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Published in:
Journal of Advanced Nursing

DOI:
[10.1111/jan.15811](https://doi.org/10.1111/jan.15811)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2024

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

van Dieën, M. S. H., Paans, W., Mariani, M. A., Dieperink, W., & Blokzijl, F. (2024). Roles and competencies of nurses and physicians in shared decision-making in cardiac surgery: A scoping review. *Journal of Advanced Nursing*, 80(1), 60-72. <https://doi.org/10.1111/jan.15811>

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Roles and competencies of nurses and physicians in shared decision-making in cardiac surgery: A scoping review

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Abstract

Aim: Identification and synthesis of research data related to the roles and competencies of physicians and nurses that are prerequisites for careful shared decision-making with patients potentially undergoing cardiac surgery.

Design: A scoping review was conducted in accordance with the Joanna Briggs Institute's methodology for scoping reviews and the PRISMA Extension for Scoping Reviews.

Methods: PubMed, EMBASE and CINAHL were searched from inception dates up to March 2022, to identify primary studies published in a peer-reviewed journal. Study selection, assessment of the methodological quality and data extracting of the included studies were done by at least two independent researchers. To describe the findings of the studies, an emergent synthesis approach was used to visualize a descriptive representation of professional roles and competencies in shared decision-making, in an overview.

Results: The systematic search revealed 10,055 potential papers, 8873 articles were screened on title and abstract and 76 full texts were retrieved. Eight articles were included for final evaluation. For nurses and physicians, 26 different skills were identified in the literature to practice shared decision-making in cardiac surgery. The skills that emerged were divided into five professional roles: moderator; health educator; data collector; psychological supporter and translator.

Conclusions: This review specifies the professional roles and required competencies related to shared decision-making in cardiac surgery. Further research is needed to compare our findings with other clinical areas and from there to arrive at a professional division of roles between the different clinical disciplines involved.

Impact: The visualization of generic shared decision-making competencies and roles should establish the professional division of positions between various clinical physician and nurse disciplines in order to create a treatment plan based on evidence, values, preferences and the patient's personal situation.

Patient or Public Contribution: No patient or public contribution.

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KEYWORDS

cardiac surgical procedures, decision making, shared, nursing, professional competence, professional role, review literature as topic

1 | INTRODUCTION

Cardiovascular diseases are the leading cause of death worldwide, with 17.9 million deaths in 2019 (World Health Organization Cardiovascular diseases (CVDs), 2021). Improved (surgical) treatment techniques, prevention strategies and an aging population will not only increase the prevalence of cardiovascular disease but also the average age of the cardiac patient (Huber et al., 2007; Pratesi et al., 2017). Today, patients undergoing cardiothoracic surgery are older and increasingly frail, resulting in high medical complexity (Sepehri et al., 2014). Several studies have shown an association between frailty and adverse postoperative outcomes after cardiac surgery (Lee et al., 2010; Schoenenberger et al., 2013; Stortecky et al., 2012). These studies focused on objective outcomes such as perioperative mortality, morbidity and functional decline. However, patients undergoing cardiothoracic surgery also experience subjective and patient-specific symptoms such as pain, fatigue, anxiety and emotional distress (Medbery et al., 2019). These symptoms, which have a major impact on quality of life, are receiving increasing attention in the clinical decision-making process (Mihalj et al., 2020). The increase of therapeutic options for stable coronary artery disease and heart valve problems as an alternative for cardiac surgery requires more intensive patient participation in the decision-making process; they will have to bear the consequences of the choices. Expansion of therapy options may be related to the personal wishes and expectations of patients. This development makes it essential for cardiac patients to be involved in medical decision-making and requires a patient-centred approach to cardiothoracic care (Boer et al., 2011; Robinson et al., 2008), based on the best available evidence and patients' needs, preferences and values (Institute of Medicine, 2001).

An essential part of patient-centred care are the principles and practices of shared decision-making, which has been recognized and discussed since the 1970s (Silverman et al., 2013; Stewart et al., 2013). Shared decision-making is an approach in which the healthcare professional and the patient, often together with one of his or her relatives, try to achieve informed preferences. This is by sharing the best available information from healthcare professionals when making decisions and by supporting patients in considering (treatment) options (Coulter & Collins, 2011). In the implementation of the care and treatment plan for cardiac patients who are in principle considered suitable for open heart surgery, more and more key questions play a role: are there alternative, less invasive, treatment options? And what does the patient think of these treatment options? What expectations does the patient have from surgery and from his or her quality of life? How does he or she feel about an intensive rehabilitation period? And how is social support organized? As stated by Gainer et al. (2017), patients who are frail

often experience a certain degree of equipoise when faced with the choice of cardiac surgery. Several studies are known that shared decision-making can improve the perception of control of a patients' health status and increases patient involvement and trust (de Mik et al., 2018; Mishra et al., 2010; Shay & Lafata, 2015). This can also make the expectations within the rehabilitation period more realistic, eventually leading to a better prepared and more satisfied patient (de Mik et al., 2018; Niburski et al., 2020; Shay & Lafata, 2015). It is important that physicians and nurses are aware of the importance of patient involvement in final decision-making, especially in those situations where alternatives to surgery are available. The willingness of patients to undergo an intensive rehabilitation process, to change lifestyle, to be faithful to the prescribed therapy, or the quality of the estimated future life perspective may be part of these choices (de Mik et al., 2018).

There is some evidence in the literature that the process needed to achieve informed decision-making, generally can be improved in cardiac surgery (Beyersdorf et al., 2021; Gulbrandson et al., 2014). Possible causes for the alleged insufficient substantive and procedural quality in the shared decision-making process could be time restrictions, the traditional focus on informed consent and the perception of healthcare professionals about the patient's information processing capacity (Korteland et al., 2014). In addition, physicians may feel that they are insufficiently proficient in communicating patient-specific information about treatment options and outcomes (Lin & Fagerlin, 2014). However, the competency profile for medical expertise as included in the Dutch Medical training framework 2020 of physicians (Dutch Federation of University Medical Centers, 2020) states that a physician must be able to cooperate with the patient, their relatives and other professionals to realize shared decision-making justifying the preferences, goals and values of patients. This guideline is consistent with the international guidelines for the management of valvular heart disease (Beyersdorf et al., 2021). Interventions and competences have also been described from the nursing domain that indicate that nurses have an essential role in shared decision-making (Lambregts et al., 2016). This can be substantiated, for instance, by the description in the nursing intervention classification (NIC) (Butcher et al., 2020). The following interventions are mentioned in this classification system: decision-making support (5250), active listening (4920), values clarification (5480) and mutual goal setting (4410) (Butcher et al., 2020). 'Nurses are expected to be able to handle the different phases within the shared decision-making process and use appropriate conversation techniques', according to the programme profile Bachelor of Nursing 2020 (the Netherlands) (Lambregts et al., 2016). So, regardless of their role, all healthcare professionals should know about the key elements of shared decision-making. Eventually, it is the professional role of physicians and nurses to consult with patients about wishes

regarding medical treatment and the necessary and desired care. These roles and competencies are included in their professional identity. Being able to use social skills and conversational skills to fulfil this role is therefore very important.

However, which role and competence belong more precisely to the physician, and which is more appropriate within the competence framework of the nurse and what possible area of overlap exists remain unclear. So, before we implement shared decision-making in clinical cardiothoracic practice, we must first clarify the optimal distribution of the required roles and competencies for professionals and patients.

2 | THE REVIEW

2.1 | Aim

The purpose of this review was to synthesize research data regarding the roles and competencies of physicians and nurses that are prerequisites for careful shared decision-making with patients possibly undergoing cardiac surgery.

2.2 | Design

A scoping review was conducted to systematically map the research performed in the field of cardiac surgery regarding the roles and competencies of physicians and nurses in shared decision-making. We conducted a systematic literature in accordance with the Joanna Briggs Institute's (JBI) methodology for scoping reviews (Peters et al., 2017) and the PRISMA Extension for Scoping Reviews (Tricco et al., 2018). A protocol was developed a priori and registered in The Open Science Framework (n.d.). The scoping review method was chosen because this method is suitable for answering our broad research question aimed at obtaining an overview in the form of a model presenting professional roles and competencies related to shared decision-making in cardiac surgery. In addition, the scoping review method is a valid approach to provide an indication of the extent and type of evidence available, including ongoing studies (Munn et al., 2018).

Although the terminology between knowledge, competencies and skills is used interchangeably in the literature, in this study we defined competency as the ability to perform a task with the appropriate knowledge, skills and abilities (Krathwohl, 2002).

2.3 | Search methods

The databases PubMed, EMBASE and CINAHL were systematically searched from inception to March 2022. Together with an information specialist, a search strategy was developed in which we combined key terms using a series of free text terms and MESH terms for 'shared decision-making' AND 'physician', 'nurse', 'professional'

OR 'surgeon'. Boolean operators were used to account for plurals, and variations in spelling. The more detailed search strategy used for each database is outlined in [Additional file 1](#). In addition, reference lists of the included studies were compared with the studies emerged from the search strategy. If, on the basis of the title, there was reason to further analyse a possible missed study, this was added to the critical appraisal method followed, according to the so-called backward snowball method (Greenhalgh & Peacock, 2005).

2.4 | Inclusion criteria

Peer-reviewed journal papers written in English, Dutch or German and using a qualitative, quantitative or mixed-method study approach were included. Criteria for inclusion were as follows: (1) data retrieved from responsive cardiac surgical patients and/or their relatives and/or their nurses, physicians, surgeons, clinicians, or professionals and (2) studies including information about roles and competencies and (3) studies including information about shared decision making in the cardiac surgery domain. Studies were excluded if: (1) they were conducted in non-hospital settings, in paediatrics or among intensive care patients or other patients not meeting the specialty of cardiac surgery, (2) Studies providing expert opinions only: Oxford Level of Evidence five (Howick et al., 2011). Searches were limited to only primary studies (and therefore no reviews).

2.5 | Search outcomes

After removing duplicates and clearly irrelevant hits based on title and abstract, the remaining hits were evaluated based on full text. The studies were screened using the tool Rayyan (Ouzzani et al., 2016) to identify eligible articles. Each article was independently read and assessed by at least two researchers (WP, WD, FB and MD). A pre-designed screening and selection tool based on the inclusion criteria, was used during the selection process. Disagreements were resolved through discussion and studies excluded based on full text were listed with reasons for exclusion, for example, the study sample was not clearly described and studies were conducted in primary care settings.

2.6 | Quality appraisal

To highlight the quality of evidence currently available regarding shared decision-making in cardiac surgery we chose to conduct a quality appraisal of the selected papers. The Joanna Briggs Institute (JBI) critical appraisal checklist was used for methodological validity (see [Additional file 2](#)). The JBI checklist for qualitative research (Schick-Makaroff et al., 2016) was used in case of a qualitative study and the JBI checklist for analytical cross-sectional studies (Joanna Briggs Institute, 2020a) was used for this type of studies. It was clearly agreed in advance that all selected studies would be

included in the review regardless of the results of the quality assessment. Four independent researchers (WP, FB, WD and MD) assessed the remaining articles that met the inclusion criteria for methodological validity, using the JBI critical appraisal checklist. Each article was independently assessed by at least two researchers. Any disagreements were resolved through group discussion.

2.7 | Data abstraction

The following data were extracted by two researchers (FB and MD): author (year); focus of the study; research design and level of evidence (according to the 2011 Oxford Levels of Evidence (Howick et al., 2011); data collection method and sample size; key findings; roles and competencies related to shared decision making; and the used theoretical model.

2.8 | Synthesis

To describe the findings of the studies, an emergent synthesis approach was used (Joanna Briggs Institute, 2020b; Peters et al., 2017). With this type of research synthesis, we integrate different types and forms of data that contribute to knowledge necessary to visualize an overview of a descriptive, non-interpretative representation of professional roles and competencies in shared decision-making, based on literature outcomes.

3 | RESULTS

The systematic search identified 10,055 records, 8873 articles were screened on the basis of title and abstract and 76 full texts were retrieved (Figure 1). Eight articles met the inclusion criteria and were included in this scoping review.

The study characteristics, roles and key findings were identified and presented in Table 1.

3.1 | Characteristics of the included studies

Most studies (Heggland & Hausken, 2014; Kannan et al., 2020; Keij et al., 2021; Skaar et al., 2017; van Beek-Peeters et al., 2022; Zeuner et al., 2015) ($n=6$) were qualitative research studies except two (Driever et al., 2020; Gualano et al., 2019) that used a cross-sectional design. The authors of the eight selected articles came from four different countries (Netherlands ($n=3$), Norway ($n=2$), United States of America ($n=2$) and Italy ($n=1$)). The roles and competencies required to practice shared decision-making were studied from the perspective of the patient (Gualano et al., 2019; Skaar et al., 2017), the professional (Driever et al., 2020; Kannan et al., 2020; van Beek-Peeters et al., 2022; Zeuner et al., 2015) or both (Heggland & Hausken, 2014; Keij et al., 2021). One

study (Heggland & Hausken, 2014) also questioned researchers. Professionals refer to various disciplines, including nurses, nurse practitioners, physicians and medical specialists. All studies (partial) collected data from participants who had experience with cardiothoracic surgery, either work-related or as a patient.

Among the physicians and medical specialists, it was mainly measured what the beliefs, perceptions, roles and experiences were with regard to shared decision-making. In addition, the patients' perception of their involvement in treatment choices was explored (Gualano et al., 2019; Skaar et al., 2017). Of the eight selected studies, one study specifically focused on identifying patients' skills and abilities to participate in shared decision-making (Keij et al., 2021).

3.2 | Quality assessment

As discussed, the JBI critical appraisal tools were utilized to appraise the quality of evidence, and the results for each study are detailed in Table 2. Among the cross-sectional studies, one study (Driever et al., 2020) is of good quality, scoring 8 out of 8 on the JBI critical appraisal checklist for analytical cross-sectional studies. No qualitative study fulfilled all criteria on the JBI checklist for qualitative research. In five (Kannan et al., 2020; Keij et al., 2021; Skaar et al., 2017; van Beek-Peeters et al., 2022; Zeuner et al., 2015) qualitative studies, there was a lack of clarity regarding the researchers' cultural and theoretical orientation and the influence of the researchers on the research.

3.3 | Professional competences in shared decision making

Table 1 also provides an overview of the professional competencies required to guide the shared decision-making process for patients. For professionals, 26 skills have emerged in the literature. We classified the skills found into five key professional roles: moderator (Driever et al., 2020; Kannan et al., 2020; Zeuner et al., 2015); health educator (Kannan et al., 2020; Keij et al., 2021; van Beek-Peeters et al., 2022); data collector (Heggland & Hausken, 2014; van Beek-Peeters et al., 2022; Zeuner et al., 2015); psychological supporter (Keij et al., 2021; Skaar et al., 2017; van Beek-Peeters et al., 2022) and translator (Gualano et al., 2019; Heggland & Hausken, 2014). In the studies, all these roles are assigned to both physicians and nurses. Based on these findings, a visualization of generic shared decision competencies from physicians and nurses regarding shared decision-making in cardiac surgery is presented in Figure 2. Medical competency, that is, having medical knowledge and clinical experience and skills, is mentioned in two included studies as a precondition for the application of shared decision-making (Driever et al., 2020; Skaar et al., 2017). The importance of clinical experience is reflected in the study of Zeuner et al. (2015), where shared decision making is applied in practice by the more experienced physicians. As shown in Figure 2, five professional roles have been analysed representing the relevant underlying skills.

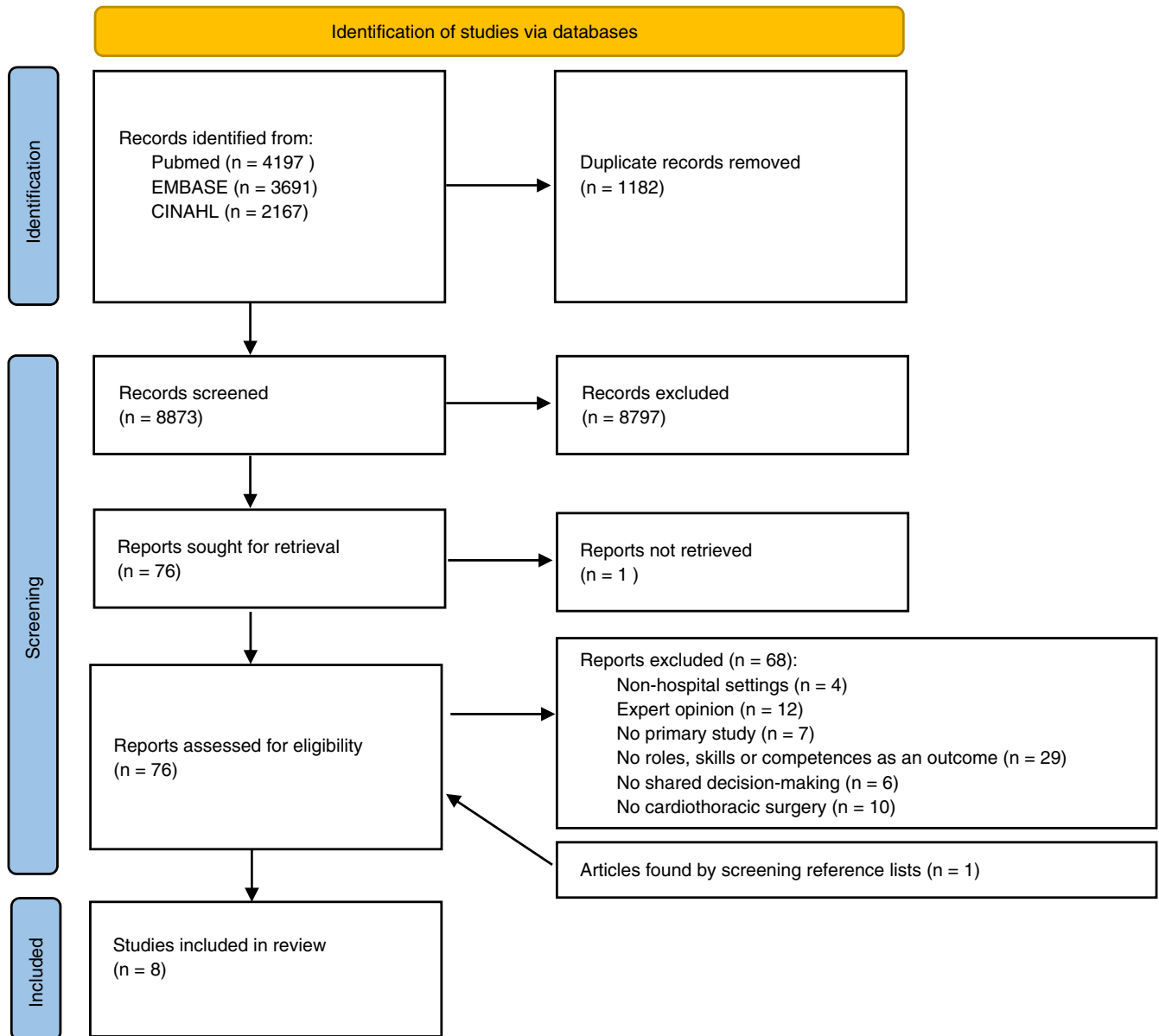


FIGURE 1 PRISMA flow diagram (Page et al., 2021).

3.3.1 | Moderator

The professional competence to guide the shared decision-making conversation is considered essential (van Beek-Peeters et al., 2022; Zeuner et al., 2015). Also, three studies reported professional requirement of skills to summarize, to negotiate and to perform risk communication (Hegglund & Hausken, 2014; Kannan et al., 2020; Skaar et al., 2017) in order to moderate the conversation. During conversations, it may become apparent that the preferences of patients do not correspond with the advice of the professional and the professional must therefore be able to deal with differences of opinion during the decision-making process (Keij et al., 2021; Zeuner et al., 2015). Finally, two studies indicated that having time management skills is important to guide a decision-making conversation (Kannan et al., 2020; Zeuner et al., 2015).

3.3.2 | Health educator

In Skaar's study (Skaar et al., 2017), patients indicate how important it is that professionals can involve patients in dialogue before proceeding to health education. This ability to involve patients is also considered essential by the majority of medical specialists as shown in Kannan's study (Kannan et al., 2020). Two studies show that in order to practice shared decision-making, the professional must have the ability to convey complex information to the patient and his or her family (Driever et al., 2020; van Beek-Peeters et al., 2022). In addition, professionals believe that they should be competent in helping the patient to process all the information obtained (Driever et al., 2020; van Beek-Peeters et al., 2022). One study reported that the majority of professionals share educational materials with their patients, and that every professional

TABLE 1 Results.

Reference	Focused on	Design/level of evidence	Data collection/sample size	Key findings	Roles, skills or competencies	Used model/framework
van Beek-Peeters (2022)	Professionals' perceptions of and experiences with shared decision-making in severe aortic stenosis	Qualitative descriptive design Level of evidence: 4	Semi-structured interviews with cardiothoracic surgeons (n=8), interventional cardiologists (n=7), nurse practitioners/physician assistants (n=6)	Professionals struggle to make highly complex treatment decisions part of shared decision-making and to embed patients' expectations of treatment and patients' preferences	Professionals: <ul style="list-style-type: none"> Moderating the conversation Educating the patient Communication techniques Relationship skills Helping to process information Patient: <ul style="list-style-type: none"> Showing empathy and interest Processing information Communication skills Informal caregiver: <ul style="list-style-type: none"> Helping the patient to process information Clarifying patients' symptoms and situation 	Three-step model for clinical practice: 1. Choice talk 2. Option talk 3. Decision talk (Elwyn et al., 2017)
Driever et al. (2020)	Physicians' preferred and usual roles in decision making in medical consultations, and their perception of shared decision-making	Cross-sectional design using a survey Level of evidence: 2	Digital Questionnaires (including Control Preference Scale and SDMO9 questionnaire) of 785 physicians in a general teaching hospital	Most physicians prefer to use shared decision-making in their consultations and indicate that they already do this in practice. However, few physicians involve the patient in the shared decision-making process	Professionals: <ul style="list-style-type: none"> Clinical experience Skills to involve patients Skills to empower patients Informative, paternalistic and shared decision-making roles 	Three-step model for clinical practice: 1. Choice talk 2. Option talk 3. Decision talk (Elwyn et al., 2017) Framework for teaching and learning informed shared decision making (Towle et al., 1999) Shared model (Charles et al., 1997)
Gualano et al. (2019)	Patients' perception of their participation in treatment choices	Cross-sectional design Level of evidence: 2	Questionnaires of patients (n=174) from clinical and surgical units and Hospital Discharge Registers	The main factors associated with a perceived shared decision-making approach (like high-quality and understandable information, meeting patients' needs and requests and spending a proper amount of time with the patient) appear to be all healthcare professional-related	Professionals: <ul style="list-style-type: none"> Ability to inform the patient about his/her health status Ability to use a language easy to understand Communication skills 	Three-step model for clinical practice: 1. Choice talk 2. Option talk 3. Decision talk (Elwyn et al., 2017)
Heggand and Hausken (2014)	Information flow in patient participation in decision-making processes	Qualitative descriptive design Level of evidence: 4	Semi-structured interview with doctors (n=4), nurses (n=7) and patients (n=7)	Richer understanding of decision-making and information flow in surgical hospitals	Professionals: <ul style="list-style-type: none"> Communication skills Collaboration (interdisciplinary competence) Active talking Active listening Giving and receiving information Patients and their relatives: Skills to process information Answering questions 	Shared model (Charles et al., 1997)

TABLE 1 (Continued)

Reference	Focused on	Design/level of evidence	Data collection/sample size	Key findings	Roles, skills or competencies	Used model/framework
Kannan et al. (2020) Surgeons' Views on Shared Decision-Making	Surgeons' practices and beliefs about shared decision-making	Qualitative descriptive design Level of evidence: 4	Semi-structured interviews with 18 surgeons	Surgeons broadly support patient involvement in deciding course of care, however, they do not believe shared decision-making is universally optimal for every surgical decision	Professionals: • Ability to feel the degree of involvement their patients want in decision-making • To provide a recommendation in each case • Ability to use decision aids • Sharing educational materials • Interpersonal skills • Critical appraisal skills	Three-step model for clinical practice: 1. Choice talk 2. Option talk 3. Decision talk (Elwyn et al., 2017)
Keij et al. (2021) What makes a patient ready for Shared Decision Making? A qualitative study	What skills and abilities patients need to have, to be ready to participate in shared decision-making about treatment	Qualitative descriptive design Level of evidence: 4	Semi-structured interviews with patients (n = 15), physicians (n = 6), nurses (n = 3), general practitioners (n = 2) and researchers (n = 5)	Several specific skills and abilities that patients may need to participate in shared decision-making were identified, as well as a wide range of characteristics that may influence readiness.	Professionals: • Cultural sensitivity • Building a good relationship Patients: • Understanding the shared decision-making process • Health literacy • To absorb and understand new information • Communicating skills to verbalize thoughts, values, opinions, needs • Expressing feelings. • Consideration skills	Four-step model (Stiggebout et al., 2015)
Skaar et al. (2017) Conditions for autonomous choice: a qualitative study of older adults' experience of decision-making in TAVR	Conditions for an autonomous choice experienced by older adults who recently underwent trans-catheter aortic replacement (TAVR)	Qualitative descriptive design Level of evidence: 4	Semi-structured interviews with 10 older (>70) adults after TAVR	TAVR-patients claimed to decide on their own, despite being in a situation with limited choice. Trust in their physicians was an important element for the decision	Professionals: • Physicians role to truthfully and thoroughly advise the patient • Medical competence • Skills to building trust • Social skills • Collaboration skills	Shared model (Charles et al., 1997)
Zeuner et al. (2015) Physicians' perceptions of shared decision-making behaviours: a qualitative study demonstrating the continued chasm between aspirations and clinical practice	Clinicians' attitudes, beliefs and perceived social norms about engaging in shared decision-making behaviours	Qualitative descriptive design Level of evidence: 4	Semi-structured interviews with 20 physicians	Although there was overall support for shared decision-making, physicians expressed a difference between supporting shared decision-making in theory and actually practicing it	Professionals: • Shared decision-making communication skills • Ability to deal with disagreements during shared decision-making • Skills to negotiate	Three-step model for clinical practice: 1. Choice talk 2. Option talk 3. Decision talk (Elwyn et al., 2017) Shared model (Charles et al., 1997)

TABLE 2 Critical appraisal of included studies.

Quality criteria	Qualitative studies						Quality criteria	Cross-sectional studies	
	40*	41*	42*	43*	44*	45*		46*	47*
1. Philosophical perspective and research methodology	Yes	Yes	Yes	Yes	Yes	Yes	1. Criteria for inclusion	Yes	Yes
2. Research methodology and objectives	Yes	Yes	Yes	Yes	Yes	Yes	2. Study subjects and setting	Yes	No
3. Research methodology and data collection methods	Yes	Yes	Yes	Yes	Yes	U	3. Validity and reliability	Yes	No
4. Research methodology and data analysis	Yes	Yes	Yes	Yes	Yes	Yes	4. Objective measurement criteria	Yes	No
5. Research methodology and interpretation of results	Yes	Yes	Yes	Yes	Yes	Yes	5. Confounding factors	Yes	No
6. Localization researcher culturally or theoretically	U	No	No	No	U	No	6. Strategies to deal with confounding factors	Yes	No
7. Influence of the researcher	U	No	Yes	No	U	U	7. Outcomes measures	Yes	U
8. Participants represented	Yes	Yes	Yes	No	U	Yes	8. Statistical analyses	Yes	Yes
9. Ethical approval	Yes	Yes	Yes	Yes	NA	No			
10. Conclusions	Yes	Yes	Yes	Yes	Yes	U			

Note: Joanna Briggs Institute critical appraisal checklist for qualitative research (Schick-Makaroff et al., 2016) and analytical cross-sectional studies (Joanna Briggs Institute, 2020a): Yes=information available, U=Unclear, No=information not available, NA=Not applicable.

*Numbers refer to list of references.

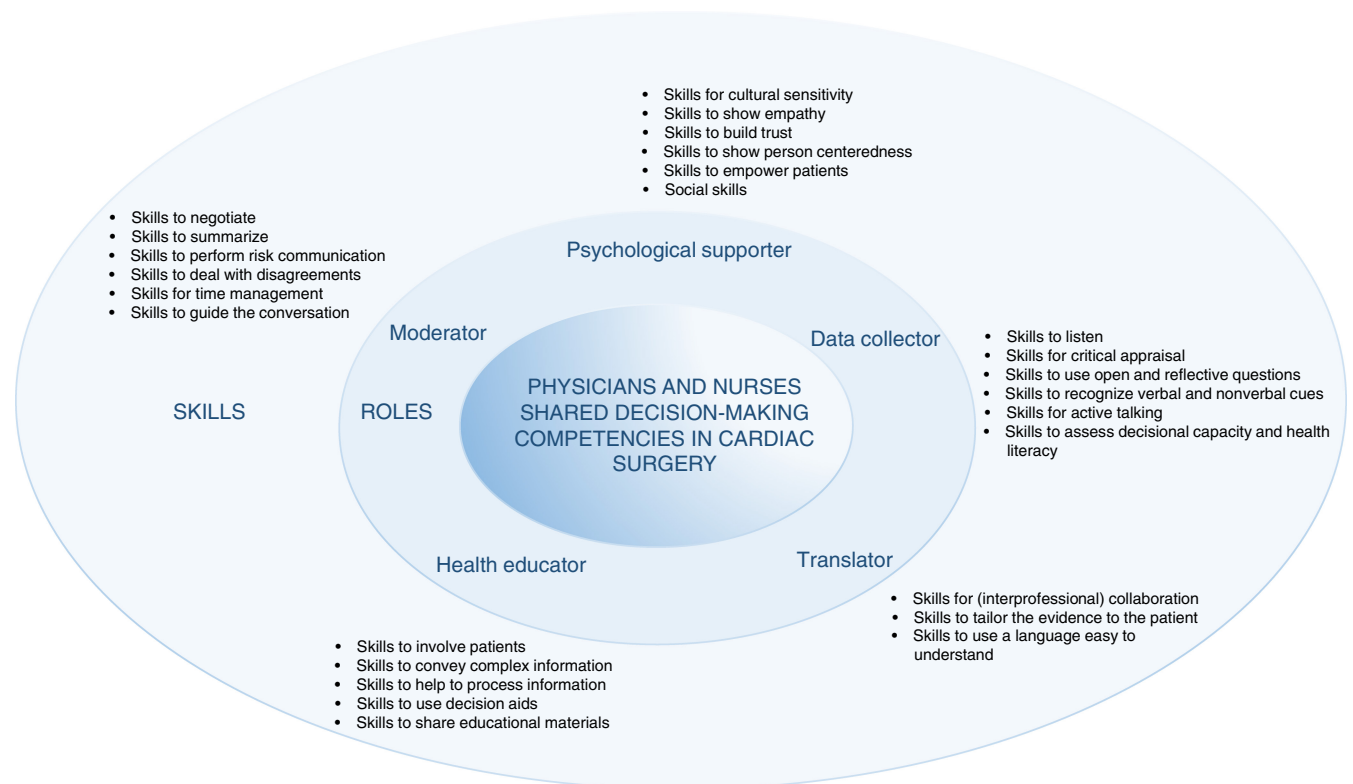


FIGURE 2 Visualization of shared decision-making competencies from physicians and nurses in cardiac surgery.

should have and share these resources (Kannan et al., 2020). The added value of the use of decision aids has also emerged in several studies, but at the same time, it appears that physicians' experience with decision aids is limited (Kannan et al., 2020; Zeuner et al., 2015).

3.3.3 | Translator

In addition to the patient and his or her family, several professionals are often involved in the decision-making process. According to Beek (van Beek-Peeters et al., 2022), a professional must be competent in the field of collaboration in order to exchange information interprofessionally and to form a co-operative team. Both Skaar (Skaar et al., 2017) and Heggland (Heggland & Hausken, 2014) discuss the ability to fit or tailor the evidence to the patient, not only considering medical aspects but also the preferences and personal situation of the patient. Finally, one study reported the ability to use language easy to understand (Gualano et al., 2019).

3.3.4 | Data collector

The most frequently mentioned skill to practice shared decision-making was the ability to communicate (Driever et al., 2020; Gualano et al., 2019; Heggland & Hausken, 2014; Kannan et al., 2020; Keij et al., 2021; Skaar et al., 2017; van Beek-Peeters et al., 2022; Zeuner et al., 2015). More specifically, active talking (Heggland & Hausken, 2014), the use of open and reflective questions (Kannan et al., 2020), listening skills (Kannan et al., 2020; Skaar et al., 2017) and recognizing verbal and nonverbal cues were mentioned (Zeuner et al., 2015). Zeuner et al. (2015) also endorses the importance of the professional's ability to collect data about the patient's decisional capacity and health literacy. Finally, one study identified critical appraisal skills as essential to assess the relevance and value of evidence for the patient (Heggland & Hausken, 2014).

3.3.5 | Psychological supporter

Psychological support was mentioned in four studies (Kannan et al., 2020; Keij et al., 2021; Skaar et al., 2017; van Beek-Peeters et al., 2022). In these studies, cultural sensitivity was most often discussed (Keij et al., 2021; Skaar et al., 2017). Three studies (Heggland & Hausken, 2014; Kannan et al., 2020; Keij et al., 2021) found that showing empathy is essential in the shared decision-making process, as well as the ability to build trust (Skaar et al., 2017; van Beek-Peeters et al., 2022). van Beek-Peeters et al. (2022) reported social skills, the ability to show person centeredness and skills to empower patients as essential.

The role assigned to the patient and his/her family in all studies (Gualano et al., 2019; van Beek-Peeters et al., 2022) is that of sharing information. Communication competency is also considered

important for the patient, according to the studies by Skaar and Gualano (Gualano et al., 2019; Skaar et al., 2017). These studies showed that the patient needs skills to talk about his thoughts, values, opinions and needs, as well as skills to clarify symptoms of illness in his or her particular situation.

3.4 | Theoretical backgrounds used

In various studies, a theoretical background is provided to substantiate and further clarify the roles and competencies described in the studies. Elwyn et al. (2017) mentioned in four studies describing the three-step model which can be used to fulfil the role of moderator (Driever et al., 2020; Gualano et al., 2019; Kannan et al., 2020; van Beek-Peeters et al., 2022; Zeuner et al., 2015). Stiggelbout's (Stiggelbout et al., 2015) four steps model, largely similar to Elwyn's model, was used as background in one study (Keij et al., 2021). The framework of Towle et al. (1999) was addressed in one study (Driever et al., 2020). The emphasis of this framework is to obtain information from patients and to focus on health promotion. The framework describes required professional competencies and steps to be taken concerning the role interpretations as data collector or health educator (Driever et al., 2020). The theory of Charles et al. (1997) refers to transferring technical information to the patient on treatment options and the task of the physician to establish a conducive atmosphere and thus seems to (partly) indicate the roles of translator and psychological supporter. The theory of Charles was addressed in three studies (Heggland & Hausken, 2014; Skaar et al., 2017; Zeuner et al., 2015).

4 | DISCUSSION

The aim of this scoping review was to synthesize research data regarding the roles and competencies of healthcare professionals that are prerequisites for careful shared decision-making concerning the treatment plan for patients potentially undergoing cardiac surgery. One of the results of this study is that, based on the included studies, we were able to visualize a descriptive, non-interpretative representation of generic shared decision-making competencies for physicians and nurses in cardiac surgery.

Cardiac surgery is a life event with possible consequences that should not be taken lightly as some patients will not return to their previous level of quality of life (Lin & Fagerlin, 2014). Therefore, as a cardiac care professional, it is important to have the skills to discuss, especially with patients who are frail, whether they prefer quantity or quality of life. We were able to identify five required professional roles associated with the content of a high-quality decision-making conversation, although it remains unclear who is fulfilling which role and when during the decision-making process. These roles are required for all healthcare professionals who may be involved in decision-making conversations. In practice, these are often physicians and nurses, but the roles may also relate to other professionals

as well. In order to implement the shared decision-making process efficiently and effectively in clinical practice, a good allocation of roles is essential. Especially given the variety of medical specialism and healthcare professionals in cardiac surgery. Most of the literature on shared decision-making focuses on the physician-patient interaction. Lewis et al. stated that nurses should be involved in the decision-making process, given the increasing focus on interprofessional collaboration and the role of nurses in coordinating the care of cardiac patients (Lewis et al., 2014). Chung et al. also mentioned the important role of nurses in helping patients to understand their cardiac condition and treatment options (role of translator), by acting as a spokesperson for the patient towards patients' family and by acting as a communication bridge between the physician and the patient (Chung et al., 2021). It seems that the identified professional roles in cardiac surgery can be assigned to both the physicians and nurses, while their responsibilities and competence profiles in medical expertise differ. Although nurses have different responsibilities regarding the final treatment decision, their role in the decision-making process can help both physicians and patients during the decision-making process.

Shared decision-making can only be efficient and effective in cardiac surgery if it becomes clear who takes the first step in the decision-making process acting from the role of moderator by informing the patient that there are several reasonable treatment options, and that the patients' perspective is important (Driever et al., 2020; Stiggelbout et al., 2015). Then, as a health educator, all the pros and cons of each treatment option need to be explained to the patient and relatives (Stiggelbout et al., 2015). In order to achieve a clear assignment of roles and tasks in clinical practice, it is essential to discuss and clarify how medical specialists and nurses see their role in the decision-making process and which competencies they have or lack⁵⁰. All identified skills and competencies to fulfil the professional shared decision-making roles are in line with the generic and core-enabling competencies described in both the medical training framework for physicians and the nursing domain (Dutch Federation of University Medical Centers, 2020; Lambregts et al., 2016). However, an inventory of 78 curricula for medical students, nurses and postgraduate medical trainees in the Netherlands showed that in only 19 curricula shared decision-making was addressed (Van der Weijden et al., 2022). For example, shared decision-making was not mentioned in the curricula of cardiothoracic surgery and cardiology (Dutch Association of Cardiology, 2018; Dutch Association of Thoracic surgery, 2018). Given the lack of training in shared decision-making during 5–6 years of study as a medical specialist, physicians do not develop decision-making skills or are unable to apply them in clinical practice (Garcia-Retamero et al., 2014). Younger physicians in particular report a need for shared decision-making training and are concerned that discussing uncertainty regarding treatments with patients, reflects on their medical competence (Zeuner et al., 2015). A study by Garcia et al. also shows that more experienced physicians are more likely to apply shared decision-making (Garcia-Retamero et al., 2014). Apparently, additional training in

shared decision-making skills is required to apply the approach in practice (Légaré et al., 2018). Interprofessional learning (Légaré et al., 2018) where (student) healthcare professionals from different health professions learn with and from each other as they gain knowledge about their own specialism, as well as the specialisms of their colleagues, may be of great value in this regard. Especially in light of the proven contribution of interprofessional learning to increasing effective communication knowledge and distinguishing (team) roles (Dyess et al., 2019).

4.1 | Limitations of the study

This review may include potential limitations. First, the methodological quality based on appropriate Joanna Briggs Institute's appraisal tools of the included studies was low to moderate, except for the study of Driever et al. (2020). Most of the studies had moderate level of evidence based on the Oxford level of evidence scale (Howick et al., 2011). The strength of the evidence found may therefore be limited, but again this study cannot be conducted with the highest level of evidence either and without this research, there would have been no review. Although the included studies provided valuable information, both for clinical practice, and as a basis for further research, the amount of evidence remains scarce. Several studies are descriptive or explorative in nature. Studies providing higher levels of evidence, such as measuring the effect of certain skills on the quality of decision-making, are still lacking. Looking at the demographic background of the various studies, it should be noted that this is a theoretical synthesis based on North-West European and North American perspectives. Studies conducted in other continents may have been missed despite our broad search strategy. We have not compared our findings, which are based on a search strategy in a particular specialty, with findings in other specialties. To learn more about the competencies of health professionals and how the competencies may differ among other specialties, we recommend further research comparing literature on shared decision-making among specialties as this may lead to useful knowledge crossovers.

4.2 | Implications for clinical practice

While research has been done on shared decision-making in general, this is, to our knowledge, the first review focusing on shared decision competencies in cardiac surgery. Attention to shared decision-making in cardiac care is essential, especially nowadays, given the expected increase in the prevalence of cardiovascular disease and increasing medical complexity, healthcare costs and shortage of healthcare professionals (Huber et al., 2007; Pratesi et al., 2017; Sepehri et al., 2014). Despite these developments, cardiac surgery is still based on the biomedical model, in which patient involvement regarding treatment choices is minimal (Gulbrandson et al., 2014). A shift in clinical practice towards a biopsychosocial approach, in

which we incorporate both best available evidence and the patients' individual context in relation to treatment options, is imminent and in line with current developments in healthcare.

5 | CONCLUSION

This review is the first that has attempted to specify the professional roles and required competencies regarding shared decision-making in cardiac surgery. Based on our visualization of generic shared decision competencies and roles in cardiac surgery, it is now important to compare these findings with other specialties to come to a professional division of roles between the diverse clinical disciplines involved, that is, nurses and physicians. From there, we can move forward to the core of cardiac surgery, where a plan for the best care is based not only on evidence but also on patients' values, preferences and personal situation.

AUTHOR CONTRIBUTIONS

Made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data: Fredrike Blokzijl, Wolter Paans, Willem Dieperink, Milou S. H. van Dieën; Involved in drafting the manuscript or revising it critically for important intellectual content: Fredrike Blokzijl, Wolter Paans, Willem Dieperink, Massimo A. Mariani, Milou S. H. van Dieën; Given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content: Fredrike Blokzijl, Wolter Paans, Willem Dieperink, Massimo A. Mariani, Milou S. H. van Dieën; 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: Fredrike Blokzijl, Wolter Paans, Willem Dieperink, Massimo A. Mariani, Milou S. H. van Dieën.

FUNDING INFORMATION

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

CONFLICT OF INTEREST STATEMENT

Dr. Mariani has received grants from AtriCure, Edwards Lifesciences, Abbott and Getinge, and has provided training for Corcym and Artivion. All other authors declare that they have no conflict of interest.

PEER REVIEW

The peer review history for this article is available at <https://www.webofscience.com/api/gateway/wos/peer-review/10.1111/jan.15811>.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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SUPPORTING INFORMATION

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How to cite this article: van Dieën, M. S. H., Paans, W., Mariani, M. A., Dieperink, W., & Blokzijl, F. (2024). Roles and competencies of nurses and physicians in shared decision-making in cardiac surgery: A scoping review. *Journal of Advanced Nursing*, 80, 60–72. <https://doi.org/10.1111/jan.15811>

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