Perspectives of patients, relatives and nurses on rooming-in for adult patients: A scoping review of the literature

Marianne J.E. van der Heijden (PhD)[a],[*],[1], Margo M.C. van Mol (RN PhD)[b],[1],
Erica F.E. Witkamp (RN PhD)[c], Robert Jan Osse (MD PhD)[d], Erwin Ista (RN PhD)[a],[e],
Monique van Dijk (RN PhD)[a],[e]

[a] Department of Internal Medicine, Nursing Science, Erasmus Medical Center, Rotterdam, the Netherlands
[b] Department of Intensive Care Adults, Erasmus Medical Center, Rotterdam, the Netherlands
[c] Faculty of Nursing and Research Center Innovations in Care, Rotterdam University of Applied Sciences, Department of Public Health, Erasmus Medical Center, Rotterdam, the Netherlands
[d] Department of Psychiatry, Erasmus Medical Center, Rotterdam, the Netherlands
[e] Department of Pediatric Surgery, Erasmus Medical Center – Sophia Children's Hospital, Rotterdam, the Netherlands

ARTICLE INFO

ABSTRACT

Aim: To explore the perspectives of patients, their relatives and nurses on rooming-in for adult patients.
Background: The practice of having family stay overnight with an adult patient in hospital is quite new. To support rooming-in programs, the perspectives from all stakeholders should be taken into account.
Methods: All types of studies on rooming-in in adult healthcare settings were included in this scoping review. Rooming-in has been defined as the practice where 'family members or trusted others are facilitated to continuously stay with the patient and are provided with facilities to sleep in the patient's room'.
Results: Seven studies were included: one randomized controlled trial, three qualitative studies, and three correspondence articles. Generally, patients felt safe in the presence of a family member, but could also feel restricted in their freedom and privacy. Family members saw a benefit for the patient, considered rooming-in a moral duty, and were happy to help. Nonetheless, family members reported rooming-in as physically and emotionally stressful. Nurses described that patients were less anxious and more easily adjusted to the hospital environment.
Conclusions: The reviewed studies suggest that patients, family members, and nurses have both positive and negative experiences with rooming-in. The concept of rooming-in varies from continuous presence and involvement of relatives to one overnight stay in the patient's room. Each interpretation has its own implications for policy, design, guidelines and feasibility of rooming-in. Nursing staff should be included in decision-making processes for this practice.

1. Introduction

Historically, hospital wards were large and offered shared patient accommodation in multi-bedded rooms. Nowadays, large open wards are considered too busy and noisy, offering little privacy and increasing the risk of nosocomial infections (Teltsch et al., 2011). Today, designers and planners of healthcare facilities face a challenge on how to create a healing environment, thus accommodating sophisticated clinical interventions and complex medical technology while providing a humane environment. Evidence based design literature on the built environment in hospitals has been advocating the allocation of space for families in adult patient rooms (Devlin, 2003) Therefore, around the world, hospitals are trying to redesign their buildings in order to provide single-room accommodation (Cusack, Wiechula, Schultz, Dollard, & Maben, 2019). Single-room care and design practices offer a better opportunity for quality of care, patient safety and communication with healthcare professionals (Maben et al., 2016; Ulrich et al., 2008; van de Glind, van Dulmen, & Goossensen, 2008). In addition, they fit in a personalized approach, also labeled person-centered care, with an emphasis on the patient's needs, values, experiences and preferences (Frampton & Guastello, 2014). Patients and their family members preferred being equal partners in planning, developing and monitoring care in the

entire care process (Lusk & Fater, 2013; Park et al., 2018; Tobiano, Marshall, Bucknall, & Chaboyer, 2015) (Barsteiner et al., 2014). Therefore, healthcare professionals should treat the patient as an integral component of a family unit and therefore include the relatives in their caring activities (Al-Mutair, Plummer, O'Brien, & Clerehan, 2013).

A single-room hospital design and the person-centered care approach offer the opportunity for family members to stay with a patient in the room 24/7. This practice is also known as rooming-in, in this article defined as 'family members or trusted others are facilitated to continuously stay with the patient and are provided with facilities to sleep in the patient's room'. In contrast to a multi-bed ward, a single-room is better tailored to an extra bed for family members.

Rooming-in was first implemented around 1947 in maternity wards, where the baby's crib would be kept by the side of the mother's bed (Seidemann & Eisenoff, 1956). Nowadays, rooming-in with a newborn baby or hospitalized child is widely accepted (Ungerer & Miranda, 1999). The practice of rooming-in with adult patients has only been recently introduced with the trend of hospitals moving towards single-occupancy patient rooms (Taylor, Card, & Piatkowski, 2018). Rooming-in could stimulate a caring hospital environment in which the family member can support the patient emotionally and raise his or her comfort (Choi & Bosch, 2013). However, family members might feel burdened with what is expected of them and lack of privacy might be an issue for the patient. Nurses reported feeling restrained in their interactions with the patient when family members watch, comment or intervene during the caring process (Ciufo, Hader, & Holly, 2011; Giannini, Garrouste-Orgeas, & Latour, 2014). Communication might become more challenging in this interaction. To enlarge practices or programs for rooming-in in adult wards, it is essential to know the perspectives of nurses, patients and family members to have a clear understanding of what rooming-in entails and how it can be best practiced.

2. Materials and methods

2.1. Aims

Experiences of all stakeholders in the care process should be taken into account when establishing a rooming-in program. Furthermore, an evidence-based practice guideline for rooming-in with hospitalized adults is lacking. To address these issues, a systematic scoping review was conducted to identify and map current knowledge. The following research questions was formulated: what are the experiences of patients, their family members and nurses with rooming-in on adult hospital wards?

2.2. Design

A scoping review was conducted in which quantitative and qualitative research on rooming-in in adult hospital wards were included. This approach permits gaining a broad overview of the literature on this topic (Munn et al., 2018). The method aimed to identify the types of available evidence on rooming-in, to clarify key concepts in the literature and to identify key characteristics related to rooming-in for adult patients. The Joanna Briggs Institute guidance document was used to systematically conduct a scoping review in five stages: 1) identifying the research question, 2) identifying the relevant studies, 3) study selection, 4) charting the data, 5) collating, summarizing and reporting the data (Peters et al., 2015; Peterson, Pearce, Ferguson, & Langford, 2017). Furthermore, the PRISMA guidelines were used to report the results of the scoping review (PRISMA-ScR) (See Fig. 1) (Tricco et al., 2018).

2.3. Search methods and data selection

A scoping search has been performed in six databases from their

first available date until November 2019: Embase, Medline, OvidSP, Web-of-Science, CINAHL EBSCOhost, PsycINFO, Google Scholar (see Appendix 1 for the complete search strategy tailored to the thesaurus of each database). Neither a limitation on publication date nor on language restricted the search results. The reference lists of included articles were checked for other relevant articles not retrieved by the search strategies. Two authors (MvdH and MvM) selected the potentially eligible articles by independently screening the titles and abstracts of the retrieved records for relevance on the inclusion criteria. If there was doubt about the inclusion, the last author (MvD) was consulted. MvdH and MvM separately screened the potentially eligible full text articles.

A pre-defined research protocol was used and registered in Prospero (CRD42018082066). All articles considering the practice of rooming-in for adult patients were included. Excluded were articles including children or women who had just given birth. Articles referring to 'family participation', 'open visiting hours', 'family and patient centered care' and 'person-centered care' were excluded when they did not involve a family member actively staying overnight in the patient's room.

2.4. Charting the data

MvdH and MvM developed a data-charting form in which they determined which data to extract and independently charted the data, discussed the results with two other reviewers (EI and MvD), and continuously uploaded the data-charting form in an iterative process.

2.5. Data items

The data-charting form consisted of descriptive variables (year of publication; study design; setting; participants and characteristics of the studies (outcome measurements; barriers and facilitators to rooming-in; and results of any assessments of rooming-in).

2.6. Critical appraisal of individual studies

In contrast to systematic reviews, the quality of evidence is not evaluated in a scoping review (Peterson et al., 2017). For qualitative studies the Consolidated Criteria for Reporting Qualitative Research-Checklist (COREQ-checklist) was used to systematically report the quality of the studies (Tong, Sainsbury, & Craig, 2007). The COREQ checklist consists of items specific to reporting qualitative studies: level of bias is reported by describing the research team and level of reflexivity; reliability is assessed by the description of the study design and analysis procedures. For quantitative studies the Cochrane Collaboration Guidelines for Systematic Reviews of Interventions was used (Higgins, 2011).

2.7. Collating, summarizing and reporting the results

The studies were grouped based on the perspectives of the three different stakeholders: patients, family members and nursing staff. Although hospital planners, facility managers and doctors also have a role in facilitating rooming-in and this form of social support associated with person-centered care, they were excluded because of limited influence on direct patient care. Especially the nurses deal with rooming-in and 24/7 presence of family members. Therefore, their perspectives were taken into account.

3. Results

3.1. Characteristics of included studies

The search strategy yielded 454 citations; after removal of the duplicates 347 citations were left for screening. Based on the title and abstract, 329 articles were excluded, with 18 full text articles to be

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	1,2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	3
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	4
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	5
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	5
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	4
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	4
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	4
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	5
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	5
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	5

Fig. 1. PRISMA-ScR checklist.

retrieved and assessed for eligibility. Of these, 11 were excluded because no full text or translation was available. The remaining seven studies were considered eligible for this review (see Fig. 2 PRISMA Flowchart).

The publications dated from 1987 to 2016 and originated from Germany (Werner & Gadomski, 1987), Australia (O'Brien, 1998; Richardson, 1996), India (Rajagopalan & Verghese, 1997), USA (Kolakowski & Horwitz, 2016; Wells & Baggs, 1997) and the Netherlands (van der Zwaag, 2016). One described a quantitative study; three described a qualitative study; and three were correspondence articles providing background information. Table 1 presents the characteristics of the included studies.

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	6
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	6
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	6
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	6
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	7,8
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	7,8
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	8,9
Limitations	20	Discuss the limitations of the scoping review process.	10
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	10
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	11

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med. ;169:467–473. doi: 10.7326/M18-0850

Fig. 1. (*continued*)

3.2. Quality assessment

The one quantitative study included was an RCT with 24 patients randomly distributed over an intervention group ($n = 13$) and a control group ($n = 11$) (Wells & Baggs, 1997). The risk of bias was assessed as high as allocation concealment, performance bias, detection bias, attribution bias and reporting bias had not been reported. The three qualitative studies addressed respectively focus group discussions (van der Zwaag, 2016), in-depth interviews (O'Brien, 1998) and retrospective questionnaires (Richardson, 1996). The qualitative and quantitative publications were assessed as being of low quality because important information was not reported, such as data analysis and data reporting (see Appendix 2).

3.3. Experiences with rooming-in

3.3.1. Experiences of patients

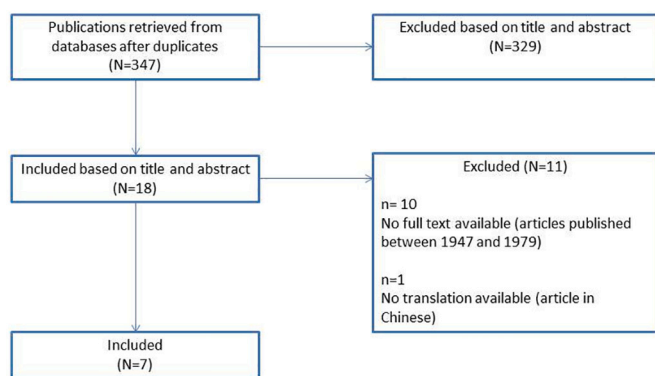Three studies reported patient outcomes and patient perspectives on

Fig. 2. PRISMA flowchart.

rooming-in (see Table 2). Two qualitative studies set in rural hospitals in Australia described rooming-in programs for mentally ill patients (O'Brien, 1998; Richardson, 1996). From these studies, themes were derived that shaped the experiences of the patients (see Table 2). One RCT in 24 elderly patients attempted to measure the effectiveness of four consecutive nights rooming-in (Wells & Baggs, 1997). No effects were found on acute confusion or adverse events. In the same study, nurses rated the quality of the patients' sleep as moderately well to very well (Wells & Baggs, 1997).

3.3.2. Experiences of family members

Four studies addressed family members' experiences with rooming-in (see Table 3). Two of these studies addressed rooming-in with a mentally ill patient (O'Brien, 1998; Richardson, 1996); the other two rooming-in with elderly patients (van der Zwaag, 2016; Wells & Baggs, 1997). All four studies reported a willingness and understanding of family members to participate in rooming-in. Despite the different characters of the patient groups, the themes that arose from focus groups, interviews and questionnaires were similar for these groups (see Table 3). Family members saw an added value for the patient, considered rooming-in a moral duty, and were happy to help. Nonetheless, rooming-in was also seen as physically and emotionally stressful. Practical instructions on how to provide rooming-in were often inadequate and it was not clear what the patient and nursing staff expected from them (see Table 3).

3.3.3. Experiences of nurses

The above-mentioned four studies also addressed nursing staff' experiences (see Table 4). Furthermore, three correspondence articles contained suggestions from nursing staff (Kolakowski & Horwitz, 2016; Rajagopalan & Verghese, 1997; Werner & Gadomski, 1987). Rooming-in and the involvement of family members in daily care changed the nurse-patient interaction. Nurses considered the increased family participation as beneficial as the patients showed less anxiety, better adjusted to the hospital environment and felt generally comfortable. Rooming-in was seen as helpful in tailoring care to the patient's values and in reducing the staff's workload. From the perspective of night nurses, rooming-in was undisruptive to their work (Wells & Baggs, 1997). Insufficient guidelines and protocols, lack of training of staff, and family members and communication issues between all participants were seen as the biggest barriers to successfully implement rooming-in.

The concept of rooming-in has been defined unambiguously in the included studies as a voluntary overnight stay of a close relative during hospitalization of the patient. However, different interpretations have been applied: the continuous 24/7 stay of one key relative (O'Brien, 1998; Richardson, 1996; van der Zwaag, 2016), which is also labeled as 'open visiting hours', a designated family member remaining with the patient during the overnight hours (Kolakowski & Horwitz, 2016), which is equal to the concept of 'family stay-over', a minimum stay of 4 nights in the first week (Wells & Baggs, 1997), or 2–4 weeks in total (Werner & Gadomski, 1987). Each interpretation has its own implications for policy and feasibility of rooming-in.

Table 1
Characteristics of included studies (n = 7)

Author, year, country, type of study	Research question / topic	Participants / setting	Data collection
Quantitative research			***Outcome measurements***
Wells, 1997, USA, RCT	Feasibility and effects of 4 nights of rooming-in	Elderly patients (N = 24 n = 13 intervention, n = 11 control group)	Patient: Acute confusion during hospitalization, complication rate, length of stay, baseline mental and functional status
		Family (n = 13)	Family: non-validated satisfaction questionnaire
		Staff (n = NR)	Staff: night nurse evaluation
		Orthopaedic surgical ward	
Qualitative research			***Methods***
Van der Zwaag, 2016, The Netherlands, short explorative study	Experience of rooming-in with hospitalized elderly with delirium	Family (n = 6)	Patient: Not reported
			Family: themes arising from focus group
		Staff (n = 7)	Staff: themes arising from focus group
		Thoracic surgery and internal wards	
O'Brien, 1998, New Zealand, descriptive qualitative pilot study	Experience of rooming-in with mentally ill patients	Patient (n = 6)	Patient: in-depth interviews
		Family (n = 6)	Family: in-depth interviews
		Staff (n = 3)	Staff: participant observation
		Rural hospital	
Richardson, 1996, Australia, Retrospective case report study	Experience of rooming-in with mental health patients	Patients (n = 152)	Patient: questionnaire and patient records for length of stay and freedom restrictive treatments
		Family (n = not reported)	Family: non-validated questionnaire
		Staff (n = not reported)	Staff: non-validated questionnaire
		Local hospital without psychiatric ward	
Expert opinion letters			***Topics***
Kolakowski, 2016, USA, correspondence	Rooming-in guidelines for hospital setting	Older patients with impaired cognitive functioning	Considerations for developing a protocol
Rajagopalan, 1997, India, correspondence	Three decades of experience with family participation and rooming-in	Psychiatric inpatients	Considerations for rooming-in with psychiatric patients
Werner, 1987, Germany, correspondence	Experience with family rooming-in	Patients with brain injuries	Reflecting on 5 years of family rooming-in with patients with brain injuries

Table 2
Results: experiences of patients with rooming-in.

Author, year, country	Reported by	Results
Wells & Baggs, 1997, USA	Researcher	No significant effect on acute confusion or rate of adverse events.
		Length of stay was shorter for patients with unplanned surgery and rooming-in but also for patients with planned surgeries without rooming-in.
	Nurses	Nurses rated quality of patient's sleep as moderately well to very well. There were no significant differences in reported quality of sleep.
		Comforting for the patient
O'Brien, 1998, New Zealand	Patient	Concerned for the impact of rooming-in on the family members who stay in hospital and those who take care of family at home.
Richardson, 1996, Australia	Researcher	Less restrictive interventions with rooming-in
	Patient	Positive experiences: Reduced disorientation, relief being near home, feeling safe and secure, appreciated by care and understanding of staff and confidants
		Negative experiences: Insufficient discussion of illness, isolated in single room, staff ill-informed about psychiatric illness, family taking over and talking on their behalf, unduly restricted freedoms, inadequate facilities, need for greater confidentiality, insufficient literature about program

Family members, nurses and the researchers who conducted the reviewed studies were under the impression that rooming-in had a positive effect on patients' anxiety and comfort and that mentally ill patients adhered better to treatment. Patients reported feeling safe and secure in the presence of a family member, but also feeling restricted in freedom and privacy – with the risk of the family taking over and speaking on their behalf. For family members, incentives to participate in the patient's care included a sense of moral duty, a desire to be useful, provide reassurance and support for the patient. Nonetheless, they also experienced social isolation and made clear that rooming-in could be a physical and emotional burden.

4. Conclusions

This scoping review aimed to explore the experiences of patients, family members and nurses on rooming-in for adult patients. Little has been published on this topic and in addition, solid evidence, guidelines or implementation studies to inform rooming-in practices are lacking.

4.1. Emotional, social and communication aspects of rooming-in

The practice of rooming-in implies a shift in the communication and interaction between nurses, patients and family members. Nurses acknowledge that the patient's values are better represented and that the family members are no longer 'just visitors'. However, clear protocols or an International Consensus statement on the practical sides of rooming-in are missing; the roles of family members and nurses need to be clearly defined (Coyne, 2015).

4.2. Rooming-in in the wider context of person-centered care

The recognition of potential benefits of including family members

during a patients' hospitalization is changing the healthcare landscape. Various concepts and definitions express these changes. Person-centered care 'shifts the focus away from the patient passively being the goal of interventions and disease-oriented medicine to the patient constituting an active part of the care process and patient-oriented medicine' (Lusk & Fater, 2013; Park et al., 2018; Tobiano et al., 2015). Patient participation encourages patients to actively engage in their healthcare decision-making processes such as medical rounds, handover, nursing care planning and in managing their own care (Eskes, Schreuder, Vermeulen, Nieveen van Dijkum, & Chaboyer, 2019; Schreuder, Eskes, van Langen, van Dieren, & Nieveen van Dijkum, 2019; Tobiano et al., 2015). Similarly, 'elder friendly care'(EFC), which is defined as an age-related initiative to improve the care, experiences, and outcomes of frail older adults, supports what "matters most" to patients and families. This might include hospital stay for 24/7 for family members of adult patients, however, it does not exceed the boundaries of rooming-in (Arain, Graham, Ahmad, & Cole, 2020; Khadaroo et al., 2020). Family participation or involvement can range from being present during communication with the healthcare staff to assisting nurses in care activities (Mackie, Mitchell, & Marshall, 2018; Park et al., 2018).

Rooming-in is quite different than executing more open or flexible visiting hours or than having an unrelated person sit with you for a couple of hours (Carr, 2013; Ciufo et al., 2011). It requires facilitating relatives to stay the night in the patient's room and to be present continually. Naturally, a safe relationship between the patient and the person rooming-in is needed, as well as good communication with the healthcare staff. Both this review and literature from the wider context on person-centered care show a lack of guidelines, generalization of practices, definition of interventions and ways to practically implement the idea of family participation on different levels (Li, Melnyk, & McCann, 2004; Mackie et al., 2018; Tzeng & Yin, 2008). A recent

Table 3
Results: experiences of family members with rooming-in.

Author, year, country	Results
Wells & Baggs, 1997, USA	Overall experience good (38,5%) or excellent (61,5%)
Van der Zwaag, 2016, the Netherlands	Family members expressed themes such as: physical and emotional burden, moral duty, reassurance, personal satisfaction, appreciation of nursing staff, added value for patient, awareness of changes in personal relationship with the patient.
O'Brien, 1998, New Zealand	Concern about surviving hospitalization while being far from home and isolated, withdrawn from own social network, long hours and commitment
	Concern about caring responsibilities that require knowledge and a level of education
Richardson, 1996, Australia	Positive experiences:
	Retaining family contact, ease of visiting, ability to help, able to keep working, no financial stress, good relationship and support from staff, duty of care, learning to care for mentally ill, feeling empowered.
	Negative experiences:
	Inadequate facilities, limited understanding of their role, taking on too much, not having a choice as a parent, insufficient follow-up, not enough information, need for relief.

Table 4
Results: experiences of nursing staff with rooming-in.

Author, year, country	Results
Wells & Baggs, 1997, USA	Good feasibility: night-nurses could work undisrupted.
	No significant difference in number of times the nurse would check the patient during the night
Van der Zwaag, 2016, the Netherlands	Nurses expressed themes such as: importance of communication between nurses and family members, changes in work behaviour of nurses, family members' burden, patient values
O'Brien, 1998, New Zealand	Rooming-in assists nursing care, however it also changes the nature of nursing interaction with the patient and the family
Richardson, 1996, Australia	Positive experiences: Reduced workload, reduced anxiety, support by family's understanding of behaviour of patient, improved community understanding of mental illness
	Negative experiences: Being too busy, lack of training, insufficient guidelines and facilities, loss of control, increased staff conflict, need for in-service training, view that mentally ill should be in mental institutions
Kolakowski & Horwitz, 2016, USA	Addressing access, decision making, respect and dignity, information sharing, participation and collaboration
Rajagopalan & Verghese, 1997, India	Family participation increases the patient's adjustment to the hospital surroundings and leads to better compliance with treatment.
Werner & Gadomski, 1987, Germany	Relatives need continuous guidance and advice during rooming-in. Some cannot endure the physical and psychological stress involved.

review of systematic reviews on family participation for adult patients showed that physical support, empowerment and providing information to the patient and family were the most applied interventions (Park et al., 2018). Interestingly, rooming-in was not mentioned in this review. Other studies addressing family participation for adult patients focus on specific patient groups such as those receiving intensive care (Al-Mutair et al., 2013; Azoulay et al., 2003; Ciufo et al., 2011; Davidson et al., 2017; van Mol et al., 2017), hospitalized elderly (Li et al., 2004), patients with delirium (Carr, 2013), or mental health patients (Chapman, 2011). Across these patient groups, family participation is generally considered a valuable addition to increase patients' mobility and fall prevention.

Nevertheless, rooming-in in all its current perspectives, might overlook cultural common practices. 'Accompanying the sick (pei ban)' is daily practice in Chinese hospitals, where visitors stay in the hospital until the patient has been discharged (Lee, 2001). The practice of 'pei ban' is influenced by cultural norms and long travelling distances but evokes issues of overcrowding, noise pollution in the hospital, and reduction of privacy. Furthermore, some bedside nursing care, such as feeding and personal hygiene is left to the patients 'relatives rather than being provided by health care professionals. In western countries, including relatives in care models such as person-centered care is a luxury to meet patients' individual needs and preferences (Al-Motlaq & Shields, 2017).

4.3. Strengths and limitations of this study

The main strength of this review was the structured approach of the literature on rooming-in for hospitalized adult patient. However, a few limitations of the review process and the content of the studies need to be addressed. Given the explorative and iterative nature of a scoping review, it is possible that sources have been missed. In addition, the studies showed some biases on their own merit. First, information on family members not willing to participate in rooming-in has not been explored in the studies, which might result in a too positive summary of experiences. Second, the publications included are outdated. Third, the studies analyzed only small sample sizes.

Rooming-in, primarily intended to provide high-quality care and to enlarge family participation, is increasingly becoming part of hospital policies around the world. Despite this trend, rooming-in on adult wards has been hardly addressed scientifically. For both family members and the nursing staff rooming-in seems advantageous. Family members are willing to participate in rooming-in programs which also may relieve the nurses' workload. In contrast, the nursing staff is not yet comfortable with the idea of rooming-in. Therefore, implementing a program of rooming-in needs thoroughly consideration and preparation.

4.4. Relevance to clinical practice

As hospital boards are moving towards the implementation of person-centered care programs, going from multi-bedded to single bedded rooms, they need to know how to best make use of the hospital space and how to shape the interactions between the different participants in the healthcare process. The Institute of Medicine recognizes six person-centeredness aspects in defining qualitatively good healthcare, among which the involvement of family and friends (Tzelepis, Sanson-Fisher, Zucca, & Fradgley, 2015). Therefore, rooming-in is an essential aspect of quality care to include in hospital policies.

The current lack of literature on rooming-in in adult hospital rooms stands in the way of developing effective usage in daily care. Properly conducted qualitative studies that make use of participant observation, semi-structured interviews and focus groups, could raise insight in the barriers and best-practices as experienced by patients, their family members and nurses. Quantitative efficacy studies should further strengthen the foundation of rooming-in policies. Policies might be more feasible if the following considerations are addressed beforehand (Kolakowski & Horwitz, 2016):

1. Access and decision making: decide who is eligible for rooming-in considering infection control, space, the patient's medication and which team member is responsible for that decision.
2. Respect and dignity: provide protocols how privacy and confidentiality will be secured for both the patient and the person rooming-in.
3. Participation and information sharing: stimulate family members to share information about the patient's needs or changes in condition.
4. Collaboration: establish how an interdisciplinary team can contribute to the patient's wellbeing and what education patients and their family need about rooming-in.

Declaration of competing interest

None.

Acknowledgements

specialist Erasmus MC, for his assistance in the data-gathering process.

Authors' contribution

All authors (MvdH, MvM, EW, RJO, EI, MvD) made substantial contributions to the following: 1) the conception and design of the study, the acquisition, analysis, and interpretation of data for the work 2) drafting the article and revising it critically for important intellectual content and 3) final approval of the version to be published.

Author statement

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated sufficiently in the work to take public responsibility for the content, including participation in the concept, design, analysis, writing, or revision of the manuscript. Furthermore, each author certifies that this material or similar material

has not been and will not be submitted to or published in any other publication before its appearance in Applied Nursing Research.

Conception and design of the study:
M. van Dijk, WG Ista, RJ Osse, FE Witkamp.
Acquisition of data:
MJE van der Heijden, MMC van Mol.
Analysis and/or interpretation of data:
MJE van der Heijden, MMC van Mol, WG Ista.
Drafting the manuscript:
MJE van der Heijden, MMC van Mol.
Revising the manuscript critically for important intellectual content:
MJE van der Heijden, MMC van Mol, M van Dijk, WG Ista, RJ Osse, FE Witkamp.
Approval of the version of the manuscript to be published:
MJE van der Heijden, MMC van Mol, M van Dijk, WG Ista, RJ Osse, FE Witkamp.

Appendix 1. Search strategy

Embase.com
('rooming in'/de OR ('rooming in'):ab,ti) NOT (child/exp. NOT adult/exp) NOT ('newborn'/exp. OR (neonat* OR newborn* OR maternal* OR mother* OR baby):ab,ti)
Medline Ovid
(Rooming-in Care/ OR (rooming in).ab,ti.) NOT ((exp child/ OR exp. infant/) NOT (exp adult/)) NOT (exp Infant, Newborn/ OR (neonat* OR newborn* OR maternal* OR mother* OR baby).ab,ti.)
PsycINFO Ovid
((rooming in).ab,ti.) NOT ((100.ag.) NOT (300.ag.)) NOT (110.ag. OR (neonat* OR newborn* OR maternal* OR mother* OR baby).ab,ti.)
CINAHL EBSCOhost
(MH Rooming In+ OR TI ("rooming in") OR AB ("rooming in")) NOT ((MH child+ OR MH infant+) NOT (MH adult+)) NOT (MH Infant, Newborn+ OR TI (neonat* OR newborn* OR maternal* OR mother* OR baby) OR AB (neonat* OR newborn* OR maternal* OR mother* OR baby))
Web of science
TS = ((("rooming in")) NOT ((child* OR infan*) NOT (adult* OR elder*)) NOT ((neonat* OR newborn* OR maternal* OR mother* OR baby))).
Google scholar
"rooming in" adult|adults|elderly -neonate -neonatal -newborn -newborns -maternal -mother -baby -babies.

Appendix 2. Quality assessment of qualitative studies with the COREQ-checklist

		van der Zwaag, 2016	O'Brien, 1998	Richardson, 1996
Research Team and reflexivity	Personal characteristics of researcher	−	−	+
	Relationship with participants	−	−	−
Study design	Theoretical framework	−	−	−
	Participant selection	+	+	+
	Setting	−	−	−
	Data collection	+	+	−
Analysis and findings	Data analysis*	+	−	−
	Reporting**	−	−	−

Legend Table 2. - = not reported, + = briefly mentioned, + + = properly reported.
 * number of data coders, derivation of themes, software used, participant checking.
 ** Quotations presented, data and findings consistent, clarity of major and minor themes.

References

Al-Motlaq, M. A., & Shields, L. (2017). Family-centered care as a Western-centric model in developing countries. *Holistic Nursing Practice, 31*(5), 343–347.
Al-Mutair, A. S., Plummer, V., O'Brien, A., & Clerehan, R. (2013). Family needs and involvement in the intensive care unit: A literature review. *Journal of Clinical Nursing, 22*(13–14), 1805–1817.
Arain, M. A., Graham, L., Ahmad, A., & Cole, M. (2020). Pilot implementation of elder-friendly care practices in acute care setting: A mixed methods study. BMC Health Services Research, 20(1), 347. doi:https://doi.org/10.1186/s12913-020-05091-y https://doi.org/10.1186/s12913-020-05091-y [pii].
Azoulay, E., Pochard, F., Chevret, S., Arich, C., Brivet, F., Brun, F., . . . French Famirea, G. (2003). Family participation in care to the critically ill: Opinions of families and staff. Intensive Care Medicine, 29(9), 1498–1504.
Barsteiner, J., Disch, J., Walton, M., Kent, K., Lynn, J., & Lahnen, C. (2014). *Person and family centered care.* Sigma Theta Tau International.

Carr, F. M. (2013). The role of sitters in delirium: An update. *Can Geriatr J, 16*(1), 22–36.
Chapman, M. (2011). Inpatient care in broome: "Rooming-in" - Innovation, failure, and back again. *Aust New Zealand J Psychiatry, 45,* A14.
Choi, Y. S., & Bosch, S. J. (2013). Environmental affordances: Designing for family presence and involvement in patient care. *HERD, 6*(4), 53–75.
Ciufo, D., Hader, R., & Holly, C. (2011). A comprehensive systematic review of visitation models in adult critical care units within the context of patient- and family-centred care. *International Journal of Evidence-Based Healthcare, 9*(4), 362–387.
Coyne, I. (2015). Families and health-care professionals' perspectives and expectations of family-centred care: Hidden expectations and unclear roles. *Health Expectations, 18*(5), 796–808.
Cusack, L., Wiechula, R., Schultz, T., Dollard, J., & Maben, J. (2019). Anticipated advantages and disadvantages of a move to 100% single-room hospital in Australia: A case study. *Journal of Nursing Management, 27*(5), 963–970.
Davidson, J. E., Aslakson, R. A., Long, A. C., Puntillo, K. A., Kross, E. K., Hart, J., ... Curtis, J. R. (2017). Guidelines for family-centered care in the neonatal, pediatric, and adult ICU. *Critical Care Medicine, 45*(1), 103–128.

Devlin, A. S. A., .A.B. (2003). Health care environments and patient outcomes: A review of the literature. *Environment and Behavior, 35*(5), 665–694.

Eskes, A. M., Schreuder, A. M., Vermeulen, H., Nieveen van Dijkum, E. J. M., & Chaboyer, W. (2019). Developing an evidence-based and theory informed intervention to involve families in patients care after surgery: A quality improvement project. *Int J Nurs Sci, 6*(4), 352–361. https://doi.org/10.1016/j.ijnss.2019.09.006 (S2352-0132(19) 30189-9 [pii].

Frampton, S. B., & Guastello, S. (2014). Time to embrace a new patient-centered care rallying cry: "why not?". *Patient, 7*(3), 231–233.

Giannini, A., Garrouste-Orgeas, M., & Latour, J. M. (2014). What's new in ICU visiting policies: Can we continue to keep the doors closed? *Intensive Care Medicine, 40*(5), 730–733.

Higgins, J. P. T. G. S. (2011). *Cochrane handbook for systematic reviews of interventions (vol. version 5.1.0.)*.

Khadaroo, R. G., Warkentin, L. M., Wagg, A. S., Padwal, R. S., Clement, F., Wang, X., ... Holroyd-Leduc, J. (2020). Clinical effectiveness of the elder-friendly approaches to the surgical environment initiative in emergency general surgery. *JAMA Surgery,* e196021. 2760955 [pii] https://doi.org/10.1001/jamasurg.2019.6021.

Kolakowski, D., & Horwitz, P. (2016). Better outcomes through "rooming-in". *Nursing Management, 47*(10), 12–14.

Lee, D. (2001). Accompany the sick' (pei ban): A unique practice in Chinese hospitals by patients' relatives and friends. *Contemporary Nurse, 10*(3–4), 136–141. https://doi.org/10.5172/conu.10.3-4.136.

Li, H., Melnyk, B. M., & McCann, R. (2004). Review of intervention studies of families with hospitalized elderly relatives. *Journal of Nursing Scholarship, 36*(1), 54–59.

Lusk, J. M., & Fater, K. (2013). A concept analysis of patient-centered care. *Nursing Forum, 48*(2), 89–98.

Maben, J., Griffiths, P., Penfold, C., Simon, M., Anderson, J. E., Robert, G., & Barlow, J. (2016). One size fits all? Mixed methods evaluation of the impact of 100% single-room accommodation on staff and patient experience, safety and costs. *BMJ Quality and Safety, 25*(4), 241–256.

Mackie, B. R., Mitchell, M., & Marshall, A. (2018). The impact of interventions that promote family involvement in care on adult acute-care wards: An integrative review. *Collegian, 25*(1), 131–140.

Munn, Z., Peters, M. D. J., Stern, C., Tufanaru, C., McArthur, A., & Aromataris, E. (2018). Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC Medical Research Methodology, 18*(1), 143.

O'Brien, A. P. (1998). Rural families as resources for family members who are mentally ill: A call for nursing involvement. *Archives of Psychiatric Nursing, 12*(4), 219–226.

Park, M., Giap, T. T., Lee, M., Jeong, H., Jeong, M., & Go, Y. (2018). Patient- and family-centered care interventions for improving the quality of health care: A review of systematic reviews. *International Journal of Nursing Studies, 87*, 69–83.

Peters, M. D., Godfrey, C. M., Khalil, H., McInerney, P., Parker, D., & Soares, C. B. (2015). Guidance for conducting systematic scoping reviews. *International Journal of Evidence-Based Healthcare, 13*(3), 141–146.

Peterson, J., Pearce, P. F., Ferguson, L. A., & Langford, C. A. (2017). Understanding scoping reviews: Definition, purpose, and process. *Journal of the American Association of Nurse Practitioners, 29*(1), 12–16.

Rajagopalan, M., & Verghese, A. (1997). Rooming in: The Vellore experience. *The*

Australian and New Zealand Journal of Psychiatry, 31*(4), 607–608.

Richardson, M. E. (1996). Rooming-in: An alternative to involuntary detention. *AUST NEW ZEALAND J PSYCHIATRY, 30*(2), 263–269.

Schreuder, A. M., Eskes, A. M., van Langen, R. G. M., van Dieren, S., & Nieveen van Dijkum, E. J. M. (2019). Active involvement of family members in postoperative care after esophageal or pancreatic resection: A feasibility study. *Surgery, 166*(5), 769–777. S0039-6060(19)30297-1 [pii] https://doi.org/10.1016/j.surg.2019.05. 032.

Seidemann, I., & Eisenoff, H. (1956). Rooming-in service in a medium-sized community hospital; report on four-and-one-half-years observation. *New York State Journal of Medicine, 56*(16), 2533–2536.

Taylor, E., Card, A. J., & Piatkowski, M. (2018). Single-occupancy patient rooms: A systematic review of the literature since 2006. *HERD, 11*(1), 85–100.

Teltsch, D. Y., Hanley, J., Loo, V., Goldberg, P., Gursahaney, A., & Buckeridge, D. L. (2011). Infection acquisition following intensive care unit room privatization. *Archives of Internal Medicine, 171*(1), 32–38. 171/1/32 [pii] https://doi.org/10.1001/ archinternmed.2010.469.

Tobiano, G., Marshall, A., Bucknall, T., & Chaboyer, W. (2015). Patient participation in nursing care on medical wards: An integrative review. *International Journal of Nursing Studies, 52*(6), 1107–1120.

Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care, 19*(6), 349–357.

Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., & Straus, S. E. (2018). PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Annals of Internal Medicine, 169*(7), 467–473.

Tzelepis, F., Sanson-Fisher, R. W., Zucca, A. C., & Fradgley, E. A. (2015). Measuring the quality of patient-centered care: Why patient-reported measures are critical to reliable assessment. *Patient Preference and Adherence, 9*, 831–835.

Tzeng, H.-M., & Yin, C.-Y. (2008). Family involvement in inpatient care in Taiwan. *Clinical Nursing Research, 17*(4), 297–311.

Ulrich, R. S., Zimring, C., Zhu, X., DuBose, J., Seo, H. B., Choi, Y. S., & Joseph, A. (2008). A review of the research literature on evidence-based healthcare design. *HERD, 1*(3), 61–125.

Ungerer, R. L., & Miranda, A. T. (1999). [Rooming-in history] Historia do alojamento conjunto. *Jornal de Pediatria, 75*(1), 5–10. https://doi.org/10.2223/jped.250.

van de Glind, I., van Dulmen, S., & Goossensen, A. (2008). Physician-patient communication in single-bedded versus four-bedded hospital rooms. *Patient Education and Counseling, 73*(2), 215–219.

van der Zwaag, S. (2016). Why healthcare professionals and relatives of patients experience rooming in as useful intervention. *Journal of Advanced Nursing, 72*, 68.

van Mol, M. M., Boeter, T. G., Verharen, L., Kompanje, E. J., Bakker, J., & Nijkamp, M. D. (2017). Patient- and family-centred care in the intensive care unit: A challenge in the daily practice of healthcare professionals. *Journal of Clinical Nursing, 26*(19–20), 3212–3223.

Wells, N., & Baggs, J. G. (1997). Rooming-in for elderly surgical patients. *Applied Nursing Research, 10*(2), 72–79.

Werner, G. T., & Gadomski, M. (1987). Anxiety in patients with brain injuries. Rooming-in with close relatives as a therapeutic approach. *International Journal of Rehabilitation Research, 10*(4 SUPPL. 5), 232–233.