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Title Page

The characteristics of leadership and their effectiveness in quality management in healthcare - a systematic literature review and a content analysis

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Abstract

The characteristics of leadership and their effectiveness in quality management in healthcare - a systematic literature review and a content analysis

Effective quality leadership is identified as a critical factor for organisational success. Leadership style has an important role in the implementation of quality management. This systematic review describes the characteristics of leadership in quality management in healthcare and analyses their association with successful or unsuccessful quality management by using content analysis.

Papers published in peer-reviewed journals between 2011 and June 2023 were selected by exploring the Abi/Inform, Business Source Complete, Cinahl, Pubmed and Web of Science electronic databases. Altogether 3,014 records were found. PRISMA-protocol was used for selection of studies. Twelve original and three review articles were included.

Six leadership characteristics were identified that were linked to successful or unsuccessful implementation of quality management. The six categories were strategic, knowledge-oriented, value-based, supportive, participatory and communicative leadership. Supercategories and subcategories of successful and unsuccessful implementation are described.

The results can be used to identify the leadership characteristics that promote successful quality management in healthcare organisations. In education for leaders and managers, attention should be in the characteristics and style of leadership and their impact on the effectiveness of quality management.

Introduction

Quality in healthcare is a multifaceted and comprehensive concept. Perceived as well as actual quality represents a critical success factor for the competitiveness of health care organisations. (1.) In addition to quality management within the organisation, approaches that span across different interfaces are crucial and should be taken in account. For quality management to be successful, participation of both those who take part in service production and their leaders are important. (1, 2.) The key elements in quality management include striving to achieve the quality goals set through systematic leadership, planning, development, and quality assessment (3). Quality leadership has been identified as a critical element for the success of an organisation in several studies (4, 5, 6, 7, 8, 9, 10). In brief, leadership can be defined as leading people and an organisation (1).

Quality management can focus on organisational or operational structures or on processes and outcomes. The level of quality assessment and utilisation of its results are influenced by the degree of commitment and activity on the part of leadership and staff, respectively. (3, 11.) Organisations with advanced quality management have highly developed and smooth management processes, goal setting, utilisation of the results of quality assessments and resource management (12).

There are many definitions of leadership and management, but an unambiguous consensus of their different dimensions is lacking. Management is usually linked to planning and development as well as management of organisational processes and resources (5, 13), including determining and monitoring the improvements (5). Leadership, on the other hand, is associated with leading people to attain results in inclusive and collaborative teamwork, with passion for excellence and with an emphasis on the social context (5). Leading an organisation includes strategic planning, organisational vision and how to influence leaders and managers to commit to strategic goals (5, 13, 14). A leader is a visionary, innovative, communicative, and inspirational person who provides encouragement to individuals and groups (13, 14). The role of a manager is more that of a consultant, and therefore analytical and official (13). The roles of leaders and managers are based on both personal characteristics and behaviour (14). Certain competencies can be linked to effective leadership and management, such as communication, leading with knowledge, leading resources, and leading change, as well as an evidence-based approach and professionalism (1).

Successful quality leadership and management calls for strong commitment to organisational goals and strengthening of quality culture (10, 15). Leaders must also have expertise on the principles of continuous improvement and the utilisation of the organisation's quality management model (16). This means that the leader must internalise quality management, create organisational guidelines and practices, and select tools for quality assessment and improvement. Ensuring the resources required by quality assurance is also considered part of quality management. (8, 15) So-called soft and hard elements have been identified in quality leadership. The hard elements include quality assurance methods related to service production and processes, while elements such as leadership,

staff management and client-centeredness can be called soft elements. (6, 8.) Several studies show that successful quality leadership supports staff commitment to the organisation's vision and goals (7). However, the constantly changing operational environment in healthcare also poses challenges and developmental needs for quality leadership (1, 4).

In their study, Mustafa et al. (2012) found that when leadership is committed to quality management the results were the maintenance of good performance and service quality by the organisation as well as client-centeredness and client satisfaction (17). However, little is known about what leaders do in practice to promote quality assurance and improvement, how much time is spent on it, and what evidence-based information is available to them (15). Nevertheless, leadership has been identified as crucial for successful quality assurance within organisations, which is why more research information is needed on this topic (1, 15).

Meng & Berger (2013) have identified three key leadership characteristics: the ability to make strategic-level decisions, the ability to solve problems, and communicative competence (18). One of the goals of leadership is to motivate staff in their work and professional development. The choice of leadership style is influenced by the size of the organisation, different contexts, as well as groups and individuals. For leadership to be efficient, different leadership styles must be identified and utilised. The leader must disseminate information, maintain open communication, strive towards transparent decision-making, be able to delegate, and help to reach consensus. (19.)

Leadership is seen as having a key role in the effective implementation of quality management (9). A leader's personal characteristics have an impact on their leadership style. According to Laureani & Antony (2017), an efficient leader has emotional intelligence and is highly motivated to lead. Honesty, intelligence, and self-confidence have also been identified as important characteristics. Leadership characteristics have been studied in contexts such as the implementation of Lean Six Sigma in an organisation. A total of ten different characteristics were identified which were: being visible, communicative, inspiring, consistent, goal-oriented, leading by example, flexible, aware of Lean Six Sigma as a philosophy, having clearly defined goals and responsibilities, as well as being constructive. (8.)

The aim of the study was to identify the characteristics of leadership and their effectiveness in quality management in the healthcare sector through a systematic literature review and a content analysis. To our knowledge, there are no earlier studies about the features of leadership for effective quality management. These two topics, namely leadership and its effectiveness in quality management in healthcare are important to be studied in combination both from academic and from a practitioner's perspective.

Methodology

The review protocol was designed around the intent to gain an understanding of the characteristics of leadership in quality management. The logic of the literature searches was verified with the aid of an information specialist at the Turku University Library. References were collected systematically in November 2021. Papers published in peer-reviewed journals between 2011 and November 2021 were selected by exploring the Abi/Inform, Business Source Complete, Cinahl, Pubmed and Web of Science electronic databases. The literature search was completed in October 2023 to the period December 2021 to June 2023 and directed to the same above-mentioned databases with unchanged search terms. In all searches, the search terms were adapted for different databases. The literature retrieval process is presented in Figure 1.

Inclusion and exclusion criteria

Articles were included if they met the following inclusion criteria: a description of quality management or leadership in health care, a peer-reviewed research or literature review, an original study of quality management or leadership, and might include theoretical modelling or numerical data in addition to qualitative results and a full text available. Accordingly, editorial, descriptions of an education framework or interventions and others than systematic reviews were excluded.

Processing of material

First, one of the authors examined the titles and made selections relative to the research questions. Second, two of the authors examined the abstracts and formed a consensus on the articles to be selected for further examination. Finally, three of the authors reviewed the full text articles that met the inclusion criteria. Differences of opinion were resolved through further review of the articles. The search yielded 3,014 articles, based on the titles 122 abstracts were selected for closer reading. After completion of reading abstract 28 publications were selected to be read in full text of which 15 were included in the review. Retrieval process is described in Figure 1. Totally 12 of the included studies were original articles. Three systematic reviews were included to ensure that relevant earlier research was not overlooked.

Analysis of the Data

Qualitative content analysis was then used as a method of analysing the data from the original articles. No software was used in the analysis. Content analysis not only focuses on subject and context but also emphasises variation, such as similarities within of the text. (20.) Manifest analysis focuses on what has been said about the subject (21). One author analysed the data using inductive content analysis through manifest interpretation in relation to the research question: What kind of leadership characteristics can be linked to the effectiveness of quality management in healthcare?

The characteristics of leadership in the context of efficient quality management were examined by using open coding, creating categories and abstraction (20, 21). The selected articles were read through several times and the material was coded by underlining essential expressions in relation to the research questions. The analysis unit was words or entities that appeared in the articles. The underlined original expressions were put together in tables and reduced expressions were formed from them. An example of an original expressions is, "They were also observed to provide the board with helpful analysis of quality and safety concerns, for example, by explaining trends, both positive and negative, and why issues had arisen. They made connections between different sources of data (e.g. between data on staffing levels, staff well-being and patient experience) and supplemented quantitative data with 'softer' intelligence gleaned from time spent on the ward." (25.) Reduced expressions were e.g. "using analysis of quality and safety concerns to keep the board informed; explaining trends and why issues had arisen", and "using information collected from different sources in different procedures in management" (20).

After that, we went through the reduced expressions looking for similarities. Expressions describing a similar phenomenon were grouped into subcategories. The subcategories were named with concepts describing the content of the expressions, such as "extensive collection and analysis and utilisation of data to understand the emergence of trends and problems". Next, the material was abstracted by combining subcategories with the same content and super-categories were formed, e.g. "utilisation of efficient knowledge management in leadership". In the last step, the super-categories were formed into main categories, e.g. "knowledge-oriented leadership". (20.) Two researchers participated in the evaluation of the analysis phase, and based on their evaluations, no changes were made to the analysis.

Results

Totally 15 research articles were included, of which three were systematic reviews. The 12 original studies had been carried out in the following countries: Australia (n=2), Canada (n=1), England (n=1), Finland (n=1), Iran (n=2), Jordan (n=1), Oman (n=1), Sweden (n=1) and the United States (n=2). The data collection methods for the original studies varied as follows: interviews (n=5), questionnaires (n=2) and mixed methods; interviews and observations (n=2), interviews and questionnaires (n=2) and interviews and implementation of quality improvement model (n=1). Typically, the informants were leaders or quality managers in the organisations (n=9). In two studies the informants were health care staff, and in two other studies, policymakers together with leaders (Table 1).

Three systematic reviews were included (Table 2). One of the reviews presented identifying and analysing the characteristics of leadership and management associated with successful Lean thinking in healthcare (5). The second review assessed the association between different leadership styles and health care quality measures (9). The purpose of the third review was to identify a set of total quality management (TQM) practices for successful implementation in healthcare institutions (22).

Maijala et al. (2018) examined 12 articles on the managerial principles behind the successful implementation of Lean thinking. They found several characteristics of effective Lean leadership and management such as problem-solving techniques and skills, measuring, communication, the role of leaders as mentors, coaches or facilitators, emotional intelligence, multi-professionalism, continuous learning, professional values, communication of a vision and targets for improvement and customer focus. (5.)

Sfantou et al. (2017) included 18 studies in a systematic review. They found a correlation between leadership styles and quality and associated measures. The following leadership styles had a positive correlation with quality of care: task-oriented, formal transactional, hands-on, transformational, and formal. In contrast, a laissez-faire leadership style was negatively related to the organisational quality culture. (9.)

Talib et al. (2011) identified eight best practices for successful implementation of total quality management (TQM) in health care. Top management commitment and support was identified as the most important practice for implementing TQM. Teamwork and participation were seen as the second most important practice. Process management was a critical practice and it had effects on customer focus and satisfaction. Resource management included several areas, such as infrastructure, materials, and information systems. Organisational behaviour and culture were also influential in practical functioning. Continuous improvement played an important role in the successful implementation of TQM as well as training and education. (22.)

Analysis of the description of leadership characteristics in quality management

Through content analysis six different main categories of leadership characteristics and their association with effectiveness in quality management were identified from the original articles. The categories could be divided into leadership and management but there were also attributes which could be connected to both concepts. Therefore, in this review we use the terminology of the referred publications, and no distinction was made between the dimensions of leadership and management. The leadership characteristics identified were strategic, knowledge-oriented, value-based, supportive, participatory, and communicative leadership. Table 3 presents the association of these six characteristics to the super- and subcategories that describe effective or ineffective implementation of quality management. No other super-categories were found from the review articles.

Strategic leadership

The emergence of quality management at the strategic level was mentioned in several articles as an important starting point for successful quality management implementation (23, 24, 25, 26, 27, 28, 29). Avery et al. (2021) pointed out that strategies should be related to quality management and to the risk and safety agenda to be pervasive in the organisation (30). The important role of leaders in identifying and creating the quality agenda for the organisation at a strategic level was mentioned in some studies (23, 26, 27) as was defining goals for quality improvement (24, 25).

According to Jones et al. (2017), the leadership in organisations with advanced quality management demonstrates a strategic decision-making ability to achieve quality goals (25). Strategic decision making in the field of organisational quality management was also seen as having a positive effect on the commitment of personnel to quality development. In addition, the decisions on the strategic level were perceived to secure resources to promote quality development. (23, 26, 27, 28, 29.)

According to the study by Mosadeghrad (2014b), the lack of organisational strategies and goals for quality has a negative effect on investing in the implementation of quality management. An organisation without quality goals, policies and tactics rarely succeeds in convincing employees to commit to quality improvement. A lack of defining roles and responsibilities in quality management was also seen as a barrier for effective implementation. (28.) In addition, if there were problems in promoting a quality cultural dimension in the organisation the level of quality improvement remained poor (24, 28, 29).

A weak commitment by managers to the organization's quality management strategy was seen as an obstacle to its implementation. Managers' poor understanding and lack of competence regarding quality management were seen being vulnerable to commitment to comprehensive quality

management. (25, 28.) In addition, poor planning of quality improvement procedures and education influences negative results in quality improvement projects (23, 27, 28).

Knowledge-oriented leadership

Alloubani et al. 2018 pointed out the utilisation of experience-based knowledge in quality management (32). Some studies identified the different dimensions of leading through knowledge. Leaders took advantage of benchmarking in high-performing organisations to see what they could learn and what could potentially be implemented in their organisation (25). Learning from the experience of quality management implementers by studying expected challenges and pitfalls facilitates implementation (27, 33). Utilising employees' views and experiences in leadership promotes employees' enthusiasm to make additional efforts to improve quality. In addition, using information about patient satisfaction, for example, was seen as important in quality management. (32.)

In some studies, the authors' emphasised the utilisation of organisational information reporting. In leadership attention should be paid to information from reporting systems (25, 29, 33, 34). Analysis of various positive and negative quality and safety trends supports understanding the emergence of problems (25, 33). Leaders' made connections between data from different sources (25, 34), such as staffing levels, staff well-being, patient experiences, and supplemented quantitative data with qualitative data to understand why success or issues had ensued (25).

Value-based leadership

Value-based leadership was mentioned as being associated with successful quality management in several articles. The authors emphasised the role of the leader in defining values and creating a quality culture in the organisation (24, 25, 26, 27, 29, 30, 32). In addition, it was mentioned that when leaders communicate about the values of the organisation, it supports the staff and encourages them to utilise the quality management processes (25).

Value-based leadership was also seen as an ability to prioritise quality improvement. The authors raised the importance of quality and risk management as a leadership approach that supports the implementation of quality management. (25, 30, 31.) Furthermore, it was seen that leaders should understand and be responsible for assuring the importance of the prioritisation of quality and risk management (30).

Supportive leadership

In several studies, the supportive role of leaders was related to high performance in quality management. A supportive role was deemed to have a positive influence although the nature of the support differed (23, 26, 27, 28, 31, 33). Creating a quality culture was seen as a key feature that supported quality improvement (25). Supporting employees in achieving high performance in quality management engaged employees for organisational quality goals (26). Leaders' commitment to the quality system and its development were seen as supporting improvement in employees' quality performance (23, 30, 31, 34). A supportive leadership style was also described as working to ensure adequate resources in quality improvement projects (23).

Some of the studies described that weak support from top managers had a negative effect on quality improvement (25, 28, 31, 34). According to Elg et al. 2011 leaders' time may be taken up by dealing with everyday problems, making them incapable of supporting employees in quality improvement (34). However, the lack of support from leaders in quality improvement was seen as a prioritisation issue (25, 28, 30). A high turnover of managers was also seen to have a negative effect on successful quality management. The quality management know-how and experience of new managers, as well as their commitment, were perceived to be valuable. (27, 28, 31.)

Participatory leadership

Several studies described the importance of employee involvement in quality improvement activities. The authors considered the role of leaders as important in ensuring that the employees participate and engage systematically in quality improvement (23, 25, 26, 27, 28, 29, 32, 33). Furthermore, active listening to information from employees provided insight into needs and problems in quality management (31). Employee involvement in assessing the suitability of the quality management tools and techniques used by the organisation was identified as an important point of view (25, 33). Leaders place high importance on quality improvement projects, e.g. those focused on time resources. Time limitations had a negative effect on quality improvement projects. (23, 27.)

Communicative leadership

Some elements related to the communication of quality improvement were associated with leadership. Strong and clear communication by leaders of the reasons and impact of quality improvement projects was considered as an important starting point for successful quality management (23, 25, 27, 28). The importance of dialogue with employees where leaders and employees can express their observations and concerns of quality management processes was also

pointed out in some studies (23, 29, 30, 31). Furthermore, active listening to information from employees offers insights into the needs and problems experienced in quality management (31).

Employee involvement in assessing the suitability of the quality management tools and techniques used by the organisation was identified as an important point of view (25, 33). But leaders' inability to communicate about quality improvement with employees was perceived as a lack of support (23, 28).

Discussion

The aim of the study was to identify, through a systematic literature review, the characteristics of leadership and their association with effectiveness in quality management in the healthcare sector. Effective leadership generates successful quality management. By using content analysis, it was possible to identify those characteristics of management and leadership that could be linked to successful or unsuccessful quality management in the organisation. These leadership characteristics were classified into six main categories: strategic, knowledge-oriented, value-based, supportive, participatory, and communicative leadership. To our knowledge, this is the first review and content analysis to address the characteristics of leadership in connection with effective quality management. Here, the original source's expression about leadership, either leadership or management, have been used. In countries with largely publicly funded health care, every leader's role includes management features and therefore both of these leadership features have been discussed in the study.

Some practical considerations can be made from the content analysis. It is important that the leaders of health care and political decision-makers recognise the leadership styles that support quality management. Organisations should define the contents of quality management. At the strategic level, the quality sought should be valued and defined. At the tactical level, it is important to communicate comprehensively about the organisation's goals and the means to achieve them. At the operational level, quality assurance must take place through management that involves and supports the personnel. These levels are cross-cuttingly supported by knowledge-based management.

In the reviewed original articles, value-based leadership was considered to support the development of a quality culture within the organisation and the prioritisation of quality management on different organisational levels. This was supported by the findings of the review article of Majjala et al. and another study about Lean implementation, where successful quality management in organisations has been dependent on jointly defined values and mutual trust (5, 35). As in several reviewed original studies, leaders' supportive role and commitment and responsibility support the staff other literature indicates that supportive leadership is linked to staff commitment, as well (36, 37). Furthermore, the values of leaders and superiors, strong commitment to and support for quality improvement have been identified as a prerequisite for successful improvement of quality management within organisations, and both are also seen as having an impact on staff's willingness to commit to quality improvement (36, 38).

Like our finding, the acknowledgment of quality management as part of strategic-level decision-making has also been recognised as necessary for the improvement of the quality of healthcare (39, 40). In our data, leading through knowledge, by utilising the results of internal measurements within the organisation as well as external comparisons, emerged as one positive characteristic of

leadership. Leaders should therefore promote leading through knowledge as part of their leadership style and communication with the staff (1).

Participatory leadership as being associated with successful quality management was a finding presented by others, too (22, 40). According to Westin et al., a participatory leader delegates responsibility, ensures sufficient training, and discusses the importance of quality management with staff (37). Communicative leadership ensures the implementation of the strategy and quality goals (5, 37, 41). A communicative leadership style supports the staff's autonomy and their ability to plan work tasks, it also identifies the needs of the staff on a group and individual level and supports problem solving (41).

The different perspectives of leadership and the leadership styles need to be discussed in leadership education to increase effectiveness of in quality leadership. It may also be profitable to consider the role and characteristics of leadership in connection with systematic quality management practices so that the organisation can attain the desired goal. Assessment of the impact of different leadership characteristics should be a topic for further research, as well as their connection with good practices in quality improvement.

This study has certain limitations. The literature on leadership characteristics of quality management in healthcare was quite scarce, which limits the generalisability and reliability of the results. The data search period was eleven and a half years; but the language was limited to English, which may have led to exclusion of relevant articles written in other languages. To enhance reliability, the systematic data search and process of analysis made use of the expertise of an information specialist and except for the title-level review, two or three researchers were involved in each phase of the analysis. In the original articles and reviews selected for the study, both designations leadership and management were used to refer to leadership, meaning that the researchers had to identify the intended meaning from the context. The PRISMA 2020 checklist was also used to ensure the reliability of the systematic literature review (42).

As conclusion, based on twelve original articles and three systematic reviews we were able to analyse and describe the characteristic of leadership that are essential for successful quality management. Our findings have practical implications to leadership education and quality improvement.

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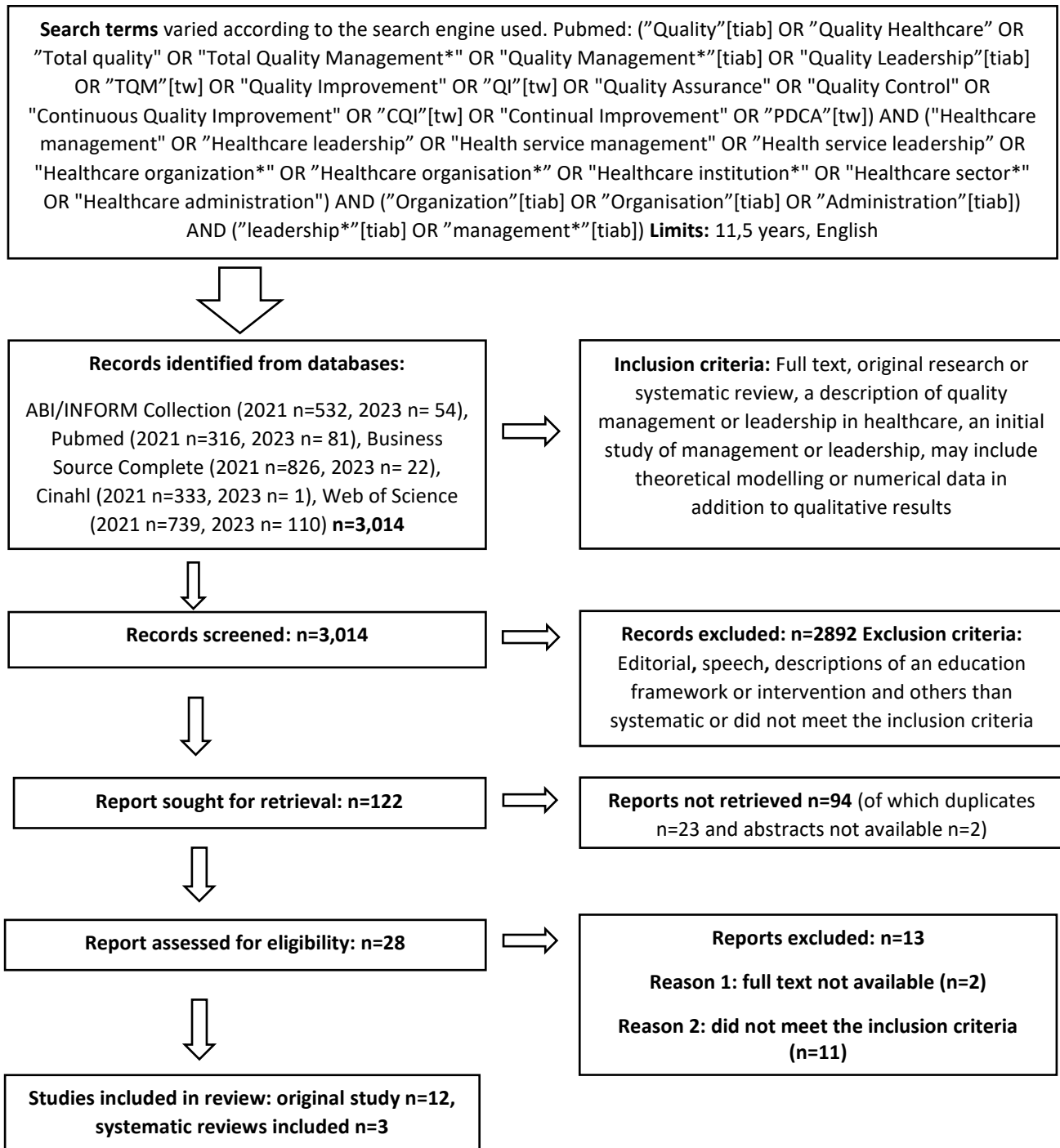


Figure 1. Process of literature retrieval for the systematic review.

Author, year	Country	Setting	Data collection method	Informants (n)	Study objectives	Main findings of the study
Rawshdeh et al., 2023	USA	Healthcare organisations	Semi- structured interviews	12 healthcare quality experts	Opinions and insihtgs on the implementation of quality management systems (QMS) in healthcare organisations	Six areas of interest was identified in the proposed framework: QMS definitions, implementation success, healthcare complexity, barriers, facilitators, and benefits.
Avery et al., 2021	Australia	Healthcare organisations	Interviews	12 non-executive directors	Key governance, leadership and management activities with impact on quality, risk and safety	Key goal in leadership is to influence positively and engender a strong culture of quality, risk and safety in clinical and non-clinical activities. Critical issues reporting, sustaining development of quality and risksystems.
Hibbert et al., 2021	Australia	Healthcare organisations	Mixed-method: interviews and observations	19 clinicians and four Improvement Faculty members	Factors that lead to successful implementation of a program of quality improvement (IQ) projects	Successful implementation of quality improvement projects supported of an agreed and robust QI system, a skilled faculty to assist improvement teams, active involvement of leadership and management and an understanding that teams matters.
Singh et al., 2019	USA	Palliative and hospice care organisation	Semi-structured interviews	Seven leaders of departments	Leaders attitudes and perceptions on application of QI- strategies	Supportive and encouraging leadership is required to successful implementing of QI, leaders should be commitment and involvement in QI process and offer needed resources. Strong communication increases the quality and efficiency of care.
Al Khamisi et al., 2018	Oman	Hospital	Mixed-method: implemetation of a QI-model and interviews	Healthcare quality managers	Implement knowledge-based system in healthcare QM-system	Issues affecting quality in healthcare leadership: Creating a caring culture; decisions according values, promoting a safe work environment, promoting a quality culture. Planning and designing; planning for community needs,

						developing an operational plans. Planning for disasters. Improving quality and patient safety.
Alloubani et al., 2018	Jordan	Healthcare organisations	Two questionnaires	50 nurse managers, 150 registered nurses	Managers' leadership styles effects on quality in nursing care	The study indicated a significant positive correlation between transformational leadership style and particular organisational outcomes such a jobsatisfaction, leader effectiveness and the quality of nursing care.
Jones et al., 2017	England	Healthcare organisations	Mixed-method: interviews, observations and documents	65 board members, 60 hours meeting observations and board meeting documents	Governances' relation to QI	Characteristics of boards with higher level of quality improvement (QI) maturity: prioritising QI, using data for improvement, patient and staff engagement, a culture of QI, clinical leadership and balancing a focus on short-term priorities with a long-term focus on QI.
Ajmal et al., 2016	Finland	2 central hospitals	Semi-structured interviews	leaders, quality managers, politician	Evolution, principles and stages on TQM in helath care organisations	Comprehensiveness, a systematic way of operation, the participation of management and personnel, high quality cure processes, reporting and reacting, the implementation of high-level goals, focus on development and measurement are important issues in TQM as well as leadership and top management support.
White et al., 2016	Canada	Hospitals	Mixed-method: survey and semi-structured interviews	105 senior leaders and 144 team leaders (survey), 44 senior leader and 45 team leaders (interviews)	Barriers and facilitators to establishing/implementing and measuring the impact of QS teams	Qualitys system (QS) temas need strong, committed leaders with supportive role, not just leading from the top, fostering a quality culture, setting vision, engaging staff in QS team initiatives and creating and providing access to resources.

Mosadeghrad 2014a	Iran	Hospitals: 4 public, 2 affiliated, 2 private	Individual and focus group interviews	222 providers, managers, policy-makers and payers	Identify factors that influence healthcare quality	Supportive visionary leadership, proper planning, education and training, availability of resources, effective management of resources, employees and processes, and collaboration and cooperation among providers can improve quality in healthcare.
Mosadeghrad 2014b	Iran	Healthcare organisations that implemented TQM	Mixed-method: interviews and a questionnaire survey	50 healthcare staff (interview) and 55 respondents (questionnaire)	Barriers to successful implementation of TQM	Top manager involvement very important factor in quality initiative success. Inadequate managers' knowledge of about total quality management (TQM) implementation, poor planning for quality, management instability, weak quality oriented culture, lack of team orientation, continuous education and training, and lack of customer focus had connection in failure in TQM implementation.
Elg et al., 2011	Sweden	Primary healthcare and clinical hospital department	Questionnaire	1179 managers	Examine developmental trends in healthcare organisation management practice and improvement work	Three different trends were empirically identified and elaborated. 1. Take control logic: using in management eg. electronic records, quality registers, information systems etc. 2. Practice-based improvement logic: in problem solving using tools, principles and methods that enables analysis and altering specific activities that are linked to actual care. 3. Patient-centeredness logic.

Table 1. The original studies included in the systematic review.

Author, year, type of review	Inclusion and exclusion criteria	No. of studies of quality manag. or lead.	Setting and country	Study objectives	Main findings
Maijala et al., 2018, systematic review, qualitative content analysis	Description of Lean management or leadership in healthcare, a reference to Lean thinking, a peer-reviewed original research or a literature review January 2011 until February 2016	12 articles on managerial principle of successful implementation of Lean	Healthcare settings, majority from USA. Others from the Netherlands and Canada	To identify and analyse the characteristics of leadership and management associated with a successful Lean thinking in healthcare	Lean leadership and management characteristics: problem solving techniques and skills, measuring, communication, role of leaders as mentors, coaches or facilitators, emotional intelligence, multi-professionalism, continuous learning, professional values, communication of a vision and targets for improvement, customer focus.
Sfantou et al., 2017, systematic review	A quantitative methodology reporting the leadership style and healthcare quality measures, papers published in peer-reviewed journal, human epidemiological studies, studies used from 2004 until 2015	18 articles on leadership styles which correlate with quality of care and associated measures	Healthcare settings, majority from USA and Canada. Others from Finland, Saudi Arabia, Kuwait and Norway.	To identify whether there exists an association between different leadership styles and healthcare quality measures	Leadership styles have an integral role in quality measures. Leadership styles were considered an important element for a well-coordinated and integrated provision of care.
Talib et al., 2011, systematic review	Description of practices of TQM or QM implementation in healthcare organization, a peer-reviewed original research or a literature review from 1995 until 2009	15 articles which focused on factors and practices influencing TQM or QM	Healthcare settings	To identify a set of TQM practices for its successful implementation in healthcare institutions	Eight best practices identified: top management commitment (or leadership), teamwork and participation, process management, customer focus and satisfaction, resource management, organizational behaviour and culture, continuous improvement and training and education.

Table 2. The reviews included in the current systematic review.

Characteristics of leadership	Strategic leadership	Knowledge-oriented leadership	Value-based leadership	Supportive leadership	Participatory leadership	Communicative leadership
<p>In relation to successful (+) and unsuccessful (-) implementation of quality management</p>	<p>Strategic decision making (+) Vision and strategy setting for quality improvement (23, 26, 27, 28, 29) (+) Quality, risk and safety agenda to be pervasive in the organisation (30) (+) Defining goals for QI (24, 25) (+) The ability to make strategic decisions to promote quality improvement (25)</p> <p>(-) Lack of organisational quality strategy, poor planning of quality goals, policies, tactics and defining roles and responsibilities (28)</p> <p>Implementation of strategy (+) Providing resources for quality improvement (23, 26, 27, 28, 29) (-) Problems in promoting of a quality culture dimension (24, 28, 29) (-) Low commitment to the quality management strategy (25,28) (-) Poor planning of quality improvement procedures and education influences negative results in QI projects (23, 27, 28)</p>	<p>Utilisation of experiential knowledge (+) Benchmarking in high-performing organisations (25) (+) Learning from the TQM implementers by studying expected challenges and pitfalls (27, 33) (+) Taking employee perception and patient satisfaction into consideration in leadership of quality management (32)</p> <p>Utilisation of organisational reporting information (+) Analysing of quality and safety concerns, making connections between different sources data and supplementing quantitative data with qualitative data (25, 29, 30, 33, 34)</p>	<p>Creation and supporting of values and quality culture (+) Leaders determine values and quality culture (24, 25, 26, 27, 29, 30, 32) (+) Leadership style based on values (24, 32)</p> <p>Prioritising quality and risk management (+) Prioritising quality as an important issue (25, 30, 31) (+) Understanding and prioritising responsibility of quality and risk management (30)</p>	<p>Supportive style in leadership (+) Supportive role influences positive high performance in quality management (23, 25, 26, 27, 28, 31, 33) (+) Commitment and responsibility in quality and control over quality system supports employees in quality improvement performance (23, 30, 31, 34) (+) Supporting employees for high performance in quality management by engaging employees to strive for goals (26)</p> <p>(-) Weak support from top managers (25, 28, 31, 34) (-) The turnover of managers influences the level of its implementation (27, 28, 31)</p>	<p>Employee involvement (+) Systematic participation of employees in quality improvement activities (23, 25, 26, 27, 28, 29, 32, 33) (+) Listening to employees for getting insight into quality improvement needs and problems (31) (+) Evaluation of TQM tools and techniques suitability with employees (25, 33) (-) Limited time to contribute to quality improvement projects (23, 27)</p>	<p>Conversational style in leadership (+) Strong communication with employees of the reasons and impact of quality improvement projects (23, 25, 27, 28) (+) Communication between organisation's leaders and teams (25, 29, 30, 31) (-) Inability to communicate of quality improvement with employees (23, 28)</p>

Table 3. Six characteristics of leadership and their association with super- and subcategories that describe successful and unsuccessful implementation of quality management derived from 12 original studies (references 23-34).