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Review

Interventions for compassionate nursing care: A systematic review

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ABSTRACT

Background: Compassion has been identified as an essential element of nursing and is increasingly under public scrutiny in the context of demands for high quality health care. While primary research on effectiveness of interventions to support compassionate nursing care has been reported, no rigorous critical overview exists.

Objectives: To systematically identify, describe and analyse research studies that evaluate interventions for compassionate nursing care; assess the descriptions of the interventions for compassionate care, including design and delivery of the intervention and theoretical framework; and to evaluate evidence for the effectiveness of interventions.

Review methods: Published international literature written in English up to June 2015 was identified from CINAHL, Medline and Cochrane Library databases. Primary research studies comparing outcomes of interventions to promote compassionate nursing care with a control condition were included. Studies were graded according to relative strength of methods and quality of description of intervention. Narrative description and analysis was undertaken supported by tabulation of key study data including study design, outcomes, intervention type and results.

Results: 25 interventions reported in 24 studies were included in the review. Intervention types included staff training ($n = 10$), care model ($n = 9$) and staff support ($n = 6$). Intervention description was generally weak, especially in relation to describing participants and facilitators, and the proposed mechanisms for change were often unclear. Most interventions were associated with improvements in patient-based, nurse-based and/or quality of care outcomes. However, overall methodological quality was low with most studies ($n = 16$) conducted as uncontrolled before and after studies. The few higher quality studies were less likely to report positive results. No interventions were tested more than once.

Conclusions: None of the studies reviewed reported intervention description in sufficient detail or presented sufficiently strong evidence of effectiveness to merit routine implementation of any of these interventions into practice. The positive outcomes reported suggest that further investigation of some interventions may be merited, but high caution must be exercised. Preference should be shown for further investigating

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What is already known about the topic?

- Compassion has been identified as an essential element of nursing and is increasingly under public scrutiny in the context of demands for high quality health care.
- Primary research on effectiveness of interventions to support compassionate nursing care has been reported but there is no consensus on what is effective in providing this support.
- There are currently no systematic reviews of the effect of interventions or programmes to improve compassion in nursing.

What this paper adds

- Interventions reported in the research literature that are targeted at supporting compassionate nursing care vary widely and focus either on staff training, staff support or introducing a new care model to practice.
- Studies reporting the effectiveness of compassionate nursing care interventions report mostly positive effects on one or more patient-based, nurse-based and/or care quality outcomes.
- The quality of intervention description and the underlying methods are mostly poor, providing scant evidence of actual effectiveness and so the evidence provides little guidance to those seeking to support compassionate nursing care.

1. Introduction

The need to strengthen the delivery of compassionate health care, in particular for people with chronic illness in hospital settings, is consistently identified as essential to healthcare (Dewar et al., 2014; Dewar and Nolan, 2013; Schantz, 2007). Several studies and reports have indicated deficiencies in healthcare globally and related to nursing care in particular, with particular scrutiny of relational aspects of care such as dignity and compassion (Franklin et al., 2006; Maben et al., 2010; Hall et al., 2009; Youngson, 2011; Francis, 2013). Compassion is also emphasised as pivotal in caring by nursing science theorists such as Eriksson (1992) and Watson (2008). There has also been an increasing public scrutiny of the delivery of compassionate care, as evidenced through media coverage, political interest and resulting policy developments. This is particularly emphasised in UK, where the recent Francis inquiry into hospital care for older people highlighted substantial and significant variations in care quality, with a lack of compassion towards patients by hospital staff identified as a significant feature in the care failures investigated (Francis, 2010, 2013).

Definitions of compassion abound, and the literature is both confused and confusing in the way that terms are used and often conflated. However, we can identify four key components of the narrative of compassion. The first is a set of ideas about the *moral attributes* of a 'compassionate' nurse. These include wisdom, humanity, love, and empathy (Dewar et al., 2014; Maben et al., 2010; Schantz, 2007). These moral attributes may be expressed through a kind of *situational awareness* in which degrees of vulnerability and suffering are perceived and acknowledged (Chochinov, 2007; Schantz, 2007). Setting up compassion in this manner firmly links it to participation of the nurse in *responsive action* that is aimed at relieving suffering and ensuring dignity, and which involves the nurse in some sort of participatory relationship in which the nurse exercises *relational capacity* (Cameron et al., 2013; Dewar and Cook, 2014; Schantz, 2007; Von Dietze and Orb, 2000) through which empathy is experienced and a caring pastoral relationship is constructed (Bridges et al., 2013; Hartrick, 1997; May, 1992).

Although current definitions of compassion in nursing practice are imprecise and sometimes confused, there is intense interest in this problem both within and outside of the profession of nursing. Little is known about what strategies are effective in promoting compassionate care among nurses. There is, to date, no rigorous critical overview of research assessing the effectiveness of programmes and interventions promoting compassionate care among nurses in practice. This paper reports a systematic review which fills this gap, using the four key components of the compassion narrative identified above to provide an operational definition. The objectives of the review are to:

(i) systematically identify, analyse and describe studies that evaluate interventions for compassionate nursing care,

(ii) assess the descriptions of the interventions for compassionate care used, including design and delivery of the intervention and theoretical framework,

(iii) evaluate the nature and strength of evidence for the impact of interventions.

2. Methods

A systematic review was conducted, guided by the Cochrane Collaboration methods to assure comprehensive search methods and systematic approaches to analysis of the review materials (Higgins and Green, 2011).

2.1. Search strategy

A systematic search for primary research evaluating compassionate care interventions was undertaken on three databases CINAHL, Medline and the Cochrane Library (including the Cochrane Database of Systematic Reviews,

Database of Abstracts of Reviews of Effectiveness, CENTRAL register of controlled trials, Health Technology Assessment Database and Economic Evaluations Database) in June 2015. No date limits were applied to searches conducted.

Terminology in relation to compassionate care is problematic and as noted above, there is no one agreed definition of compassionate care. Instead, a number of terms are used interchangeably and inconsistently across the health care literature. A broad and inclusive approach was therefore used in preliminary searches to scope and map the field. As many terms relating to compassionate care were identified and used as possible, but with a focus on identifying studies that reflected one or more of the key components of compassionate care outlined above. Through this mapping, relevant keywords were identified (e.g. Professional–Patients relations, Dignity, Person-centred care, Relationship-centred care, Empathy, Compassion, Caring, and Emotional Intelligence). Key words identified through the preliminary mapping exercise were used in final searches. Terms related to compassion were combined (AND) with terms related to relevant methods and occupational groups. Relevant index terms were included, which varied across databases (see Table 1 for Medline and CINAHL searches). While no additional searches for unpublished (so-called 'grey') literature were conducted, the sources used do index PhD theses (CINAHL) and some conference abstracts (CIHAHL, Cochrane Library). Searches were limited to the English language.

2.2. Selection

An adapted PICO (Population-Intervention-Comparison-Outcome) framework was used to guide study selection (Sackett et al., 1997). We included primary research studies comparing the outcomes of an intervention designed to enhance compassionate nursing care (in any setting to any client group) with those of a control condition. Eligible designs were randomised controlled trials (including cluster randomised trials) or other quasi-random studies,

interrupted time series and before and after studies (controlled or uncontrolled). Studies were excluded if they were focused exclusively on students, or if interventions were not directed at changing nursing staff behaviour.

The lack of conceptual clarity about compassion in the literature necessitated an inclusive approach to studies that were not necessarily labelled as addressing "compassion". We developed selection criteria based on the four elements of the compassion narrative described above (*moral attributes* of a 'compassionate' nurse including empathy, nurses' *situational awareness of vulnerability and suffering*, nurses' *responsive action* aimed at relieving suffering and ensuring dignity, and nurses' *relational* capacity) so that studies were included if they met one or both of the following criteria:

(a) explicit goal of the intervention was stated as improving compassionate nursing care (or a closely related construct, that is, dignity, relational care, emotional care) (through addressing nurses' moral attributes, situational awareness, responsive action and/or relational capacity) and/or

(b) primary outcomes that assessed or evaluated either nurses' self-reports of compassion and/or ability to deliver compassionate care (moral attributes, relational capacity), and/or observed quality of interactions or other measure of compassion (situational awareness, responsive action), including patient reports of experienced compassion or a closely related construct.

The titles and abstracts from the search were screened against the inclusion criteria independently by four researchers in the team. During the screening process, frequent meetings were held among research team members in order to compare independent selections, resolve disagreements and make decisions. On independent rating (i.e. before discussion) reviewer pairs achieved between 80% and 90% agreement. In most cases of disagreement papers were excluded after discussion. Full-text papers were retrieved for all papers that screened

Table 1
Search strategy.

Database	Main search	Additional keywords	Limitations
Medline	compassion* OR empath* OR Empathy[a] OR person centred care OR person centred care OR relationship centred care OR relationship centred care OR client centred care OR client centred care OR Patient-Centred Care[a] OR Patient centred care OR patient centred care OR dignity	AND randomised controlled trial OR randomised controlled trial OR evaluation OR Nursing Evaluation Research[a] OR quasi experiment OR controlled trial OR time series OR Controlled Before-After Studies[a] OR before and after OR Comparative Study[a] AND nurs* OR Occupational Groups[a]	English
CINAHL	compassion* OR empath* OR Empathy[b] OR person centred care OR person centred care OR relationship centred care OR relationship centred care OR client centred care OR client centred care OR Patient-Centred Care[b] OR Patient centred care OR patient centred care OR dignity OR Human Dignity[b]	AND randomised controlled trial OR Randomised Controlled Trial[b] OR Evaluation[b] OR evaluation OR quasi experiment OR controlled trial OR time series OR Time Series[b] OR Controlled Before-After Studies[b] OR before and after OR Comparative Studies[b] OR comparative study AND Nurses[b] OR nurs* OR occupational groups	English, excluded Medline records
Cochrane	Same search terms as above	Same search terms as above	English

[a] MeSH-term.
[b] Subject Heading.

positively in the first stage or about which a clear decision could not be taken (due to lack of information). Each full-text paper was reviewed independently by two team members followed by a decision to include or exclude in the final review. These reviews were followed by further team discussion to finalise inclusion into the dataset. The search and selection process is summarised in the PRISMA flow chart (see Fig. 1).

2.3. Quality assessment

In order to effectively represent the variation in study quality evident in findings from the preliminary mapping phase, and to properly reflect the strength of evidence, we undertook a simple grading in order to categorise the strength of the underlying design of studies we retrieved (Guyatt et al., 2008). In line with the GRADE system for rating quality of evidence, a rating of strong, medium or weak quality was allocated to each study depending on where the study design sat on the hierarchy of evidence for effectiveness in tandem with an assessment of its design and execution (Greenhalgh, 2014; Guyatt et al., 2008). Studies were rated as high quality where outcomes were compared between treatment (intervention) and control groups, where allocation to groups was random, and where equivalence between groups was explicitly demonstrated. Study designs included here were randomised controlled

trials (RCTs) and cluster RCTs which met these conditions. Studies were rated as medium quality where outcomes were compared between intervention and control groups, and where equivalence between groups was demonstrated, but where other methodological issues weakened the design, for instance non-random allocation to groups or small sample size. Study designs included here were cluster RCTs with small numbers of clusters (for instance, $n = 2$) and controlled before and after studies with non-random allocation to groups. Uncontrolled before and after studies were rated as low quality as were other studies where other significant methodological shortfalls weakened claims of demonstrating effectiveness (e.g. controlled before and after studies where equivalence between groups is not demonstrated). These quality assessments were made by individual members of the research team, and checked with one other team member's ratings until consistent ratings were achieved.

An evaluation of quality of description of the intervention was also performed for each included study. Each study was analysed against the criteria for description of group-based behaviour change interventions devised by Borek et al. (2015). This framework provides a checklist for assessing the reporting of behaviour change interventions against 26 criteria covering intervention design, intervention content, participants and facilitators. Intervention design features assessed included intervention
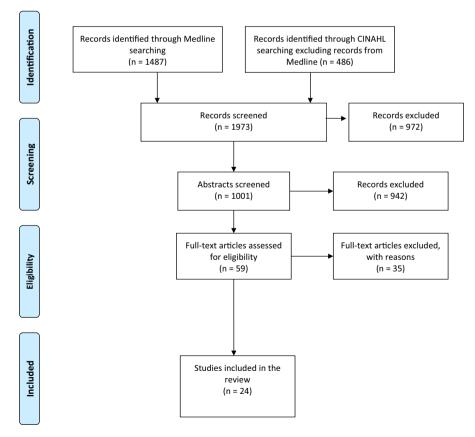

Fig. 1. Flowchart over literature search.
Source: Adapted from PRISMA flow diagram.

development methods; setting; venue characteristics; number, length and frequency of group sessions; and period of time over which group meetings were held. Intervention content assessed included change mechanisms or theories of change, change techniques, session content, sequencing of sessions, and participants' materials activities during sessions and methods for checking fidelity of delivery. Participant features assessed included group composition and size, methods for group allocation, and continuity of group membership. Facilitation features assessed included number of facilitators; facilitator characteristics and preparation including professional background, personal characteristics, training in intervention delivery and training in group facilitation; continuity of facilitator's group assignment, facilitator's materials and intended facilitation style. These assessments were conducted by one team member, and supplemented and refined in discussion with other team members.

2.4. Data analysis

A qualitative analysis was conducted across the different interventions reported to describe intervention types and contexts, and mechanisms for change. This analysis was conducted in smaller groups in the research team but further enriched through discussion of process and emerging findings among all group members.

Data were extracted for each study including study design, sample and settings, summary details of intervention, outcomes and measurements, and results. Results were tabulated and used to generate summary descriptions across key characteristics. Heterogeneity of studies in terms of interventions, methods and outcomes meant that a meta-analysis was not warranted, and so a more descriptive approach was merited. The main intervention types were agreed through team discussion, as were key outcome types. Findings on effectiveness of individual interventions were plotted against key outcome types and this was used as the basis for an analysis of evaluation strategies by intervention type and strength of evidence of effectiveness across intervention type and across the field as a whole. We recorded and tabulated both the direction of differences between groups (where reported) and statistical significance of differences. For controlled before and after studies, where there was no test of between group differences or group by time interaction, this was categorised as a non-significant difference irrespective of a significant within group difference.

3. Results

The review findings are presented here to address each of the review objectives in turn. Firstly, we describe study characteristics to gives an overview of studies that evaluate interventions for compassionate care. Secondly, we present an assessment of the quality of reporting of the interventions in the included studies, including their theoretical foundations. Thirdly, we present evidence of effectiveness of the interventions in the included studies and analysis of the quality of that evidence.

3.1. Study characteristics

The final data set comprised 24 studies reporting 25 interventions (see Fig. 1). Twenty two studies were published in journals and a further two were doctoral theses. Three types of intervention were identified. Staff training interventions ($n = 10$, summarised in Table 2a) focused on the development of new skills and knowledge in nursing staff such as a training course in empathic skills communication. Care model interventions ($n = 9$, Table 2b) focused on the introduction of a new care model to a service such as person-centred care. Nurse support interventions ($n = 6$, Table 2c) focused on improving nursing staff support and wellbeing through, for instance, the provision of clinical supervision.

Tables 2a–2c illustrate study characteristics, study design features including outcomes measured and a summary of findings. They reflect a range of study settings including hospital ($n = 14$), care/nursing homes ($n = 6$), other community settings ($n = 3$) and one study that used a range of health and social care settings ($n = 1$). All but one of the staff training studies was conducted in hospital settings, and six out of eight care model interventions were conducted in care home settings. Nurse support intervention studies were conducted in hospital settings ($n = 3$), district nursing services ($n = 1$), hospice at home ($n = 1$) and outpatient oncology service ($n = 1$). Eleven studies were conducted in USA, with the other studies conducted in a range of other countries mostly in Europe but also including Australia, Canada, China and Turkey.

Study participants included nurses, nurse managers, patients and relatives. To evaluate the effect of the interventions a range of measurements were used, mainly self-reported instruments, but the effect was also proxy rated by researchers and using instruments based on researcher assessments of verbal communication and interaction. The outcomes measured in the studies varied widely, but could be classified into three types: nurse-based outcomes, quality of care, and patient-based outcomes.

3.2. Quality of intervention reporting

Three types of intervention were identified: staff training, care model and nurse support. Interventions varied considerably in the extent to which they drew on an explicit theoretical foundation. Staff training interventions comprised training on verbal interactions, communication, communicating about spirituality and spiritual care, and empathy. Only four staff training interventions in included studies had an explicit theoretical base. These were Solution-Focused Brief Therapy (Boscart, 2009), relationship-based care model/caring theories (Glembocki and Dunn, 2010), reminiscence theory and adult learning theory (Puentes, 1995), and the Tibetan Buddhist tradition (Wasner et al., 2005). Some interventions drew on definitions of particular concepts, such as empathy (Ançel, 2006; La Monica et al., 1987; Searcy, 1990) and caring behaviours (Yeakel et al., 2003). Other studies lacked an explicit theoretical foundation, referring only to results from previous research studies.

Table 2a
Interventions focusing on training.

#	Study	Quality rating	Setting and sample	Intervention[a]	Compassion outcomes/ measures	Other outcomes	Results[b]
1	Ançel (2006) Uncontrolled before and after study	Low	Nurses n = 190 Adult department, Hospital setting, Turkey	C: no control group I: training programme empathic skills communication	Empathic communication skills ECS-B	Satisfaction with the programme Trainees' satisfaction form	Significant increase in nurses' emphatic skills after training (ECS-B + 24.9 p = 0.05) Of the nurses: 98.9% found the trainers –, 99.2% materials and techniques –, 97.7% content and its relevance adequate (Trainees' satisfaction form)
2	Boscart (2009) Uncontrolled before and after study	Low	Patients n = 27 RNs and Lic. practical nurses n = 27 Hospital setting, Canada	C: no control group I: 3 h educational intervention on verbal interactions between nursing staff and patients	Quality of verbal interactions (quantified content analysis)	None	Significant improvement in positive nurse-patient interactions (p = 0.001)
3	Glembocki and Dunn (2010) Uncontrolled before and after study	Low	RNs (n = 39) Hospital settings, USA	C: no control group I: Educational intervention Reigniting the spirit of caring (RSC) for 3 days seminar, focusing on relationship with self, colleagues and patients	Caring Assessment for Caregiver tool (CAC)	None	Significant difference in Caring Assessment for Caregiver between pre- and posttest (p < 0.05)
4	La Monica et al. (1987) Cluster randomised controlled study	Medium	Nurses n = 115 Patients n = 656 Hospital setting, USA	C: 16 h course in physical assessment I: empathy training programme 14–16 h	Empathy outcomes ECRS	Patient satisfaction LOPSS Patient mood and satisfaction MAACL	No significant difference in empathy outcomes in nurses and patients' rating after the intervention (ECRS nurses 171.3 vs 177.0 p > 0.05, ECRS patients 201.0 vs 228.5 p = 0.05). No significant difference in patient satisfaction (LOPSS p = >0.05) and mood between the experimental and control groups after treatment, but a significant difference in anxiety and hostility among patients cared for by the intervention group (MAACL p = 0.004)
5	Langewitz et al. (2010) Uncontrolled before and after study	Low	Nurses n = 70 Hospital setting, Switzerland	C: no control group I: workshop based communication skills training 2.5 day seminar including role-play, video and telephone supervision (5 × 30 min) and booster after 6 months	Patient-centred communication style RIAS	None	Significant difference in patient centeredness after the intervention (RIAS p < 0.003)

6	Puentes (1995) Post-test only randomised, controlled study	Low	Registered nurses, $n = 98$ Hospital setting, USA	C = usual practice I = 1 h reminiscence learning experience educational programme for nurses focusing on the incorporation of reminiscence techniques into interactions with clients, plus request to participants to implement techniques during the subsequent 3 weeks	Empathy levels HES	Attitudes towards older adults KAOP	Significant difference in empathy levels between experimental and control groups (HES 19.12 vs 17.84 $p < 0.05$) Significant difference in attitudes towards older adults between experimental and control groups (KAOP 153.27 vs 140.96 $p < 0.000$)
7	Searcy (1990) Before and after study with separate intervention and control groups	Low	Patients, $n = 298$ Hospital setting, USA	C = usual practice I = 2 × 1 h classes over a 2 week period aimed at enhancing nurses' skills for perceiving and responding with empathy	Empathy levels LEP	Patient satisfaction, including dissatisfaction, perceptions of interpersonal support and good impression of nursing care LOPSS	No significant difference after training on empathy (LEP 2.69 vs 2.74 $p = 0.48$), total patient satisfaction (LOPSS 112.45 vs 112.16 $p = 0.91$), dissatisfaction (2.65 vs 2.71 $p = 0.39$), interpersonal support (2.75 vs 2.73 p = 0.75), or good impression (2.83 vs 2.78 $p = 0.4$) in the intervention group. No significant differences from control ($p > 0.5$).
8	Taylor et al., 2008 Uncontrolled before and after study	Low	RNs and nursing students, $n = 201$ Religious university, non-religious university, religious health care institution, non-religious health care institution, USA	C = no control group I = mailed self study programme including 100-page interactive workbook and DVD on talking with patients about spirituality	Ability to respond empathically to patient spiritual pain RES	Personal spiritual experience DSE Attitude towards spiritual caregiving SCPS-R Knowledge about how to communicate to provide spiritual care CSCT	Significant improvements in empathic response to patient spiritual pain (RES +12.2 $p = <0.0001$), personal spiritual experience (DSE -3.2 $p = <0.0001$), attitude to spiritual caregiving SCPS-R +3.0 $p = <0.0001$) and knowledge about communication for spiritual care (CSCT +2.0 $p = <0.0001$) post intervention

Table 2a (*Continued*)

#	Study	Quality rating	Setting and sample	Intervention[a]	Compassion outcomes/ measures	Other outcomes	Results[b]
9	Wasner et al. (2005) Uncontrolled before and after study	Low	Palliative care professionals, $n = 63$ Range of medical and social care settings, Germany	C = no control group I = 3½ day training to teach active and compassionate listening, and recognition and addressing causes of emotional and spiritual suffering; includes practical exercises and introducing contemplation and meditation practices	Self transcendence: sense of connectedness within the self and with one's environment STS Compassion with severely ill and dying persons Numeric rating (0–10) Compassion with oneself Numeric rating (0–10)	Spiritual wellbeing FACIT-Sp Religiosity IIR Quality of life Numeric rating (0–10) Attitude towards one's family Numeric rating (0–10) Fear of dying process and death Numeric rating (0–10) Contentment with job Numeric rating (0–10) Meaningfulness of job Numeric rating (0–10) Attitudes towards colleagues Numeric rating (0–10) Perception of work-related stress Numeric rating (0–10)	Significant improvement in compassion for the dying (+0.5 $p < 0.01$) and for oneself (+0.9 $p < 0.01$) after the training and sustained six months later (+0.5 $p < 0.05$; +0.7 $p < 0.05$). Self-transcendence significantly improved after the training (STS +1.9 $p < 0.01$) but no significant difference from baseline to 6 months later (STS +0.8 $p > 0.05$). Significant improvement in spiritual wellbeing after the training (FACIT-Sp +2.0 $p < 0.01$) and sustained six months later (+0.8 $p < 0.05$). Significant improvements after the training of quality of life (+0.6 $p < 0.05$), attitudes towards family (+0.7 $p < 0.01$), fear of dying (+0.6 $p < 0.05$), fear of death (+0.7 $p < 0.01$), work satisfaction (+0.7 $p < 0.01$), meaningfulness of work (+0.4 $p < 0.01$), attitude towards colleagues (+0.4 $p < 0.05$), and work-related stress (+1.3 $p < 0.01$). Significant differences from baseline sustained at 6 months in all measures using numeric rating (0–10) with exception of quality of life, fear of death and meaningfulness of work. No significant difference in religiosity between baseline and six months (IIR −0.4 $p > 0.05$).
10	Yeakel et al. (2003) Uncontrolled before and after study	Low	Patients ($n = 477$) Hartford hospital general surgery unit, USA	C = no control group I = Educational programme for RNs during one month (a formal education session, staff identification of goals, peer reinforcement, incorporation of goals into performance management, posting of examples of caring behaviours on the unit to serve as reminders for the staff	Nurse caring Wolf's Caring Behaviours Inventory	Patient satisfaction Hartford Hospital Satisfaction Survey	Patients admitted after the intervention rate Nurses' caring higher ($Z = -2.14$, $p = 0.032$). Patients admitted after the intervention provided higher ratings of satisfaction than patients admitted before the intervention ($Z = -2.86$, $p = 0.004$).

[a] C = Control group, I = Intervention group.
[b] Mean difference between two groups, plus measure of statistical significance.

Table 2b
Interventions focusing on care models.

#	Study	Quality rating	Setting and sample	Intervention[a]	Compassion outcomes/ measures	Other outcomes	Results[b]
1	Brown Wilson et al. (2013) Uncontrolled before and after study	Low	Staff ($n = 11$) Residents ($n = 6$) Families ($n = 4$) Managers ($n = 3$) Care homes ($n = 2$), UK	C = no control group I = training programme based on the Senses Framework (Nolan et al., 2006), including eight workshops	Care profiles to assess how a service might enhance resident, staff and family's sense of continuity, significance, belonging, purpose, achievement, security		Improvements reported in staff sense of security and belonging; and in practices theorised to improve residents' sense of significance, continuity and purpose Statistical significance of changes not reported
2	Chenoweth et al. (2014) Cluster randomised controlled study	High	People with dementia ($n = 601$) Residential aged care homes ($n = 38$), Australian	C = usual practice I = implementation of either person-centred care (PCC) or person-centred environment (PCE) or an combination of them both (PerCEN)	Care interaction quality (QUIS) Resident emotional responses in care assessment (ERiC)	Quality of life (DEMQoL) Behavioural and psychological symptoms of dementia (Cohen-Mansfield Agitation Inventory CMAI)	Care interaction quality: Significant overall effect from group by time interaction, but significant improvement in PerCEN group only ($p = 0.006$). Resident emotional responses to care: No significant overall effect from group by time interaction. Significant improvement in PerCEN group only ($p = 0.01$) Quality of life: No significant overall effect from group by time interaction. Significant improvements in PCC ($p = 0.0003$) and PCE ($p = 0.02$) groups, but not in PerCEN group. Agitation: Significant overall effect from group by time interaction. Significant improvements in PCC ($p = 0.002$) and PCE ($p = 0.05$) groups, but not in PerCEN group
3	Finnema et al. (2001) Cluster randomised controlled study	Medium	Family members for residents ($n = 194$) Staff members ($n = 230$) Nursing homes (16 wards in 14 nursing homes), Netherlands	C: usual practice with implementation of a Model care plan I: implementing of Emotion-oriented care in combination of Model care plan. Training and supervision in Emotion-oriented care for 9 months	None	Quality of care (developed instrument, 18 questions)	An increase of quality of care regarding the question 'Has anyone asked you about your relative's life history after the initial intake meeting?' in the experimental group after emotion-oriented care implementation ($p = 0.05$)
4	Ho et al. (2015) Uncontrolled before and after study	Low	Residents ($n = 17$) Nursing homes, China	C: no control group I: Implementing of Dignity-conserving end of life care model (several components of education and supportive care, at both group and individual level, advance care planning, pain and symptom management etc.)	None	McGill Quality of life questionnaire (MQoL) Nursing facilities quality of life questionnaire (NF-QoL)	A significant deterioration in physical QoL ($p < 0.05$), and improved support QoL ($p < 0.05$) between pre- and post test. No significant difference in Nursing facilities quality of life (NF-QoL) were found

#	Study	Quality rating	Setting and sample	Intervention[a]	Compassion outcomes/measures	Other outcomes	Results[b]
5	McCance et al. (2009) Uncontrolled before and after study	Low	Nurses $n = 122$ Patients $n = 107$ Hospital setting, Ireland	C: no control group I: person centred nursing (PCN) intervention based on framework of PCN and a model by Garbett and McCormack (2002)	Person centred nursing PCNI: Including CDI and NDI	None	Significant difference over time in nurses' perception of caring (CDI 0.38 vs 0.45 $p = <0.05$) after intervention. Significant difference over time in patients' perceptions of caring (NDI 0.41 vs 0.45 $p = <0.05$)
6	McGilton et al. (2003) Before and after study with separate intervention and control groups	Medium	Residents ($n = 50$) Nursing staff ($n = 34$) Nursing homes, Canada	C: usual practice I: implementing Relationship-Enhancing programme of care (REPC)	Relational care (RC scale) Close relationship with care providers (VAS) Care providers' empathic and reliable behaviour (RB, an observational scale)	Continuity of care (The continuity index)	Significant difference in Relational care ($p = 0.014$), Care providers' relational behaviour ($p = 0.046$) between the experimental and control group. Significant difference in Continuity of care ($p < 0.001$).
7	McGilton et al. (2010) Uncontrolled before and after study	Low	Nurses $n = 18$ Patients $n = 9$ Stroke continuing care unit, Canada	C = no control group I = development of individualised patient communication plans by speech and language pathologists (SLPs); nurse attendance at full day workshop focused on communication and behavioural management strategies; implementation of nursing staff support system by SLPs: observing interactions, providing feedback and demonstrating strategies	Patient satisfaction with nurses' relational care RCS Global perception of closeness of nurse-patient relationship Patient Close VAS Provider Close VAS	Patient quality of life SAQOL Patient depression GDS Attitude of nurses towards patients with communication impairments CIQ	Significant improvement in patient satisfaction with nurses' relational care (RCS +3.1 $p = 0.024$), patient perceptions of closeness of relationship with nurses (VAS +15.9 $p = 0.041$), patient perception of own communication abilities (SAQOL +3.8 $p = 0.037$), and nurse attitudes towards patients with communication impairment (CIQ +2.4 $p = 0.007$) post intervention. No significant differences in patient psychosocial wellbeing (SAQOL +1.8 $p = 0.601$), patient depression (GDS +0.3 $p = 0.848$), or nurse perceptions of closeness of relationship with patients (VAS +3.4 $p = 0.657$) post intervention
8	Pipe et al. (2010) Uncontrolled before and after study	Low	Patients ($n = 19$) General medical ward, USA	C = no control group I = Life story intervention based on Watson's theory of human caring (2008), including trained volunteers completed Life story interviews and created a "Tree of Life" poster for every patient	None	Quality of Life, Linear Analogue Self-Assessment (LASA) Instrument. Emotional wellbeing, Social support, Medical Outcomes Study (MOS) Social Support Survey. Hope, Herth Hope Index (HHI). Expanded Version of the Functional Assessment of Chronic Illness Therapy—Spiritual Well-Being Scale (FACIT-Sp-Ex)	Quality of life: A significant improvement in physical well-being ($p = 0.02$), and emotional well-being ($p = 0.005$) after intervention. No significant improvement in emotional wellbeing (MOS) and Hope (HHI). A significant improvement of spiritual wellbeing (FACIT-Sp-Ex) ($p = 0.02$)

[a] C = Control group, I = Intervention group.

[b] Mean difference between two groups, plus measure of statistical significance.

Table 2c
Interventions focusing on nurse support.

#	Study	Quality rating	Setting and sample	Intervention[a]	Compassion outcomes/measures	Other outcomes	Results[b]
1	Flarity et al. (2013) Uncontrolled before and after study	Low	Nurses $n = 73$ Emergency care, USA	C: no control group I: multifaceted compassion fatigue resiliency intervention programme: 4 h interactive seminar plus multimedia resources	Compassion satisfaction ProQOL CS subscale Compassion fatigue ProQOL BO subscale	Secondary traumatic stress ProQOL STS subscale	Significant increase in compassion satisfaction (ProQOL CS +1.9 $p = 0.004$), and decrease in burnout (ProQOL BO −3.9 $p < 0.001$) and secondary traumatic stress (ProQOL STS −2.1 $p = 0.001$) post intervention.
2	Gauthier et al. (2015) Uncontrolled before and after study	Low	Nurses $n = 60$ Paediatric ICU, USA	C = no control group I = 5 min mindfulness meditation/instruction in workplace at the beginning of each shift for 30 days	Symptoms of burnout MBI Self-compassion SCS	Levels of stress NSS Mindfulness MAAS Job satisfaction	No significant differences in burnout, emotional exhaustion and depersonalisation (mean, p not reported). Burnout personal accomplishment increased post but decreased at one month follow up ($p = 0.03$). No significant increase in self-compassion (SCS difference not reported, $p = 0.26$). Significant decrease in stress from baseline (78.92) to post-intervention (74.03, $p = .006$]. and 1 month follow up (p not reported). No significant differences in mindfulness (MAAS, difference not reported, $p = .37$), job satisfaction (positive change reported, $p = .15$).
3	Horner et al. (2014) Before and after study with separate intervention and control groups	Low	Nurses $n = 43$ Patients $n = $ unknown Hospital setting, USA	C: usual practice I: mindfulness training programme 10 weeks, 30 min once a week including education and practice	Compassion satisfaction score and burnout score ProQOL	Level of mindfulness MAAS measure Individual and unit stress levels (VAS 1–10) HCAHPS–hospital patient survey	No significant difference in compassion satisfaction score before and after intervention (ProQOL 53.20 vs 52.93 $p = 0.76$), or burnout score (ProQOL 46.20 vs 45.71 $p = 0.55$) or level of mindfulness (MAAS 4.2 vs 4.4 $p = 0.37$) in the intervention group. Significant difference before and after the intervention in individual stress (Individual stress level 5.0 vs 4.2 $p = 0.10$) and unit stress (Unit stress level 5.8 vs 5.1) in the intervention group. No significant difference in the control group. Patient satisfaction (HCAHPS): Improvement in overall scores in the intervention group (32 points) compared to the control group, and improvement in "communication with nurses" (17 points)
4	Palmer (2010) Uncontrolled before and after study	Low	Nurses $n = 9$ Hospice at home, UK	C = no control group I = 8 week mindfulness based cognitive therapy training	Clinician empathy JCES	Mindfulness MAAS Wellbeing WHO-5 EWWS	Improvements in scores across all scales reported post intervention compared to "expected population averages" but no further details reported.

Table 2c (*Continued*)

#	Study	Quality rating	Setting and sample	Intervention[a]	Compassion outcomes/measures	Other outcomes	Results[b]
5	Pålsson et al. (1996) Before and after study with separate intervention and control groups	Medium	RNs, *n* = 33 District nursing for women with newly diagnosed breast cancer, Sweden	C = 40 h training programme on medical care and treatment for breast cancer, psychological reactions, coping strategies, crisis intervention, and organisation of nursing care I = training programme (as above) + 1½–2 h clinical supervision every 2–4 weeks, 15–19 sessions	Burnout BM Empathy ECRS	Sense of coherence SOC	No significant difference ($p > 0.05$) after clinical supervision on burnout (BM 2.7 vs 2.5) empathy (ECRS 419 vs 427) or sense of coherence (SOC 148 vs 151) in intervention group. No significant differences from control
6	Potter et al. (2013) Uncontrolled before and after study	Low	RNs, *n* = 13 Outpatient oncology infusion centre, USA	C = no control group I = 5 week programme involving five 90 minute sessions on compassion fatigue resiliency	Symptoms of burnout MBI Compassion satisfaction ProQOL IV CS subscale Compassion fatigue ProQOL IV BO subscale	Subjective distress caused by traumatic events, including avoidance, intrusions, hyperarousal IES-R Secondary traumatic stress ProQOL STS subscale Nursing job satisfaction NJSS	No significant difference in symptoms of burnout between baseline and immediate post-intervention, 3 months later and 6 months later (MBI Emotional Exhaustion subscale: immediate −2.92 $p > 0.05$; 3 months −2.38 $p > 0.05$; 6 months −3.46 $p > 0.05$. MBI Depersonalization subscale: immediate −1.46 $p > 0.05$; 3 months −1.31 $p > 0.05$; 6 months −0.31 $p > 0.05$. MBI Personal Accomplishment subscale: immediate −0.92 $p > 0.05$; 3 months −1.15 $p > 0.05$; 6 months −2.15 $p > 0.05$). No significant difference in compassion satisfaction (ProQOL CS: immediate −0.38 $p > 0.05$; 3 months −1.0 $p > 0.05$; 6 months −1.23 $p > 0.05$). No significant difference in compassion fatigue (ProQOL BO: immediate -0.85 $p > 0.05$; 3 months -0.23 $p > 0.05$; 6 months -1.15 $p > 0.05$). No significant difference in job satisfaction (no further details reported). Significant improvement in subjective distress caused by traumatic events between baseline and immediate post-intervention, (IES-R +1.24 $p = 0.04$) 3 months later (+2.4 $p < 0.001$) and 6 months later (+1.77 $p = 0.005$). Significant decline in secondary traumatic stress between baseline and 6 months (+3.54 $p = 0.044$)

[a] C = Control group, I = Intervention group.
[b] Mean difference between two groups, plus measure of statistical significance.

By contrast, all interventions introducing and testing a new care model were underpinned by an explicit framework. Most used theories or models developed in caring and nursing, except for one study using the International Classification of Functioning, Disability and Health (ICF) as the basis for an intervention to promote patient-centred communication with those living with aphasia/communication impairments (McGilton et al., 2010). Frameworks emphasised the person-centred care/environment/nursing (Chenoweth et al., 2014; McCance et al., 2009; Pipe et al., 2010), relationship between nurse and patients (Brown Wilson et al., 2013; Finnema et al., 2001; McGilton et al., 2003) or dignity in care (Ho et al., 2015).

Nurse support interventions were based on reducing compassion fatigue, burnout, and/or secondary traumatic stress (Flarity et al., 2013; Potter et al., 2013); and/or bolstering personal resources such as compassion satisfaction, resiliency, empathy (Flarity et al., 2013; Potter et al., 2013) or sense of coherence (Pålsson et al., 1996). Three were based on mindfulness theory (Gauthier et al., 2015; Horner et al., 2014; Palmer, 2010).

Reviewer ratings of the quality of intervention reporting in each study against each item in the Borek et al. (2015) framework for description of group-based behaviour change interventions are displayed in Table 3. As is evident, the reporting of the interventions varied across all intervention types but was generally weak, with no intervention reports meeting all of the criteria deemed necessary for full intervention reporting. The design and the content of the interventions tended to be better described than details of the participants and the facilitators of the interventions. Overall compliance for intervention design reporting was 52% of criteria (shown in Table 3 row labelled "average % compliance by aspect of reporting"). The intervention design item with highest compliance (inclusion of details of the length of training sessions) was included in 73% ($n = 16$) of the 24 studies. The lowest was a specification of venue characteristics ($n = 4$, 17%).

For intervention content, highest compliance was reported for session content ($n = 20$, 87%) and lowest for participants' materials ($n = 8$, 33%). Overall compliance for this aspect of intervention reporting was 50% of criteria. For reporting of participants, highest compliance was for description of group composition ($n = 21$, 88%) and lowest for continuity of participants' group membership ($n = 3$, 14%). Overall compliance for this aspect of intervention reporting was 37% of criteria. For reporting of facilitators, highest compliance was for reporting facilitators' professional background ($n = 12$, 55%) and lowest was for facilitators' personal characteristics and training in-group facilitation (both $n = 1$, 5%). Overall compliance for this aspect of intervention reporting was 25% of criteria. On average, individual study compliance with the criteria was 42%, ranging from 8% to 65%. Of intervention types, care model interventions tended to be less well described than other types (average of 33% compliance).

3.3. Evidence of effectiveness

This section presents findings on the quality of evidence of effectiveness of the interventions in the included studies. Overall, methodological quality was low. Most studies either did not randomise to the groups and/or did not demonstrate equivalence between groups, weakening confidence in the findings. Only two studies were assessed as high quality and two as medium. The remaining 18 studies were assessed as low quality. Most studies ($n = 16$) were uncontrolled before and after studies. Four studies were before and after studies with separate intervention and control groups (Horner et al., 2014; Searcy, 1990; McGilton et al., 2003; Pålsson et al., 1996). Four studies used a randomised controlled design. Three used a cluster RCT design, with clustering at unit or institutional level (La Monica et al., 1987; Chenoweth et al., 2014; Finnema et al., 2001). A further study was controlled but only included a post-test measure (Puentes, 1995).

Of the 24 studies, only eight studies included more than 100 participants. The largest sample included 115 nurses and 656 patients in an evaluation of an empathy-training programme (La Monica et al., 1987). The smallest sample included nine nurses in an evaluation of mindfulness based cognitive therapy for district nurses working with women with newly diagnosed breast cancer (Palmer, 2010). The number of clusters in controlled studies ranged from 2 to 38. Table 4 provides an overview of results from the individual studies against the range of outcomes used. Eighteen different types of outcomes were reported. For simplicity and brevity results for multiple measures using the same instrument or different instruments measuring same phenomena have been grouped together and treated as one. Across all studies and all outcome types results for 67 outcomes are reported.

Studies of similar intervention types tended to use similar outcome types. Nurse support intervention studies primarily measured nurse-based outcomes. No nurse support studies used quality of care outcomes and just one study used patient-based outcomes. In contrast, care model intervention studies primarily used outcomes related to quality of care and patient-based outcomes, but use of nurse outcomes was less common. Training intervention studies used the widest range of outcome type. Although the majority used nurse-based outcomes a small number drew on quality of care and patient outcomes.

Nineteen studies (79%) reported a significant positive difference in one or more outcomes (i.e. a beneficial effect of the compassionate care intervention). Only five (21%) of the 24 studies reported no significant difference in any of the outcomes types measured. Of the 67 outcome types assessed across all studies, 32 (48%) showed significant positive effects for the intervention, with a further 18 (27%) showing positive but non-significant results. There were no significant negative differences and only three non-significant negative results.

Patient outcomes were less likely to show significant differences, with only 5/17 (29%) showing statistically significant differences. Studies of low methodological quality were more likely to report outcomes in favour of the intervention, with low methodological quality studies reporting a mean of 92% of outcomes in favour of the intervention (significant + non-significant positives) whereas higher quality (medium, high) studies report 55% of outcomes in favour of the intervention. While on

Table 3
Completeness of intervention reporting based on checklist from Borek et al. (2015).

		Intervention design							Intervention content							Participants				Facilitators								% compliant	average % compliance for intervention type
		Intervention source or development methods	General setting	Venue characteristics	Total number of group sessions	Length of group sessions	Frequency of group sessions	Duration of the intervention	Change mechanism or theories of change	Change techniques	Session content	Sequencing of sessions	Participants' materials	Activities during the sessions	Methods for checking fidelity of delivery	Group composition	Methods for group allocation	Continuity of participants' group membership	Group size	Number of facilitators	Continuity of facilitators' group assignment	Facilitators' professional background	Facilitators' personal characteristics	Facilitators' training in intervention delivery	Facilitators' training in group facilitation	Facilitators' materials	Intended facilitation style		
Training intervention	Ancel 2006	N	Y	N	Y	Y	Y	Y	Y	Y	Y	N	N	Y	N	Y	N	Y	Y	N	N	Y	N	Y	N	N	Y	58%	
	Boscart 2009	N	Y	N	N	Y	Y	N	N	N	Y	Y	Y	Y	N	Y	NA	NA	NA	Y	Y	Y	N	N	Y	Y	N	57%	
	Glembocki 2010	N	N	N	Y	Y	Y	N	Y	Y	Y	N	N	N	Y	Y	N	N	N	Y	N	Y	N	Y	N	N	N	42%	
	LaMonica 1987	Y	N	N	N	N	N	N	Y	Y	Y	N	N	Y	N	Y	N	Y	Y	N	N	N	Y	N	Y	N	Y	42%	
	Langewitz 2010	Y	N	N	Y	Y	Y	Y	Y	N	Y	Y	N	Y	N	Y	N	N	N	Y	N	Y	N	N	N	Y	N	50%	
	Puentes 1995	N	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	N	NA	NA	N	NA	N	N	N	N	Y	Y	57%	
	Searcy 1989	N	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Y	N	N	N	N	N	N	N	N	N	Y	50%	
	Taylor 2008	Y	Y	NA	NA	NA	NA	N	Y	N	Y	N	Y	N	N	Y	NA	NA	N	NA	NA	NA	NA	NA	NA	NA	NA	50%	
	Wasner 2005	Y	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	Y	N	Y	NA	N	N	N	N	N	N	N	N	N	N	40%	
	Yeakel 2003	N	N	N	N	N	N	Y	N	N	N	N	N	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N	12%	**45%**
Care model intervention	Brown Wilson 201.	Y	Y	N	Y	Y	N	N	Y	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	Y	38%	
	Chenoweth 2014	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	Y	N	Y	N	Y	N	N	N	27%	
	Finnema 2001	N	Y	N	Y	Y	Y	Y	N	N	Y	Y	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	35%	
	Ho 2015	N	Y	N	N	N	N	N	N	N	Y	N	N	N	N	Y	Y	N	N	N	N	Y	N	N	N	N	N	27%	
	McCance 2008	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	8%	
	McGilton 2003	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	N	N	Y	Y	N	N	Y	Y	N	Y	N	Y	N	N	62%	
	McGilton 2010	N	N	N	N	Y	N	N	Y	Y	Y	N	N	Y	N	Y	N	N	N	Y	N	Y	N	N	N	N	N	35%	
	Pipe 2010	N	Y	Y	NA	NA	NA	N	Y	N	NA	NA	Y	NA	N	N	NA	N	N	NA	NA	NA	NA	NA	NA	NA	NA	36%	**33%**
Nurse support	Flarity 2013	Y	N	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	N	N	N	Y	N	N	N	N	N	N	N	42%	
	Gauthier 2015	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	N	N	Y	Y	N	N	N	N	N	N	65%	
	Horner 2014	N	Y	N	Y	Y	Y	Y	N	N	Y	N	N	Y	N	Y	N	N	N	N	N	Y	N	N	N	N	N	35%	
	Palmer 2010	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	Y	N	N	Y	N	N	N	N	N	N	N	N	12%	
	Palsson 1996	N	Y	N	Y	Y	Y	Y	N	Y	Y	Y	N	Y	N	Y	Y	Y	Y	N	Y	N	Y	N	Y	N	N	62%	
	Potter 2013	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	N	Y	N	Y	N	N	N	Y	N	Y	N	N	N	N	Y	58%	**46%**
	% compliant	42%	67%	17%	59%	73%	55%	54%	71%	46%	87%	39%	33%	70%	4%	88%	30%	14%	18%	45%	14%	55%	5%	32%	5%	18%	23%		
	average % compliance by aspect of reporting							52%							50%				37%								25%		

Y= reported N= not reported NA= not applicable to the intervention

Table 4

Summary of study results and statistical conclusions by type of outcome.

Legend:
- ◀ Significant improvement
- ◁ Non-significant improvement
- ▪ No change
- ▷ Non-significant deterioration
- ▶ Significant deterioration

Study	Study quality	Empathy	Compassion	Burnout	Stress	Mindfulness	Job satisfaction	Caring	Attitude	Other wellbeing	Quality of interactions	Quality of relationship	Patient centredness	Continuity	Quality of care	Satisfaction / experience	Behavioural (agitation)	Quality of life	Mood / wellbeing
Training intervention																			
LaMonica 1987	Medium	▪																	◀
Searcy 1989	Medium	▪										▪				▪			
Angel 2006	Low	◀														▪			
Boscart 2009	Low										◀								
Glembocki 2010	Low							◀											
Langewitz 2010	Low										◀							◁	◁
Puentes 1995	Low	◀							◀										▪
Taylor 2008	Low	◀							◀									◁	◁
Wasner 2005	Low		◀		◀		◀		◀	◀		◀				◀			
Yeakel 2003	Low																		
Care model intervention																			
Chenoweth 2014 (single)*	High										▪					◀	◀	◁	◁
Chenoweth 2014 (combined)*	High										◀					▷		◁	◁
Finnema 2001	High													◀	◀				
McGilton 2003	Medium											◀							
Brown Wilson 2013	Low	◁						◁		◁						◁			◁
Ho 2015	Low																◀		
McCance 2008	Low							◀	◀				◀						
McGilton 2010	Low								◀			◀					◁	▷	
Pipe 2010	Low																		◀
Nurse support intervention																			
Pålsson 1996**	Medium	▪								▪									
Flarity 2013	Low		◀	◀	◀														
Gauthier 2015	Low		◁	▪	◀	◁	◁												
Horner 2014	Low		▪	▪	▪	▪													
Palmer 2010	Low	◁	◁	◁		◁				◁						◁			
Potter 2013	Low		◁	◀	◀		▪												

*Chenoweth (2014) compared effectiveness of three interventions: two single (PCC and PCE) and one combined (PCC and PCE implemented together)

**Pålsson (1996) tested difference between the two groups, found differences in either direction, but not significant either within or between groups, and we have reported this as "no difference"

average 76% of outcomes reported in studies of training interventions showed a statistically significant benefit, only 21% of outcomes for nurse support interventions were significant. Crucially no intervention has been evaluated more than once.

3.4. Effects on patient-based outcomes

Six care model intervention studies reported patient-based outcomes. Of these, three of showed statistically significant effects on a patient-based outcome. Of these, one was rated as high quality. In their cluster RCT with 38 nursing homes, Chenoweth et al. (2014) reported that the person-centred care intervention had a significant positive effect on reducing patient agitation, but the combined intervention (person-centred care plus person-centred environment) reported in the same study showed a non-significant effect of increasing patient agitation. This study fared poorly in terms of reporting of intervention description, meeting only 27% of criteria.

Three training intervention studies reported patient-based outcomes and of these, two showed a significant positive effect. One medium quality study reported significant positive effects on patient anxiety (La Monica et al., 1987) and one low quality study reported a non-significant positive difference to patient satisfaction (Yeakel et al., 2003). A low quality nurse support intervention study reported a non-significant improvement to patient satisfaction (Horner et al., 2014).

3.5. Effects on quality of care outcomes

Four training intervention and six care model intervention studies examined effect on quality of care outcomes. Of these, eight reported a statistically significant improvement in one or more outcomes. The combined person-centred care model intervention reported by Chenoweth et al. (2014) was associated with a significant improvement in quality of interactions, but although this finding is from a high quality study, conclusions are tempered by the lack of intervention description noted above. In a cluster RCT rated as high quality, Finnema et al. (2001) reported a significant change in one dimension of quality of care following implementation of emotion-oriented care in nursing home settings, but the intervention description only met 35% of the criteria. In a medium quality evaluation of a relationship-enhancing programme of care in nursing homes, McGilton et al. (2003) reported significant improvements in relational care, care providers' relational behaviour and continuity of care. A medium quality evaluation of empathy training for hospital nurses found no difference in interpersonal support (Searcy, 1990). Other improvements in quality of care outcomes were reported by a range of low quality studies (Boscart, 2009; Langewitz et al., 2010; McCance et al., 2009; McGilton et al., 2010; Yeakel et al., 2003).

3.6. Effects on nurse-based outcomes

Seven training, six nurse support and three care model intervention studies examined effects on nurse-based

outcomes and, of these, ten reported a significant improvement associated with the intervention. All of these ten studies were rated as low quality. Three medium quality studies investigated nurse-based outcomes but none showed significant differences (La Monica et al., 1987; Pålsson et al., 1996; Searcy, 1990). No high quality studies reported on nurse-based outcomes.

4. Discussion

This systematic review aimed to provide an overview of the evidence base on the effectiveness of interventions for compassionate nursing care, including an assessment of descriptions of the interventions for compassionate care, and an evaluation of the nature and strength of evidence of effectiveness.

Findings reflect a wide range of intervention studies where compassion has been addressed in a variety of ways including through staff training, staff support or introducing a new care model. Overall we identified 25 interventions reported in 24 studies. These findings present a unique overview of the type of interventions being developed to address perceived deficiencies in nursing care, indicating an overwhelming lack of consensus in the field as to the best way to improve practice. The most common type of intervention focused on training nursing staff, in spite of evidence that deficits in relational care are not clearly linked to knowledge deficits, but instead to organisational barriers and that more multi-faceted educational interventions may yield greater benefits to nursing practice (Bridges et al., 2013; Kuske et al., 2007; Spector et al., 2013). Many interventions lacked an explicit theoretical foundation and the mechanisms for change were unclear in most studies reviewed. No study reported sufficient detail of its intervention to enable replication and further evaluation. This state of play limits the capacity of nurses and others to include effective strategies in their own practice, but also limits the construction of a coherent evidence base to guide managers and practitioners in improving services (Hoffmann et al., 2014; Möhler et al., 2012; Craig et al., 2013).

In relation to the nature and strength of the existing evidence base, most interventions were associated with improvements on one or more outcomes with positive effects shown on nurse, patient and quality of care outcomes. However, overall quality of the evidence was low and it appears that the few higher quality studies are less likely to report positive results. No intervention has been tested more than once and the majority of studies use before and after designs that are intrinsically weak. Patient-based outcomes were not routinely included, especially in relation to the evaluation of training interventions and nurse support interventions.

Consequently, while there appears to be some evidence for benefit in terms of patient and quality of care outcomes from strong studies for three different care model interventions, the importance of these results and the implications for practice are far from clear. Given the priority given to 'compassion' in the policy discourse on contemporary nursing this is a disconcerting finding, especially given that our conclusion is not the result of an overall lack of research.

However, the research has not been programmatic, and so there has been no accumulation of evidence around clearly defined (and described) interventions. This state of affairs has been noted in nursing research more generally, with few studies of interventions using randomised controlled trials and little evidence of a programmatic approach noted in an analysis of research reported in leading nursing journals in 2010 (Richards et al., 2014). While the person centred care/environment (Chenoweth et al., 2014) and emotion oriented care/model care plan (Finnema et al., 2001) showed potential for improving quality of care and patient outcomes in care homes using strong study designs, such results require further investigation. We found no equivalent evidence of any quality for interventions in acute settings.

Any of the interventions we investigated might be deemed worthy of further investigation based on their positive outcomes but none could be recommended for routine implementation. However, the extent to which this evidence motivates further investigation is limited, given the lack of theoretical basis and description for many interventions, the pervasive positive bias that is associated with weak study designs, and the lack of evidence for impact on patient outcomes in most studies. While there is little evidence that observational studies per se yield systematically more favourable estimates of effect than randomised controlled trials (Anglemyer et al., 2014), specific design weaknesses are known to yield positively biased estimates of benefits (Pildal et al., 2007; Moher et al., 1998) and such problems are easier to control in randomised studies. Furthermore, the uniformly positive picture of benefit associated with these interventions may result, in part, from selective reporting of positive results. While just under half of all outcomes assessed showed positive statistically significant results, evidence from analyses of outcomes from trials suggests that unreported outcomes are much more likely to be non-significant (Chan and Altman, 2005). Other studies suggest that studies with non-significant results are less likely to be published (Dwan et al., 2013). Furthermore, even if replication was justified by the results, replicating the interventions reviewed here would be difficult, if not impossible, because compliance with guidance for reporting the interventions was poor.

These limitations need to be addressed in future research. Adherence to recognised and emerging standards for developing and evaluating complex interventions, such as the UK Medical Research Council framework (Craig et al., 2013), and fuller reporting of interventions and outcomes would address many of the issues noted here. It seems clear that many researchers in this field have been unable or unwilling to use randomised designs. Randomised controlled trials can be challenging to implement and resource intensive. They are not the only potentially robust design for complex service interventions. However, randomised trials or other robust designs are feasible for these and similar interventions and the value of simple before and after designs as anything other than feasibility/pilot studies must be questioned. Certainly a clearer picture, more helpful for practitioners, could have emerged from fewer more rigorous studies.

While systematic methods were used to identify studies for this review, a lack of agreed terminology in the field and a focus on searching for published studies may have led to some relevant studies being inadvertently excluded. However, unless we missed a large number of high quality studies including multiple studies of a single intervention, which seems unlikely, our overall conclusions would remain unchanged. Our method of assessment of methodological quality was simple and focused on making relative rather than absolute judgements about the potential for causal inference from the designs used. A study we classified as high quality may still be flawed in a number of ways. Our chosen method, however, enabled the descriptive analysis required across a diverse range of studies and provides a broad indication of the potential strength of evidence.

5. Conclusions

While there have been many published studies that appear to offer potential solutions to deficits in compassionate care, this is a body of literature that seems to have little useful to say to nurses in practice. This is especially challenging in a context in which the need for more compassion in health care is professed from national government to frontline practitioners. Greater conceptual clarity, better designed and reported interventions and evaluations using stronger research designs are urgently required.

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