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TITLE: The experience of Person-centred Practice in a 100% single-room environment in acute care settings – a narrative literature review.

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There is no conflict of interest.

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ABSTRACT

Aims and objectives

To review published research into the staff and adult patient experience of person-centred practice in a 100% single-room environment in acute care.

Background

There has been a significant move towards the 100% single-room environment within healthcare systems. Furthermore, there has been a global move for developing person-centred practice in a range of healthcare settings. Some studies have linked the role of the physical environment to patient outcomes and improved patient satisfaction, however these are limited. Overall, there is little evidence in the international literature of the experience of care in single rooms in adult, acute care settings.

Design

A narrative description was developed using the major constructs of the person-centred practice framework. The PRISMA checklist provided additional rigour.

Method

PEO refined the search terms to: person-centred, adult acute care, single room, staff experience and patient experience. CINAHL, Medline Ovid, PsychInfo, Embase, Web of Science and Scopus were searched for full text English language papers of empirical studies published between 2012-

2017. PRISMA illustrated final paper determination and the CASP/EPHPP Frameworks were used for a critical appraisal of the 12 selected papers.

Results

The literature recognises the increasing complexity of healthcare in the acute care environment globally. The international literature available identifies staffs' desire to practice person-centredness, but much of the evidence is focused on care delivery. The impact of the single-room environment on person-centred practice links mainly to the constructs of the Care Environment and Person-centred Processes within the Person-centred Practice Framework.

Conclusion

This review focuses on empirical studies relating to person-centred practice in the single-room environment published in the last five years. While there is a significant body of work relating to person-centredness and the delivery of person-centred practice, and the impact of the environment on care delivery, there appears to limited evidence linking person-centred practice, staff and patient experience and the single-room environment.

RELEVANCE TO CLINICAL PRACTICE

By understanding the context in which care is delivered, multiprofessional teams can explore how the delivery of person-centred practice may be influenced by the physical environment and what changes to culture, systems and processes may be required to enhance the experience of care for patients and the delivery of care for staff.

KEY WORDS

Single-room environment; Person-centred practice; acute care; patient experience; staff experience.

What does this paper contribute to the wider global clinical community?

- The impact of the single-room environment on person-centred practice
- Understanding the experience of staff and patients in a single-room environment

INTRODUCTION

The role of the physical environment in facilitating person centredness in healthcare remains unclear. Much of the focus on the physical environment has centred on the architectural design, perceived as integral to improving patient experience, increasing productivity and potentially saving money through innovative acuity-adaptable designs (Hendrich et al 2004).

Research on the single-room environment has focused on patient safety and the reduction in healthcare-associated infections (HCAIs), with infection prevention and control (IPC) the major driver towards a 100% single-room environment (Bracco et al 2007). This thinking has subsequently been challenged in more recent studies (Ellison et al 2014), with the impact of the environment on patient safety beyond the physical space, increasingly recognised as important internationally. The lack of privacy and dignity for patients in nightingale-type wards or wards with multi-bedded bays (Chaudhury et al 2006) manifested itself with the focus on single sex wards or bays (DOH 2002) as a pre-cursor to the single-room environment in the United Kingdom (UK). National Health Service (NHS) strategic building planning has included consideration of person-centredness in all building design (Wanless 2002). This reflects the aspiration to deliver person-centred practice (PcP), evident in global health and social care policy and strategy (European Health Property Network 2011). There has been less focus on the experience of staff in this environment.

More recently, there has been an increasing tension in global health services between the need to focus on patient experience and patient safety (Australian Commission on Safety and Quality in Health Care 2011); the strategic drive to improve performance through performance indicators

(DOH 2016); and financial constraint (Jasuta 2016). Within the four countries of the UK, policy and strategy documents were developed to address the delivery of high quality, responsive services (NHS Wales 2010; DHSSPSNI 2013; NHS Scotland 2014; DOH 2016). All these documents reflect the need for safe, high quality services, delivered by a competent workforce who feel valued by their organisations. They also reflect the attributes of person-centredness as central to the patient experience of healthcare, as it relates to the physical environment; the culture within healthcare settings; the potential for innovation and risk taking; skill mix; and shared decision-making.

The challenges of treating patients holistically and viewing them as persons rather than conditions have circulated in healthcare since Florence Nightingale's time. Theoretical frameworks have been developed to support staff in putting patients at the centre of care, exploring areas such as personhood (Rogers 1980), human behaviour (Parsons 1922), and the art of nursing (Carper 1978). The latter describes the four elements of the theory of nursing as informing the behaviour and knowledge and skills of nursing staff regardless of the environment or speciality in which they work.

More recently, the Person-centred Practice Framework (PcPF) (McCormack and McCance 2017) has been developed as a middle-range theory over several years to 'operationalise person centredness' (p.38). It's international applicability across clinical practice, quality improvement, education and leadership has been demonstrated, with the care environment as a key construct. This offers researchers a theoretical foundation from which to study the impact of the physical environment on staffs' behaviour; care delivery; patient experience; and the potential connectivity to health outcomes; as defined in key strategic policy documents in recent years (DHSSPSNI 2013).

At the core of PcP is the recognition of personhood, and the appreciation that all patients experience ill health differently. Kitwood and Bredin (1992) described a theory of personhood which includes not only the social aspect of being a person in relation to others, which they term

'the empirical sense', but that which is deserving of respect, described as the 'ethical sense'. Rogers (1980) explored the importance of empathetic understanding in the relationship between therapist and patient, later reflected in Cahill's work (1996) on patient participation. She identifies the most crucial component to be that of a relationship between patient and caregiver, so that patient participation should be a fundamental tenet of nursing care.

To demonstrate this engagement with patients and their families, researchers in a variety of programmes of care, dementia (Røsvik et al 2013); mental health (Beckett et al 2013); and bereavement (Walker and Deacon 2016); have used components of the PcPF. The lens of PcP has also been used to explore how the delivery of care is documented (Broderick et al 2013); quality improvement methodologies (Bateman et al 2016); and to inform reflection and practice development processes (Manley et al 2014).

Organisational leadership (Beckett et al 2013) may also be explored through the lens of person-centredness. This is reflected in the delivery plans of healthcare organisations, advocating respect for staff and patient rights; autonomy for patients to participate in shared decision-making; and a caring culture where relationships between staff and patients, and staff and the organisation can flourish (McCormack et al 2011). However, the reality of the current healthcare landscape is a focus on increasing numbers of patients; an ageing population; limited funding; and increased public expectations. Adult acute care wards often operate or function with significant staff vacancy rates, resulting in task-oriented processes to facilitate effectiveness and efficiency. This may be actively encouraged by the organisation as a way of meeting targets and managing patient flow but can reduce the opportunities for PcP.

AIM

The aim of this paper is to review published research into the explicit area of staff and patient experience of person-centred practice in a 100% single-room environment in adult, acute care settings. A narrative description of the literature will be undertaken, to illustrate how the experience of care from the perspective of patients and staff is impacted on by the single-room environment, using the constructs of the PcPF.

METHOD

A narrative review methodology was chosen to better explore and reflect the recent research in this area. This will develop thinking on this topic and identify further areas for potential exploration. A criticism of this methodology has been its lack of rigour (Haddaway et al 2015), so the principles of systematic review were employed using validated tools for searching and critical appraisal. PEO (Problems, Exposure, Outcomes) (Box 1) was used to refine the search strategy using the terms within a previously defined research question. The final search terms agreed by the authors were:

Patient experience/pat*exp*/patient; Staff experience/staff *exp*; Single-room/single room/"single room"/single patient room/single hospital room/private room; Person-centred/person centred/ person-centered/person-centred practice/person-centred care; acute care/acute-care/acute?care setting/adult acute care; In-patients/inpatients.

These search terms were entered into CINAHL, Medline Ovid, PsychInfo, Embase, Web of Science and Scopus. To ensure the review reflected the most recent evidence, only full text English language papers of empirical qualitative, quantitative and mixed method studies published between 2012-2017 were included. PRISMA was used as a framework to provide a robust methodology illustrating final paper inclusion (Box 2) and the PRISMA checklist was completed for additional trustworthiness of the selected material (Supplementary File 1). Papers which did not describe empirical studies; discussion or opinion papers; and systematic review papers were excluded from this review. Studies relating to children and other specialist areas of clinical practice were also excluded to meet the explicit exploration of the general acute adult inpatient setting, which is the focus of the research question informing this review. When the final papers had been

selected, a review of all the references in those papers was also undertaken to ensure all appropriate papers had been captured. At this point, the selected papers were cross referenced by all the authors to achieve further rigour. The final stage was to critically appraise the final 12 selected papers (Table1). The CASP Framework for Qualitative papers (Box 3) and the EPHPP Quality Assessment Tool for Quantitative Studies (Box 4) were used to provide additional robustness. This screening was carried out by the first author who undertook a full paper review of each of the 12 final papers. The first author also used the constructs of the PcPF to clarify the appropriateness of the findings in relation to this review.

RESULTS

The current version of the PcPF (McCormack and McCance 2017) (Box 5), consists of five constructs with several concepts within each construct:

- **Macro Context:** *health and social care policy: strategic frameworks; workforce developments; strategic leadership*

- **Prerequisites:** *professionally competent; developed interprofessional skills; commitment to the job; clarity of beliefs and values; knowing 'self'*

- **The Care Environment:** *appropriate skill mix; shared decision-making systems; effective staff relationships; supportive organisational systems; power sharing; potential for innovation and risk taking; the physical environment*

- **Person-centred Processes:** *working with the patient's beliefs and values; engaging authentically; sharing decision making; being sympathetically present; providing holistic care*

- **Person-centred Outcomes:** *good care experience; involvement in care; feeling of well-being; existence of a healthful culture*

Macro Context

Patient safety issues and their interconnectedness with patient experience have played out in the public domain. UK public inquiries in Mid Staffordshire (Francis 2013) and the Southern Foundation Health Trust (NHS England 2015), challenged health service managers and clinical staff to address poor patient experience and the increasing patient safety concerns in acute care. None of the reports reflect on the physical environment as a key factor in patient safety or patient experience, although the Francis Report (2013) does acknowledge the poor physical environment and patients' lack of privacy and dignity. Person-centred attributes such as professionally competent staff; strategic leadership and the existence of a healthful culture feature prominently in both reports, highlighting their contribution to the standard of care expected by patients.

Within the construct of the Macro Context all four concepts are reflected in the literature under review.

Strategic policy and frameworks

In the UK, strategic policies reflect the need for safety and quality, delivered by a competent workforce, reflecting the attributes of person-centredness central to the patient experience of healthcare. Infection prevention and control (IPC) was a major patient safety driver towards a 100% single-room environment, with studies indicating the need for increased single room accommodation to reduce infection rates (King et al 2015). While there is a recognition of the part single rooms play in infection control, none of the papers in this review reflect on process changes to enhance IPC. This suggests an assumption that the room design is sufficient to reduce infection rates. Studies to date have not investigated any change in infection control behaviours such as increased hand washing within the single rooms, or the introduction of new antimicrobial building materials, which may have more impact than the design itself.

Maben et al (2015) reflect on many of the strategic and policy drivers in the UK which influenced the development of the single room environment in healthcare settings and drove the design of their study. This is less evident in other studies. Local or national policies on the delivery of care

are referenced, including national frameworks (Nahas et al 2016), patient safety drivers (Knight et al 2016) and UK government strategies (Singh et al 2016b). There is no indication in any of the international papers of the impact of any strategic drivers on those studies.

Workforce

The aforementioned public inquiries resulted in intense scrutiny of the competency of the nursing workforce, leading to a revised and more robust revalidation framework (NMC 2016). Staff are required to provide stronger evidence of their learning and reflection on their practice. As staff move to new clinical environments (from multi-bedded bays to 100% single rooms), knowledge and skills may have to be reviewed to facilitate different ways of working. A different environment may result in challenges to established care delivery processes and the need to work differently, which may contribute to increased stress levels among staff.

There is evidence in the literature that staff stress levels are exacerbated by the development of single room environments (Maben et al 2015). Firstly, staff's perception of the increased walking distances and the need for improved nurse:patient ratios are identified as impacting on the delivery of person-centred care. It is clear further work is needed to establish the validity of these concerns. Secondly, the increasing acuity of patients within acute care has been recognised within different healthcare systems. Palliative care patients (Timmerman et al 2015); patients with dementia (Knight et al 2016;) and patients undergoing major surgery (Nahas et al 2016); illustrate the breadth of knowledge and skills currently required by staff in acute care settings. The introduction of single rooms for the management of these patients is reportedly beneficial to recovery, facilitating undisturbed sleep and a quiet restorative environment (Persson et al 2015). However, the additional stress of organisational demands of higher acuity patients in a single-room environment has not yet been fully explored either nationally or internationally.

There is evidence of a greater focus on patient safety. Singh et al (2016a) studied the introduction of staff training to improve the incidence of falls and reflect on the need for ongoing support and monitoring of compliance to enhance the improvements made. The authors note that sustainability

was challenging and this raises the issue of sustaining new processes following the move to a new environment. Significant levels of support may be available during the initial move, but when that support is withdrawn, sustainability may be related to the amount of additional staff development and support still required and acted on. This is always a challenge in PDSA (Plan, Do, Study, Act) quality improvement methodology work (Tan et al 2013; Singh et al 2016a). Researchers need to consider, not only the phenomena being researched, but how interventions can be implemented and sustained for the benefits of patients and staff. This may be particularly relevant in a new clinical environment, where there may be several competing pressures around new processes.

Strategic leadership

Only one study looks specifically at the challenges of leadership in the single-room environment (Maben et al 2015). They discuss how a change in individual leaders at the same time as significant change to the working environment can cause instability. They also reflect on how organising changing work patterns to reflect staff workloads and different time management issues because of the new layout, can impact on staff morale. The connectivity between effective staff relationships and supportive organisational systems within a care environment reflected in the PcPF is not identified in any of the papers. This may suggest that a disconnect between leadership roles, the delivery of person-centred practice and the physical environment still exists.

Prerequisites

Within this construct, the concept of being professionally competent is reflected more fully in the section on Workforce, illustrating the connectivity within the concepts of the PcPF. There is no specific reference to the concept of knowing 'self' in this literature, or how values and beliefs influence a culture in which person-centred practice flourishes. This is particularly disappointing given the number of international papers included. Such a deficit suggests a lack of appreciation of the impact that values and beliefs may have on the culture within an organisation or ward environment. Many of the studies have tended to reflect moments in time, as opposed to an

established culture (Reid et al 2014; Nahas et al 2016). Perhaps more longitudinal studies which capture how the values and beliefs of person-centred practice have been embedded in clinical practice are required, now that it appears that the single room environment is a feature of the acute healthcare landscape, across many healthcare systems.

The Care Environment

This is the largest construct within the PcPF. The most significant concept featuring in the literature is that of the physical environment – in this case 100% single rooms within an acute care setting. The specific challenge of achieving person-centred practice in such an environment focuses primarily on the complexity of the service; the context in which care is delivered; and high expectations of patients and staff.

The physical environment

Practical issues such as security and isolation feature in several studies (Persson et al 2015; Reid et al 2015; Singh et al 2016b; Nahas et al 2016). Environmental cleaning, having previously been identified as a significant factor in infection prevention and control in new healthcare buildings (King et al 2015), is also identified as key to enhancing the patient experience (Nahas et al 2016). The less readily discernible concept of control is present in several studies. Patients report their satisfaction with the increased control they have over their environment in a single room ward design (Maben et al 2015; Nahas et al 2016) and their control over information being shared among staff (Bradley et al 2013). Older people in particular appreciated the degree of control they had, especially in relation to toilet facilities in single rooms (Reid et al 2015). It was clear however, that their preference for single rooms was predicated on other interventions such as intentional rounding or open visiting (longer/unrestricted visiting hours), which would reduce a sense of isolation. There was no deeper exploration of what matters more to patients – privacy, allowing them to control their environment, or greater interaction to reduce isolation. These disparate needs

may account for the challenges faced by designers in creating functional clinical buildings that facilitate a therapeutic environment.

The notion of visibility not only relates to staffs' ability to see the patients, but also their ability to see and communicate with each other (Maben et al 2015). The patients shared this concern, not knowing what staff were doing and therefore not being able to attract attention, which relates to the isolation and loneliness discussed later in this section. Understanding and appreciating how this might impact on both patient experience and safety is key for staff reflection as part of their review of the working processes in a new single-room environment. The concept of systems and processes found in the literature reflects how facilitating clinical leaders to have greater input into the design may provide additional emphasis on the operational processes at the planning stage of a new build. Strategic leadership which features in the PcPF, it could be suggested, takes on greater importance in the single room environment, to address how increasing patient acuity and an aging population with co-morbidities can be safely managed within a person-centred culture.

While several of the studies reflect on the care of patients with dementia, there is no recent empirical work on the impact of the single room environment on these patients. Researchers have tended to focus on specific aspects of care or patient safety issues (Knight et al 2016; Singh et al 2016a). Patients responded positively to the fact that in the single room environment, a range of treatments such as physio and wound dressings could be carried out, which would have previously meant the patient moving to another area (Maben et al 2015). However, there was no evidence of the age group of patients this referred to. There are no studies exploring if patients with cognitive impairment are similarly reassured by not having to move from place to place, which is often reported as a contributory factor in the distress these patients experience in hospital. Once again, consideration these issues at the design stage, focusing on organisational systems and processes, and the prerequisites of the workforce, to address both the physical environment and professional competency of staff, might enhance the care of these patients in a 100% single room environment.

One of the obvious but often overlooked factors in clinical room design is the importance of aesthetics in patient rooms to aid healing. Timmermann et al (2015) look at how seriously ill hospitalized patients' experience and assign meaning to their patient room. They describe how, in open wards, while there may be a lot of technical equipment around, there is also a lot of activity to act as a distraction. In single rooms, this distraction is absent so the design of the room needs to counteract the presence of clinical equipment, particularly for those patients who are or have been very ill. There is no clear picture emerging of the connectivity between all these elements of patients' experience and PcP. This may be because of the specificity of the questions asked or the restricted focus of the study. The result is that it is challenging to identify any further design elements which would improve the experience in this environment.

Loneliness is a theme running through several papers (Preston et al 2014; Persson et al 2015; Reid et al 2015; Singh et al 2016b; Nahas et al 2016). One study recognises the need for a social space such as day rooms in a single room environment to address patients' sense of loneliness and isolation, which can sustain or impede the healing process (Persson et al 2015). The authors of this paper use the data to reflect the impact of socialization on healing and 'alleviating suffering'. In contrast, other studies reveal that patients are not enamoured of the idea of day rooms (Reid et al 2015). This supports the idea that it is not the environment or the elements within it that enhance patient experience, but how staff and patients maximise the potential of the space available to them. This study also reflects on the patient's ability to make a single room more 'homely', which patients feel would help in their recovery process. As a result, patients relate their surroundings to their feelings of well-being, which links to personal values and beliefs. In turn this reflects patients' social reality which, as Bourdieu (1989) describes, may be different to the social reality within a hospital. The culture within a hospital setting is shaped by those who manage and work within it. Patients may be familiar with this culture if they have had previous experience of being in hospital or have worked in this setting. However, for some patients (older people, ethnically diverse patients), the culture may appear very different to their own social reality and this can impact on their recovery (Persson et al 2015).

Given this possibility, it is interesting to note that, in almost all the studies in this review, there is evidence that many patients were excluded from sampling. Those patients who had cognitive impairment or could not read, write or speak the language of the researchers were often not invited to share their experiences (Tan et al 2013; Nahas et al 2016). The authors do not indicate if there were any such patients on the wards at the time of their studies and if so, whether they considered any ways of ensuring that the voices of those patients were also heard. This suggests that the concept of personhood and the 'empirical sense' of persons (Kitwood and Bredin 1992) is being lost in the research process. In addition, there appears to be a lack of published evidence around the diverse needs of the patient population in the single-room environment; designing environments which meet the need for patient privacy; and addressing the negative aspects of isolation and the need to preserve patient safety.

Patient Safety

Much of the previous literature on the single-room environment has focused on infection prevention and control, medication errors and falls. It appears however, that in more recent work there was no difference in the results of patient safety measures pre and post the move to this environment (Maben et al 2015). Interestingly, significant amounts of work carried out in the last five years appear to have focused on the negative impact of the single room environment in relation to patient falls (Okeke et al 2014; Knight et al 2016; Singh et al 2016a). It should be noted that all these studies took place in the same organisation. Data was collected in a new 100% single room environment, and in an older multi-bedded environment, where there was clearly a focus on falls prevention. Singh et al (2016a) describe the most robust study, using PDSA methodology to test four interventions aimed at improving the incidence of falls. None of the studies include any of the confounding factors which may have influenced their findings such as: reason for admission; previous history; degree of cognitive impairment. None of the studies include staffing ratios, and a study of interventions focuses only on nursing staff and does not account for the increased focus on falls as an influencing factor on the results (Knight et al 2016).

Previous studies demonstrated that the introduction of medication rooms as part of hospital redesign reduce the incidence of medication errors (Ulrich et al 2004). In contrast, Maben et al (2015) found only a temporary increase in medication errors. They surmised this was more likely to be due to the adoption of new working practices rather than the single-room environment itself. This is an important point, relating to the previous concept of being professionally competent and the construct of the care environment. Both illustrate the need to review or enhance the knowledge and skills of staff around working practices in a new physical environment.

Singh et al (2016a) suggest that only falls warranted any form of risk assessment, while Maben et al (2015) report the challenges of having reduced visibility from centralised nurses' stations in single room environments. However, even when risk assessments and incident reporting are in place, there is evidence that recording may be poor (Knight et al 2016). This relates back to the concept of strategic leadership, and whether the culture within an organisation encourages incident reporting as a means of collective learning or as a risk-averse strategy. Evidence of the greater use of risk assessment in this new environment would help staff understand the connectedness of person-centred care to patient safety, ensuring that more vulnerable patients were placed in rooms where they could be viewed unobtrusively. This would reflect a greater focus on the organisation of care to improve patient safety and experience.

Systems and Processes

There is some evidence of the interconnectedness of the physical environment with healthful culture, workforce development, and good care experience. Staffs' anxiousness about staffing resources (Maben et al 2015) and managing new processes (Tan et al 2013) are clear. What is less evident is how organisational systems are integrated into a new clinical environment, and which systems may need to be changed or adapted to accommodate person-centred care. Orientating patients to the whole ward to identify social areas, as well as their room was described as one way of addressing the isolation that many patients felt (Maben et al 2015). While several papers discussed the potential improvements in patient safety from a single room environment, there was no evidence of a direct correlation.

The vulnerability of staff and patients in relation to systems and processes comes across in several papers (Maben et al 2015; Nahas et al 2016). The busy, process driven environment of acute care can also be a challenging one in which to develop relationships, a key element of PcP (Bradley et al 2013) regardless of the design. However, there is no evidence of any exploration of staffing rotas or team working to address the issue of continuity of care within the single room environment, despite patients highlighting this as a key influence in their experience of care (Bradley et al 2013). Systems processes, the complexity of the patient's condition, the pace with which care happens and the uncertainty around diagnoses can converge to make the engagement between patients and professionals less person-centred. Valuing patient autonomy and their right to be involved in shared decision making about care comes back to the notion of personhood and respecting the values and beliefs of patients, which staff would claim to espouse to. This may be why so many patients reflect on the importance of having family members present to aid in communication, or to reassure them of their safety when they feel insecure, particularly at night, in a single-room environment (Persson et al 2015).

Person-centred Processes

The constructs of working with the patient's beliefs and values and providing holistic care are linked to previously discussed constructs within the PcPF. Engaging authentically and being sympathetically present are captured in the sub-theme of time spent with patients, while shared decision making is captured within communication. This connectivity with other constructs appears to suggest that both staff and patients relate their ability to communicate and work together to enhance the care experience, with how systems are organised.

Communication and shared decision making

While there is a significant amount of literature around communication in acute hospital environments, there has been less emphasis on the specific connectivity between communication, the environment and patient experience. Bourdieu (1989) discusses issues of 'spatial segregation' and this is increasingly the view of nurses' stations, which are often viewed negatively by patients,

who regard them as places where staff choose to socialise rather than spend time with the patients. The idea of moving away from centralised areas such as the nurses' stations into decentralised teams is increasingly a feature of the architectural design of the single room environment. It is considered key to enhancing communication with the patient, reducing miscommunication and reassuring patients about the staff who are caring for them. It is interesting to note that staff viewed the development of decentralised nurse stations negatively in Maben et al (2015), feeling it created greater isolation, a lack of coherence in the nursing team and prevented interaction with other healthcare professionals, an argument also used to describe the single room environment in general.

Having multiple conversations with different staff over the course of a day would be a common experience for many patients. This is partly reflected in the papers discussing handovers in acute care wards, where work exploring the role and siting of the nurse's station has resulted in changes in design and the introduction of bedside handovers (Bradley et al 2013; Tan et al 2013). This speaks to an increased understanding of partnership and power sharing which patients seem to view more positively than staff in some areas. It is clear however, that isolated discussions during ward rounds or specific questions about patient preferences are not enough to make patients feel that they are in control of the decisions around their care. McCormack et al (2011) reflect the value of person-centred moments and how they might evolve into person-centred practice. A key concept in pursuit of this would be how practitioners engage authentically with patients and others as part of their communication and shared decision making around care. The missed opportunity therefore, to explore communication more generally in relation to how the information from the handover was passed on to other healthcare professionals is disappointing (Bradley et al 2013). The evaluation of changes to the handover process in this paper and others (Tan et al 2013) would lend itself to a discussion of the communication and opportunities for shared decision making between professionals and patients, that might now exist in a single-room environment. Further research to understand the impact of the single-room environment on shared decision making, communication and partnership, described as developed interprofessional skills within the concept

of Prerequisites in the PcPF, might also enhance understanding of how time with patients could be better utilised.

Time spent

The concept of being sympathetically present reflected in these papers, focuses the discussion on the tension staff experience in spending sufficient time with patients to deliver more than just person-centred moments. Maben et al (2015) identifies the difficulties nurses faced in addressing patients' competing needs when working in a single room environment. The result is nurses' reflection on their time management and planning skills, and the recognition of the need to change the way they work. Staff working in a single room environment also have to consider issues such as managing pain relief differently (Nahas et al 2016) and recognising when patients are feeling insecure (Persson et al 2015), exploring how additional time and surveillance can be managed through amended systems and processes.

Increased patient turnover and a lack of a prior relationship between professionals and patients offers challenges to modern healthcare. One study suggests patients' confusion around their care givers may be addressed through bedside handovers and multidisciplinary rounds (Tan et al 2013). Some patients view the bedside handover as a social interaction that facilitates the nurses to focus on them for a few minutes (Bradley et al 2013). This may sometimes be interpreted as a good outcome by the patient. There appears to be an aspiration to engage authentically and be sympathetically present in recognition of the positive impact on communication. However, there is no evidence in the literature of the impact of the single-room environment on person-centred outcomes because of the increasingly time-limited relationship between professionals and patients.

Person-centred Outcomes

The final construct of PcP reflects the outcomes for patients and staff. One of the aims of this review was to explore how the literature reflects the impact of the single- room environment on person-centred outcomes, through the recognition and application of other concepts within the Framework.

Experience of care

The most complete picture of staff experience in a 100% single room environment carried out to date, comes in the recent study by Maben et al (2015). Staff identified lack of flexibility in the design; isolation of both patients and staff, resulting in increased safety concerns around summoning help; and increased walking distances, resulting in reduced time spent with patients. Environmental cleanliness was perceived to have improved because single rooms were easier to clean. Emotional support to patients increased because open visiting was introduced. Handover and communication were perceived to be worse. Overall staff indicated a preference for a mixed environment of single rooms and multi-bedded bays. This study was carried out at a point in time when there were few 100% single room wards or hospitals in the UK. It requires replication to validate its findings, but it is clear from other literature in this review (Tan et al 2013; Reid et al 2015; Singh et al 2016b) that many of the same issues have subsequently arisen in other units. Patients in all the studies view the single room environment more positively than healthcare professionals, which may suggest that while staff acknowledge the importance privacy plays in the overall patient experience, they feel it is at the expense of communication and patient safety.

Several of the studies focus on patient experience, reflecting patients' perception that single rooms equate to better privacy and dignity and to improved care and therefore improved outcomes (Maben et al 2015; Knight et al 2016). However, there appears to be little evidence to support the correlation between privacy and improved outcomes. There is a suggestion that patients could be left to fend for themselves resulting in them feeling less secure in the single room environment (Persson et al 2015). Patients who perceived a greater nursing presence in the rooms felt safer and more cared for. The physical presence of the nurse appears to enhance the patient's

perception of the care received, alongside making the environment more welcoming and less clinical (Timmermann et al 2015).

Singh et al (2016a) suggest that very elderly people value socialization more highly than privacy. This paper also describes the impact of family presence on patient experience, particularly in this older age group. The impact of carers/family members on care delivery when patients are admitted to hospital has not been explored in adult care to the same extent as in paediatric care. Reid et al (2015) found patients' confidence in their care is higher if a family member is present, also reflecting the value of open visiting as a means of enhancing emotional support. Given the drive to design all new buildings as 100% single-room environments, and the increasing age and complex health needs of the population, the literature would suggest further work is required to explore their care in hospital and the additional considerations required in this emerging environment.

Providing palliative care while caring for other patients in an acute ward is one example of the increasing complexity and vulnerability of the patients receiving acute care currently (Timmermann et al 2015). It is practice in many hospitals in the UK to offer patients receiving end of life palliative care the use of a single room within an acute ward if it is available. Therefore, a single room environment would be very suitable for many of these patients. However, palliative care is also delivered for other reasons, and clarity around this may inform where a patient is placed in a ward of single rooms. Patients with dementia or complex health co-morbidities may also be receiving this type of care (Knight et al 2016; Singh et al 2016a). Staff working in a person-centred way would reflect on systems and processes relating to organisation of care, providing holistic care and shared decision-making as fundamental principles. They also need to recognise the additional safety focus required for these vulnerable patients. The construct of strategic leadership would also indicate that in a person-centred culture within an organisation, maintaining the professional competency of staff members is a key element of caring for the increasing number of patients with dementia, other cognitive impairments, life-limiting and end of life conditions in a single room environment.

DISCUSSION

The complexity associated with the delivery of person-centred practice in an acute care environment has previously been identified, but there has been less focus on the impact of the environment, and specifically the impact of the ward design (Timmermann et al 2015). The deficiency of research into the interconnectedness of care delivery and experience in single room environments suggests that there remains a lack of understanding on the impact of the physical environment and the meaning of the care environment in a wider context. This has significant implications for staff and patients and as a result, one would expect the research literature to be more focused on how the collective understanding of person-centred practice impacts on the reality of an acute care setting.

A fixation with systems and processes (Bradley et al 2013; Okeke et al 2014), results in person-centredness or person-centred care being viewed as a 'bolt-on' when time allows. There appears to be little evidence of how the environment can be used to positively impact systems and processes to improve the patient experience. Many of the papers do reflect the desire of staff to be person-centred, but much of the evidence focuses on the delivery of care to patients (Knight et al 2016; Singh et al 2016a). Some ideation is expressed in relation to the broader meaning of person-centredness to staff and teams, as well as to patients (Bradley et al 2015). The lack of detail around person-centred attributes such as professionally competent staff; strategic leadership and the existence of a healthful culture is notable. This highlights that although their contribution to patient care is recognised, there remains a disconnect between understanding the need for these attributes and embedding them in the care environment.

Respect for patients' routines and personal identity through their values and beliefs in a single room, acute care environment does not appear to have been explored in the available literature. Engagement, emotional support and the development of therapeutic relationships are central to person-centred practice, and yet in this literature they are studied in isolation (Nahas et al 2016; Singh et al 2016b). The authors use methodologies which do not lend themselves to more extensive exploration of patient and staff experience. For example, Singh et al (2016a) use a

service improvement methodology to study the impact of a nurse training programme to reduce inpatient falls. While this provides some very interesting information on the use of PDSA cycles and the challenges of implementing training programmes in an acute care setting, the authors might have developed this further. By reflecting on what training staff receive in preparation for working with the older, acutely unwell patient, they could have studied the connectivity between prerequisites, systems and processes and the well-being of patients. This might well have involved the same service improvement methodology in part but would have provided a more complete understanding of the needs of these patients and the challenges they present.

Changes to the environment will not lead to an improvement in care if the underlying culture and engagement with person-centredness has not been established. When a new physical environment such as a 100% single room environment is introduced, there is an expectation that care will be maintained or significantly improved. It is hardly surprising that staff continue to use the same systems and processes and maintain the same culture when the impact of the environment is not understood any better than the culture of practice. Exploring the cultural context within the single-room environment does not yet feature in the literature, even though authors have captured some of the challenges identified by staff in this new environment (Maben et al 2015). Perhaps it is too early in the evolution of this environment within the NHS to expect to see studies relating to its impact, but there appears to be little evidence internationally either, where this physical environment would be more common.

Four of the studies in this review were from international healthcare systems. Two of the studies used patient interviews (Tan et al 2013; Timmermann et al 2015) with the latter also collecting some observational data. The other two studies sought the views of both patients and staff but this was focused on a very explicit intervention (Bradley et al 2013; Persson et al 2015). Given the small number of international papers, it is difficult to draw any conclusions on the wider implications of the impact of the single-room environment on the care experience.

This illustrates some of the issues associated with assessing the quality of the research in this review. Using CASP and EPHPP tools provided some structure for the assessment, with several papers explaining their methodological choices (Maben et al 2015; Persson et al 2015; Timmermann et al 2015; Bradley et al 2013). While all the papers provided some insight into either person centredness or the single room environment, there was a paucity of information on the validity and reliability of the research methodology which resulted in the quantitative and mixed methods studies being scored as weak. Some papers sought to enhance this aspect of their study by detailing how participants were recruited. This lack of detail may be due to authors having to meet journal word limits, leading them to exclude this information from an article on results.

It is of note that the ethical challenges of carrying out research with these patient groups seem to be inhibiting researchers. Patients who had any cognitive impairment or could not speak English were excluded in all the studies in this review. There is no evidence provided in the papers about measures which could have been considered to overcome these challenges.

One could argue that the purpose of publishing research findings is to focus on one aspect of care or service provision, and in that case, the papers in this review accomplish that. However, what may have been more meaningful would have been some demonstration of the collective impact of strategy, knowledge and practice and its association with care experience.

CONCLUSION

This literature review focuses on empirical studies relating to person-centred care in the single room environment published in the last five years, so that the most recent evidence might be assessed. It is clear from the general literature that there is a significant body of work relating to the concept of person-centredness and the delivery of person-centred practice in the acute care setting. The impact of the environment on care delivery and patient experience is also well documented. However, there is little evidence relating to single rooms in adult acute care settings. Some studies have linked the role of the physical environment to patient outcomes and improved patient satisfaction, however these are limited.

The PcPF provides a model with which to understand the integration of theory and practice in relation to the delivery of safe and effective healthcare. It was used in this review to provide structure through the five main constructs related to person-centredness. This review demonstrates the importance of key elements such as communication, authentic engagement and the physical environment, but fails to identify the inter-connectivity of those elements in relation to patient experience. While some work has been done to explore elements of patient safety in relation to the single room environment, further work is needed to understand the experience of patients receiving care and of staff delivering care in this new environment.

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Table 1 Empirical studies included in Literature Review

Citation	Methods	Results	EPHPP Assessment	CASP Assessment
A Bradley, S. & Mott, S. (2013) Adopting a patient-centred approach: An investigation into the introduction of bedside handover to three rural hospitals. *Journal of Clinical Nursing*, 23(13–14), pp.1927–1936. (Australian study)	Mixed methods	Patients preferred the bedside handover and staff believed the bedside handover increased patient involvement in their care.	Weak	
Knight, S. and Singh, I. (2016) Profile of inpatient falls in patients with dementia: A prospective comparative study between 100% single rooms and traditional multi-bedded wards. *Journal of Clinical Gerontology and Geriatrics*, 7(3), pp.87–92. (UK study)	Quantitative study using inpatient falls data. Data analysis used SPSS.	More patients in single rooms fell than those in multi-bedded bays. No significant difference in the type of injury sustained. Mean LoS for patients who had recurrent falls in single rooms ↑	Weak	
Maben, J., Griffiths, P., Penfold, C., Simon, M. et al (2015) Evaluating a major innovation in hospital design: Workforce implications and impact on patient and staff experiences of all single room hospital accommodation. *Health Services and Delivery Research*, 3(3), pp.1–304. (UK study)	Mixed-methods study to inform a pre-/post-'move' comparison within a single hospital,	No difference in patient safety measures. Staff identified lack of flexibility in the design. Patients identified 4 themes: comfort; control; connection; isolation.	Weak	Clear statement of aims and findings Appropriate research design Researcher/participants relationship not detailed
Nahas, S., Patel, A., Duncan, J., Nicholl, J. and Nathwani, D. (2016) Patient Experience in Single Rooms Compared with the Open Ward for Elective Orthopaedic Admissions. *Musculoskeletal Care*, 14, pp.57–61. (UK study)	Questionnaires were completed on each site.	The single-room DGH had significantly better satisfaction in areas of cleanliness, privacy, pain management and feelings of security. Significantly more patient contact on the open ward. There was no significant difference in feelings of isolation, loneliness or overall satisfaction between the two sites.		Clear statement of aims and findings Questionnaires used. Might have obtained more detailed information from interviews Researcher/participants relationship not detailed
Citation	**Methods**	**Results**	**EPHPP Assessment**	**CASP Assessment**
Okeke, I., Aithal, C, Edward, S., Ramakrishna, I., et al. (2014)	Retrospective audit of in-patient data on	Statistically significant increased incidence of falls and fracture in	Weak	

Citation	Research Methods	Results	EPHPP Assessment	CASP Assessment
Outcome of Inpatient Falls in Single-Bedded and Multi-bedded bays. *Age & Ageing*, 43(suppl2), p.ii7-NaN. (UK study)	documented falls and associated injury from 2 sites over 18 months each.	100% single-occupancy hospital design compared to mixed single and multi-bed facility.		
Persson, E., Anderberg, P. & Kristensson Ekwall, A. (2015) A room of one's own - Being cared for in a hospital with a single-bed room design. *Scandinavian Journal of Caring Sciences*, 29, pp.340–346. (Swedish study)	Patient interviews analysed using van Manen's four life-world existentials approach	Creating a personal environment. The need for company and security Time as unpredictable and involving waiting Focus on healing the body		Clear statement of aims and findings Appropriate research design Researcher/participants relationship not detailed Thorough explanation of analysis methodology
Preston, J.C. and Maskell, P. (2014) A Room of One's Own. *Age and Ageing*, 30(3), pp.259–268. (UK study)	Postal questionnaire pre and post move to single room accommodation.	Patients under 80 years of age preferred single rooms patients over 80 years of age preferred shared accommodation.		Very short summary of study Postal questionnaire used Clear statement of aims and findings
Reid, J., Wilson, K., Anderson, K.E. and Maguire, C.P.J. (2015) Older inpatients' room preference: Single versus shared accommodation. *Age and Ageing*, 44(2), pp.331–333. (UK study)	Survey carried out in 2008 and 2013.	In 2008, 37.2% of patients expressed a preference for single room accommodation. In 2013, the figure was 84.8%.		Clear statement of aims and findings Researcher/participants relationship not detailed Survey questions were very specific. Additional information was discussed but given less weight.
Citation	**Research Methods**	**Results**	**EPHPP Assessment**	**CASP Assessment**
Singh, I. and Okeke, J. (2016a) Reducing inpatient falls in a 100% single room elderly care environment: evaluation of the impact of a systematic nurse training programme on falls risk assessment (FRA). *BMJ Quality Improvement Reports*, 5, pp.1–9. (UK study)	PDSA methodology	Review of falls data Introduction of the Falls Risk Assessment Re-audit of falls Introduction of a nurses training programme. Re-audit of falls data		Quality improvement study of falls assessment and training intervention Study designed and carried out by senior nursing and medical staff in the area A cost benefit analysis is reported but several factors have not been costed
Singh, I., Subhan, Z., Krishna, M.,	Semi-structured	Patients admitted to single-rooms		Clear statement of aims and findings

Citation	Research Methods	Results	EPHPP Assessment	CASP Assessment
Edwards, C. & Okeke, J. (2016b) Loneliness among Older People in Hospitals: A Comparative Study between Single Rooms and MultiBedded Wards to Evaluate Current Health Service within the Same Organisation. *Gerontology & Geriatrics: Research 2 (3),* https://www.researchgate.net (UK study)	interviews. Validated scales for Anxiety and Loneliness as in-patients and in the community before admission to the hospital.	reported significantly higher loneliness as compared to MB-W. Loneliness increased significantly following the admission to single room as compared to the preadmission level		Appropriate research design Researcher/participants relationship not detailed
Tan, M., Hooper Evans, K., Braddock, C. H. and Shieh, L. (2013) Patient whiteboards to improve patient-centred care in the hospital. *Postgraduate Medical Journal*, 89(1056), pp.604–609. (USA study)	PDSA methodology	Whiteboards helped with communication, patients' awareness of their medical team, admission plans and generally improved patient satisfaction		Surveys with patients, families and staff on wards with and without whiteboards Researcher/participants relationship not detailed Nurses were not asked for their opinions. It is not clear why this study focused on medical staff
Citation	**Research Methods**	**Results**	**EPHPP Assessment**	**CASP Assessment**
Timmermann, C., Uhrenfeldt, L. and Birkelund, R. (2015) Room for caring: patients' experiences of well-being, relief and hope during serious illness. *Scandinavian Journal of Caring Sciences*, 29(3), pp.426–434. Denmark study	Semi structured interviews, combined with observations of the physical environment at an acute hospital. Ricoeur's theory of interpretation was used in the data analysis.	Experiencing inner peace and an escape from negative thoughts Experiencing a positive mood and hope Experiencing good memories.		Clear statement of aims and findings Appropriate research design Researcher/participants relationship not detailed Thorough explanation of analysis methodology

Box 1 PEO Protocol Using PICO and PEO: developing your research question and search

s

<div style="border:1px solid">

1. **Question:**
How does a 100% single room environment influence the experience of person-centred practice in an acute care setting?

2. **Develop search strategy using the PEO concept:**
Population and their problems   Hospital in-patients; staff; acute care
Exposure   Person-centred practice in single rooms
Outcomes or themes   Experiences of care received and care delivered

3. **Check any limit/s that may pertain to search:**
Age: over 16 years   Language: All   Year of Publication: 2012-2017
Type of data collection: Empirical studies

4. **List the main concepts and alternative terms from the research question that will be used in the search:**
(a) Patient experience
(b) Staff experience
(c) Single room
(d) Person-centred
(e) Acute care
(f) Adult acute care

5. **Add Boolean phrases:**
And to narrow the search in:
(a) Patient experience AND single room
(b) Staff experience AND single room
(c) Person-centred AND acute care AND single room
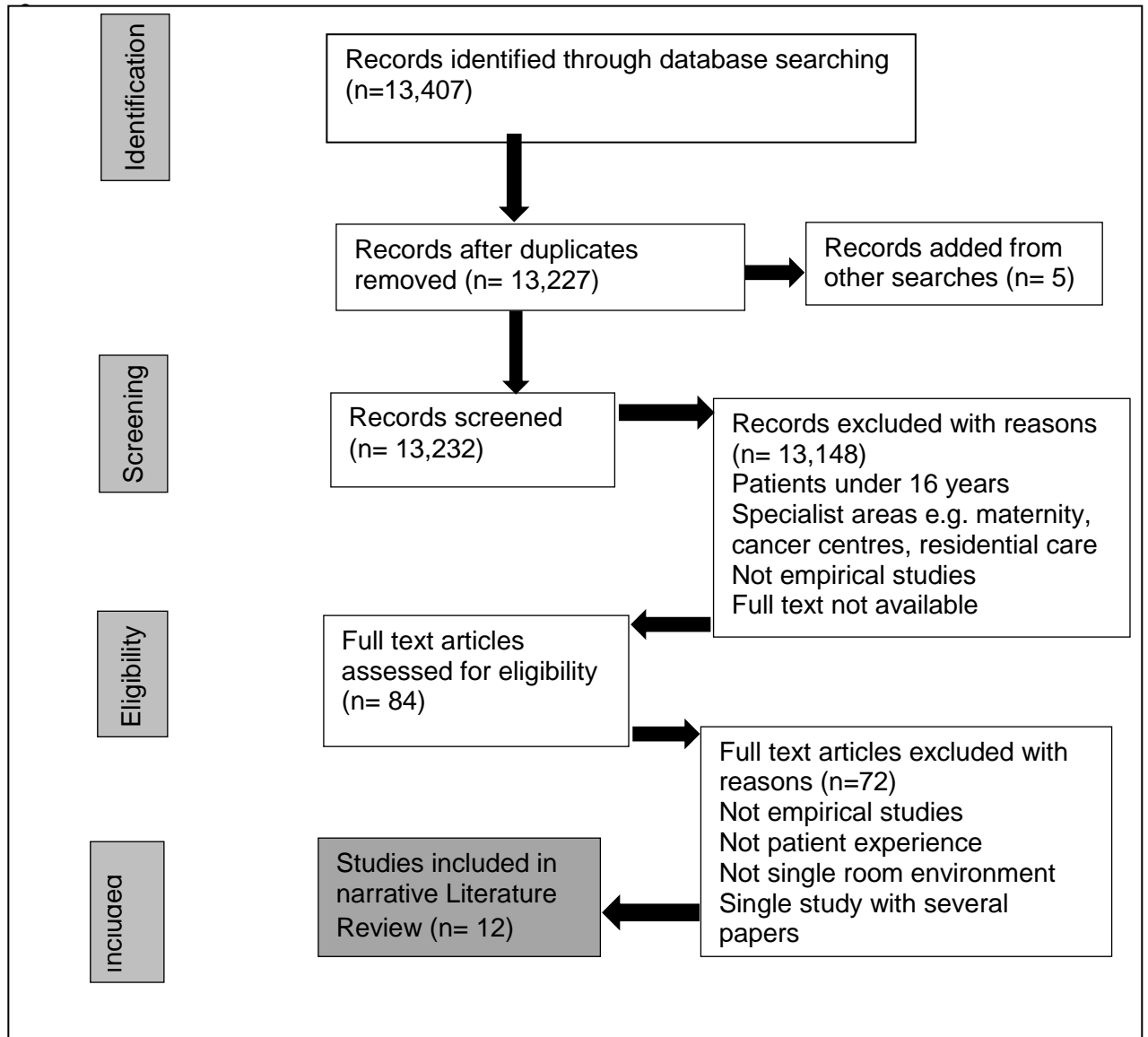(d) Adult acute care AND single room

6. **Databases searched:**
CINAHL
MEDLINE Ovid
Psychinfo
Web of Science
Scopus
Ethos
Google Scholar

</div>

t https://www.researchgate.net

Box 2 PRISMA (Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, L., Pettigrew, M. & Stewart, L. A. (2015) Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. Systematic Reviews, 4(1), 1-9. doi:10.1186/2046-4

Identification

Records identified through database searching (n=13,407)

Records after duplicates removed (n= 13,227)

Records added from other searches (n= 5)

Screening

Records screened (n= 13,232)

Records excluded with reasons (n= 13,148)
Patients under 16 years
Specialist areas e.g. maternity, cancer centres, residential care
Not empirical studies
Full text not available

Eligibility

Full text articles assessed for eligibility (n= 84)

Full text articles excluded with reasons (n=72)
Not empirical studies
Not patient experience
Not single room environment
Single study with several papers

Included

Studies included in narrative Literature Review (n= 12)

Box 3 CASP Framework Critical Appraisal Skills Programme (2017) CASP Qualitative Research

Checklist (online). Available at www.casp-uk.net/casp-tools-checklists

SCREENING QUESTIONS	Yes	No	Can't tell
1. Was there a clear statement of the aims of the research?	□	□	□
2. Is a qualitative methodology appropriate?	□	□	□
3. Was the research design appropriate to address the aims of the research?	□	□	□
4. Was the recruitment strategy appropriate to the aims of the research?	□	□	□
5. Was the data collected in a way that addressed the research issue?	□	□	□
6. Has the relationship between researcher and participants been adequately considered?	□	□	□
7. Have ethical issues been taken into consideration?	□	□	□
8. Was the data analysis sufficiently rigorous?	□	□	□
9. Is there a clear statement of findings?	□	□	□
10. How valuable is the research?	□	□	□

Box 4 Effective Public Health Practice Project (EPHPP) Quality Assessment Tool for Quantitative Studies. Available at www.nccmt.ca

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COMPONENT RATINGS

A) SELECTION BIAS

(Q1) **Are the individuals selected to participate in the study likely to be representative of the target population?**

1. Very likely
2. Somewhat likely
3. Not likely
4. Can't tell

(Q2) **What percentage of selected individuals agreed to participate?**

1. 80-100% agreement
2. 60-79% agreement
3. Less than 60% agreement
4. Not applicable
5. Can't tell

Rate this section	Strong	Moderate	Weak
See dictionary			

B) STUDY DESIGN

Indicate the study design

1. Randomized control trial
2. Controlled clinical trial
3. Cohort analytic (two groups pre + post)
4. Case-control
5. Cohort (one group pre + post (before and after))
6. Interrupted time series
7. Other specify_____
8. Can't tell

Was the study described as randomized? If NO, go to Component C

No   Yes

If YES, was the method of randomization described? (see dictionary)

No   Yes

If YES, was the method appropriate? (see dictionary)

No   Yes

Rate this section	Strong	Moderate	Weak
See dictionary			

C) CONFOUNDERS

(Q1) **Were there important differences between groups prior to the intervention?**

1. Yes
2. No
3. Can't tell

   The following are examples of confounders:

1. Race
2. Sex
3. Marital status/family
4. Age
5. SES (income or class)
6. Education
7. Health status
8. Pre-intervention score or outcome measure

(Q2) **If yes, indicate the percentage of relevant confounders that were controlled (either in the design (e.g. stratification, matching) or analysis)?**

1. 80-100% (most)
2. 60-79% (some)
3. Less than 60% (few or none)
4. Can't tell

Rate this section	Strong	Moderate	Weak
See dictionary			

D) BLINDING

(Q1) **Was (were) the outcome assessor(s) aware of the intervention or exposure status of participants?**

1. Yes
2. No
3. Can't tell

(Q2) **Were the study participants aware of the research question?**

1. Yes
2. No
3. Can't tell

Rate this section	Strong	Moderate	Weak
See dictionary			

E) DATA COLLECTION METHODS

(Q1) **Were data collection tools shown to be valid?**

1. Yes
2. No
3. Can't tell

H) ANALYSES

(Q1)   Indicate the unit of allocation (circle one)

Community   organization/institution   practice/office   individual

(Q2)   Indicate the unit of analysis (circle one)

Community   organization/institution   practice/office   individual

(Q3)   Are the statistical methods appropriate for the study design?

      1.   Yes
      2.   No
      3.   Can't tell

(Q4)   Is the analysis performed by intervention allocation status (i.e. intention to treat) rather than the actual intervention received?

      1.   Yes
      2.   No
      3.   Can't tell

GLOBAL RATING
COMPONENT RATINGS

Please transcribe the information from the gray boxes on pages 1-4 onto his page. See dictionary on how to rate this section.

A	SELECTION BIAS	STRONG	MODERATE	WEAK
		1	2	3
B	**STUDY DESIGN**	**STRONG**	**MODERATE**	**WEAK**
		1	2	3
C	**CONFOUNDERS**	**STRONG**	**MODERATE**	**WEAK**
		1	**2**	**3**
D	**BLINDING**	**STRONG**	**MODERATE**	**WEAK**
		1	**2**	**3**
E	**DATA COLLECTION METHODS**	**STRONG**	**MODERATE**	**WEAK**
		1	2	3
F	**WITHDRAWALS AND DROPOUTS**	**STRONG**	**MODERATE**	**WEAK**
		1	2	3 Not Applicable

GLOBAL RATING FOR THIS PAPER (circle one):

      1.   STRONG   (no WEAK ratings)
      2.   MODERATE   (one WEAK rating)
      3.   WEAK   (two or more WEAK ratings)

With both reviewers discussing the ratings:

Is there a discrepancy between the two reviewers with respect to the component (A-F) ratings?

      No   Yes

If yes, indicate the reason for the discrepancy

      1.   Oversight
      2.   Difference in interpretation of criteria
      3.   Difference in interpretation of study

Final decision of both reviewers (circle one)   **1. STRONG**
                                          2. MODERATE
                                          3. WEAK

Box 5 Person-centred Practice Framework (McCormack & McCance 2017)