

The impact of interventions that promote family involvement in care on adult acute-care wards: An integrative review

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Title The impact of interventions that promote family involvement in care on adult acute-care wards: An integrative review

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Abstract

Background: Healthcare that involves patients and their families in care has been recommended to improve patient safety and quality. With limited direction on care partnerships for adult acute care patients, their families and healthcare teams, there is a need for a review of interventions that have been used to promote family in patient care within adult acute care wards. Aim: The aim of this integrative review was to describe interventions that have been used to promote family involvement in patient care within adult acute care wards. Method: Electronic databases of Cumulative Index of Nursing and Allied Health Literature (CINAHL), Cochrane, PubMed, and PsycINFO were searched between 1994 and 2016 using key search terms and word variations 'family involvement', 'family nursing', 'family centred care', 'family interventions', 'family therapies'. Additional literature was sourced from reference lists of relevant original publications. The Mixed Methods Appraisal Tool and Template for Intervention Description and Replication informed study and intervention assessment. Findings: Eleven single centered studies were included with interventions designed to improve functional capacity, cognitive function, and communication. Nurses were involved in intervention delivery for six of the 11 interventions. Outcomes of interest included patient outcomes (n=8) and intervention acceptability and feasibility (n=3). Improved patient outcomes were reported for seven studies. Intervention design and implementation were generally poorly described. Conclusion: Interventions designed to promote family in patient care on adult acute care wards improved patient outcomes in some instances, however, methodological limitations confound the evidence base for family involvement having a direct and positive impact on patient outcomes. Allowing patients and family members to partner in intervention design may enhance uptake and improve outcomes. Process and economic evaluations should also be included in future studies to allow assessment of clinical feasibility.

Keywords Acute care, Intervention, Family, Patient safety, Quality of healthcare.

Taxonomy Nursing Intervention, Evidence Based Nursing

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1. Introduction

Healthcare that allows patients and their families to partner and collaborate in care has been recommended to improve patient safety and quality (Berger, Flickinger, Pfoh, Martinez & Dy, 2014; Calvert, Minford, Platt & Chatfield, 2015; Feo & Kitson, 2016). There is growing recognition that families form an integral part of the life and wellbeing of patients who are at their most vulnerable when they are ill (Black, Boore & Parahoo, 2011; Brady et al., 2014; DiGioia, Greenhouse & Levison, 2007). Both patient and family involvement in care can be achieved through the adoption of the Patient and Family Centred Care (PFCC) approach. PFCC is a philosophy of healthcare delivery that is grounded in mutually beneficial partnerships (Bass, 2012; Bell, 2009). PFCC emphasizes collaborating with patients of all ages and their families, at all levels of care and in all healthcare settings. Further, PFCC acknowledges that families are essential to patients' health and wellbeing and are allies for quality and safety within the healthcare system (Conway et al., 2006). Family support also helps overcome feelings of vulnerability in hospitalized patients (Lolaty, Bagheri-Nesami, Shorofi, Golzarodi & Charati, 2014; Mitchell & Chaboyer, 2010) who transition more efficiently through the healthcare system when their families are involved in decision-making (Bérubé et al., 2014). The benefits of families partnering in care have led to a growing international emphasis for health services to plan, deliver and evaluate care using the PFCC approach (Johnson et al., 2008; McTavish & Phillips, 2014). For several years, the Joint Commission International (JCI) has advocated for healthcare professionals to form partnerships with patients and their families and involve them in care planning and decision-making by incorporating this into their accreditation standards for hospitals (JCI, 2013). Despite its growing appeal to health policy makers, uptake of PFCC practices in adult acute-care wards has been slow (Berger et al., 2014).

While the concept of PFCC is broadly inclusive, much of the literature describing PFCC has been conducted in clinical contexts where patients are unable to advocate for themselves such as those found within pediatric, critical care and mental health areas (Huffines et al., 2013; McNeil, 2013; Mitchell & Chaboyer, 2010; Van Voorhis & Willis, 2009). The clinical benefits that have been identified through a family partnership approach in these settings include decreased mortality (Meterko, Wright, Hai, Lowy & Cleary, 2010), reduced hospital length of stay (DiGioia et al. , 2007), improved adherence to treatment regimens (Rukstele & Gagnon, 2013), and decreased readmission rates (Boulding, Glickman, Manary, Schulman & Staelin, 2011).

The potential for patients and families to partner with healthcare professionals and become involved in care within hospitals is significant (Australian Institute for Health and Welfare, 2014; National Health Service Confederation, 2014; American Hospital Association, 2014). Shared decision-making between the patient and their family, and the healthcare team is just one way partnership can be achieved (Carman et al., 2013). For this to work effectively, the roles and capacity of those within the care partnership must be clearly established at the start of the relationship (Baas, 2012). Limited direction on care partnerships for adult acute care patients, their families and healthcare teams is available thus we rely on research examining family involvement in other settings (Berger et al., 2014). There is a beginning body of work addressing family involvement and partnerships in acute care areas, and from this work we can better understand family participation in the context of acutely ill hospitalized adults. In this article, we endeavor to better understand the benefits of family participation in adult hospital wards through an integrative review of research which reports interventions aimed at promoting family involvement in their relatives care.

2. Aim

This paper reports the findings of an integrative review which provides a synthesis and critique of existing research relating to interventions that have been used to promote family involvement in patient care within adult acute care wards. Specifically for each intervention we sought to uncover: (1) What was the aim of the intervention? (2) How was the intervention implemented? and (3) What patient outcomes were achieved?

3. Methods

Design

An integrative review, guided by the framework described by Whitemore and Knafl (2005), was conducted to allow synthesis of literature from differing methodological backgrounds (Williams, 2012). This framework enhanced rigor as it directed the literature search, data collection, data extraction, data synthesis and presentation of findings.

Search Strategies

The phenomena of interest for this review were PFCC interventions in the context of adult patients in acute care wards where the patients were capable of participating in their own care. Studies were excluded where the focus was on patients highly dependent on care such as children and those within an intensive care unit, mental health unit, maternity ward, palliative care, or emergency department (ED). 'Grey literature' was also excluded.

A systematic search was conducted of the literature published between January 1994 and January 2016, with the use of the following databases: Cumulative Index of Nursing and Allied Health Literature (CINAHL), Cochrane, PubMed, and PsycINFO using the search terms detailed in Table 1. This time frame was chosen because evidence regarding this topic appeared to emerge in the mid-1990s. Duplicates were removed before abstract review. A title and abstract review of 874 articles was undertaken with reference to the inclusion/exclusion criteria (Table 2). Titles and abstracts which met inclusion criteria were then reviewed in full. Figure

1 describes the process of study identification and screening, with 11 articles identified for this review.

****insert Table 1 and 2 here & Fig 1****

Quality appraisal

The Mixed Method Appraisal Tool (MMAT) was used to guide appraisal of studies identified in the search. The MMAT is a reliable tool (Pace et al., 2012) which permits reviewers to appraise and describe the quality for three methodological domains: mixed, qualitative, and quantitative designs where quantitative designs are divided into three sub-domains: randomized controlled trials, non-randomized, and descriptive design. The MMAT is based on four specific sets of quality criteria from which a 'quality score' was calculated as a percentage, ranging from (0% or 'low quality') representing no criterion met through to (100% or 'high quality') representing all four criteria met (Pluye et al., 2011). If ambiguous or missing data were identified, the lead authors of the article under review were contacted via email and asked to provide additional information. We did not impose a quality threshold for inclusion (Dirnagl & Lauritzen, 2010) because of the limited number of articles identified with this strategy supporting a broad overview of current research. All included studies were independently evaluated by two authors. Where there were differing opinions a third author adjudicated until consensus was reached.

Data extraction

A standardized framework (Whittemore & Knafl, 2005) and data coding spreadsheet were used **to extract and** summarize data from the primary sources. Understanding and evaluating study interventions were key to this review; therefore the Template for Intervention Description and Replication (TIDieR) checklist and guide (Hoffmann et al., 2014) was used to appraise the

interventions design, implementation, and outcome measures. Supplemental information detailed in the primary article was also reviewed. Data extraction was performed by the first author in consultation with the co-authors.

4. Findings

Geographical distribution, study methodology and sampling

Eleven articles met the inclusion criteria and were reviewed. Three originated from the United States of America (USA) and three from Japan; two were from Iran; and one each from Canada, Australia, and the United Kingdom (UK), the details of which are provided in Table 3. All studies were conducted at single hospital sites. Most applied a quantitative methodology (7), three applied a qualitative approach, and one used a mixed method design. Clinical contexts varied with clinical areas including rehabilitation (4); general medicine (3); cardiology (2); surgery (1); and trauma (1). Four studies were described as pilot or feasibility research. Sample sizes ranged from eight to 60, with seven studies using sample group sizes of less than 40 participants. A sample size calculation was only reported by Najafi et al. (2003). Of the 11 studies, nine included patients and their families as participants. The other two studies included patients, their families and healthcare professionals. Table 3, provides a summary of the study setting, design, sample, intervention, and patient outcomes of the studies.

** insert Tables 3 and 4 here **

Aim of interventions

Interventions that involved family in care were designed to improve patients' physical symptoms (e.g. level of pain) or functional capacity (Fitzpatrick et al., 2004; Hirano et al., 2012; Maeshima et al., 2003; Najafi et al., 2014; Osawa & Maeshima, 2010); improve patients' psychological or cognitive functioning (Boltz, Resnick, Chippendale & Galvin, 2014; Lolaty et al., 2014; Rosenbloom-Brunton, Henneman & Inouye, 2010); or enhance communication and information sharing between the patient, their family and the healthcare team (Bérubé et al., 2014; Boltz et al., 2014; Ewart et al., 2014; Fitzpatrick et al., 2004; Tobiano, Chaboyer & McMurray, 2013). These interventions were designed to promote family involvement in care, however, only one study reported the inclusion of family in the intervention design phase (Bérubé et al., 2014).

Strategies used to implement the interventions

The theoretical basis or rationale for choosing the one or more strategies to enhance the uptake of an intervention to promote family in patient care were reported in four studies (Bérubé et al., 2014; Boltz et al., 2014; Fitzpatrick et al., 2004; Rosenbloom-Brunton et al., 2010). Nurses acted as ward level practice champions and facilitated the delivery of intervention components in the majority of studies; however, this was not always explicitly detailed in the methods. **Nurses** were crucial to the engagement of patients and their family in care and were reported to be essential in intervention delivery in six of the 11 interventions (Bérubé et al., 2014; Boltz et al., 2014; Ewart et al., 2014; Fitzpatrick et al., 2004; Rosenbloom-Brunton et al., 2010; Tobiano et al., 2013). Written information (e.g., leaflets) combined with verbal information (e.g., face to face) to promote family involvement in care was a feature of five studies (Bérubé et al., 2014; Boltz et al., 2014; Ewart et al., 2014; Najafi et al., 2014; Rosenbloom-Brunton et al., 2010); one-on-one coaching of family members was reported in

five studies (Hirano et al., 2012; Maeshima et al., 2003; Najafi et al., 2014; Osawa et al., 2010; Rosenbloom-Brunton et al., 2010). Only four studies reported using specific staff training and structured educational sessions to assist in the implementation of an intervention aimed at promoting family in care (Boltz et al., 2014; Ewart et al., 2014; Fitzpatrick et al., 2004; Rosenbloom-Brunton et al., 2010).

Patient outcomes

Reported patient outcomes varied across the studies. Some assessed patients' functional capacity including mobility, gait, balance, activities of daily living (ADL), and physiological measures (e.g., heart rate, blood pressure, severity of pain). Several studies reported cognitive outcomes such as delirium, anxiety, and sense of well-being (Table 3). In eight studies patient outcomes were assessed using a valid and reliable tool of which only four studies reported tool reliability and validity (Boltz et al., 2014; Fitzpatrick et al., 2004; Lolaty et al., 2014; Najafi et al., 2014).

Interventions implemented in seven of the studies were successful in improving patient outcomes. For example, significant decreases in the level of delirium were reported by Boltz et al., 2014. These findings, however, should be viewed with caution as only 25% of eligible patients participated in this study and recruitment did not reflect patients with higher acuity symptoms. Further, the intervention used in this study required family members to have an active interest in the functional recovery of their relative and visit routinely, which may have introduced some selection bias.

Patient pain was another outcome measure. In a study by Najafi et al. (2014) post-operative cardiac patients reported significantly less severe pain ($p < 0.0001$) when exposed to 30 minutes of Thai massage by a family member compared to a control group. Although this finding was

statistically significant, the sample did not represent patients with acute myocardial infarctions as the sample was not randomized. Further, the design of the intervention lacked sufficient intensity and duration with patients' receiving only 30 minutes of massage therapy. To aid understanding of these results it would have been beneficial if varying doses of massage therapy were performed (e.g., 5, 10, 15 minutes) and a comparison of family versus nurses administering massage was conducted.

More flexible visiting hours supported family involvement in direct care activities and improved collaboration between family members and the healthcare team (Ewart et al., 2014). Further, when cardiac patients were exposed to family visiting they had a significant decrease in their level of anxiety ($p < 0.0001$) and an enhanced sense of wellbeing ($p < 0.0001$) (Lolaty et al., 2014). Data collection in this study did not commence until the second or third day of admission because family visitation was discouraged by staff in the first day of admission to the Iranian cardiac care unit which was the setting of this study (Lolaty et al. 2014). The nature of family visitation is unique to Iran that limits the generalizability of these findings to many Western and European countries.

Improvements in patient strength, mobility and reduced hospital length of stay (LOS) were significant findings in three Japanese studies (Hirano et al., 2012; Maeshima et al., 2003; Osawa et al., 2010) (Table 3). In these studies, family members undertook the role of a training partner assisting their relative perform various strength and mobility activities; however, it was not clear how this intervention differed from usual methods of care. The number of training days did not differ between family participation groups and non-family participation groups in these studies. Therefore, the precise mechanism for the reported improvements in strength and mobility was across these studies is not clear. Understanding from a patient's perspective the impact of having a family member participate in their rehabilitation exercises compared to standard care practices would assist in interpreting these results.

Not all interventions reported improved patient outcomes and three studies were not designed to measure any specific clinical outcomes (Bérubé et al., 2014; Rosenbloom-Brunton et al., 2010; Tobiano et al., 2013). The findings of Fitzpatrick et al. (2004) were not consistent with Boltz et al. (2014) who identified no significant improvement in patients' cognitive status ($P = 0.78$) or physical functioning ($P = 0.38$) from admission to discharge following implementation of an intervention termed the Nursing Care Quality Initiative (NCQI). The NCQI and the Fam-FCC intervention used in these studies were both informed by the Hospital Elder Life Program (Inouye et al., 1999). The difference in these results might be explained by the disparity in how each intervention was designed and implemented. For example, a registered nurse experienced in gerontology nursing devoted 10 hours per week to implement the Fam-FCC intervention and a unit champion was recruited to work with staff and assist with implementation. In contrast, the NCQI intervention provided monthly educational sessions to nurses who were directly engaged in patient care but did not include a designated facilitator to assist with implementation.

Quality of the literature

The methodological quality of studies ranged from low (25%) to high (100%) (Table 4). The study by Lolaty et al (2014) only met one MMAT criteria because it did not provide information relating to recruitment, data collection, or analysis. The most common critique for the studies was the researchers not addressing how they accounted for selection bias in their samples (Hirano et al., 2012; Maeshima et al., 2003; Osawa et al., 2010). The MMAT provided limited information to assess the quality of the interventions reported. When the MMAT scoring was combined with the TIDieR checklist a more complete appraisal of the interventions was achieved (Table 4.) There were several items within the TIDieR checklist that were not

sufficiently addressed in the reported interventions. The mode of delivery for interventions (e.g. face to face) was only reported in six studies (Item 6 of Table 4); six of the 11 studies poorly described intervention delivery, such as the time required or frequency of delivery (Item 8 of Table 4); and importantly, intervention fidelity both planned and actual (Item 11 and 12 of Table 4) was not reported in the majority of studies.

Summary of limitations of studies

The following limitations identified during the review process affected the overall generalizability of results and limited comparisons between studies. Some studies introduced a potential measurement bias when they failed to blind healthcare staff, participants and outcome assessors (Ewart et al., 2014; Hirano et al., 2012; Lolaty et al., 2014; Maeshima et al., 2003; Osawa & Maeshima, 2010; Rosenbloom et al., 2010). Research bias was avoided when the outcome measures were performed by a researcher who had no information about the study groups (Najafi et al., 2014). This may have influenced intervention delivery and subsequent patient outcomes. Further, studies were limited by small sample sizes and single sites (Berube et al., 2014; Boltz et al., 2014; Ewart et al., 2014; Fitzpatrick et al., 2004; Hirano et al., 2012; Lolaty et al., 2014; Maeshima et al., 2003; Najafi et al., 2014; Osawa & Maeshima, 2010; Rosenbloom-Brunton et al., 2010; Tobiano et al., 2013). For all these reasons we believe it is not possible to generalize these result to all adult acute care patients. The validity and reliability of patient outcomes in some studies could not be assured with instruments of varying quality reported.

Discussion

Interventions which promoted family involvement in the care of adult acute care patients improved patient outcomes in some instances, however, methodological limitations confound the evidence base for family involvement having a direct and positive impact on patient outcomes. Only eleven studies met criteria for inclusion in this review, and seven of these were published in the last five years suggesting that testing interventions to promote family involvement in patient care within adult acute care wards is an emerging area of research. The quality of description of interventions designed to promote family involvement in patient care was generally poor and limits the ability for others to replicate these interventions. Factors such as small sample sizes, poorly described intervention components and implementation processes, non-validated measurement tools and particular patient cohorts impacted upon the interpretation, and replicability of the reported studies. Despite these limitations there is important learning from the early work in this area. This review has revealed various findings which deserve careful consideration and will form the focus of the discussion.

Stakeholder involvement

Evidence of patient and family participation in intervention design and implementation was limited in the studies reviewed, and presents an opportunity to incorporate this into future research. Collaborating with patients and families is a core concept of PFCC (Johnson et al., 2009), and as key stakeholders their active participation should be included in design of interventions that aim to promote patient and family involvement in care. The lack of collaboration with patients and families may reflect the widespread paternalism reported in healthcare (Cody, 2003; Zomorodi & Foley, 2009) which creates a barrier for patient and family participation (Larsson et al., 2011). Patient and family engagement is critical in intervention design and an intervention is more likely to succeed when stakeholders are involved in the development and implementation process (Craig et al., 2007; Rycroft-Malone & Bucknall, 2010). Allowing family members to contribute to intervention development may

ease the family into the caring process, which may be new to them. Further, family members may feel they are helping the nurses through assisting in care and empower the patient through active engagement (Bamm & Rosenbaum, 2008; Kaufman, 2008; Polst & Nelson, 2008; MacKean et al. 2005).

Information sharing

Interventions that were designed to enhance communication between the patient, their family and healthcare staff attempted to create opportunities to improve information sharing between these groups (Bérubé et al., 2014; Boltz et al., 2014; Ewart et al., 2014; Fitzpatrick et al., 2004; Tobiano et al., 2013). Information sharing is a core concept of PFCC (Conway et al., 2006; Johnson et al., 2009) because it is seen as an effective way to promote patient and family participation in patient care and decision-making. Promoting family in care allowed family members to share important information to healthcare staff about the patients' unique needs and preferences. Further, it created an opportunity for staff to include patients and families in care planning and explain treatment decisions. In response, health professionals must be mindful of the needs of patients and their family, and provide individualized information that is appropriate to the situation. Preparing written information for patients and their families that is clear, understandable and easy to use is recommended to improve the quality of care (Conway et al., 2006). Further, providing information in different formats, such as combining written and verbal information, has been highlighted as an effective way to support patients and their families absorb information and act on it (ACSQHC, 2014). Equally, effective relationships between patients, their families and nurses are founded on the development of trust and reciprocity (Segaric & Hall, 2014). Bedside handover provided nurses with a structured mode of sharing information, and allowed them to develop a trusting relationship with patients and their family (Tobiano et al., 2013). Embedded in ward processes, bedside handover has been recommended to improve the quality of patient care because it provided a

real opportunity for information to be exchanged between nurses, patients and family members (Chaboyer et al., 2009; Street et al., 2011).

Nurses' are pivotal in promoting family involvement in adult acute care wards

Successful implementation of an intervention to promote family involvement in patient care was influenced by the behavior of nurses (Bérubé et al., 2014; Boltz et al., 2014; Ewart et al., 2014; Fitzpatrick et al., 2004; Rosenbloom-Brunton et al., 2010; Tobiano et al., 2013). Nurses are involved in patient care more than any other healthcare professional, and play a central role in advocating for patients and families (Zomorodi & Foley, 2009). Further, nurses are uniquely positioned to facilitate the uptake of PFCC practices in adult acute care wards (Johnson et al., 2008); however, evidence suggests nurses often fail to appreciate, underestimate, and fall short of meeting family members' needs (Doane & Varcoe, 2015; Verhaeghe, Defloor, Van Zuuren, Duijnste & Grypdonck, 2005). Issues may arise when nurses perceive families as demanding, troublesome or difficult to communicate with and therefore engage in behaviors that limit involvement (Benzein, Hagberg & Saveman, 2008; Bezein, Johansson, Arestedt & Berg, 2008b). Therefore, the attitudes and beliefs of nurses may both help and hinder enactment of PFCC practices. Interventions aimed at promoting family in care should consider including strategies that challenge nurses who hold negative beliefs, attitudes and perceptions regarding family involvement in care (Bezein et al., 2008b). Peer-support, reflective exercises and educational opportunities have been proposed as strategies to challenge nurses' constraining beliefs about involving families in care (Bezein et al., 2008b).

The TIDieR checklist helped to identify a lack of detailed description of how and when interventions were delivered. Evidence-based interventions cannot be replicated or implemented if the published report fails to include a clear description of the intervention components and the process of implementation (Glasziou, Meats, Heneghan & Shepperd, 2008; Glasziou & Shepperd, 2007; Hoffman & Walker, 2015).

Treatment integrity can affect the success of an intervention (Hoffman et al., 2014). Including a process evaluation within the outcome evaluation has been recommended to assess fidelity and quality of intervention implementation (Craig et al., 2008). Further, the UK Medical Research Council (MRC) highlights how a process evaluation can help researchers understand why an intervention worked, clarify causal mechanisms, and identify contextual factors associated with variation in outcomes (Moore et al., 2015). Interestingly, the council also recommends that an economic evaluation is included in the formal evaluation of an intervention so that results are more useful for decision makers (Craig et al., 2008) and future researchers regarding the feasibility of implementation.

The economic impact of interventions in this review is unknown as no studies reported this aspect. This highlights an important gap in the current evaluation of complex interventions designed to promote family involvement in patient care in adult acute care wards, and emphasizes the need for future studies to measure the cost and consider this against the potential benefit to patients.

Implications for clinical practice, education and research

The beliefs, attitudes and perceptions of patients, their family and healthcare staff will influence individual behaviors and motivation to engage in PFCC practices. PFCC interventions are more likely to be successful if clinicians in the acute care setting first gain an understanding of the attitudes and beliefs of patients, their family and staff (Michie, van Stralen & West, 2011). This knowledge can be used to underpin intervention selection or the components of an intervention. Further, the rationale behind an important element of an intervention can sometimes be pragmatic and relate to the acceptability of the intervention by participants (Hoffman et al., 2014). Healthcare organizations play a key role in encouraging PFCC by providing appropriate education and support to nursing staff (Fisher et al., 2008). To effectively promote family involvement in care nurses must recognize that not all patients and

families want to be involved the same way and that their readiness for involvement should be routinely assessed (Carman et al., 2013). The use of intervention-specific training and ongoing training in patient-family collaboration and partnerships for healthcare teams is a key recommendation of this review, and has recently shown promising results (Svavarsdottir, et al., 2014). Such education ought to be incorporated as a component of work leading to preparation to practice of nurses. The New Haven Recommendations (Ahn et al., 2016) and the International Family Nursing Association (IFNA) position statement which details competencies for undergraduate level and generalist level nurses can guide nursing practice when caring for families and provides a focus for nurse educators (IFNA, 2014). Future research that examines nurses' attitudes regarding family in care process within acute care ward areas may inform how such education is delivered.

To enhance the uptake of PFCC practices it is vital to first establish the feasibility of an intervention in the clinical context where it will be implemented (Pronovost et al., 2008). Further, interventions should focus on behaviors that can be changed; be based on empirical evidence linking behavior to health; be relevant to the target population; and have the potential to meet the intervention's goals (Bartholomew, Parcel, Kok & Gottlieb, 2006).

While the body of literature on interventions to promote family involvement in patient care within adult acute care wards is still evolving it has laid an important foundation for future research. The evidence described in this review suggests that future research using feasibility and pilot methods which include process and economic evaluations, and key stakeholder involvement are needed to further evaluate the impact of interventions designed to promote family involvement in adult acute care settings. Including patients and their families in research project development as recently been emphasised in the literature (Ahn et al., 2016) to ensure project outcomes are meaningful to patients. Further, a clear description of the intervention components and the process of implementation is also recommended to assist in replication.

Future research should also explore how to influence healthcare staff attitudes, beliefs and behaviors (Rycroft-Malone & Bucknall, 2010) and identify barriers and facilitators to the uptake of PFCC practices in this setting, which may inform the feasibility and acceptability of interventions in clinical practice.

Limitations

We have applied a rigorous approach to conducting an integrative review. Nevertheless it is possible we may have overlooked some studies. The findings of this review are limited by the methodological quality of some articles included; however, limitations within the included studies have been acknowledged and made explicit through quality scores and an evidence based checklist, allowing readers to take this into consideration. There is also the possibility of selection bias as our review was limited to studies reported in English. Therefore, we may have missed important studies published in other languages. Overall, by following each step in Whitemore and Knafl's (2005) framework the rigor of this integrative review has been enhanced.

Conclusion

There is a growing body of research that suggests interventions to promote family involvement in patient care improves patient outcomes in adult acute care wards, however results are inconclusive. The quality of description of interventions designed to promote family involvement in patient care in this review was generally poor and limits the ability for others to replicate these interventions. Interventions which promote family in care within the acute care setting should be underpinned by research evidence that describes the attitudes, beliefs and perceptions of patients, their family and healthcare staff. Nurses are in a unique position in the acute care setting to involve family and individualize patient care. Future research designed to promote family involvement in care in adult acute care wards would benefit from the

additional involvement of patients and family members as key stakeholders during intervention design.

Conflicts of Interest

None declared

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Figure

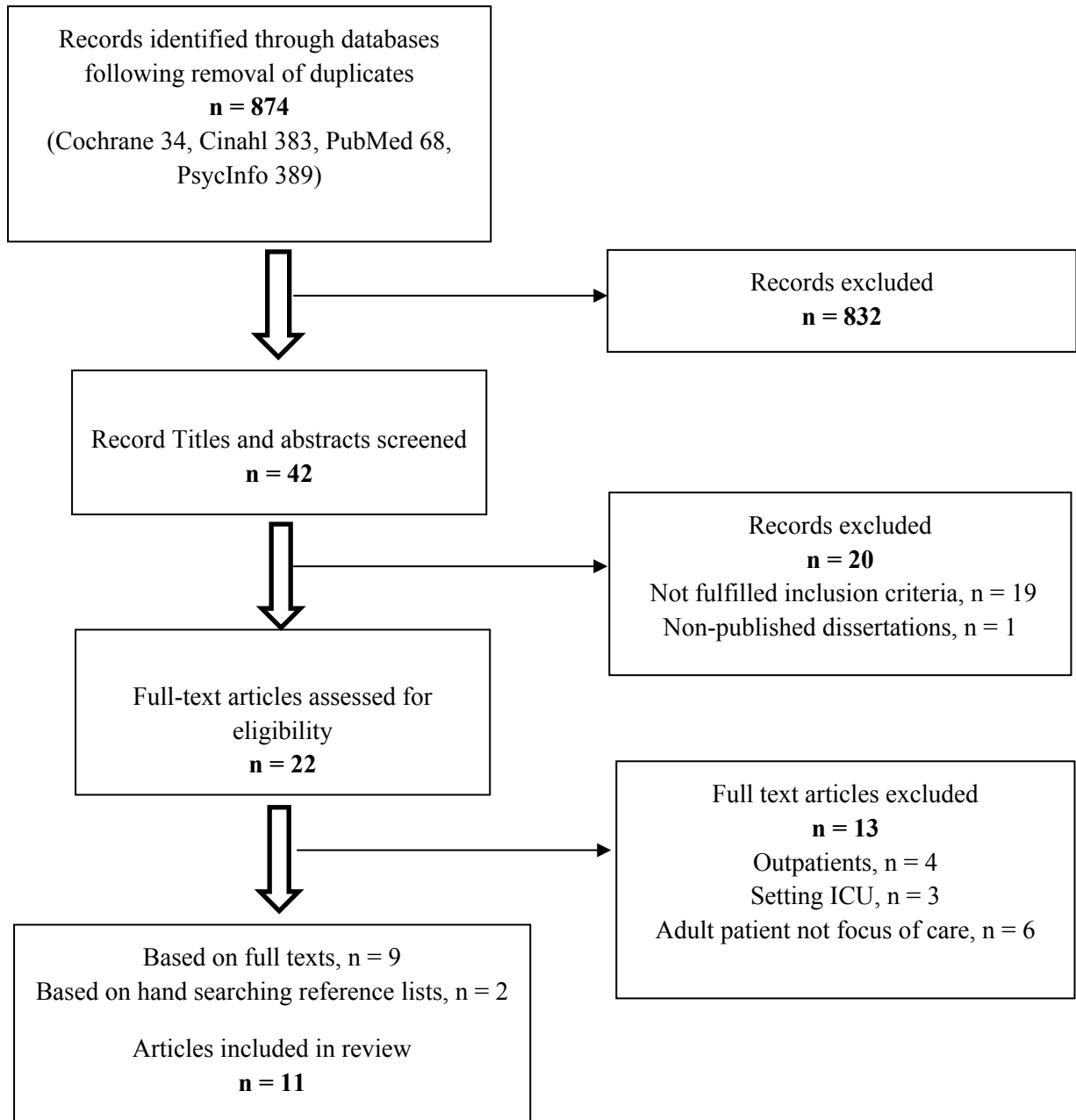


Fig. 1. Flow diagram of search and selection processes for interventional studies.

1 **Tables**

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3 **Table 1** Search terms used in the databases.

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Database	Search terms and Limiters
PubMed	(((((((“family involvement”[Title/Abstract]) NOT “mental health”[Title/Abstract])) NOT “palliative”[Title/Abstract]) NOT “child”[Title/Abstract])) NOT “cancer”), (((family nursing) AND participation in care) AND “family centred care”) NOT “intensive care, AND nursing interventions)
CINAHL plus with Full text	<p>S1 AB family nursing NOT emergenc* NOT child*</p> <p>S2 MH “Family Nursing” AND MH “Family Centered Care”</p> <p>S3 Family cent* AND carers AND consumer AND family nursing NOT palliative care NOT child* NOT mental health</p> <p>S4 family nursing AND intervention</p> <p>Limiters for all searches in CINAHL</p> <p>Abstract Available; Published Date: 19940101-20160101; English Language; Peer Reviewed; Inpatients; Age Groups: Adult: 19-44 years, Middle Aged: 45-64 years, Aged: 65+ years, Aged, 80 and over.</p>
Cochrane	Family nursing, family centered care, family interventions; family therapies / Abstract Online Publication Date from Jan 1994 to Jan 2016 (Word variations have been searched)
Psych Info	“Family member” in Abstract (Word variations have been searched), family centered care.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]

5

6 **Table 2** Inclusion and exclusion criteria.

Inclusion	Exclusion
<p>Research on patient and/or family-centred care</p> <p>Intervention with a focus on promoting family in patient care</p> <p>In-patient hospital setting</p> <p>Adult acute care wards</p> <p>Years of publication: 1994-2016</p> <p>Publication language: English</p>	<p>Critical Care Units</p> <p>Mental health patients</p> <p>Maternity patients</p> <p>Paediatric patients</p> <p>Out-patients</p> <p>Grey literature proceedings’</p> <p>Duplicate publications</p>

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Table 3. Overview of studies.

Author/Country	Setting/Design	Sample	Intervention	Patient outcomes
Berube et al. (2014) Canada	Trauma ward Feasibility study of pilot intervention	9 Patients 8 Family members 6 Nurses 1 Medical doctor 1 Occupational therapist	Protocolised transition in care program for adult SCI patients and their family – Consisted of three main interventions: (1) Provision of information to patients and their family with regard to the trauma unit function and care; (2) Gradual decrease of surveillance before ICU discharge; (3) Optimization of nursing care plan communication between nurses working on the wards	Not reported
Boltz et al. (2014) USA	3 Medical wards Feasibility study using comparative repeated-measures	<i>Control group</i> 46 Patient-family dyads <i>Intervention group</i> 49 Patient-family dyads	A three-component intervention termed the Fam-FFC aimed at enhancing patients' functional recover. Components included: (1) environmental assessment and modification, (2) staff education, individual and family education and (3) partnership in care planning with follow-up after discharge for an acute illness.	<ul style="list-style-type: none"> • Average hospital LOS did not differ significantly between the intervention and control groups. • There as a modest treatment effect on the number of 30-day hospital readmissions, which was lower in the treatment group than in the control group (chi-square = 6.4, P = .01). • Patients exposed to Fam-FFC had less delirium 2 months after discharge (chi-square = 4.5, P = .04), and significantly more patients returned to baseline ADL performance in the group exposed to Fam-FFC (chi-square = 9.7, P = .002).

Author/Country	Setting/Design	Sample	Intervention	Patient outcomes
Ewart et al. (2014) England	Cardiac Ward Pre/post-test survey quality improvement project	<i>Pre intervention</i> 24 Patients 28 Family members <i>Post intervention</i> 25 Patients 28 Family members	A nurse led bundle of care intervention informed by the principles of PFCC and the NHS productive ward improvement program.	<ul style="list-style-type: none"> 76% of patients (n = 25) post-intervention felt that extended visiting definitely improved the hospital experience for the patient and their family, however, no significance testing was performed.
Fitzpatrick et al. (2004) USA	Adult acute care in-patient ward Quasi-experimental observational quality improvement project	<i>Control group</i> 44 Patients <i>Intervention group</i> 50 Patients	A geriatric nurse led intervention termed the Nursing Care Quality Initiative. Staff developed a family assessment tool called the FAMILY card to integrate family into patient care. The card is an acronym and served as an assessment trigger to focus care on patient family relationships.	<ul style="list-style-type: none"> The Nursing Care Quality Initiative did not result in any significant improvement in patients cognitive status (P = 0.78) or physical functioning (P = 0.38) from admission to discharge.

Author/Country	Setting/Design	Sample	Intervention	Patient outcomes
Hirano et al. (2012) Japan	Rehabilitation ward	<i>Control group</i> 28 Patients	A rehabilitation program with family participation and included four exercises: standing, transferring, walking, and stair climbing/descending	<ul style="list-style-type: none"> • There were no significant differences between the groups in terms of cognitive function, physical function, or FIM at hospital admission or release. • Mean hospital LOS was significantly less in the family participation group (67.3 ± 28.7 days) than in the nonfamily participation group (82.9 ± 29.3 days). • All patients in the family participation group returned to their own homes after leaving the hospital. In contrast, in the control group, 23 (82.1%) returned to their own home and 5 (17.8%) entered a care facility.
	Quasi-experimental observational study	<i>Intervention group</i> 21 Patients 21 Family members		
Lolaty et al. (2014) Iran	Coronary care ward	60 Patients	Flexible visiting times. The visitors included the patients' family members and friends.	<ul style="list-style-type: none"> • BP, HR, RR and arterial oxygen saturation, fluctuate within normal levels during and after the family-friend visits. • Patients had a statistically significant increase in their sense of wellbeing and lower levels of anxiety following family-friend visits ($p < 0.0001$).
	Single centre prospective pre/post -test study			

Author/Country	Setting/Design	Sample	Intervention	Patient outcomes
Maeshima et al. (2003) Japan	Rehabilitation ward	<i>Control group</i> 18 Patients	Rehabilitation exercises for patients with severe hemiplegia from stroke with family member support.	<ul style="list-style-type: none"> At 1 and 2 weeks after the first evaluation patients' strength and mobility improved more when family members participated (P < 0.0001).
	Quasi-experimental	<i>Intervention group</i> 42 Patients 42 Family members		
Najafi et al. (2014) Iran	Surgical ward	<i>Control group</i> 35 Patients	Patients post CABG surgery received 30 min of massage by one of their relatives who were trained by an expert nurse in the Thailand classic method.	<ul style="list-style-type: none"> A significant reduction in the intervention group's mean score of pain immediately, 30, 60, and 120 minutes after the intervention compared to before the intervention (P=0.001). The highest reduction in pain was observed 60 minutes after the intervention The severity of pain among the intervention group participants who received massage by their family was significantly lower compared to the control group (P=0.001).
	Single-blind RCT	<i>Intervention group</i> 35 Patients 35 Family members		

Author/Country	Setting/Design	Sample	Intervention	Patient outcomes
Osawa et al. (2010) Japan	Rehabilitation ward	<i>Control group</i> 14 Patients	Structured exercise program that included family member participation in stroke patient rehabilitation.	<ul style="list-style-type: none"> Family participation improved patients' mobility (P < 0.0001) and USN (P<0.001).
	Quasi-experimental	<i>Intervention group</i> 20 Patients 20 Family members		
Rosenbloom-Brunton et al. (2010) USA	Medical ward	15 Patients 15 Family members	Protocolised intervention called Family-HELP. Implemented by FCGs who were trained in the protocols by a member of the research team. Four risk factors for delirium (i.e., impairment in cognition, ADLs, vision, hearing) were the target of the intervention.	Not reported
	Descriptive exploratory feasibility study	38 Nurses		
Tobiano et al. (2013) Australia	Rehabilitation ward	8 Patients 8 Family members	Family members participated in their relatives' bedside handover.	Not reported
	Qualitative study, using case study methodology			

Note: ADL = Activities of daily living; BP = Blood pressure; CABG = Coronary Artery Bypass Graft; Fam-FFC = Family-Centred Function-Focused-Care; FCGs = family care givers; FCGRNs = Family-centred Geriatric Resource Nurse; FIM = Functional Independence Measure; HELP = Hospital Elder Life Program; HR = heart rate; ICU = Intensive care unit; LOS = Length of Stay; MAP= mean arterial pressure; NHS = National Health Service; PFCC = Patient and Family Centred Care; MI = Myocardial infarction; QI = Quality initiative; RCT = Randomised Controlled Trial; RR = Respiratory Rate; SCI = Spinal care unit; USN = Unilateral spatial neglect.

Table 4. Quality appraisal of reviewed articles.

<i>Author</i>	<i>Quality score</i>	<i>Brief Name</i>	<i>Why</i>	<i>What</i>	<i>Who Provided</i>	<i>How</i>	<i>Where</i>	<i>When and how much</i>	<i>Tailoring</i>	<i>Modifications</i>	<i>How well</i>		
		Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10	Item 11	Item 12
Berube et al. (2014)	100%	✓	✓	✓	✓	?	✓	✓	?	N/A	N/A	?	✓
Boltz et al. (2014)	100%#	✓	?	✓	✓	✓	?	?	?	N/A	N/A	✓	✓
Ewart et al. (2014)	100%	✓	?	?	?	?	?	✓	?	N/A	N/A	?	?
Fitzpatrick et al. (2004)	100%	✓	✓	✓	?	✓	?	✓	?	?	?	?	?
Hirano et al. (2012)	75%	✓	✓	✓	✓	?	✓	✓	✓	✓	N/A	✓	?
Lolaty et al. (2014)	25%	✓	✓	?	?	✓	?	✓	?	N/A	N/A	?	?
Maeshima et al. (2003)	75%	✓	✓	✓	✓	✓	✓	✓	✓	✓	N/A	?	?
Najafi et al. (2014)	75%	✓	✓	✓	✓	✓	✓	✓	✓	N/A	N/A	✓	✓
Osawa et al. (2010)	75%	✓	?	✓	✓	?	?	✓	?	?	N/A	?	?
Rosenbloom-Brunton et al. (2010)	100%	✓	✓	?	?	✓	✓	✓	✓	?	?	✓	✓
Tobiano et al. (2014)	100%	✓	✓	?	?	✓	✓	✓	?	?	?	?	?

Note: # = additional information on study provided by lead author via email; ? = element is not reported/not sufficiently reported

Title Page

The impact of interventions that promote family involvement in care on adult acute-care wards: An integrative review

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