture in which they developed an EBQI-leaning culture. The external coaches supported the internal coaches with regular meetings in which the internal coaches could express their coaching needs, such as supporting readiness for EBQI by team members, dealing with resistance, supporting the EBQI process, and developing their coaching competencies. Competency development was one of the key aspects of creating an EBQI-learning culture in nursing teams in which both internal and external coaches had a role (6).

To support the development of EBQI competencies, coaches from our action research help their team members implement care changes in a structured and step-by-step manner and sustainably anchor changes within the context (6). The findings of the coaching actions are tailored and brought together in a practical tool to support the development of an EBQI-learning culture. The developed poster contains the following steps: 1) supporting readiness to work on EBQI, 2) the collection of areas for improvement, incorporating the patient's preferences and needs, 3) The selection of a manageable improvement point, 4) Systematically addressing the improvement point based on EBP, 5) ensuring the sustainability of the change in daily practice 6) reflecting on the change process, 7) Celebrating achievements (see addendum 10).

Step 1) supports readiness to work on EBQI within the nursing teams. This concludes dealing with resistance and practical issues like the perceived lack of time to work on EBQI (3, 6). A systematic review by Jabonete & Roxas (47) on barriers nurses face in using research confirmed that lack of time is the most significant obstacle. This is understandable given that current practices in many

healthcare organisations heavily emphasize direct patient care, leaving little room for quality improvement initiatives and the integration of EBP (3). However, it is essential to note that lack of time is not always the reason for not engaging in EBP. Research also shows that nurses sometimes perceive a lack of time, which masks underlying issues such as insufficient knowledge or experience to work on EBQI (6, 48). These insights emphasize the importance of establishing a foundation for EBQI and supporting readiness among nurses (6).

Steps 2 and 3 of the supporting poster collect areas for improvement, incorporate the patient's preferences, and select a manageable improvement point. This is important because our action research demonstrated that overly large topics could lead to disappointment, as they may not be feasible within the available time (6). It is, therefore, crucial for healthcare organisations and nurses to find the right balance between providing patient care and allocating time to broader tasks. It also creates moments when nurses can only be disturbed in an emergency. Organisations can facilitate this by establishing a clear vision for delivering appropriate care and adhering to EBQI principles (49). This ensures that nurses can effectively select and make steps towards improving care quality based on EBP and working towards providing appropriate care.

Steps 4 and 5 of the poster systematically address the improvement point based on EBP and ensure the sustainability of the change in daily practice, aligning with the implementation science methods. The study by Chays-Amania et al. (50) highlights the importance of selecting an implementation model (such as PDCA), choosing an appropriate strategy, and evaluating the implementation process. This approach provides insights into potential barriers and supports a successful and durable implementation (50). However, nurses must possess adequate competencies to integrate implementation science into the EBQI development process. Making these systematic changes should also focus on de-implementing low-value care to support nurses adequately in making changes. De-implementing low-value care frees up time for delivering meaningful care and improves patient care quality (51, 52). To help nurses in the de-implementation of low-value care, it is crucial to understand why nurses continue to provide such care. A recent Dutch study identified the most common reasons cited by nurses for delivering low-value care. These include: a) *'the doctor advises or prescribes it', b) 'it is documented in the patient's care plan, c) 'the patient requests it', d) 'it is done to provide the patient with 'something",* and '*it has always been done this way'* (53). These findings align with the reasons for delivering low-value care in the study of Chapter 4 to update and prioritise the 'do-not do' list continuing low-value care (4). In addition, the findings underscore the importance of successfully addressing entrenched habits and communication gaps to reduce low-value care. A qualitative focus group

study involving nurses, managers, and quality improvement staff supports these findings. This research identified significant barriers, including insufficient skills and knowledge in effectively using care interventions and challenges managing patient expectations during interactions between nurses and physicians (44). To overcome these obstacles and achieve sustainable de-implementation of low-value care, it is essential to involve healthcare professionals in raising awareness and promoting initiatives to eliminate such practices (51). To break habits and work towards a learning culture, nurses must implement changes step by step and follow a systematic approach. This increases the likelihood of a positive outcome and helps them develop their ability to improve. However, they require guidance in this process, not only from the internal and external coach but also from their manager.

Step 6) of the practical tool is reflecting on the change process. This refers to the need for an external motivator and the opportunity to reflect on the change process. A nursing manager can act as an external motivator for nursing teams and periodically evaluate with nurses how they contribute to EBQI. This ensures that working on EBQI becomes integral to organisational structures (6). This is crucial since research shows that managerial behaviour significantly influences the promotion or hindrance of change beyond the actions of individual nurses (54). However, it is also well known that although EBP is taught in current nursing curricula and is often included in job descriptions, nurses rarely appeal to it (55, 56). Meanwhile, clarity about expected outcomes, such as strong identification with their profession, an adequate salary, and favourable employment benefits, are associated with nurse retention (57). A recent multicentre longitudinal cohort study by van Kraaij et al.(34) confirms this. It shows that over recent years, there has been no significant improvement in management support regarding skills for delivering quality care, demonstrating leadership, and supporting nurses. In addition to managerial support for initiating the EBQI process within nursing teams, nurses need the opportunity to evaluate their process.

Our research regarding EBP needs highlights that nurses wish for the opportunity to share and discuss knowledge (3). These findings are supported by qualitative focus group studies that emphasise the potential for reflective discussions among colleagues about care practices. Such discussions, combined with management and organisational support, can facilitate this process (44). Moreover, the cross-sectional survey by Hoegen et al. (41) demonstrates that a supportive work environment, such as positive feedback from colleagues and opportunities for undertaking EBP activities, positively influences nurses' participation in EBP activities. These findings support the need to evaluate the EBQI process and celebrate their achievements (step 7). Following the steps of the practical tool can help facilitate an EBQI-learning culture in nursing teams and support the development of appropriate care.

Future directions for facilitation

Healthcare organisations are crucial in systematically facilitating nursing teams to work according to EBQI principles. Next to formulating a clear vision for delivering appropriate care, the appointment of internal and external coaches is essential to foster learning and improvement. Moreover, nurse managers play a key role in developing an EBQI learning culture and should demonstrate more decisive leadership. Their organization should encourage them to take a more active role in engaging nurses in their responsibilities within EBQI and focus on developing their competencies.

Beyond promoting an EBQI-learning culture within nursing teams, organisations should also explore ways to establish a broader organisational learning culture that contributes to providing appropriate care. This would enable them to respond more proactively to changes and developments within the healthcare sector and better align with the dynamic needs of both patients and healthcare professionals. Facilitating interdisciplinary collaboration among healthcare professionals can further enhance learning and development. Greater cooperation can help tailor care more effectively to patients' needs. This also applies to partnerships with other healthcare organisations and sectors, leading to more efficient care delivery and ensuring patients receive treatment in the most appropriate setting.

Next to changes in practice, education also plays a vital role in supporting the transition towards appropriate care. A key recommendation is to emphasize the use of EBP and problem-solving abilities. This is crucial, as newly graduated nurses cannot often effectively apply their EBP competencies in practice. In addition, attention should be given to leadership, autonomy, empowerment, and a professional, innovative work environment. Preparing students for these aspects during and after their education ensures they are better equipped to navigate the often-challenging culture within nursing teams. This process can be strengthened by implementing EBQI in practice during training and in collaboration with professionals. This approach is known as responsive education, as it contributes to both education and practice. To successfully implement responsive vocational education, skilled mentors are required to support students and professionals in applying EBQI in practice.

Investing in dual or even triple nursing roles is crucial for strengthening the connection between research, education, and practice, ultimately fostering more efficient collaboration. These roles include lecturer-researchers, clinical nurse scientists actively engaged in practice, and educators maintaining close ties with healthcare settings. Such hybrid roles contribute to the faster and more sustainable

implementation of new insights into daily practice, supporting the broader objective of delivering more appropriate and effective care.

Recommendations for Facilitation

- Healthcare organisations should formulate a clear vision for appropriate care and appoint internal and external coaches to support an EBQI-learning culture
- Developing an organisational learning culture to proactively adapt to healthcare developments
- Enhancing interdisciplinary collaboration as well as collaboration between sectors
- Education should provide nurses with more leadership an EBQI skills to improve continuous learning in practice
- Investing in hybrid nursing roles to accelerate the integration of new insights into practice, leading to more sustainable and effective care delivery

Methodological considerations

This thesis employed a literature review, two studies with qualitative interview methods, a guidelines screening in combination with a survey, and an action research approach. These methods contributed to gaining and tailoring evidence for nursing practice, providing insights into the needs of nurses regarding EBP, and updating and expanding existing evidence. In addition, in-depth insights were obtained into patients' preferences concerning communication with nurses and the mechanisms to facilitate developing an EBQI learning culture. While the chosen methodologies were suitable for answering the research questions, several challenges arose throughout the research process. The main challenges will be discussed in this paragraph.

The primary challenge was that almost all research was conducted during COVID-19. Due to government-imposed restrictions and the increased pressure on healthcare services, recruiting participants for all studies proved complex. The recruitment phase for the action research took so long that the intervention period had to be shortened. Although a more extended intervention period could have contributed to embedding a learning culture more firmly within the teams, this did not affect the quality of the insights. This was partly because external coaches could allocate all available coaching hours in a smaller time period, providing more intensive guidance.

A second challenge was the transition from face-to-face group interviews to digital discussions. While this proved to be a viable alternative, it had the drawback of making effective interaction between participants more difficult. Additionally, the

focus groups had to be smaller to ensure a practical discussion in which all participants had sufficient opportunity to contribute. Furthermore, limited accessibility to hospital wards led to reassigning roles within the action research team. Initially, the plan was for the action researcher—who collected all data—to be more directly involved with the wards and physically present more frequently. However, separating the roles of the action researchers allowed teams to express themselves more freely during data collection, as a more neutral party was present.

Finally, patients' capacity to participate in individual interviews was challenging due to their illnesses. As a result, the duration of the interviews was shorter than initially planned. However, the shorter duration did not affect the results due to the use of targeted questions, the clearly defined topic of discussion, and the number of patients interviewed.

Overall conclusion

Implementing an EBQI-learning culture is crucial for improving nursing care, retaining nurses, and working toward delivering appropriate care now and in the future. To successfully develop an EBQI-learning culture in nursing teams, investing in three key elements, evidence, context, and facilitation, is essential as there is a need for access to rigorous, tailored knowledge that aligns with professional values and patients' needs. The FOCF can provide a solid foundation for bridging gaps in nursing practice. Furthermore, developing an EBQI-learning culture necessitates a supportive work environment. This includes a culture open to change, strong leadership, and a safe workplace atmosphere where trust, equality, and constructive feedback are central. Barriers such as resistance to change and a lack of support for (novice) nurses remain persistent challenges. Addressing these cultural issues and fostering leadership and autonomy within nursing teams are essential. Internal and external coaches are facilitators that play a key role in supporting nurses in implementing sustainable improvements in daily practice. Developing competencies, such as the de-implementation of low-value care and effective use of EBP tools, is indispensable in achieving this goal. Moreover, close collaboration between managers, knowledge brokers, and nurses is vital to securing changes and creating a sustainable culture of quality and innovation. Education must also emphasize EBP, leadership, and autonomy to prepare nurses better for practice. New insights can be applied quickly and sustainably by fostering stronger connections between research, education, and practice. These collective efforts are essential to continually improve fundamental nursing care, adapt it to the dynamic needs of patients and the healthcare system, and support the transition to appropriate care.

References

1. VWS. Integraal Zorg Akkoord - Samen werken aan gezonde zorg 2020 [Available from: https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/rapporten/2022/09/16/integraal-zorgakkoord-samen-werken-aan-gezonde-zorg/integraal-zorg-akkoord.pdf.
2. Giesen J, Bakker-Jacobs A, van vught A, Vermeulen H, Waal G. Overview of Pain Interventions for Hospital and Community Care Nurses: A Systematic Scoping Review International Journal of Nursing and Health Care Research. 2022.
3. Giesen J, Bakker-Jacobs A, van Vught A, Berings M, Vermeulen H, Waal GH-d. What is needed for nurses to work with evidence-based practice? A qualitative study. Contemp Nurse. 2024:1-14.
4. Bahlman-van Ooijen W, Giesen J, Bakker-Jacobs A, Vermeulen H, Waal G. Low-value and high-value care recommendations in nursing: A systematic assessment of clinical practice guidelines. Journal of Nursing Scholarship. 2024.
5. Giesen J, Timmerman I, Bakker-Jacobs A, Berings M, Huisman-de Waal G, Van Vught A, et al. What can nurses learn from patient's needs and wishes when developing an evidence-based quality improvement learning culture? A qualitative study. Scand J Caring Sci. 2024;38(3):680-91.
6. Giesen J, Berings M, Bakker-Jacobs A, Vermeulen H, Huisman-De Waal G, Van Vught A. Facilitating an Evidence-Based Quality Improvement Learning Culture in Nursing Teams Through Coaching and Identification of Key Influencing Factors: An Action Research Approach. J Adv Nurs. 2024;n/a(n/a).
7. Harvey G, Kitson A. PARIHS revisited: from heuristic to integrated framework for the successful implementation of knowledge into practice. Implement Sci. 2016;11:33.
8. Kitson AL, Rycroft-Malone J, Harvey G, McCormack B, Seers K, Titchen A. Evaluating the successful implementation of evidence into practice using the PARiHS framework: theoretical and practical challenges. Implement Sci. 2008;3:1.
9. Hempel S, Bolshakova M, Turner BJ, Dinalo J, Rose D, Motala A, et al. Evidence-Based Quality Improvement: a Scoping Review of the Literature. J Gen Intern Med. 2022;37(16):4257-67.
10. Zwakhalen SMG, Hamers JPH, Metzelthin SF, Ettema R, Heinen M, de Man-Van Ginkel JM, et al. Basic nursing care: The most provided, the least evidence based - A discussion paper. J Clin Nurs. 2018;27(11-12):2496-505.
11. Alatawi M, Aljuhani E, Alsufiany F, Aleid K, Rawah R, Aljanabi S, et al. Barriers of Implementing Evidence-Based Practice in Nursing Profession: A Literature Review. American Journal of Nursing Science. 2020;9:35.
12. Bakker-Jacobs A, Waal G, Giesen J, Vermeulen H, van vught A. Overview of Wound Care Interventions for Hospital and Community Care Nurses: A Systematic Scoping Review. International Journal of Nursing and Health Care Research. 2022;5.
13. Venus C, Jamrozik E. Transparency in clinical practice guidelines: the problem of consensus-based recommendations and practice points. Intern Med J. 2021;51(2):291-4.
14. Schünemann H BJ, Guyatt G, Oxman A,. GRADE handbook for grading quality of evidence and strength of recommendations.: The GRADE Working Group; 2013. Available from: guidelinedevelopment.org/handbook
15. Adriaansen M. Lof der verpleegkunst. TVZ - Verpleegkunde in praktijk en wetenschap. 2020;130(6):8-12.
16. Feo R, Conroy T, Jangland E, Muntlin Athlin Å, Brovall M, Parr J, et al. Towards a standardised definition for fundamental care: A modified Delphi study. J Clin Nurs. 2018;27(11-12):2285-99.

17. Muntlin Å, Jangland E, Laugesen B, Voldbjerg SL, Gunningberg L, Greenway K, et al. Bedside nurses' perspective on the Fundamentals of Care framework and its application in clinical practice: A multi-site focus group interview study. Int J Nurs Stud. 2023;145:104526.
18. Ryder M, Kitson AL, Slotnes O'Brien T, Timmins F. Advancing nursing practice through fundamental care delivery. J Nurs Manag. 2022;30(3):601-3.
19. Naz H, Ahmad Ganaie N. Evidence-Based Practice in Nursing: A Comprehensive Review. Clinical Medicine And Health Research Journal. 2023;3(6):713-5.
20. Roche D, Jones A. A qualitative study of nurse-patient communication and information provision during surgical pre-admission clinics. Health Expectations. 2021;24(4):1357-66.
21. Beks H, Clayden S, Wong Shee A, Manias E, Versace VL, Beauchamp A, et al. Low-value health care, de-implementation, and implications for nursing research: A discussion paper. Int J Nurs Stud. 2024;156:104780.
22. Shojania KG, Sampson M, Ansari MT, Ji J, Doucette S, Moher D. How quickly do systematic reviews go out of date? A survival analysis. Ann Intern Med. 2007;147(4):224-33.
23. Shekelle P, Eccles MP, Grimshaw JM, Woolf SH. When should clinical guidelines be updated? BMJ. 2001;323(7305):155-7.
24. Thoonsen AC, Merten H, Broeders TT, Gans A, van Beusekom I, Delnoij DMJ, et al. The role of guideline organizations in nationwide guideline implementation: a qualitative study. Health Research Policy and Systems. 2024;22(1):174.
25. Barry M, Kuijer W, Persoon A, Nieuwenhuis L, Scherpbier N. Enabling visibility of the clinician-scientists' knowledge broker role: a participatory design research in the Dutch nursing-home sector. Health Research Policy and Systems. 2021;19(1):61.
26. Boutcher F, Berta W, Urquhart R, Gagliardi AR. The roles, activities and impacts of middle managers who function as knowledge brokers to improve care delivery and outcomes in healthcare organizations: a critical interpretive synthesis. BMC Health Serv Res. 2022;22(1):11.
27. Gaid D, Ahmed S, Alhasani R, Thomas A, Bussières A. Determinants that influence knowledge brokers' and opinion leaders' role to close knowledge practice gaps in rehabilitation: A realist review. J Eval Clin Pract. 2021;27(4):836-46.
28. Kitson AL, Conroy T, Kuluski K, Locock L, Lyons RF, editors. Reclaiming and redefining the Fundamentals of Care: Nursing's response to meeting patients' basic human needs2013.
29. DuBose BM, Mayo AM. Resistance to change: A concept analysis. Nursing Forum. 2020;55(4):631-6.
30. McMillan K, Perron A. Change fatigue in nurses: A qualitative study. J Adv Nurs. 2020;76(10):2627-36.
31. Hanrahan K, Wagner M, Matthews G, Stewart S, Dawson C, Greiner J, et al. Sacred cow gone to pasture: a systematic evaluation and integration of evidence-based practice. Worldviews Evid Based Nurs. 2015;12(1):3-11.
32. Maniscalco L, Enea M, de Vries N, Mazzucco W, Boone A, Lavreysen O, et al. Intention to leave, depersonalisation and job satisfaction in physicians and nurses: a cross-sectional study in Europe. Sci Rep. 2024;14(1):2312.
33. de Vries N, Boone A, Godderis L, Bouman J, Szemik S, Matranga D, et al. The Race to Retain Healthcare Workers: A Systematic Review on Factors that Impact Retention of Nurses and Physicians in Hospitals. Inquiry. 2023;60:469580231159318.

34. van Kraaij J, Vries N, Wessel H, Vermeulen H, van Oostveen C, Schoonhoven, Stalpers, Lalleman, Martini, Schalkwijk, Spits, Bal, Goossens, Wallenburg, Felder, Kuijper, Miedema L. Enhancing work environments and reducing turnover intention: a multicenter longitudinal cohort study on differentiated nursing practices in Dutch hospitals. BMC Nurs. 2025;24.
35. Stalpers D. Kwaliteiten optimaal benutten. TVZ - Verpleegkunde in praktijk en wetenschap. 2021;131:27-8.
36. Verbeek FHO, van Lierop MEA, Meijers JMM, van Rossum E, Zwakhalen SMG, Laurant MGH, et al. Facilitators for developing an interprofessional learning culture in nursing homes: a scoping review. BMC Health Serv Res. 2023;23(1):178.
37. Mabona JF, van Rooyen D, Ten Ham-Baloyi W. Best practice recommendations for healthy work environments for nurses: An integrative literature review. Health SA. 2022;27:1788.
38. Pereira S, Ribeiro M, Mendes M, Ferreira R, Santos E, Fassarella C, et al. Positive Nursing Practice Environment: A Concept Analysis. Nurs Rep. 2024;14(4):3052-68.
39. Xue B, Feng Y, Li X, Hu Z, Zhao Y, Ma W, et al. Unveiling nurses' perspectives on decent work: A qualitative exploration. Int Nurs Rev. 2024;n/a(n/a).
40. Hult M, Terkamo-Moisio A, Kaakinen P, Karki S, Nurmeksela A, Palonen M, et al. Relationships between nursing leadership and organizational, staff and patient outcomes: A systematic review of reviews. Nurs Open. 2023;10(9):5920-36.
41. Hoegen P, Vos M, van Oostveen C, de Bot C, Echteld MA, Maaskant J, et al. Nurse Leadership and Work Environment Association with Outcome Expectancy and Self-Efficacy in Evidence-Based Practice among Hospital Nurses in The Netherlands: A Cross-Sectional Study. Int J Environ Res Public Health. 2022;19(21).
42. Bahlman-van Ooijen W, van Belle E, Bank A, de Man-Van Ginkel J, Huisman-de Waal G, Heinen M. Nursing leadership to facilitate patient participation in fundamental care: An ethnographic qualitative study. J Adv Nurs. 2023;79(3):1044-55.
43. Kievit JB, A.; Polder, J.; Wagner, C. Rapport 'Begrippenkader Gepaste Zorg en Praktijkvariatie'. In: ZINL Z, FMS en NFU editor. Leiden2015. p. 29.
44. Cremers M, Wendt B, Huisman-de Waal G, van Bodegom-Vos L, van Dulmen SA, Schipper E, et al. Barriers and facilitators for reducing low-value home-based nursing care: A qualitative exploratory study among homecare professionals. J Adv Nurs. 2024.
45. White C. Nurse Champions: A Key Role in Bridging the Gap Between Research and Practice. Journal of emergency nursing: JEN: official publication of the Emergency Department Nurses Association. 2011;37:386-7.
46. Sperling D, Shadmi E, Drach-Zahavy A, Luz S. Nurse champions as street-level bureaucrats: Factors which facilitate innovation, policy making, and reconstruction. Front Psychol. 2022;13:872131.
47. Jabonete F, Roxas R. Barriers to Research Utilization in Nursing: A Systematic Review (2002–2021). SAGE Open Nursing. 2022;8:237796082210910.
48. Thompson DS, O'Leary K, Jensen E, Scott-Findlay S, O'Brien-Pallas L, Estabrooks CA. The relationship between busyness and research utilization: it is about time. J Clin Nurs. 2008;17(4):539-48.
49. Mierlo B. Reflexieve Monitoring in Actie: maatwerk voor leren en bijsturen in systeemverandering: Themareeks Methoden en benaderingen in de beleidsevaluatie, Dick Hanemaayer, Jos Mevissen, Valérie Pattyn (red.). Beleidsonderzoek Online. 2024.
50. Chays-Amania A, Schwingrouber J, Colson S. Using Implementation Science to Implement Evidence-Based Practice: A Discursive Paper. J Adv Nurs. 2024;n/a(n/a).

51. Rietbergen T, Spoon D, Brunsveld-Reinders AH, Schoones JW, Huis A, Heinen M, et al. Effects of de-implementation strategies aimed at reducing low-value nursing procedures: a systematic review and meta-analysis. Implement Sci. 2020;15(1):38.

52. Jackson D. Missed nursing care, low value activities and cultures of busyness. J Adv Nurs. 2023;79(12):4428-30.

53. Wendt B, Cremers M, Ista E, van Dijk M, Schoonhoven L, Nieuwboer MS, et al. Low-value home-based nursing care: A national survey study. J Adv Nurs. 2023.

54. van Kraaij J, Spruit-Bentvelzen L, van Lieshout F, Vermeulen H, van Oostveen C. Navigating uncertainties for promoting nurse-led changes in work environments: A participatory action research. Int J Nurs Stud Adv. 2024;7:100265.

55. Lehane E, Leahy-Warren P, O'Riordan C, Savage E, Drennan J, O'Tuathaigh C, et al. Evidence-based practice education for healthcare professions: an expert view. BMJ Evid Based Med. 2019;24(3):103-8.

56. Verpleegkunde Loo. Bachelor nursing 2020 - Een toekomstbestendig opleidingsprofiel 4.02020. Available from: https://www.venvn.nl/media/aadklpzc/opleidingsprofiel-bachelor-of-nursing-2020.pdf.

57. Huang T-L, Ch 024;80(12):4911-20.

ADDENDUM

TABLE OF CONTENTS

Summary

Healthcare in the Netherlands is under pressure. The population is aging due to an improved living environment and advancements in healthcare technology. As a result, people require increasingly prolonged and complex care. To meet this growing demand, more nurses are needed. However, this is not a realistic solution, as the nursing profession has been struggling with staff shortages for years, and many nurses leave the profession prematurely.

Healthcare must therefore be organised differently to remain accessible to all and to ensure the quality of care. In other words, care must be provided appropriately. Appropriate care focuses on evidence-based care and actively involves patients. This approach is cost-efficient and, where possible, delivered in the patient's environment. Additionally, appropriate care prioritises prevention to reduce overall care demand. Nurses can play a key role in the transition towards appropriate care, as they constitute the largest group of healthcare professionals and work across all sectors. To provide appropriate care, it is essential that nurses continuously improve their practice. This can be achieved through quality improvements based on evidence-based practice (EBP) and by integrating the Fundamentals of Care framework.

In practice, however, nurses too often rely on traditions and struggle to integrate EBP into their daily work. This can lead to care that would be better omitted ('do-not-do' care) and missed care, where necessary interventions are not performed due to time constraints. Therefore, improving nursing care is crucial, and adequate support is essential. Developing an evidence-based quality improvement (EBQI) learning culture within nursing teams can contribute to this goal, enabling nurses to deliver more appropriate care.

This thesis aims to generate and tailor evidence for nurses. In addition, it focuses on developing an evidence-based quality improvement (EBQI) learning culture within nursing teams to support them in contributing to the delivery of appropriate care. **Chapter 2** explores and evaluates nursing interventions related to pain management, a crucial aspect of nursing practice. Effective pain management is directly linked to ensuring patient comfort, which is a core component of the Fundamentals of Care framework. This framework encompasses all areas of care that a patient may require, regardless of the setting in which they are admitted. A systematic scoping review was conducted to identify available pain management interventions for nurses. These interventions aim to prevent, reduce, or treat pain in hospital- or community-based care patients. A comprehensive literature search identified 47 relevant studies, with interventions primarily focusing on pain distraction, health education, and pain prevention. Pain

distraction interventions included listening to music, using virtual reality (VR), or conversing with a nurse. Health education interventions involved promoting self-management and providing educational materials on pain management. Pain prevention interventions included the use of topical anaesthetic sprays, heat, and cold applications, specific positioning techniques, or assistive devices designed to minimise injection-related pain. The quality assessment of these studies indicated that most were of moderate quality. Only two studies received a high-quality rating, while 17 were classified as low-quality. The most significant methodological limitation was the inability to blind patients and nurses to the interventions, which could have introduced bias.

Research has shown that nurses struggle to apply the principles of EBP despite these principles being embedded in nursing education. After graduation, nurses' EBP skills are often underutilised, or they fail to implement EBP effectively. Moreover, they encounter various barriers to integrating EBP principles into their daily practice. Habits and traditions usually prevail, and nurses frequently report a lack of time to engage with EBP. **Chapter 3** explores the needs of nurses and nursing students' needs regarding applying EBP principles. These needs were identified through focus group discussions with hospital and community nurses and students from higher professional education (HBO) and secondary vocational education (MBO) nursing programs. The analysis of the focus groups revealed that nurses and students perceive EBP application as complex and express a need for more knowledge on the subject. Additionally, most nurses—except for some students—struggle with the English language in scientific publications. They prefer ready-to-use knowledge in their native language, directly applicable in practice. Furthermore, a lack of time was a significant barrier to integrating EBP into their work. Nurses and students indicated a desire for greater ownership and opportunities to demonstrate leadership in applying EBP principles. They highlighted the need for a role model with experience in EBP implementation who could guide them through the process. Additionally, nurses wish to be better supported by their organisations, for instance, through access to knowledge resources such as nursing journals or relevant websites. They also needed more opportunities to share insights with colleagues and learn together. To enhance EBP implementation, it is crucial to tailor evidence to nurses' needs, making it more accessible and applicable to their practice.

To provide nurses with tailored and directly applicable knowledge, updating and expanding previous research initiatives is essential. One such initiative is the first 'Do-Not-Do' list from 2017, which contained recommendations for nursing practices that should no longer be performed. **Chapter 4** focuses on updating the 'do-not-do' list and expanding it by incorporating recommendations for high-value

care. The primary aim of this study was to systematically assess Dutch guidelines and quality standards relevant to nurses from 2017 to 2023, identifying both "Do-Not-Do" and "Do" recommendations. A total of 233 Dutch guidelines and quality standards were reviewed, and a digital survey was conducted among Dutch nurses. The screening process identified 66 low-value care recommendations and 414 high-value care recommendations. These findings, including references to their respective sources, were compiled into general and sector-specific "Do" and "Do-Not-Do" lists. The secondary aim was to prioritise low-value care recommendations to determine which practices should be de-implemented first, according to nurses. A national survey aimed at mapping low-value care received responses from 539 nurses, primarily working in hospitals, community nursing, and nursing homes. Based on their feedback, low-value care recommendations were prioritised, taking into account potential time savings and risk of harm for the patient. This resulted in sector-specific top five lists of low-value nursing practices, ranked by urgency for de-implementation.

To improve healthcare, it is essential to generate more knowledge, meet nurses' needs regarding knowledge dissemination, and consider patients' preferences. This aligns with the principles of EBP and supports the implementation of care innovations. Additionally, research has shown that involving patients in their care enhances care quality and positively impacts their health outcomes. **Chapter 5** examines patients' needs and preferences regarding their involvement in care processes to provide nurses with insights that can support the development of an evidence-based quality improvement (EBQI) learning culture. This study was conducted through 18 individual interviews with hospital and community care patients. Patients were asked about their preferences and expectations concerning their involvement in their care process. The interviews were analysed using a framework analysis, integrating elements from the Fundamentals of Care framework. The findings indicate that patients consider involvement in their care process essential. They want clear and honest information presented in an appropriate manner, which facilitates shared decision-making. Furthermore, patients emphasised the importance of nurses' friendly and engaged approach. Nurses must be present and actively involved during care delivery. A disrupted nurse-patient relationship, resulting from incomplete information or mistrust, is a complex issue that requires significant time and effort to rebuild. Therefore, patients' perspectives should be integrated into daily care delivery and into the process of adapting care and developing an EBQI-learning culture within nursing teams. Changes in standard care practices can cause anxiety among patients, making a careful and patient-centred approach is therefore essential.

Finally, nurses must be adequately guided in developing an EBQI-learning culture to deliver appropriate care. **Chapter 6** investigated how coaching can facilitate an EBQI-learning culture within nursing teams. Additionally, it examined which contextual factors influence the development of an EBQI-learning culture. An action research study was conducted in nine nursing teams from hospital and community care settings. Over a year, these teams worked under the guidance of internal and external coaches to improve the quality of care based on EBP. Data were collected through focus group and individual interviews, logbooks from external coaches, and field notes from the researchers. Findings from this study highlighted the importance of raising awareness about EBQI. Internal coaches contributed to this by engaging, motivating, and supporting team members. Furthermore, internal coaches needed to focus on developing team members' EBQI competencies, such as supporting them in selecting relevant themes for change and ensuring that these were addressed step by step. The availability of an external coach was essential for developing internal coaches' competencies and served as an important motivator for maintaining engagement with EBQI. When creating an EBQI-learning culture within nursing teams, it is essential to consider barriers and facilitating factors in the context. Barriers may include personal perceptions, such as uncertainty about competencies, perceiving EBQI as complex, and feeling a lack of autonomy or responsibility to engage in EBQI. Other barriers may involve the absence of a foundational basis for EBQI within the team, resistance to change, or a lack of a structure to change and embed EBQI into practice. Additionally, high workloads, a lack of support from the nurse manager, or insufficient time can negatively impact the development process. Emphasising the importance of EBQI, demonstrating its benefits for nurses, and providing positive examples can, on the other hand, be motivating. An open team atmosphere, utilising team members' strengths, discussing challenges, and showing managerial or organisational interest in the change process can also contribute to success.

In conclusion, the increasing and complex demand for healthcare in the Netherlands and a shortage of nurses necessitate a transition towards appropriate care. To facilitate this transition, nurses must be supported with tailored knowledge based on the Fundamentals of Care Framework. Additionally, guidelines and initiatives such as the 'do 'and 'do-not-do' lists must be systematically updated and expanded. To ensure that this knowledge is effectively integrated into practice, developing an EBQI-learning culture is crucial. In this process, it is essential that nurses receive support from both internal and external coaches and that patients are involved. Organisations must promote a clear vision of EBQI and foster a professional work culture that allows space for leadership. Furthermore, primary education and refresher courses should focus on EBP and adequately prepare

students for daily nursing practice. Nurses in hybrid roles can contribute by bridging the gap between research, education, and clinical practice. Through these collective efforts, healthcare can move towards delivering more appropriate care and ensuring a future-proof healthcare system.

Samenvatting

De zorg in Nederland staat onder druk. De bevolking wordt steeds ouder door een verbeterde leefomgeving en nieuwe (technologische) ontwikkelingen in de gezondheidszorg. Dit leidt ertoe dat mensen steeds langer en complexere zorg nodig hebben. Om aan deze zorgvraag te voldoen, zijn er meer verpleegkundigen nodig. Dit is echter niet realistisch, omdat de verpleegkundige professie en ook andere sectoren al jaren kampen met personele onderbezetting en verpleegkundigen vroegtijdig het beroep verlaten.

De zorg zal op een andere manier moeten worden georganiseerd om toegankelijk te blijven voor iedereen en om de kwaliteit van zorg te garanderen. Met andere woorden: we moeten zorg leveren die passend is. Passende zorg richt zich op zorg die werkt voor de patiënt. Deze zorg is kosteneffectief en wordt als het kan samen en in de omgeving van de patiënt georganiseerd. Daarnaast is passende zorg gericht op preventie om de zorgvraag te verminderen. Verpleegkundigen kunnen een grote rol spelen in de transitie naar passende zorg. Ze vormen de grootste groep zorgverleners en bieden zorg in alle sectoren. Om passende zorg te bieden, is het belangrijk dat verpleegkundigen hun praktijk verbeteren. Dit kan gerealiseerd worden door het maken van kwaliteitsverbeteringen op basis van evidence-based practice (EBP) en het integreren van het essentiële zorg raamwerk.

De realiteit is echter dat verpleegkundigen nog te vaak volgens tradities werken en er niet voldoende in slagen EBP te integreren in hun dagelijkse handelen. Deze manier van zorg verlenen resulteert in het leveren van zorg die beter achterwege kan blijven ('beter laten'-zorg) en zorg die niet wordt uitgevoerd (gemiste zorg) door onder andere tijdgebrek en verkeerde prioritering. Het verbeteren van verpleegkundige zorg is daarom essentieel en het is belangrijk dat zij hier ook goed in begeleid worden. Het ontwikkelen van een evidence-based quality improvement (EBQI)-leercultuur in verpleegkundige teams kan hieraan bijdragen en stelt hen in staat meer toekomstbestendige zorg te leveren.

Deze thesis richt zich op het generen en op maat maken van kennis voor verpleegkundigen. Daarnaast richt het zich op het ontwikkelen van een EBQI-leercultuur in verpleegkundige teams om hen te ondersteunen in het bijdragen aan het leveren van passende zorg.

Hoofdstuk 2 richt zich op het in kaart brengen en beoordelen van verpleegkundige interventies met betrekking tot pijn. Dit is een belangrijk onderwerp binnen de verpleegkundige praktijk en hangt samen met het waarborgen dat de patiënt zich comfortabel voelt en pijn wordt gemanaged. Het zorgen voor comfort is één van de onderdelen van het essentiële zorg raamwerk. Dit raamwerk omvat alle zorggebieden waar een patiënt zorg op nodig kan hebben, ongeacht de setting

waarin zij worden opgenomen. Er is een systematische scoping review uitgevoerd waarin de beschikbare pijninterventies voor verpleegkundigen zijn geïdentificeerd. Deze interventies hadden tot doel om pijn bij patiënten uit het ziekenhuis of de wijkverpleging te voorkomen, te verminderen of te behandelen. Uit een uitgebreide zoekactie in de wetenschappelijke literatuur zijn 47 studies geïdentificeerd die passend waren. De interventies uit deze studies richtten zich hoofdzakelijk op het afleiden van patiënten om pijn te voorkomen, gezondheidsvoorlichting en het voorkomen van pijn door patiënten. Interventies gericht op afleiding waren onder meer het luisteren naar muziek, het gebruiken van virtual reality (VR) of het praten met een verpleegkundige. Gezondheidsvoorlichting omvatte het bevorderen van zelfmanagement en het verstrekken van gezondheidsvoorlichtingsmateriaal. Pijnpreventie-interventies bestonden uit het gebruik van verdovende sprays, het toepassen van warmte en koude, specifieke houdingen of hulpmiddelen die pijn injecties verminderen. De kwaliteitsbeoordeling toonde aan dat de meeste studies van matige kwaliteit waren; slechts twee studies kregen een hoge kwaliteitsbeoordeling en 17 werden als van lage kwaliteit beoordeeld. De grootste methodologische beperking was het onvermogen om patiënten en verpleegkundigen te blinderen voor de interventie, wat mogelijk bias heeft veroorzaakt.

Uit onderzoek is gebleken dat verpleegkundigen moeite hebben met het toepassen van de principes van EBP, ondanks dat het gebruik van EBP-principes is opgenomen in het curriculum van verpleegkundige opleidingen. Na hun afstuderen worden de EBP-vaardigheden van verpleegkundigen niet voldoende benut, of zij slagen er niet in deze toe te passen. Daarnaast ondervinden zij verschillende belemmeringen bij het integreren van EBP-principes in hun dagelijkse praktijk. Gewoontes en tradities lijken de overhand te hebben, en verpleegkundigen ervaren vaak onvoldoende tijd om met EBP te werken. **Hoofdstuk 3** biedt inzichten in de behoeften van verpleegkundigen en student-verpleegkundigen met betrekking tot het toepassen van EBP-principes. Door middel van focusgroep bijeenkomsten met verpleegkundigen uit het ziekenhuis en de wijkverpleging, en studenten van HBO- en MBO-verpleegkundige opleidingen, werden deze behoeften geïdentificeerd. Uit de analyse van de focusgroepen kwam naar voren dat zij het toepassen van de EBP-principes als complex ervaren en er behoefte is aan meer kennis over EBP. Verpleegkundigen, met uitzondering van enkele studenten, hebben moeite met de Engelse taal in wetenschappelijke publicaties. Zij geven de voorkeur aan kant-en-klare kennis in hun moedertaal, die direct toepasbaar is in de praktijk. Bovendien ervaren zij een gebrek aan tijd om EBP te integreren in hun werkzaamheden. Zowel verpleegkundigen als studenten geven aan dat zij meer eigenaarschap en leiderschap nodig hebben om EBP-principes toe te passen. Een rolmodel met ervaring in het toepassen van EBP-principes, die hen meeneemt in het proces, zou

hierbij behulpzaam zijn. Verder willen verpleegkundigen beter gefaciliteerd worden door hun organisaties, bijvoorbeeld door toegang te krijgen tot kennisbronnen zoals verpleegkundige tijdschriften of relevante websites. Daarnaast willen zij meer mogelijkheden om hun opgedane inzichten te delen met collega's en samen te leren. Het op maat maken van bewijs is belangrijk om de implementatie door verpleegkundigen te stimuleren.

Om verpleegkundigen te voorzien van op maat gemaakte en direct bruikbare kennis is het belangrijk dat eerdere onderzoeksinitiatieven worden geüpdatet en uitgebreid. Zoals de eerste 'beter laten'-lijst uit 20217 met daarop aanbevelingen van verpleegkundige zorg zij niet meer zouden moeten uitvoeren. In **Hoofdstuk 4** is deze 'verouderde' lijst geüpdatet en aangevuld met aanbevelingen voor hoogwaardige zorg. Het primaire doel van deze studie was om Nederlandse richtlijnen en kwaliteitsstandaarden die relevant zijn voor verpleegkundigen, systematisch te beoordelen over de periode 2017-2023. Hierbij werd gekeken naar 'beter laten en 'beter doen' aanbevelingen. Het secundaire doel was de beter laten aanbevelingen te prioriteren om zo te identificeren welke interventies hoog op de de-implementatieagenda zouden moeten staan volgens verpleegkundigen. In totaal zijn er 233 Nederlandse richtlijnen en kwaliteitsstandaarden gescreend. Daaruit werden in totaal 66 laagwaardige zorgaanbevelingen en 414 hoogwaardige zorgaanbevelingen geïdentificeerd. De gevonden aanbevelingen, inclusief verwijzing naar de betreffende bron, werden samengebracht in algemene en sectorspecifieke 'beter doen' en 'beter laten' lijsten. Daarna werd er een digitale vragenlijst onder Nederlandse verpleegkundigen uitgezet. Aan de nationale enquête om 'beter laten' zorg in kaart te brengen namen in totaal 539 verpleegkundigen deel. Deze deelnemers waren voornamelijk werkzaam in het ziekenhuis, wijkverpleging of het verpleeghuis. Uit hun respons werden laagwaardige zorgaanbevelingen geprioriteerd, inclusief potentiële tijdsbesparing en het pontiele risico voor de patiënt. Dit resulteerde in sectorspecifieke top vijf lijsten van laagwaardige zorgpraktijken met een hoge urgentie voor de-implementatie.

Om de zorg te verbeteren is er, naast het genereren van meer kennis en tegemoet komen aan de wensen van verpleegkundigen rondom het aanbieden van kennis, het belangrijk om ook de wensen van patiënten mee te nemen. Dit sluit aan bij de principes van EBP en draagt bij aan de implementatie van zorgveranderingen. Daarnaast weten we dat kwaliteit van zorg verbeterd door het betrekken van patiënten en dat dit een gunstig effect heeft op hun gezondheidsuitkomsten. In **hoofdstuk 5** is onderzocht wat de behoeften en wensen van patiënten zijn ten aanzien van betrokkenheid bij zorgprocessen. Dit met als doel dat verpleegkundigen deze informatie kunnen gebruiken bij het ontwikkelen van een EBQI-leercultuur. Dit onderzoek werd uitgevoerd door middel van 18 individuele interviews met patiënten

uit het ziekenhuis en de wijkverpleging. De patiënten werden gevraagd informatie te geven over hun voorkeuren en verwachtingen bij het betrokken worden in hun zorgproces. De interviews werden geanalyseerd met behulp van een framework-analyse waarin elementen uit het essentiële zorg raamwerk werden geïntegreerd. De analyse toonde aan dat patiënten betrokkenheid bij hun zorgproces als een belangrijk aspect van hun gezondheidszorg beschouwen. Patiënten willen duidelijke en eerlijke informatie krijgen. Deze informatie moet op een passende manier worden gepresenteerd, wat bijdraagt aan een gezamenlijke besluitvorming. Daarnaast geven patiënten aan dat een vriendelijke en betrokken benadering van verpleegkundigen belangrijk is. Het is essentieel dat verpleegkundigen aanwezig en actief betrokken zijn tijdens de zorgverlening. Een verstoorde relatie tussen verpleegkundige en patiënt, als gevolg van onvolledige informatie of wantrouwen, is een complex probleem dat veel tijd en moeite kost om te herstellen. Het is belangrijk dat het patiënten perspectief worden geïntegreerd in de dagelijkse zorgverlening, evenals in het proces van het aanpassen van zorg en het ontwikkelen van een EBQI-leercultuur binnen verpleegkundige teams. Een wijziging in de standaard zorgpraktijk kan gevoelens van onrust bij patiënten oproepen en vereist daarom een zorgvuldige benadering bij de implementatie.

Tot slot moeten verpleegkundigen goed begeleid worden bij het ontwikkelen van een EBQI-leercultuur en daarmee het toewerken naar het bieden van passende zorg. **Hoofdstuk 6** had als doel te onderzoeken hoe coaching kan bijdragen aan het faciliteren van een EBQI-leercultuur binnen verpleegkundige teams. Daarnaast werd inzichtelijk gemaakt welke contextuele factoren van invloed zijn bij de ontwikkeling van een EBQI-leercultuur. Een actieonderzoek is uitgevoerd in negen verpleegkundige teams uit het ziekenhuis en de wijkverpleging. Deze teams werkte gedurende een jaar, onder begeleiding van interne en externe coaches, aan het verbeteren van de kwaliteit van zorg op basis van EBP. Data werd onder meer verzameld door focusgroep- en individuele interviews, logboeken van externe coaches en notities van de onderzoekers.

Inzichten uit dit onderzoek waren onder meer het belang van bewustwording rondom EBQI. De interne coaches uit de teams deden dit door teamleden te betrekken, te motiveren en te ondersteunen. Daarnaast was het belangrijk dat interne coaches zich richtten op het ontwikkelen van de EBQI-competenties van teamleden, zoals hen ondersteunen bij het kiezen van relevante thema's voor verandering en ervoor zorgen dat deze stapsgewijs werden aangepakt. De beschikbaarheid van een externe coach was belangrijk voor de ontwikkeling om de competenties van de interne coaches te ontwikkelen en diende als belangrijke motivator om met EBQI bezig te blijven. Bij het ontwikkelen van een EBQI-leercultuur in verpleegkundige teams is het belangrijk om rekening te houden met barrières en faciliterende factoren

uit de context. Belemmeringen kunnen persoonlijke percepties omvatten, zoals onzekerheid over competenties, het als complex ervaren van EBQI, en het gevoel van een gebrek aan autonomie of verantwoordelijkheid om aan EBQI te werken. Andere barrières kunnen zijn: geen basis in het team voor EBQI, weerstand tegen verandering of een ontbrekende structuur om EBQI te verankeren. Daarnaast kunnen een te hoge werkdruk, gebrek aan steun van de organisatie of een tekort aan tijd een negatieve impact hebben op het ontwikkelproces. Het benadrukken van het belang van EBQI, wat het verpleegkundigen kan opleveren, en het geven van positieve voorbeelden kan juist stimulerend werken. Een open teamsfeer, het benutten van elkaars kwaliteiten, het bespreken van problemen en interesse in het veranderproces door een manager of de organisatie kunnen eveneens bijdragen aan succes.

Concluderend vraagt de toenemende en complexere zorgvraag in Nederland, in combinatie met een tekort aan verpleegkundigen, om een transitie naar passende zorg. Om deze transitie mogelijk te maken, is het belangrijk dat verpleegkundigen worden ondersteund met op maat gemaakte kennis, gebaseerd op het essentiële zorg raamwerk. Daarnaast moeten richtlijnen en initiatieven, zoals de 'beter doen' en 'beter laten'-lijst, structureel worden geüpdatet en uitgebreid. Om te zorgen dat deze kennis wordt geïntegreerd in de praktijk is het ontwikkelen van een EBQI-leercultuur essentieel. Daarbij is het belangrijk dat verpleegkundigen worden ondersteund door interne en externe coaches en de behoeften van patiënten worden meegenomen. Het is belangrijk dat organisatie, managers, verpleegkundig directeuren en teamleiders duidelijke visie op EBQI uitdragen en een professionele werkcultuur stimuleren, waarin plek is voor leiderschap. Daarnaast is het belangrijk dat het onderwijs aandacht besteedt aan EBP en voorbereiding van studenten op de dagelijkse zorgpraktijk. Verpleegkundigen met een hybride rol kunnen hieraan bijdragen door wetenschap, onderwijs en praktijk met elkaar te verbinden.

Met deze gezamenlijke inspanningen kan toegewerkt worden naar het leveren van meer passende zorg en het toekomstbestendig maken van de zorg.

Data management

At the start of the Improve! Project, a data management plan was developed with the support of Dr. Marten Onnink, a data management consultant from the Radboud Technology Centre for Clinical Studies, and by the regulations in effect at that time.

Ethics and Privacy

All studies involving human participants were reviewed and approved by the Medical Ethics Review Committee (METC) of Radboud University Medical Center (Chapter 3: CMO no. 2020-6136, Chapter 5: CMO no. 2021-13317, and Chapter 6: CMO no. 2021-8211) and were conducted in accordance with the principles outlined in the Declaration of Helsinki. The METC determined that these studies did not fall under the Dutch Medical Research Involving Human Subjects Act (WMO) scope and issued a formal statement confirming this assessment. Compliance with data protection regulations was ensured, and participants were not subjected to invasive procedures or additional interventions.

Informed consent was obtained from all participants before their involvement. Participants signed consent forms confirming that they had been informed orally and in writing about the study's objectives. These consent forms also specified that participation was voluntary and that participants could withdraw at any time without providing a reason. Furthermore, it was explicitly stated that the confidentiality and anonymity of recordings, transcripts, and survey responses would be safeguarded and not shared with third parties.

Data Collection and Storage

Castor EDC was used for the quantitative data presented in Chapters 4 and 6. These survey data were analysed using IBM SPSS Statistics for Windows version 27 or Microsoft Excel. Basic quantitative participant information from Chapters 3 and 5 was processed in Excel. Paper-based informed consent forms and participant background information were stored in locked cabinets within the department to ensure data availability, integrity, and confidentiality. Audio recordings of interviews from Chapters 3, 5, and 6 were transcribed by a verified third-party service with whom Radboudumc has contractual confidentiality agreements. The qualitative data analysis was conducted using Atlas.ti version 9. To protect participant privacy, all data were encrypted with unique identification numbers or pseudonymised in the case of interview transcripts. In compliance with data storage regulations, participant identification numbers were stored separately and securely, independent of the research data.

FAIR Principles

The reporting of studies in this thesis adhered to the guidelines of the EQUATOR network. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) for Scoping Reviews were applied for Chapters 2 and 4. The Standards for Reporting Qualitative Research (SRQR) were followed for Chapters 3, 5, and 6. All studies were published as open access under a Creative Commons Attribution license (CC-BY-NC). This license permits distribution and reproduction in any medium, provided the source is appropriately cited.

The search strategy and datasets from Chapter 2 do not contain participant data or sensitive information. They are freely available via OSF Home (DOI: 10.17605/OSF.IO/GNYT4), a platform designed to support researchers and facilitate collaboration.

The datasets from chapters 3, 4, 5, and 6 are archived under closed access conditions in a Data Acquisition Collection (DAC; DOI: 10.34973/epyg-5g32) the Radboud Data Repository; paper data will be archived in locked cabinets in the department. Requests for access will be checked by the owners of the DAC, following the conditions for sharing the data as described in the signed Informed Consent. To ensure transparency, interview guides were included as appendices for each published study, and participant characteristics are described in as much detail as possible, qualitatively and quantitatively, without making them identifiable. Data from the studies will be retained for 15 years after the project's conclusion (until 1 July 2038).

Funding

This thesis's chapters 2, 3, 5, and 6 were part of the Improve! project, which aims to establish an Evidence-Based Quality Improvement (EBQI) learning culture within nursing teams in the hospital and community care settings (https://projecten.zonmw.nl/nl/project/improve). The Improve! project was funded by ZonMw, the Dutch organisation for health research and care innovation (grant no. 80-83900-98-854).

Chapter 4 of this dissertation was part of the 'Beter Doen & Beter Laten' project, which was also funded by ZonMw (grant no. 80-83900-20).

About the author

Jeltje Giesen* (25 januari 1987, Haarlem) behaalde in 2005 haar VWO-diploma aan het Eerste Christelijk Lyceum te Haarlem. Na een jaar Farmacie aan de Universiteit Utrecht (UU) besloot zij over te stappen naar de HBO-opleiding Verpleegkunde aan de Hogeschool Utrecht (HU). In 2011 rondde zij deze opleiding af, inclusief de premaster Klinische Gezondheidswetenschappen aan de UU.

Haar loopbaan als verpleegkundige begon bij de medische dienst van de Forensische Zorgspecialisten, locatie Van der Hoeven Kliniek in Utrecht. Daar ontwikkelde zij een passie voor het verbeteren van de kwaliteit van zorg. Naast haar verpleegkundige taken werkte zij aan kwaliteitsverbeterprojecten, gericht op de opname van patiënten en de medische overdracht. Ook gaf zij klinische lessen over medicatieverstrekking en medicatieveiligheid.

Vervolgens maakte zij de overstap naar een functie als meewerkend leidinggevende op de somatische afdeling van zorgorganisatie AxionContinu, locatie De Wartburg in Utrecht. Hierna groeide zij door tot opleider bij het interne opleidingscentrum, locatie Voorhoevehuis in Utrecht. In deze functie was zij verantwoordelijk voor het opleidingsbeleid voor verpleegkundigen en verzorgenden (V&V). Haar werkzaamheden omvatten het organiseren van diverse scholingen voor verpleegtechnische handelingen, teamontwikkeling en groepscoaching. Daarnaast speelde zij een belangrijke rol bij de inrichting van het leermanagementsysteem en het opzetten van zij-instroomtrajecten voor V&V. Tijdens deze functie volgde zij de master Klinische Gezondheidswetenschappen, richting Verplegingswetenschap, aan de UU. Zij behaalde deze master in 2018, inclusief de minor Quality in Health.

In mei 2019 begon zij aan een promotietraject binnen het ZonMw-project Improve!, waarin haar passie voor kwaliteitsverbetering, onderwijs en het verpleegkundig vakgebied samenkwam. Dit onderzoek richtte zich op Evidence-Based Quality Improvement (EBQI) en leerculturen. Haar promotieonderzoek maakte deel uit van diverse studies binnen het door ZonMw gesubsidieerde project Improve!. Tijdens haar promotietraject werkte zij bij kennisorganisatie Vilans, waar zij als onderzoeker bijdroeg aan de opdracht Passende zorg in de ouderenzorg van het Ministerie van Volksgezondheid, Welzijn en Sport. Ook gaf zij les aan studenten van de Geneeskundeopleiding van het Radboudumc over het updaten van aanbevelingen in landelijke zorg richtlijnen en was zij betrokken bij de ZonMw-

projecten Beter Doen en Beter Laten. Een hoofdstuk van haar proefschrift kwam voort uit deze projecten.

Sinds begin 2024 werkt Jeltje als senior onderzoeker bij Vilans in Utrecht. Hier richt zij zich op het monitoren van landelijke programma's voor langdurige zorg, het meten van hun impact, het verrichten van wetenschappelijk onderzoek, en het ontwikkelen van kennisproducten en werkwijzen, zowel voor verpleegkundigen en verzorgenden als voor medewerkers van Vilans.

Jeltje woont samen met Niels Grady in Utrecht. Samen hebben zij twee kinderen: Emilie (2019) en Aline (2022).

* De auteur van dit proefschrift is dyslectisch. Ondanks zorgvuldige aandacht voor taalgebruik, is het mogelijk dat er hier en daar een kleine fout in de tekst is blijven staan. Dit doet uiteraard geen afbreuk aan de inhoud of de kwaliteit van het onderzoek. Dank je wel voor je begrip!

List of Publication

This thesis

Giesen JH, Bakker-Jacobs A, van Vught A, Vermeulen H, Huisman-de Waal G (2021) *Overview of Pain Interventions for Hospital and Community Care Nurses: a Systematic Scoping Review*. Int J Nurs Health Care Res 4: 1265. DOI: 10.29011/2688-9501.101265

Jeltje Giesen, Annick Bakker-Jacobs, Anneke van Vught, Marjolein Berings, Hester Vermeulen & Getty Huisman-de Waal (2024): *What is needed for nurses to work with evidence-based practice? A qualitative study.* Contemp Nurse. 2024 Jul 1:1-14. doi: 10.1080/10376178.2024.2369660. Epub ahead of print. PMID: 38949881.

Wilmieke Bahlman-van Ooijen, Jeltje Giesen, Annick Bakker-Jacobs, Hester Vermeulen, Getty Huisman-de Waal (2024) *Low-value and high-value care recommendations in nursing: A systematic assessment of clinical practice guidelines.* J Nurs Scholarsh. 2024 Nov 20. doi: 10.1111/jnu.13029. Epub ahead of print. PMID: 39567352.

Giesen J, Berings M, Bakker-Jacobs A, Vermeulen H, Huisman-De Waal G, Van Vught A. (2024) Facilitating an Evidence-Based Quality Improvement Learning Culture in Nursing Teams Through Coaching and Identification of Key Influencing Factors: An Action Research Approach. J Adv Nurs. 2024 Dec 13. doi: 10.1111/jan.16679. Epub ahead of print. PMID: 39673236.

Giesen J, Timmerman I, Bakker-Jacobs A, Berings M, Huisman-de Waal G, Van Vught A (2024) *What can nurses learn from patient's needs and wishes when developing an evidence-based quality improvement learning culture? A qualitative study.* Scand J Caring Sci. 2024 Sep;38(3):680-691. doi: 10.1111/scs.13252. Epub 2024 Mar 25. PMID: 38525853.

Other Publications - International

Bakker-Jacobs A, Giesen JH, Vermeulen H, van Vught A, Huisman-de Waal G (2022) *Overview of Wound Care Interventions for Hospital and Community Care Nurses: A Systematic Scoping Review*. Int J Nurs Health Care Res 5: 1268. DOI: 10.29011/2688-9501.101268

van Belle E, Giesen J, Conroy T, van Mierlo M, Vermeulen H, Huisman-de Waal G, et al. (2019) *Exploring person-centred fundamental nursing care in hospital wards: A multi-site ethnography.* J Clin Nurs. 2020;29(11-12):1933-44.

Other Publications - National

Jeltje Giesen, Annick Bakker-Jacobs, Marjolein Berings, Anneke van Vught, Hester Vermeulen, Getty Huisman-de Waal, (2025) Uitgelicht- Leren verbeteren met EBP. TvZ magazine nr. 4

Jeltje Giesen, Annick Bakker-Jacobs, Marjolein Berings, Anneke van Vught, Getty Huisman-de Waal, Hester Vermeulen (2024) *Uitgelicht -Werken met EBP*. TvZ magazine nr. 6

Jeltje Giesen en Marjolein Berings (2024) *Passende zorg: Het creëren van een leercultuur voor Evidence-Based Quality Improvement*. O&G – Onderwijs en Gezondheidszorg 2024-3

Jeltje Giesen, Wilmieke Bahlman-van Oijen, Annick Bakker-Jacobs, Hester Vermeulen, Getty Huisman-de Waal (2024) *Wat kunnen verpleegkundige in de GGZ beter doen of laten?* Nurse Academy GGZ 2024-2

Wilmieke Bahlman-van Oijen, Jeltje Giesen, Annick Bakker-Jacobs, Hester Vermeulen, Getty Huisman-de Waal. (2023) *Passende zorg: Wat kunnen verpleegkundigen in het ziekenhuis beter doen of beter laten?* Nurse Academy 2023-4

Jeltje Giesen, Bahlman-van Oijen, Annick Bakker-Jacobs, Hester Vermeulen, Getty Huisman-de Waal. (2023) *'Beter Doen' of 'Beter Laten' in de wijk*. Nurse Academy O&T 2023-4

Giesen, J., van Vught, A., Berings, M. et al. (2022) Dossier Gepaste zorg: Project Improve!. TVZ, 21. DOI: 10.100/s41184-022-1755-z

Jeltje Giesen, Annick Bakker-Jacobs, Hester Vermeulen, Getty Huisman-de Waal (2023) *Wat te doen of te laten bij patiënten met pijn of wonden?* Nurse Academy O&T. 2023-1

Jeltje Giesen, Annick Bakker-Jacobs Hester Vermeulen, Getty Huisman-de Waal. (2022) *Wat te doen of te laten bij patiënten met pijn of wonden?* Nurse Academy. 2022-4

Lijsten

Beter laten 2.0 Per sector- Algemene website (2023)
https://www.venvn.nl/thema-s/beter-laten/beter-laten-2-0-per-sector/

Beter Doen en Beter Laten lijsten 2.0 - Algemeen (2023)
https://www.venvn.nl/media/5cakusr2/beter-laten_lijst-algemeen-v2.pdf
https://www.venvn.nl/media/hdkojzft/beter-doen-lijst-algemeen.pdf

Beter Doen en Beter Laten lijsten 2.0 - Ziekenhuis (2023)
https://www.venvn.nl/media/gmppuuo2/beter-laten_lijst-ziekenhuis_v2.pdf
https://www.venvn.nl/media/pfzjwmmq/beter-doen-lijst-ziekenhuiszorg.pdf

Beter Doen en Beter Laten lijsten 2.0 - Wijkverpleging (2023)
https://www.venvn.nl/media/sflnv3an/beter-laten_lijst-wijkverpleging_v2.pdf
https://www.venvn.nl/media/th1drojx/beter-doen-lijst-wijkverpleging.pdf

Beter Doen en Beter Laten lijsten 2.0 - Verpleeghuiszorg (2023)
https://www.venvn.nl/media/ot1niu2l/beter-laten_lijst-verpleeghuiszorg_v2.pdf
https://www.venvn.nl/media/i3hbbpo4/beter-doen-lijst-verpleeghuiszorg.pdf

Beter doen en beter laten lijsten 2.0 - Geestelijke gezondheidzorg (2023)
https://www.venvn.nl/media/tutjvojx/beter-laten_lijst_ggz_v2.pdf
https://www.venvn.nl/media/nzrfhtsq/beter-doen-lijst-geestelijke-gezondheidzorg.pdf

Beter doen en beter Laten lijsten 2.0 - Verstandelijke gehandicaptenzorg (2023)
https://www.venvn.nl/media/lwrdarir/beter-laten_lijst-vgz_v2.pdf
https://www.venvn.nl/media/s2jgcizn/beter-doen-lijst-verstandelijk-gehandicaptenzorg.pdf

Beter doen en beter laten lijst verpleegkundige pijn interventies (2022)
https://www.venvn.nl/media/4monhnu2/beter-doen-en-beter-laten-pijn_lijst.pdf

Beter doen en beter laten lijst verpleegkundige wondinterventies (2022)
https://www.venvn.nl/media/5bdjyjjg/beter-doen-en-beter-laten-wond_lijst.pdf

Infograpics en kennistest

Beter laten – Algemeen (2023)
https://www.venvn.nl/media/fz4m5q5b/infographic__algemeen.pdf

Top 5 Beter laten – Ziekenhuis (2023)
https://www.venvn.nl/media/ymghdc2c/infographic__ziekenhuiszorg.pdf

Top 5 Beter laten – Wijkverpleging (2023)
https://www.venvn.nl/media/4fvorzml/infographic__wijkverpleging.pdf

Top 5 Beter laten – Verpleeghuiszorg (2023)
https://www.venvn.nl/media/22bpkpy2/infographic__verpleeghuiszorg.pdf

Top 5 Beter laten – Geestelijke gezondheidzorg (2023)
https://www.venvn.nl/media/2teekno0/infographic__geestelijke-gezondheidszorg.pdf

Top 5 Beter laten – Verstandelijk gehandicaptenzorg (2023)
https://www.venvn.nl/media/5p1h4ttl/infographic__verstandelijkgehandicaptenzorg.pdf

Giesen, J., Bahlman-van Oijen, W. (2023) *Kennistest V&VN Beter Doen en Beter Laten.*
https://www.venvn.nl/academie/leren-op-jouw-manier/test-je-kennis/

Posters

Kwaliteit van zorg verbeteren op basis van EBP: Welke stappen nemen we samen als team? (2024)
https://edit.radboudumc.nl/wp-content/uploads/2024/02/invul-pdf-poster-coachen-EBQI.pdf

Beter doen en beter laten: Pijnbestrijding bij wondzorg (2022)
https://www.venvn.nl/media/0tkj4qev/hr-a4-pijn-pijnbestrijding-bij-wondzorg.pdf

Beter doen en beter laten Douchen met een primair gesloten wond (2022)
https://www.venvn.nl/media/wj0obj0e/hr-a4-wond-douchen-met-pg-wond.pdf

Research profiles

Linked in: https://nl.linkedin.com/in/jeltje-giesen-076446132
ORCID: https://orcid.org/0000-0001-6768-0838
ResearchGate:https://www.researchgate.net/profile/Jeltje-Giesen

PhD Portfolio

Department: **IQ Health**
PhD period: **01/05/2019 – 31/03-2025**
PhD Supervisor(s): **Prof. H. Vermeulen, Dr. G.J. Huisman – de Waal**
PhD Co-supervisor(s): **Dr A. van Vught, M.G.M.C. Bering**s

Training activities	Hours
Courses	
• PhD Retreat (2023)	7
• Leadership program from the ILC (2023)	20
• RU Writing coaching – writing labs (2022-2023)	28
• RU Analytic storytelling (2022)	20
• Basic course for clinical investigators (BROK®) (2022)	38
• Centrum Specifieke bijeenkomst (CSB-BROK®)(2021)	4
• RU Design and illustration (2021)	26
• RU Scientific integrity (2021)	20
• RU Projectmanagement voor Promovendi (2021)	56
• RU Scientific writing for PhD Candidates (2021)	84
• Cursus Pubmed (2019)	2
• Cursus Endnote (2019)	2
• RIHS PhD introduction course (2019)	21
Totaal courses:	**328**
Seminars	
• Research integrity Round: Scientists on the Barricade? (2023)	1,5
• UZ-Verpleegcafé: Tussen weten en doen: rituelen in de verpleegkunde, Universiteit Ziekenhuis (UZ) Gent, Gent, België (2023) – ***Oral presentation***	12
• Online Inspiratiesessie Minder urine sticken, hoe pak ik dat aan? UNO	1,5
• Webinar project KwaliTIJD implementatiestappenplan deel 1 (stap 1 t/m 4)	1,5
• Anna Reynvaan Online Expert meeting (2023)	2
• Workshop werkplek leren: psychologische veiligheid, Radboud Health Academy, Nijmegen, Nederland (2022)	6
• Online Expertmeeting 'Verspreid kennis, geen infecties' (2022)	2
• Research Integrity Round: The darkside of science (2021)	1,5
• Webinar NZA passende zorg	1,5
• Webinar Online recruitment of study participants	1,5
• RIHS PhD webinar 'Science & communication: social media for scientists'	1,5
• Research Integrity Round: Sex and gender (2020)	1,5
• Presentatie- Kwaliteitssystemen IQ Healthcare (2019)	1
Totaal Seminairs:	**35**
Conferences	
• Landelijke netwerkdag kwaliteitsverpleegkundigen: EBP wat kan je er mee?, Vilans, Utrecht, Nederland (2024) – ***Oral presentation***	16
• International Learning Collaborative (ILC): The Fundamental Care [R] evolution, Maine Medical Centre, Portland, Maine, USA (2023)	16
• 'De zorg van de toekomst', V&VN, Utrecht, Nederland (2023) – ***Oral presentation***	10
• Over de Bogen, Radboudumc, Nijmegen, Nederland (2022)	8
• European Nursing Congress HUB: Verpleegkundige zorg in de toekomst. Leer- en verbetercultuur, HAN, Nijmegen, Nederland (2022) - ***Oral presentation***	24
Totaal Conferences:	**74**

Other	
• ZonMw Leerkring (2022)	3
• Netwerkdag Verpleging en verzorging ZonMw, Utrecht, Nederland (2022)	6
• ZonMw bijeenkomst Leren & verbeteren-projecten (2021)	2,5
• Bijeenkomst terugkoppeling indicatoren naar de werkvloer - kwaliteitskader verpleeghuiszorg	2
• Refereren (2019-2023)	10
• Professionalisering Junioren (2019-2023)	28
• Nursing science Nijmegen-NSN (2019-2023)	28
Totaal Other:	**79,5**
Teaching activities	
Lecturing	
• Docent CSI Evidence Based Guidelines Geneeskunde opleiding Radboudumc, Nijmegen, Nederland (2023)	40
Totaal Lecturing:	**40**
Supervision of internships / other	
• Supervision Master student - Verplegingswetenschappen UU (2021-2022)	56
• Supervision Master student - Onderwijskunde RU (2020-2021)	56
• Supervision Master student - Onderwijskunde RU (2019-2020)	56
• Supervision of 2 students HBO - Verpleegkunde HAN (2021)	40
• Supervision of 2 students HBO - Verpleegkunde HAN (2020-group 2)	40
• Supervision of 2 students HBO - Verpleegkunde HAN (2020-group 1)	40
Totaal Supervision:	**288**
Total	**844,5**

Dankwoord

Het doorlopen van een promotietraject vergelijk ik met een lange, intensieve wandeling. Je begint dit traject met een stevige basis aan kennis, vaardigheden en voorbereiding, maar je weet niet welke obstakels je onderweg tegenkomt. Het is belangrijk om het tempo goed te doseren en je energie zorgvuldig te verdelen. Er zijn momenten waarop alles lijkt mee te zitten – met de wind in de rug en een begaanbaar pad – maar er zijn ook perioden van tegenwind en onvoorspelbaar terrein. In dergelijke fases is de steun van mensen om je heen onmisbaar: zij moedigen je aan, denken mee, en lopen soms een stukje met je mee. En inderdaad, zoals vaak wordt gezegd: de laatste meters leg je af op karakter. Al deze elementen samen stellen je in staat de eindstreep succesvol te bereiken.

Ik kijk met veel waardering terug op mijn promotietraject. Het heeft mij niet alleen in staat gesteld mijn onderzoeksvaardigheden te verdiepen, maar heeft ook bijgedragen aan mijn persoonlijke ontwikkeling. De kennis en ervaring die ik heb opgedaan vormen een waardevolle basis voor mijn verdere loopbaan en zullen ongetwijfeld van betekenis zijn in andere facetten van het leven. Zoals reeds genoemd, doorloop je een promotietraject niet alleen. In dit dankwoord wil ik dan ook stilstaan bij allen die op uiteenlopende manieren hebben bijgedragen aan het volbrengen van dit traject. Allereerst wil ik mijn dank uitspreken aan alle verpleegkundigen, verzorgenden, studenten, patiënten, managers en coaches die hebben deelgenomen aan de onderzoeken in dit proefschrift. Zonder hun bereidheid tot participatie zouden deze resultaten niet tot stand zijn gekomen. Vervolgens wil ik graag mijn promotieteam bedanken.

Lieve Getty, dank voor jouw betrokkenheid als dagelijks begeleider bij mijn promotietraject. Ik heb je leren kennen als een kundige, inspirerende en warme professional, met een grote betrokkenheid bij zowel het onderzoek als de verpleegkundige praktijk. Ik heb veel mogen leren van jouw onderzoeksvaardigheden, maar wat ik minstens zo waardeer is de aandacht die je had voor mijn persoonlijke ontwikkeling. Zelfs tijdens de intensieve coronaperiode, waarin je naast je onderzoekstaken ook op de werkvloer actief was, bleef je nauw betrokken bij al jouw promovendi. Je begeleidt, coacht en luistert op een positieve en motiverende manier. Waardoor het beste uit mezelf heb kunnen halen. De samenwerking met jou heb ik als bijzonder prettig ervaren. Ik hoop dan ook van harte dat we ook na mijn promotie op een of andere manier blijven samenwerken

Dank Hester voor jouw betrokkenheid bij mijn promotietraject. Ik heb je leren kennen als een inspirerende denker met een scherp oog voor zowel inhoud als impact. Je had altijd een bijzonder talent om met één opmerking of gerichte vraag nieuwe perspectieven te openen of tot de kern door te dringen. Die ingevingen

hebben me vaak geholpen om verder te denken, verbanden te leggen en mijn werk te verdiepen. Ik ben blij dat ik tijdens mijn traject gebruik mocht maken van jouw kennis, ervaring en scherpe inzichten.

Anneke, wat heb ik veel van je mogen leren. Jouw kennis en ervaring op het gebied van het ontwikkelen van een leercultuur zijn van grote waarde geweest tijdens mijn promotietraject. Je bent een geduldig en warm persoon, die op een uitnodigende manier ruimte creëert om gedachten en twijfels te delen. Je moedigde me niet alleen aan om verder te denken en kritisch te blijven, maar ook om te vertrouwen op mijn eigen kennis, kunde en besluitvaardigheid. Dat vertrouwen heeft me geholpen om te groeien in dit traject en bijgedragen aan een succesvol proefschrift.

Beste Marjolein, wat fijn dat ik jouw onderwijskundige expertise heb mogen inzetten binnen de studies. Het was enorm waardevol om iemand in het team te hebben die vanuit een ander perspectief naar de onderzoeken keek. Ik heb je uitgebreide feedback en kritische blik zeer gewaardeerd. Je prikkelde me telkens om te reflecteren: heb ik dit echt goed doordacht, of kan het beter of anders. Ik vond het erg leuk om samen te werken aan de poster en de Nederlandstalige vakpublicaties. Het viel me op dat we een gedeelde motivatie hebben om wetenschappelijke inzichten toegankelijk te maken voor de praktijk. Dat maakte onze samenwerking niet alleen inhoudelijk sterk, maar ook bijzonder inspirerend.

Lieve Annick, dankjewel voor je betrokkenheid als onderzoeksmedewerker gedurende bijna mijn gehele promotietraject. Het was ontzettend fijn om samen te werken aan het verwerken en analyseren van de onderzoeksdata, en om met jou te sparren over de interpretatie ervan. Je kent alle lijntjes binnen IQ Healthcare en daarbuiten, en bent een ontzettend goed in het organiseren en regelen van alles wat nodig is. Eigenlijk zou iedere promovendus een Annick moeten hebben!

Naast mijn promotieteam wil ik ook graag mijn ouders en zussen bedanken voor hun betrokkenheid en steun tijdens mijn traject. In het bijzonder ben ik jullie dankbaar voor het meelezen van vakpublicaties en infographics. Het was ontzettend waardevol dat jullie met een frisse, neutrale blik naar de teksten en producten keken, zodat ze ook echt toegankelijk en begrijpelijk zouden zijn voor een breder publiek.

Een speciale dank aan Gerda van den Berg voor je vriendschap en alle uren die we samen hebben besteed aan het schrijven van onze proefschriften. Alice Ramsay, dank voor het redigeren van mijn actieonderzoek, je aanstekelijke enthousiasme en mijn te blijven herinneren ook 'fun' te hebben. Jeanny Engels, dank voor je hulp bij het vertalen van onderzoek naar praktische tools en het toegankelijk maken daarvan voor een breed publiek.

En last but not least: dank aan mijn lieve Niels, die gedurende het hele promotietraject naast mij heeft gestaan. Samen met jou kon ik de ruimte creëren om mijn promotie tot een succesvol einde te brengen. Je was trost tijdens successen en mijn steun op de momenten dat het even moeilijk was, je bleef me motiveren om door te gaan — niet alleen voor mezelf, maar ook voor onze twee prachtige dochters Emilie en Aline, die wij tijdens dit traject hebben mogen verwelkomen. Lieve dames, wat verrijken jullie ons leven. Dank dat ik dankzij jullie ook regelmatig mijn 'onderzoekspet' kon afzetten en kon genieten van al het andere moois dat het leven te bieden heeft.

PASSENDE ZORG

PIJNBESTRIJDING BIJ WONDZORG

BETER DOEN BETER LATEN

DOELGROEP: ZORGVRAGER MET OPEN ACUTE WONDEN

Het verzorgen van een open acute wond kan pijn doen bij de zorgvrager en vraagt om adequate pijnbestrijding.

Een acute wond is een beschadiging aan de huid die plotseling optreedt. Op een plaats met normale, goed doorvoede huid op een specifiek tijdstip door een specifieke gebeurtenis of voorwerp, zoals een trauma, val of operatieve ingreep (waarbij eventueel een prothese is ingebracht).
Een acute wond kan gesloten of open zijn, primair of secundair sluiten/genezen.

BETER DOEN

- Geef de zorgvrager, als deze dat wil, minimaal een half uur voor het reinigen van de wond, de pijnstilling lokaal of systemisch (pijnstilling bereikt het hele lichaam).

BETER LATEN

- Gebruik geen lokale NSAID-bevattende schuimverbanden. NSAID's zijn pijnstillers, zoals ibuprofen, diclofenac, naproxen.

Dit levert het op:
- Het niet gebruiken van NSAID-bevattende schuimverbanden bespaart hoge kosten en voorkomt mogelijke bijwerkingen.
- De zorgvrager heeft geen pijn tijdens de wondverzorging.

Meer weten?
- www.venvn.nl zoek op 'Richtlijn Wondzorg'.
- Kijk voor de complete lijst van 'Beter doen en Beter laten voor pijn' op www.venvn.nl en zoek op 'Beter doen en Beter laten'. Hier vind je ook de eerdere posters.

WAT KUNNEN WIJ ALS **TEAM** DOEN?

1. Hoe doen we **DE PIJNBESTRIJDING BIJ HET REINIGEN VAN EEN OPEN ACUTE WOND** nu?
2. Wat vinden we daarvan als we kijken naar wat we beter kunnen doen en laten?
3. Moeten we onze zorg aanpassen? En wat gaan we dan vanaf nu anders doen?
4. Wie van ons maakt hiervoor een plan en gaat dit plan opvolgen?
5. Wanneer evalueren we het plan?
6. Hoe houden we dit effect vast?

ZORG DIE WERKT!

Als verpleegkundige of verzorgende wil je natuurlijk zorg geven die werkt! Je wilt weten wat je beter wel kunt doen en wat je beter kunt laten.

Door **PASSENDE ZORG** kan iedereen ook in de toekomst goede zorg krijgen. Passende zorg is:
- Zorg die werkt
- Zo dicht mogelijk bij de zorgvrager
- Zorg waarover zorgvrager en zorgverlener samen beslissen
- Aandacht voor persoonlijke situatie en behoeften zorgvrager
- Oog voor gezondheid en wat de zorgvrager wel kan
- Minder focus op ziekte en behandeling

bron: www.zorginstituutnederland.nl

IQ Scientific Center for Quality of Healthcare
V&VN
Vilans
ZonMw

datum van uitgifte:
15 augustus 2022


Beter Laten
Hoe voorkom je onnodige handelingen in de verpleegkundige zorg? Verpleegkundigen en verzorgenden doen veel handelingen met weinig of geen toegevoegde waarde voor patiënten of cliënten. Het achterwege laten van deze handelingen geeft tijd die je anders kunt besteden.
Wat is het?
Een 'Beter Laten' aanbeveling is een aanbeveling die een verpleegkundige handeling afraadt of aanraadt er terughoudend mee te zijn.
Beter Laten
Hoe doen we dit nu?
Zorgplan
Omdat de arts het voorschrijft en/of het in het zorgplan staat.
Omdat de patiënt/-cliënt erom vraagt of iets te bieden.
Omdat we het altijd zo doen (cultuur).
Hoe pak je het aan:
Bedenk voor het uitvoeren van elke handeling of deze van toegevoegde waarde is voor jouw patiënt/cliënt.
1
2
Beter Laten
Bekijk de 'Beter Laten' lijsten of andere onderbouwing.
3
Deel de inzichten met je collega's.
4
Bespreek of vraag naar voorkeuren en wensen met jouw patiënt/cliënt.
5
Maak afspraken met je (multidisciplinaire) team.
Meer weten over passende zorg?
Zie de volledige 'Beter Laten' én 'Beter Doen' lijsten (per sector) op:
Beter Laten: stoppen met handelingen zonder aantoonbaar nut | V&VN (venvn.nl)
BETER DOEN
BETER LATEN
Radboudumc
IQ Scientific Center for Quality of Healthcare
V&VN
ZonMw

Passende zorg: Passende zorg is zorg die werkt, mogelijk dicht bij en in overleg met de patiënt, meer gericht op gezondheid dan ziekte en rekening houdend met de kosten.

Ziekenhuiszorg

Wat is het?

Een 'Beter Laten' aanbeveling is een aanbeveling die een verpleegkundige handeling afraadt of aanraadt er terughoudend mee te zijn.

Hoe doen we dit nu?

Omdat de arts het voorschrijft.

Omdat het in het zorgplan staat.

Omdat de patiënt erom vraagt of hem of haar iets te bieden.

Top 5 'Beter Laten' handelingen

Verpleegkundigen en verzorgenden vinden dit de belangrijkste 'Beter Laten' handelingen om leed, tijd en daarmee kosten te besparen.

		Besparing:
	Gebruik **GEEN** vrijheidsbeperkende maatregelen bij een delier.	-20 min Fysieke beperking
	**VERMIJD** overbodige lagen onder de patiënt met risico op decubitus.	-5 min Decubitus
	Desinfecteer je handen na het handen wassen **NIET**.	-3 min Huid-irritatie
	**VERWIJDER** materialen die bijdragen aan onrustig gedrag of een delier.	+5 min Discomfort
	Gebruik **GEEN** bedekkend verbandmateriaal bij primair gesloten wonden.	-5 min Onnodige belasting

Meer weten over passende zorg?

Zie de volledige 'Beter Laten' én 'Beter Doen' lijsten (per sector) op:

Beter Laten: stoppen met handelingen zonder aantoonbaar nut | V&VN (venvn.nl)

BETER DOEN BETER LATEN

Radboudumc

IQ Scientific Center for Quality of Healthcare

V&VN

ZonMw

Passende zorg: Passende zorg is zorg die werkt, mogelijk dicht bij en in overleg met de cliënt, meer gericht op gezondheid dan ziekte en rekening houdend met de kosten.

Wijkverpleging

Wat is het?

Een 'Beter Laten' aanbeveling is een aanbeveling die een verpleegkundige handeling afraadt of aanraadt er terughoudend mee te zijn.

Hoe doen we dit nu?

Omdat de cliënt erom vraagt of hem of haar iets te bieden.

Omdat de arts het voorschrijft.

Omdat het in het zorgplan staat.

Top 5 'Beter Laten' handelingen

Verpleegkundigen en verzorgenden vinden dit de belangrijkste 'Beter Laten' handelingen om leed, tijd en daarmee kosten te besparen.

		Besparing:
	Screening op eenzaamheid en casefinding is **NIET** zinvol.	-20 min Onnodige belasting
	**VERMIJD** overbodige lagen onder de cliënt met risico op decubitus.	-5 min Decubitus
	Douche niet te vaak en **NIET** te warm.	-25 min Huid-irritatie/ jeuk
	Gebruik **GEEN** vrijheidsbeperkende maatregelen bij een delier.	-5 min Fysieke beperking
	Spoel de blaas **NOOIT** om een urineweginfectie te voorkomen.	-10 min Onnodige belasting

Meer weten over passende zorg?

Zie de volledige 'Beter Laten' én 'Beter Doen' lijsten (per sector) op:

Beter Laten: stoppen met handelingen zonder aantoonbaar nut | V&VN (venvn.nl)

BETER DOEN ✓ ✗ BETER LATEN

Radboudumc

IQ Scientific Center for Quality of Healthcare

V&VN

ZonMw

Passende zorg: Passende zorg is zorg die werkt, mogelijk dicht bij en in overleg met de cliënt, meer gericht op gezondheid dan ziekte en rekening houdend met de kosten.

Verpleeghuiszorg

Wat is het?

Een 'Beter Laten' aanbeveling is een aanbeveling die een verpleegkundige handeling afraadt of aanraadt er terughoudend mee te zijn.

Hoe doen we dit nu?

Omdat de arts het voorschrijft.

Omdat het in het zorgplan staat.

Omdat de cliënt erom vraagt of hem of haar iets te bieden.

Top 5 'Beter Laten' handelingen

Verpleegkundigen en verzorgenden vinden dit de belangrijkste 'Beter Laten' handelingen om leed, tijd en daarmee kosten te besparen.

		Besparing:
	**GEEN** urinesediment of dipslide uitvoeren voor een diagnose urineweginfectie.	-20 min, Onnodige belasting
	Spoel de blaas **NOOIT** om een urineweginfectie te voorkomen.	-5 min, Onnodige belasting
	Gebruik **GEEN** vrijheidsbeperkende maatregelen bij een deliër.	-3 min, Fysieke beperking
	**VERMIJD** overbodige lagen onder de cliënt met risico op decubitus.	-10 min, Decubitus
	**NIET** vaker dan 1x per dag wassen, baden of douchen.	-5 min, Huid-irritatie / jeuk

Meer weten over passende zorg?

Zie de volledige 'Beter Laten' én 'Beter Doen' lijsten (per sector) op:

Beter Laten: stoppen met handelingen zonder aantoonbaar nut | V&VN (venvn.nl)

BETER DOEN ✓ ✗ BETER LATEN

Radboudumc

IQ Scientific Center for Quality of Healthcare

V&VN

ZonMw

Passende zorg: Passende zorg is zorg die werkt, mogelijk dicht bij en in overleg met de patiënt, meer gericht op gezondheid dan ziekte en rekening houdend met de kosten.

Geestelijke gezondheidszorg

Wat is het?

Een 'Beter Laten' aanbeveling is een aanbeveling die een verpleegkundige handeling afraadt of aanraadt er terughoudend mee te zijn.

Hoe doen we dit nu?

Omdat de arts het voorschrijft.

Omdat het in het zorgplan staat.

Omdat de patiënt erom vraagt of hem of haar iets te bieden.

Top 5 'Beter Laten' handelingen

Verpleegkundigen en verzorgenden vinden dit de belangrijkste 'Beter Laten' handelingen om leed, tijd en daarmee kosten te besparen.

		Besparing:
	Geef **GEEN** advies over het gebruik van melatonine.	-10 min — Risico verkeerd advies
	Gebruik **GEEN** vrijheidsbeperkende maatregelen bij een delier.	-30 min — Fysieke beperking
	Geef **GEEN** medicatie ter preventie van een delier.	-3 min — Onnodige medicatie
	Gebruik **GEEN** ontsmettings-middelen voor het reinigen van acute wonden.	-3 min — Pijn-beleving
	Het baden van wonden behoort **GEEN** onderdeel van de wondreiniging te zijn.	-10 min — Vertraging wond-genezing / pijn

Meer weten over passende zorg?

Zie de volledige 'Beter Laten' én 'Beter Doen' lijsten (per sector) op:

Beter Laten: stoppen met handelingen zonder aantoonbaar nut | V&VN (vvmn.nl)

BETER DOEN ✓ ✗ BETER LATEN

Radboudumc

IQ Scientific Center for Quality of Healthcare

V&VN

ZonMw

Passende zorg: Passende zorg is zorg die werkt, mogelijk dicht bij en in overleg met de cliënt, meer gericht op gezondheid dan ziekte en rekening houdend met de kosten.

Verstandelijk gehandicaptenzorg

Wat is het?

Een 'Beter Laten' aanbeveling is een aanbeveling die een verpleegkundige handeling afraadt of aanraadt er terughoudend mee te zijn.

Hoe doen we dit nu?

Omdat het in het zorgplan staat.

Omdat de arts het voorschrijft.

Om de relatie met de cliënt goed te houden of om de cliënt iets te bieden.

Top 5 'Beter Laten' handelingen

Verpleegkundigen en verzorgenden vinden dit de belangrijkste 'Beter Laten' handelingen om leed, tijd en daarmee kosten te besparen.

		Besparing:	
	**VERMIJD** overbodige lagen onder de cliënt met risico op decubitus.	-15 min	Decubitus
	Draai de PEG katheter nooit. (Vanaf één week na plaatsing wel dagelijks dompelen).	-3 min	Verkeerde positie sonde
	**NIET** vaker dan 1x per dag wassen en te lang wassen, baden of douchen.	-30 min	Huid-irritatie / jeuk
	Voeg **GEEN** medicatie toe aan sondevoeding.	-10 min	Risico interactie
	Spoel de blaas **NOOIT** om een urineweginfectie te voorkomen.	-10 min	Onnodige belasting

Meer weten over passende zorg?

Zie de volledige 'Beter Laten' én 'Beter Doen' lijsten (per sector) op:

Beter Laten: stoppen met handelingen zonder aantoonbaar nut | V&VN (venvn.nl)

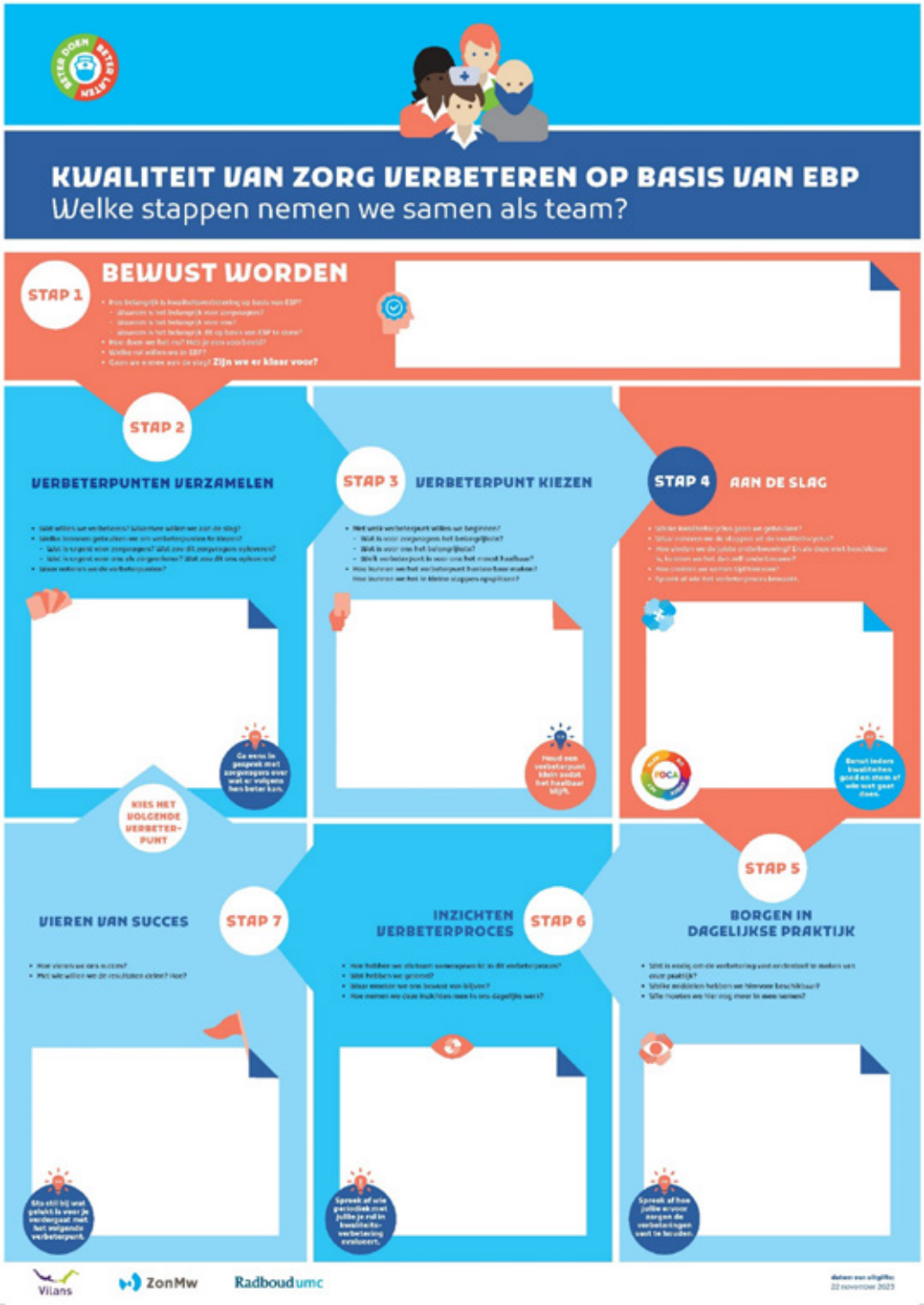
BETER DOEN BETER LATEN

Radboudumc

IQ Scientific Center for Quality of Healthcare

V&VN

ZonMw


KWALITEIT VAN ZORG VERBETEREN OP BASIS VAN EBP
Welke stappen nemen we samen als team?
STAP 1
BEWUST WORDEN
STAP 2
VERBETERPUNTEN VERZAMELEN
STAP 3
VERBETERPUNT KIEZEN
STAP 4
AAN DE SLAG
KIES HET VOLGENDE VERBETER-PUNT
STAP 7
VIEREN VAN SUCCES
STAP 6
INZICHTEN VERBETERPROCES
STAP 5
BORGEN IN DAGELIJKSE PRAKTIJK
Vilans
ZonMw
Radboudumc