REVIEW ARTICLE

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Health care managers' competence in knowledge management: A scoping review

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Abstract

Aim: To identify current evidence on health care managers' competence in knowledge management.

Background: Although successful knowledge management improves the quality of care and performance of health care organisations, there is limited evidence on health care managers' competence in knowledge management

Evaluation: A scoping review was conducted by including original published and unpublished studies (qualitative, quantitative, and experimental) and review designs in English, Finnish, or Swedish. The studies were retrieved from six databases (CINAHL, ProQuest, PubMed, Scopus, Mednar, and Finnish database Medic) in November 2020 and then complemented in January 2022. Narrative synthesis was used to synthesize data.

Key issues: A total of 21 articles was included in the review. The main themes of managers' competence in knowledge management presented in these were system management, professional development, and leadership behaviour and attitude. No valid and reliable instruments were described in the included studies.

Conclusion: At present, there is a limited understanding of health care managers' competence in knowledge management. A comprehensive understanding of this topic can provide a direction for future research.

Implications for Nursing Management: The results can be utilized in the assessment and development of managers' competence in knowledge management, as well as the formulation of education and in-service training for health care managers.

1 | INTRODUCTION

Several examples of factors that are linked to health care managers' need to develop their knowledge management competence include a decreasing number of professionals in the future, an aging health care workforce, the increasing relevance of multi-professional education, and changes to many health care roles (Fellows & Edwards, 2016). Additionally, the expectations of the new generation of employees differ from those of older generations, which means that the required knowledge management competences have changed for modern managers (Coulter & Faulkner, 2014; Stanley, 2010).

There is a wide range of definitions for knowledge management (Dulipovici & Baskerville, 2015). Hislop et al. (2013) define the term knowledge management as a systematic and organized approach for improving the ability of an organisation to mobilize knowledge to enhance decision-making, take action and deliver results which support the underlying business strategy. According to Otala and Aura (2005), knowledge management is a concept that can be managed to achieve goals as well as optimize organisational resources such as money, equipment, people, and raw materials. In the context of health care, knowledge management involves knowledge transfer, coaching, and the development of an operating culture for either the near future or long-term activities (Lunden et al., 2019). According to Orzano et al. (2008), it is the process through which people in organisations find, share, and develop knowledge for action. It is also important to note that the definition of competence is complex. In this review, managerial competence can be defined as the knowledge, skills, behaviour, ability, and attitudes that contribute toward a manager's individual effectiveness (Rahman et al., 2014).

Successful knowledge management leads to better performance and higher care quality in health care organisations (Wu & Hu, 2012). Previous research has recognized that knowledge management requires persistent planning, monitoring, and support (Ayatollahi & Zeraatkar, 2020), with support from management found to influence knowledge management (Al Saifi et al., 2016). In a nurse leader's daily work, activities related to knowledge management are focused on ensuring sufficient levels of competence and the ability to respond to sudden changes (Lunden et al., 2019).

Managers have a key role in the implementation of knowledge management through their ability to discover and disseminate knowledge throughout the organisation; moreover, nurse managers are influential in their ability to encourage employees to accept the knowledge-sharing culture. Hence, the presence of excellent managers is a crucial factor for the successful implementation of knowledge management (Ayatollahi & Zeraatkar, 2020). In addition, Currie et al. (2007) note that line managers play a crucial role in helping, or hindering, graduate specialist practitioners transfer their learning to the clinical setting and actively develop their practical skills. In a study by Lunden et al. (2021), half of the nurses shared positive perceptions of their managers' actions related to knowledge management. The responding nurses identified anticipation of nurses' competency needs, ensuring and assessing competency, and intervening when inadequacies in competence as the weakest aspects of knowledge management.

There continues to be little research available on knowledge management in the context of health care despite the long tradition of nursing leadership research (Lunden et al., 2017). For example, managers recognize the importance of ensuring competence development among staff, yet nearly 50% of managers feel that they are insufficiently prepared to manage competence (Omoike et al., 2011). Nevertheless, there is evidence that leadership competence can be gained by a solid educational foundation, and then maintained through continuous training and guidance (Hsu et al., 2011; Leggat & Balding, 2013; Omoike et al., 2011).

This scoping review aims to identify current evidence on health care managers' competence in knowledge management and demonstrate gaps in the current knowledge base. A preliminary search of PROSPERO, PubMed, the Cochrane Database of Systematic Reviews, and JBI Evidence Synthesis was conducted, with no published or ongoing systematic reviews on competence in knowledge management identified. In this review, the term health care manager encompasses all managers and leaders of which a significant proportion are nurse managers. The terms managers and leader include all health care managers. Therefore, in this review, the terms manager and leader are used interchangeably.

2 | AIM AND RESEARCH QUESTIONS

This scoping review was conducted to identify current evidence on health care managers' competence in knowledge management.

This scoping review addressed two questions:

1. What types of competence in knowledge management do managers have and need in health care?
2. Which instruments have been used to study managers' competence in knowledge management in the context health care?

3 | INCLUSION CRITERIA

Inclusion and exclusion criteria were chosen based on the PCC (population, concept, and context) framework (Peters et al., 2020) and are clarified in Table 1.

TABLE 1 Inclusion and exclusions criteria applied in this scoping review (PCC)

Inclusion criteria		Exclusion criteria
Population (P)	Health care leaders, supervisors, managers, chief executive officers, administrators, administrative personnel, heads or charges. Health care professionals if they assessed the managers' competence in knowledge management.	All other people in the population, such as patients and students, who assessed managers' competence in knowledge management.
Concept (C)	Competence management, knowledge management, knowledge leadership, skill management, competence development and competence-based management.	
Context (C)	Health care organisations in any geographic locations	
Type of Study	Qualitative, quantitative, mixed methods studies and review designs. Published in English, Finnish or Swedish. No time limit.	Unpublished reports and all other publications.

4 | METHODS

The scoping review was chosen as the employed methodology because there is a clear need to increase knowledge on the research topic, map the current literature, identify the characteristics of available research, and demonstrate gaps in research knowledge. This scoping review followed the JBI scoping review methodology (Peters et al., 2020). In addition, The Preferred Reporting Items for Systematic reviews and Meta-analyses extension for Scoping Reviews (PRISMA-ScR) checklist has been used when reporting the results (Tricco et al., 2018).

4.1 | Search strategy

An extensive search was performed in November 2020, after which the search was complemented for the years 2020–2021 in January 2022. The search strategy was developed to find both published and unpublished studies. A three-step search strategy was utilized. An initial limited search of PubMed and Scopus was undertaken, followed by an analysis of the words in the title and abstract, and of the index

terms used to describe the articles. A second search using all of the identified keywords and index terms was undertaken across all of the included databases with a focus on the PCC aspects of the review question. To create an exhaustive search, an experienced information specialist assisted with the search.

Next, the reference lists of all the identified reports and articles were searched for additional studies that were not retrieved through the database searches. Published and unpublished studies in English, Swedish and Finnish were considered for inclusion. No restriction on the time of publication was applied. The database search included CINAHL, the Finnish database Medic, PubMed, and Scopus. The Mednar and ProQuest databases were searched for unpublished studies and grey literature. The search strategy and results for each database are shown in Table 2.

4.2 | Study selection

A search of the six database resulted in 3923 records. Following the search, all of the identified citations were collated into the Covidence Systematic Review Software tool (2021). The titles and abstracts were independently reviewed against the inclusion criteria by two reviewers. Studies that met the inclusion criteria were retrieved in full. A total of 21 studies was included in this review. Any discrepancies that arose during selection were resolved through discussion. Full-text studies that did not meet the inclusion criteria were excluded, and the reasons for exclusion were reported. Further information on the excluded studies can be obtained from the contact person. The search and study selection process is shown in Figure 1.

4.3 | Data extraction, analysis, and presentation

Data were extracted from the included studies by two independent reviewers. Data extraction included specific details about the author(s), year and country, research design, research question or study aim, study population and sample size, context, outcomes, and key findings related to the review (Table 3). It is important to note that one study was excluded due to the lack of a full-text article. Any disagreements that arose between the reviewers were resolved through discussion (Peters et al., 2020). The results were analysed, and the findings were reported using both explanatory text and tabular format. A narrative synthesis was used to summarize the main findings (Peters et al., 2020).

5 | RESULTS

5.1 | Article inclusion

A total of 3923 records were identified through the database search. After the removal of 680 duplicate records, a total of 3243 articles were screened by title and abstract, of which 3139 were subsequently

TABLE 2 Search strategy (search results by databases)

Database (n =)	Keywords and limit
CINAHL (n = 1442)	(((MH "Leadership") OR (MH "Supervisors and Supervision+")) OR (leader* OR supervisor* OR manager* OR "chief executive officer*" OR ceo OR administrator* OR "Administrative Personnel" OR head OR charge)) AND ((MH "Health Occupations+") OR (nurs* OR health OR healthcare OR hospital)) OR (MH "Health Services Administration+") OR (MH "Nurse Administrators+") OR (MH "Nursing Leaders") AND (MH "Knowledge Management") OR ("competence management" OR "knowledge management" OR "knowledge leadership" OR "skill management" OR "competence development" OR "competence based management") Limit - Exclude MEDLINE records; Language: English, Finnish, Swedish
Medic (n = 206)	leader* supervis* administr* manager* AND Conpeten* knowledge Limit - No
Mednar (n = 275)	(leader* OR supervisor* OR manager* OR "chief executive officer*" OR ceo OR administrator* OR "Administrative Personnel" OR head OR charge) AND (nurs* OR health OR healthcare OR hospital) AND ("competence management" OR "knowledge management" OR "knowledge leadership" OR "skill management" OR "competence development" OR "competence based management") Limit - No
ProQuest (n = 952)	(TITLE-ABS-KEY ((leader* OR supervisor* OR manager* OR "chief executive officer*" OR ceo OR administrator* OR "Administrative Personnel" OR head OR charge) AND (nurs* OR health OR healthcare OR hospital)) AND TITLE-ABS-KEY ("competence management" OR "knowledge management" OR "knowledge leadership" OR "skill management" OR "competence development" OR "competence based management")) Limit - No
PubMed (n = 267)	((((("Nursing, Supervisory"[Mesh])) OR "Administrative Personnel"[Mesh]) OR ((("Leadership"[Mesh]) OR (leader* [Text Word] OR supervisor* [Text Word] OR manager* [Text Word] OR "chief executive officer*" [Text Word] OR ceo [Text Word] OR administrator* [Text Word] OR head [Text Word] OR charge [Text Word])) AND (("Health Occupations"[Mesh]) OR (nurs* [Text Word] OR health [Text Word] OR healthcare [Text Word] OR hospital [Text Word])))) AND (("Knowledge Management"[Mesh]) OR ("competence management" [Text Word] OR "knowledge management" [Text Word] OR "knowledge leadership" [Text Word] OR "skill management" [Text Word] OR "competence development" [Text Word] OR "competence based management" [Text Word])) Limit - Language: English, Finnish, Swedish
Scopus (n = 781)	(TITLE-ABS-KEY ((leader* OR supervisor* OR manager* OR "chief executive officer*" OR ceo OR administrator* OR "Administrative Personnel" OR head OR charge) AND (nurs* OR health OR healthcare OR hospital)) AND TITLE-ABS-KEY ("competence management" OR "knowledge management" OR "knowledge leadership" OR "skill management" OR "competence development" OR "competence based management")) Limit - Include: article, conference paper, review, conference review, editorial; Language: English, Finnish, Swedish

excluded. The full-text versions of 104 records were assessed for eligibility, with 86 eventually excluded. Finally, the reference lists of the 17 full-text studies which met the inclusion criteria were checked. Additional relevant records (n = 4) were identified from the reference lists (Anonson et al., 2014; Carr & Clarke, 2010; Kivinen, 2008; Kramer et al., 2007). Hence, the current scoping review included a total of 21 articles. A flow diagram which demonstrates the number of studies at each stage of the review process is presented in Figure 1 (Page et al., 2021).

5.2 | Characteristics of the included studies

The characteristics of all 21 included studies are presented in Table 3. The earliest study was published in 2002 while the latest study was published in 2020. The studies were conducted in eight countries: Canada, the United States, Finland, Norway, the United Kingdom, Greece, Iran, and Nigeria. Of the identified studies on competence in knowledge management, eleven articles were written in English, and 10 were written in Finnish. In terms of study design, eight studies had
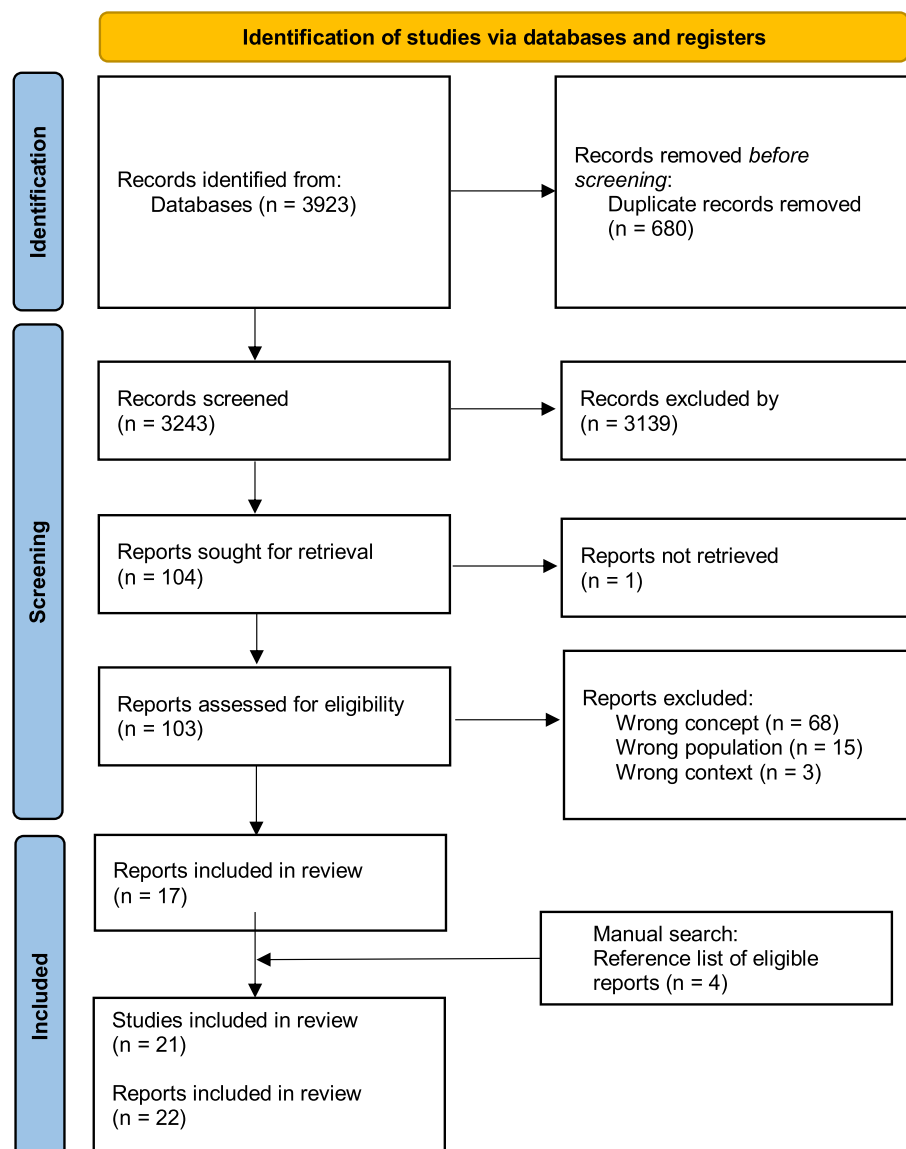
FIGURE 1 Flowchart of the study selection process (Page et al., 2021)

Of the 21 identified studies, three were doctoral dissertations. Harmoinen (2014) presented the development of a valid and reliable instrument which was used to collect the study material. In the research presented by Heikka (2008), data were collected with a valid and reliable instrument, along with thematic interviews; the interview responses were later subjected to content analysis. The research discussed by Kivinen (2008) utilized concept analysis and a quantitative cross-sectional study.

The identified studies that were relevant to competence in knowledge management also included three systematic reviews. A review published by Flaig et al. (2020) included 23 articles, which were published between 2009 and 2019. The review by Kantanen et al. (2011) review included 13 articles which were published between 2000 and 2009, while Lunden et al. (2017) presented a review which included 18 articles published between 2009 and 2014. Notably, two articles included in the review by Lunden et al. (2017) were included in this scoping review (Anonson et al., 2014; Carr &

a qualitative design, five studies had a quantitative design, three studies represented doctoral dissertations, three studies were reviews, one study employed a mixed-methods design, and one study described instrument development and validation.

In the eight qualitative studies, competence in knowledge management was examined in many different ways, namely, in-depth personal interviews with open-ended questions, semi-structured interviews, individual interviews, focus groups, thematic interviews, and half-structured interviews. Concerning data analysis, the qualitative studies employed content analysis, thematic content analysis, thematic analysis, and/or deductive content analysis. The median number of participants in these studies was 10 (range 5–446). All five of the quantitative studies were examples of cross-sectional research. All of the participants were managers or leaders who assessed their competence in knowledge management by answering a questionnaire. The median number of participants in the quantitative studies was 292 (range 119–3097).

TABLE 3 Summary of the studies included in the review

Author(s), year and country	Research design	Research question or study aim	Study population and sample size	Context	Outcome	Key finding related to the scoping review
Anonson et al., 2014 Canada	Qualitative: In-depth personal interviews with open-ended questions, content analysis.	What do frontline nurses who have experienced exemplary leadership perceive as the qualities of an exemplary nurse leader?	Frontline nurses ($n = 6$)	The health care system in the Province of Alberta	Identified five characteristics of nurse leaders that allowed them to effectively assist and support frontline nurses in the clinical setting.	Mentoring and role modelling are areas in which the frontline nurses see their exemplary nurse leaders excelling. The leader's mentorship encourages all staff to expand their knowledge base, try different roles and support them in trying out different areas in the specialty.
Carr & Clarke, 2010, United Kingdom	Qualitative: Semi-structured interviews, thematic content analysis.	To explores the managers' role in promoting and nurturing learning.	Health Action Zone (HAZ) coordinators, performance manager and staff delivering services, ($n = 36$)	Health care, social care, adult care, child care, (HAZ) localities	Two alternative ways of engagement and entrenchment to practice were identified to develop new ways of working and learning from experiences.	The manager's role is central to nurturing learning and continuous development of practice improvement and the associated knowledge base.
Flaig et al., 2020, USA	Systematic review.	For hospital managers and leaders, how do formal and structured leadership development programs (LDPs) positively affect individual and organisational outcomes?	Hospital managers and leaders who are attending leadership development programs (LDPs). Twenty-three articles, timeframe 2009–2019.	Not defined.	Hospital leaders gain a wide range of individual beneficial outcomes when attending a formal LDP; the most frequent benefits were knowledge of management and leadership roles, increased confidence, and improved communication skills.	LDPs provided an array of positive outcomes for hospital leaders. These included: - Increased Job Satisfaction/ Positivity, appeared 7 times each. - Improved Career Planning Skills/Succession Planning, appeared 6 times each. - Gained Ability to Empower/Encourage others, appeared 6 times each. - Positive Impact on Organisation (Patient Satisfaction, Outcomes, etc.) - Increased Motivation, appeared 4 times each.

(Continues)

TABLE 3 (Continued)

Author(s), year and country	Research design	Research question or study aim	Study population and sample size	Context	Outcome	Key finding related to the scoping review
						- Gained Ability to Become a Mentor/Role Model, appeared 4 times each.
Harmoinen, 2014, Finland	Doctoral dissertation: (1) Develop a valid and reliable instrument and (2) quantitative cross-sectional research survey	(1) To develop a valid and reliable instrument to facilitate appreciative management, and (2) to describe the concept of appreciative management.	(1) Concept analysis (n = 14), systematic literature review (n = 20), the Delphi method included essays (n = 76), students (n = 68), young nurses (n = 8), piloted in a group of nurse scientists (n = 8), pretested in two health care organisations staff participants (n = 229) and managers (n = 95). (2) Staff participants (n = 2671) and managers (n = 426)	10 hospital districts in Finland (involved five university hospital districts)	(1) To develop the appreciative management instrument (AMI 1.0) to facilitate appreciative management by means of concept analysis, systematic literature review and a Delphi-study. (2) According to the results of the study, appreciative management (planned management, equality, valuing competence, promoting resilience at work) is well realized in the health care organisations.	Appreciative management has a moderate connection to the career development of staff and managers. The staff estimated that the valuation of competence is moderate, but the managers estimated that it is well implemented.
Heikka, 2008, Finland	Doctoral dissertation: (1) quantitative, cross-sectional research survey and (2) thematically interviewed, content analysis.	(1&2) To analyse the content and related competences of the work of the manager of municipal social and health services	(1) Social and health services managers (n = 169). (2) Social and health service managers (n = 5)	Social and health services in five provinces in Finland.	Management of change, financial and human resource management, cooperation and networking were emphasized in the basic duties of social and health managers.	One of the basic tasks of managers is human resources management, which also includes KM. The challenges of human resource management were related to the management of competence and its development. For human resources management methods, development discussions are typical, with dialogue between employees and the manager the most important approach.

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TABLE 3 (Continued)

Author(s), year and country	Research design	Research question or study aim	Study population and sample size	Context	Outcome	Key finding related to the scoping review
Holmlund et al., 2007, Finland	Quantitative: Cross-sectional research	To describe the skills of nurse managers working in specialized health care (self-estimations) according to the four points of view of the Balanced Scorecard; in addition, to illustrate the nature of the connection between the background variables and the nurse managers' skills.	Nurse managers (n = 119)	Hospital District of Helsinki and Uusimaa (HUS).	The nurse managers estimated their skills to be good in all four sectors of the skills: process; customer; economy; and staff point of view.	The nurse managers estimated their skills to be good from the staff's point of view. From the staff point of view, the nurse managers described their skills in the management of human resources and management of staff promotion to be good. Instead, promotion of the training of the staff was illustrated as the weakest sector. Self-assessed skills were best among nurse manager who had few employees and academic education.
Kantanen et al., 2011, Finland	Systematic review	To describe the management and leadership skills of nursing leaders based on existing research evidence.	Nurse managers, nursing leaders, head nurses, nurse administrators, charge nurses, supervisory. 13 articles (2000–2009).	Nursing	The subdivisions of management and leadership skills are substance knowledge, human resource (HR), management, operational management, and research and development competence.	Managers' competence in KM was included in three different subdivisions: human resource (HR); operational management; and research and development competence.
Karamitri et al., 2020, Greece	Development and Validation of an instrument	To present a valid and reliable The Applied Knowledge Management Instrument (AKMI) questionnaire.	Employees (n = 31), health professionals (n = 261)	General Hospital of Kalamata	The developed questionnaire can help policymakers and hospital administrators collect information about KM processes in health care organisations, which can improve the performance of the health care organisation.	The developed questionnaire seems to be reliable, valid, and suitable to be used for studying the suggested nine dimensions of KM: perceptions of KM; intrinsic and extrinsic motivations; knowledge synthesis and sharing; cooperation; leadership; organisational culture; and barriers.

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TABLE 3 (Continued)

Author(s), year and country	Research design	Research question or study aim	Study population and sample size	Context	Outcome	Key finding related to the scoping review
Lunden et al., 2017 Finland	Systematic review	To describe factors facilitating or inhibiting the development of registered nurses' competency and the nurse leader's role in KM.	Head nurses, nurse managers, charge nurses, nurse directors, nurse leaders, administration nurses, 18 articles (2009–2014).	Not defined.	Organisational culture and leadership were determined as the main themes for factors facilitating KM. Organisational culture and management of human resources emerged as themes that inhibit KM.	The nurse leader's role in KM contains two themes: the facilitator and the organizer. A leader is interested in facilitating nursing and professional growth. As an organizer, the leader is a team coordinator who is well acquainted with the substance of nursing and they must recognize any development areas in employee competences.
Lunden et al., 2019, Finland	Qualitative: Individual and focus groups interviews, thematic analysis.	To describe nurse leaders' perceptions of and experiences with KM in nursing.	Leaders (n = 33)	Emergency services, acute care units, shelter homes, dental care facilities and occupational therapy units.	Daily KM focuses on ensuring individuals' necessary competence and responding to sudden changes. KM also involves knowledge transfer, coaching and development of the operating culture for the near future. KM in nursing involves anticipation of future competence requirements in long-term activities.	Nurse leaders' views of, and experiences with, KM can be organized into three main themes: daily KM; management that promotes knowledge; and management that anticipates knowledge requirements.
Kivinen, 2008, Finland	Doctoral dissertation: (1) concept analysis and (2) quantitative, cross-sectional research.	(1) To clarify the concept of KM using Rodgers' concept analysis, and (2) to describe the state of KM and explain the influential factors.	(1) The data for the concept analysis consisted of 56 international articles, timeframe 1985–2003. (2) Managers (n = 521) and staff members (n = 853)	25 organisations: Primary and secondary health care and private company.	Health care requires a holistic approach to KM. This approach takes into consideration aspects of human, structural and social capital.	Managers made the least use of information systems that are conducive to knowledge creation and personnel development.
Kramer et al., 2007, USA	Mixed methods: (1) quantitative survey and (2) qualitative semi-structured focus group	Nurse manager support from the staff nurse perspective, specifically the role behaviours that staff	(1) Staff nurses (n = 2382) (2) staff nurses (n = 446)	From 101 clinical units in 8 magnet hospitals.	Results from the Nurse Manager Support Scale and individual interviews (two sources) revealed that the role behaviours	Staff nurses perceived two of the four role functions identified through factor analysis of the Nurse Manager

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TABLE 3 (Continued)

Author(s), year and country	Research design	Research question or study aim	Study population and sample size	Context	Outcome	Key finding related to the scoping review
	interviews, categorical and constant comparative strategies	nurses in acute care hospitals identify as supportive and the organisational structures and leadership/management practices that promote development of these behaviours.			managers use convey support to staff nurses are essentially the same, with 30 behaviours included in the scale described by some interviewees.	Support Scale data as very supportive: Leadership, particularly "soft" leadership behaviours such as building, guiding, nurturing; and Managing Resources, notably hiring competent staff, making expectations known and clear, and facilitating teamwork. The Career Development function and corresponding behaviours fell between the "nice to have" and "expected" (X = 3.88) positions on the 5-point Nurse Manager Support Scale.
Nurmeksela et al., 2011, Finland	Qualitative: Thematic interviews, deductive content analysis.	To describe the development of nursing practice in performance appraisals from nursing leaders' point of view.	Nursing leaders (n = 8)	One hospital district in Finland.	Nursing managers can leverage developmental discussions in leadership. Development discussions can also take place within the framework of a theme, and can be used to lead change.	Development discussions is one method of KM that nurse leaders should master. The performance appraisal could be utilized in KM by intensifying educational needs and the skills necessary for the charge. The appraisal enabled systematic assessment and individual discussion.
Okonkwo et al., 2020, Nigeria	Quantitative: cross-sectional research	To assess the management knowledge of Health care Managers in a tertiary hospital in Calabar, Nigeria.	Managers (n = 266)	The University of Calabar Teaching Hospital (1 of the 56 federal tertiary health care institutions in Nigeria	The knowledge rating of role of non-clinical professionals, regulatory agency standards, preparation of business communication, change process management and	There is inadequate managerial knowledge at all levels of management (include KM) in a typical tertiary hospital in Nigeria.

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TABLE 3 (Continued)

Author(s), year and country	Research design	Research question or study aim	Study population and sample size	Context	Outcome	Key finding related to the scoping review
					policy formulation and analysis varied significantly among the three levels of management. Less than 50% of operational and middle managers rated themselves as experts in all the competency domains while majority (80%) of strategic managers rated themselves as more than proficient in most of the competency items.	
Oksanen et al., 2005, Finland	Qualitative: Thematic interviews, thematic content analysis.	To describe and analyse the core leadership and management competences of the head of radiography in the radiological department.	Heads of radiography (n = 10)	Two different health care districts from the areas of special care and primary health care.	The core leadership and management competence of the head of radiography in the radiological department consists of maintaining expertise in clinical practice, supporting resources linked to personnel, assuring activity of the department, and strengthening leadership. The core leadership and management competence, for the most part, mirrored what has been described for head nurse in other areas of health care.	The head of radiography demonstrated three of the four analysed core KM competences. Maintaining clinical practice is seen as a way to get to know the skills of staff. The duties of heads in supporting resources of personnel are considered to include taking care of the well-being at work and the professional competence of the personnel. Assuring activity of department comprised the dissemination of information and the utilization of research.
Ollila, 2008, Finland	Qualitative: Half-structured interviews, content analysis	To define and analyse strategic competence-based management, which is a part of leadership.	Managers (2002 n = 22 and 2005 n = 12)	Social and health service organisations in western Finland	Management supervision includes dialogue and reflective thinking as features of competence-based management and its development. It is a strategic method of	The meaning of management supervision of competence-based management is visible as a managers' developing ability to observe the

TABLE 3 (Continued)

Author(s), year and country	Research design	Research question or study aim	Study population and sample size	Context	Outcome	Key finding related to the scoping review
					support for management and at the same time is a part of a managers' welfare. Management supervision as one support system clarifies strategic competence-based management, gives support to leadership know-how and helps a manager to feel better at work.	competence of other people in an organisation. The development is based on insights into maintaining professionalism, finding core facts, and exploiting special human competence. Gaining insight means observing those facts which contribute to a human's competence, managing, and actions at work. These are not only facts connected with professional skills, but also with personal life, environment, and atmosphere. In management what is needed are the tools of the trade and methods by which the competence of other people will bring forward.
Rahimaghaee et al., 2010, Iran	Qualitative: Semi-structured interviews, content analysis.	The purpose of the study was to document clinical nurses' views on the impact of their managers' roles on their professional growth and development.	Clinical nurses ($n = 15$), head clinical nurses ($n = 4$), supervisors ($n = 1$).	Teaching hospitals in Tehran, Iran.	Managers played two major roles in nurses' professional growth process: motivating and inhibiting. General managers' hypocrisy (positive and negative) has a great influence on employees' professional growth.	Managers' support, encouragement, and constructive criticism could lead the nurses toward providing better care and job precision. Managers' incompetency (lack of job responsibility knowledge, attitude, and personality of a leader) harmed the nurses' professional growth. In management what is needed are the tools of

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TABLE 3 (Continued)

Author(s), year and country	Research design	Research question or study aim	Study population and sample size	Context	Outcome	Key finding related to the scoping review
						the trade and methods by which the competence of other people will bring forward.
Sinkkonen & Taskinen, 2002, Finland	Quantitative: cross-sectional research	To examine leadership and management knowledge, along with the skills (both required and possessed) of nurse leaders.	Nurse leaders (n = 268)	Primary health care organisations, municipal health centres.	The importance of KM competence and skills was rated higher than own competence in 68 management areas of 69 in the exam, which is indicative of a need for further training and development.	The most important competences of nurse leaders', which included KM competence, were motivating nursing personnel and methods for developing personnel. The largest difference between the needed and possessed competence were KM competence and activities related to the management of evidence-based nursing practices such as supporting and research, transmitting information, and using research results.
Sinkkonen & Taskinen, 2003a, Finland	Quantitative: cross-sectional research	To determine whether the level of leadership and management knowledge competence self-assessed nursing managers differs according to the type of organisation, the organisational status of the director, and the level of education.	Nurse leaders (n = 604)	Primary health care, special medical care	The assessments of leadership and management knowledge competence were related to the respondents' organisational status and training, and to some extent also to the type of organisation.	Nurse leaders rate their KM competences as the best area of expertise regardless of the organisational position of the leaders. Masters have a better self-assessed level of KM competence than non-masters.

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TABLE 3 (Continued)

Author(s), year and country	Research design	Research question or study aim	Study population and sample size	Context	Outcome	Key finding related to the scoping review
Sinkkonen & Taskinen, 2003b, Finland	Quantitative: cross-sectional research	The aim is to find out the competence requirements for nursing leadership and management knowledge and to evaluate the indicator used to identify them.	Nurse leaders (n = 604)	Primary health care, special medical care	The general ways of structuring the content of leadership and management knowledge are also suitable for describing the contents of nursing management and the skills required for it.	Nursing leaders value leadership competence more than management. Leadership includes KM. The appreciation of KM changed with the organisational position of the nurse leader and by organisation type.
Søreide et al., 2019, Norway	Qualitative: Focus group interviews, thematic analysis	To examine perceptions of key challenges that nursing leadership face when organizing health care services in the municipality.	Nurse leaders (n = 9)	Health care services in the municipalities of Western Norway	Three themes were identified: tension between organizing daily work and future challenges; challenges with recruiting enough registered nurse (RNs) in municipal health care services; and competence development plan—a strategic tool for nursing leadership. In addition, the municipal health care services need a better knowledge base, including information about both the content and quality of services, organisation, leadership and management, to develop new forms of work and professional approaches.	The KM competence requires systematic measures. The key challenges that nursing leadership faces when organizing health care services in the municipality are: Tension between organizing the daily work and future challenges; Challenges with recruiting enough RNs in municipal health care services; and Competence development plan—a strategic tool for nursing leadership.

Abbreviation: KM, knowledge management.

Clarke, 2010). The identified systematic reviews and the current scoping review did not included other instances of duplicate article.

The research identified through the database search also included one mixed methods study and one study which described the development and validation of an instrument. In the mixed methods study, the quantitative research employed a survey using The Nurse Manager Support Scale while the qualitative research applied semi-structured focus group interviews, with the collected data analysed through categorical and constant comparative strategies. Concerning instrument development, Karamitri et al. (2020) reported the development of a new knowledge-management questionnaire (The Applied Knowledge Management Instrument).

5.3 | Review findings

5.3.1 | Health care managers' competence in knowledge management

The research covering managers' competence in knowledge management described three distinct themes: system management; professional development; and leadership behaviour and attitude (Figure 2).

System management
Competence in knowledge management requires an understanding of systematic measures and governance (Søreide et al., 2019). However,

this will require various tools, structures, processes, methods, and information systems which will improve the competence of other people at the organisation (Kivinen, 2008; Lunden et al., 2019; Okonkwo et al., 2020; Ollila, 2008). For example, managers could use discussion, competence assessment instruments, induction programs, training plans, education cards, and job rotation to improve knowledge management among employees (Holmlund et al., 2007; Oksanen et al., 2005). The identified articles showed a lack of competence in system management based on the fact that a majority of health care organisations had discussed knowledge management issues (information needs, data acquisition, storage, and use), but only a handful of organisations had plans and structures for knowledge management (Kivinen, 2008).

Professional development
Performance appraisal is one method of knowledge management which nurse leaders should master to enable competence development. In the clinical setting, this aspect of knowledge management could be realized through intensified educational needs and the promotion of skills necessary for a specific change. The appraisal process should also involve systematic assessment and individual discussion (Heikka, 2008; Nurmeksela et al., 2011). In addition, managers have a central role in education and the continuous development of clinical practice through their influence on the associated knowledge base and ability to facilitate both organisational learning and knowledge transfer (Carr & Clarke, 2010; Kantanen et al., 2011; Karamitri
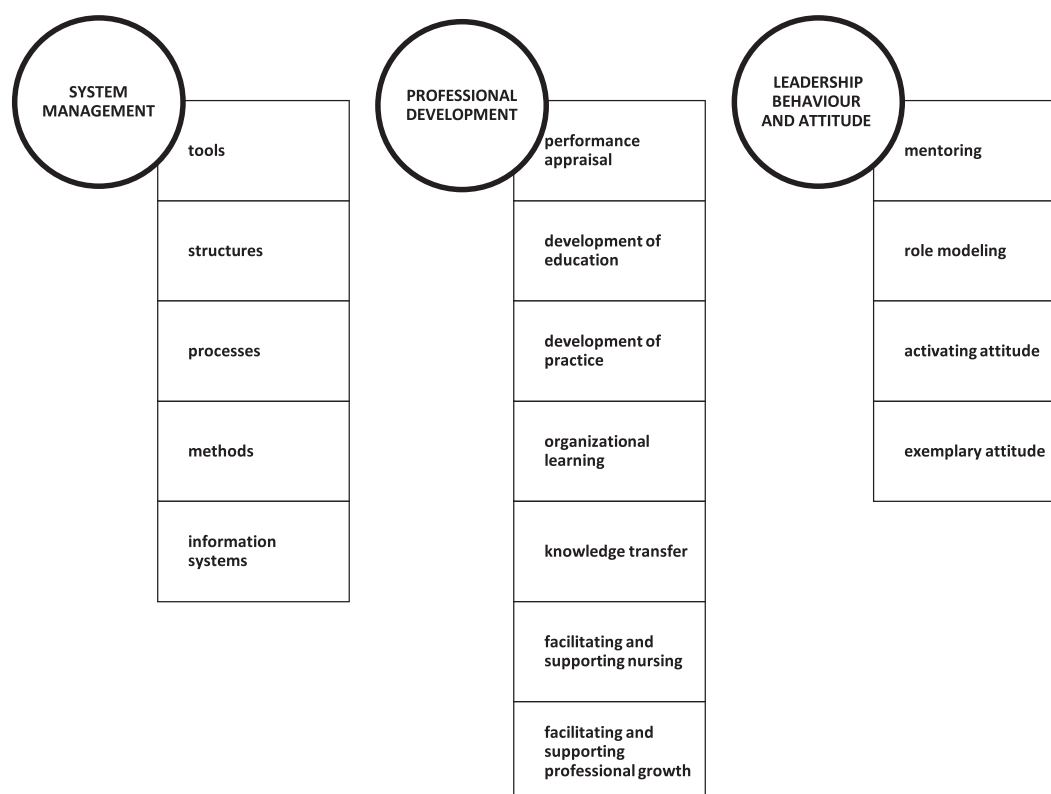

FIGURE 2 Themes identified in the included articles

et al., 2020). A leader must also be interested in facilitating and supporting nurses and professional growth (Flaig et al., 2020; Holmlund et al., 2007; Kramer et al., 2007; Lunden et al., 2017; Okonkwo et al., 2020; Oksanen et al., 2005). For example, Oksanen et al. (2005) stated that the a manager who actively maintains their clinical competences will also positively influence the competences of their staff, while Harmoinen (2014) emphasized that appreciative management has a moderate connection to professional development (Harmoinen, 2014).

Leadership behaviour and attitude

Managers' leadership skills and behaviour strongly impact knowledge management (Anonson et al., 2014; Rahimaghaee et al., 2010). For example, frontline nurses have stated that nurse leaders excel at mentoring and role modelling. A leader who can act as a mentor will encourage staff members to expand their knowledge base, try different roles, and try new areas of specialization (Anonson et al., 2014). On the other hand, managers who lacked competence (i.e., lack of responsibility, poor attitude, and personality of the manager) were found to harm nurses' professional growth (Rahimaghaee et al., 2010). In addition, a manager's ability to provide genuine feedback was considered an important part of their professional competence (Kramer et al., 2007; Ollila, 2008). Thus, successful knowledge management in an organisation requires managers who take an active role in the knowledge management process as well as show an exemplary attitude towards the systematic development of competence (Flaig et al., 2020; Harmoinen, 2014; Karamitri et al., 2020; Kramer et al., 2007; Lunden et al., 2017; Okonkwo et al., 2020; Ollila, 2008).

5.3.2 | Instruments used to study managers' competence in knowledge management

A total of eight distinct instruments have previously been used to assess managers' competence in knowledge management in the context of health care. Of these eight instruments, seven have been validated. None of the instruments solely measured a manager's competence in knowledge management. Instead, competence in knowledge management was usually assessed as a part of a manager's management competence (Table 4). None of the themes and variables included in the instruments were completely identical.

The instruments were answered by nurse managers (Harmoinen, 2014; Heikka, 2008; Holmlund et al., 2007; Kivinen, 2008; Okonkwo et al., 2020), nurse leaders (Sinkkonen & Taskinen, 2002, 2003a, 2003b), and employees (Harmoinen, 2014; Karamitri et al., 2020; Kivinen, 2008; Kramer et al., 2007). The same

TABLE 4 The eight instruments which have been used to assess competence in knowledge management, including examples of themes and measured variables

Author(s), year	Instrument	Theme of competence?/What is measured?	Variables	Validated
Harmoinen, 2014	The appreciative management instrument	Valuing competence	The manager enables the employee to develop his/her professional skills. The manager gives honest feedback on the work.	yes
Heikka, 2008	Questionnaire for municipal and social and health managers	Skills needed for the job	Motivating/engaging employees	yes
Holmlund et al., 2007	The Balanced Scorecard	Staff point of view	Human resource management skills. Personnel development management.	no
Kivinen, 2008	Innovations in human resource management in health care (HumanRe)	Management and culture of work	The skills development needs of the personnel are taken seriously and the conditions are created for their implementation.	yes
Karamitri et al., 2020	The Applied Knowledge Management Instrument	Leadership	My supervisor rewards people who share their knowledge. Leadership creates channels of communication that help knowledge transfer.	yes
Kramer et al., 2007	Nurse Manager Support Scale	Career Development	Make it possible for staff to attend education programs, seminars, and courses.	yes
Okonkwo et al., 2020	Health care Leadership Alliance competency directory	Knowledge of leadership	Support innovation and creativity (motivational) Mentoring/coaching principles	yes
Sinkkonen & Taskinen, 2002, 2003a, 2003b	Importance of leadership competency requirements (knowledge and skills required for leadership)	Training and development	Personnel development methods	yes

instrument was used in three studies (Sinkkonen & Taskinen, 2002, 2003a, 2003b), while two studies relied on the same data (Sinkkonen & Taskinen, 2003a, 2003b).

6 | DISCUSSION

The study compiled comprehensive information concerning which knowledge management competences health care managers have and which competences they need to improve; furthermore, the research presents which instruments have been used to study managers' competence in knowledge management. A total of 21 original studies was identified. These articles scrutinized various aspects of health care managers' competence in knowledge management, which fell under three main themes: system management; professional development; and leadership skills and behaviour. The identified literature has been published evenly during the past 20 years (2002–2022), and none of the included articles solely covered managers' knowledge management. The paucity of research into this topic during the past two decades highlights that there is an urgent need to investigate health care managers' competence in knowledge management, along with the associated factors.

Previous studies have shown that organisational learning is a cumulative phenomenon which facilitates the personal and professional growth of individuals and teams (Goh et al., 2013). At the organisational level, managers have a key role in supporting learning practices in their organisation. For example, managers have the authority to enact structures or policies that facilitate learning (Li & Sun, 2018). Therefore, nurse managers are crucial to the success of any health care organisation (Shaffer, 2003). Previous research has also shown that supportive organisational leadership is necessary to funding, adequately valuing, and supporting nurses' professional development, and should be considered an investment into patient safety and nurse retention (Coventry et al., 2015). According to the reviewed studies, managers have a central role in motivating and enabling the professional growth of nurses, but a lack of competence will mean that managers can also inhibit their employees' professional growth. For example, mentoring and role modelling are methods of competence development which promote competence development among employees.

Although managers have a key role in the functioning of health care organisations (Ayatollahi & Zeraatkar, 2020), managers' competence in knowledge management is a topic which has received limited research attention. For example, none of the reviewed articles assessed managers' competence in knowledge management as a distinct area of management competence. Moreover, previous research literature mainly explains what knowledge management is, but does not clarify which skills are needed for successful knowledge management (Hislop et al., 2013; Lunden et al., 2019; Orzano et al., 2008; Otala & Aura, 2005). In addition, the concepts used in the literature to discuss competence in knowledge management vary considerably. These factors make it difficult to assess the current state of nurse managers' competence in knowledge management.

The competitiveness of a health care organisation increasingly depends on how knowledge is utilized and how the organisation can absorb new information. Therefore, knowledge management needs to be managed more systematically and purposefully (Christine, 2011), i.e., via continuous planning, monitoring, and support (Ayatollahi & Zeraatkar, 2020). A manager's competence in knowledge management is a concept which should be continuously assessed because successful knowledge management leads to better performance and high-quality care (Wu & Hu, 2012). According to our results, several instruments have been developed to assess health care managers' competence in knowledge management, yet these instruments are already quite old and do not specifically measure competence in knowledge management but rather management skills in a broader sense. As such, these previously developed instruments may not be reliable for application in the rapidly evolving health care environment.

The results of this review were limited regarding the identification of distinct aspects of health care managers' competence in knowledge management. As a result, more empirical research will be needed before strong inferences and conclusions can be made about health care managers' competence in knowledge management. It would be important to examine which issues contribute to managers' competence in knowledge management. Well-designed educational intervention studies could also shed light on which aspects of knowledge management health care managers need to develop. Health care organisations should also draw parallels from studies concerning the business sector to improve the functioning and competitiveness of organisations (Kothari et al., 2011).

7 | LIMITATIONS

The presented review included some inherent limitations. First, although we conducted a thorough literature search under the guidance of an information specialist, there is a possibility that certain relevant studies were missed. For example, the fact that no clearly established definition for the concept of knowledge management currently exists in the context of health care caused challenges when retrieving information (Dulipovici & Baskerville, 2015). Second, the review only included studies available in English, Swedish or Finnish; hence, the review should be replicated by other researchers in additional languages for comparison with the present study and to provide a clearer picture of health care managers' competence in knowledge management.

8 | CONCLUSIONS

In conclusion, little research is currently available on managers' competence in knowledge management in the context of health care. It could be expected that the results would not differ much from what has been reported for other managers, as managers are recognized to play a crucial role in successful knowledge management practices. There are currently no valid or reliable instruments for assessing

health care managers' competence in knowledge management. Thus, future research should focus more on managers' competence in knowledge management, seek to establish a consensus regarding terms related to knowledge management, and work to develop an instrument that assesses managers' competence in knowledge management.

9 | IMPLICATIONS FOR NURSING MANAGEMENT

It is essential to the health care sector that managers have high levels of knowledge management competence, as possessing skills related to knowledge management can improve employees' work-life balance and work satisfaction. Managers need to identify how they can support employees' professional skills, learning and continuous development, as well as encourage the entire staff to expand their knowledge base. The presented results can be utilized in the assessment and development of nurse managers' competence in knowledge management, notably, via the development of robust educational and in-service training programs for health care managers.

CONFLICT OF INTEREST

No conflict of interest has been declared by the authors.

ETHICS STATEMENT

The scoping review do not need ethical approval statement or informed consent, as the review does not compromise the physical integrity of the subjects, data are not used or stored without consent, the target group does not contain persons under 15 years of age.

AUTHOR CONTRIBUTIONS

EK, MM, AMT, KK, EJ, KM, AO, MK, PJ-I, and OK made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data. EK, MM, AMT, KK, EJ, KM, AO, MK, PJ-I, and OK involved in drafting the manuscript or revising it critically for important intellectual content. EK, MM, AMT, KK, EJ, KM, AO, MK, PJ-I, and OK have given final approval of the version to be published. All authors have participated sufficiently in the work to take public responsibility for appropriate portions of the content. EK, MM, AMT, KK, EJ, KM, AO, MK, PJ-I, and OK agreed to be accountable for

all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

DATA AVAILABILITY STATEMENT

Authors do not wish to share the data.

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