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DOI:

[10.1080/07317115.2022.2152515](https://doi.org/10.1080/07317115.2022.2152515)

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Document Version

Publisher's PDF, also known as Version of record

Citation for published version (Harvard):

Carparelli, C, Jones, C, Oyeboode, JR & Riley, G 2022, 'A systematic review of the effectiveness of educational interventions in promoting person-centred care in dementia services', *Clinical gerontologist*.
<https://doi.org/10.1080/07317115.2022.2152515>

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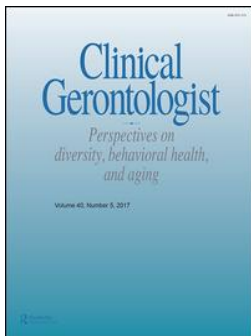
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To cite this article: Chiara Carparelli, Christopher Jones, Jan R. Oyebode & Gerard A. Riley (2022): A Systematic Review of the Effectiveness of Educational Interventions in Promoting Person-Centred Care in Dementia Services, *Clinical Gerontologist*, DOI: [10.1080/07317115.2022.2152515](https://doi.org/10.1080/07317115.2022.2152515)

To link to this article: <https://doi.org/10.1080/07317115.2022.2152515>



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A Systematic Review of the Effectiveness of Educational Interventions in Promoting Person-Centred Care in Dementia Services

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ABSTRACT

Objectives: To review evidence about the effectiveness of educational programmes in promoting the delivery of person-centered care by staff in dementia services.

Methods: Several databases were searched, and the methodological quality of identified studies systematically evaluated. A summary mean effect size was calculated for several types of outcome (direct knowledge, applied knowledge, attitudes, self-reported and observed working practices).

Results: Eighteen studies were identified. Results were mixed, with findings of no change, significant improvement, and (in attitude) significant deterioration. Effect size was modest for direct knowledge (standardized mean difference = 0.6), but small or negligible for applied knowledge (0.29) and self-reported (0.06) and observed (0.25) working practices. There was a negative effect for attitudes (−0.17).

Conclusions: The quality of evidence was poor. Apart from attitudes, the effect sizes are likely to be overestimates. There was little evidence that education programmes can reliably produce substantial improvements in working practices.

Clinical implications: Education alone is unlikely to be sufficient for establishing high standards of person-centered care in services. It needs to be supplemented by steps to ensure that staff develop skills in delivering such care in practice, and by organizational support to ensure staff have sufficient motivation, cues and opportunities for implementation.

KEYWORDS

Dementia; person-centered care; residential care; caregivers; education; training; intervention

Introduction

Person-centered care (PCC) has been adopted in many countries as an important guiding principle in the provision of care for people living with dementia (Chirico et al., 2021; Harding et al., 2015; Paparella, 2016). The concept was originally developed by Kitwood who emphasized the importance of valuing and respecting the person living with dementia as an individual (Fazio et al., 2018; Kitwood, 1997; Kitwood & Bredin, 1992). PCC focuses on the provision of comfort, attachment, inclusion, occupation, and a sense of identity and continuity with the past. It emphasizes that care must be individualized, taking account of each person's unique history, perspective, needs and wishes; and highlights the importance of creating a social environment in which the person feels appreciated and valued.

Research has highlighted the benefits of PCC in health and social care settings. For people living with dementia, the benefits include

decreases in medication and “behavioural and psychological symptoms,” and improvements in emotional well-being and quality of life (Brownie & Nancarrow, 2013; Fossey et al., 2014; Kim et al., 2017; Li & Porock, 2014; Olsson et al., 2013). For formal paid carers, the benefits include increases in job satisfaction and confidence in their ability to provide good care (Barbosa et al., 2014; Brownie & Nancarrow, 2013; Rajamohan et al., 2019), and reductions in stress, burn-out and staff turnover (Barbosa et al., 2014; Rajamohan et al., 2019).

To promote the implementation of PCC by staff, the great majority of dementia services rely on educational programmes that explain the principles and practice of PCC (Hunter et al., 2016a; Surr & Gates, 2017). The programmes are typically delivered in workshops or online, sometimes with follow-up booster sessions. Although there may be some experiential

components (e.g., role play), the emphasis is on didactic learning. The popularity of the approach is very probably due to its low cost relative to more complex interventions (Ballard et al., 2018; Hunter et al., 2016a).

Doubts about the effectiveness of this approach have been raised (Aylward et al., 2003; Hunter et al., 2016b). The programmes focus on increasing staff knowledge about PCC and enhancing attitudes toward the people they provide care for. Although such change might be necessary to bring about improvement in working practices, evidence suggests that it is often not sufficient and it has been argued that it needs to be supplemented with organizational change (Aylward et al., 2003; Hunter et al., 2016b; Surr et al., 2020). Even in terms of improving knowledge and attitudes, it is unclear how effective educational programmes are, with some intervention studies reporting a lack of significant change on some outcomes or for some participants (Conway & Chenery, 2016; Elpers et al., 2017).

Given the value of PCC and the popularity of the educational approach, it is important to know how effective the approach is in promoting PCC. Previous systematic reviews on the topics of PCC and education have focused on the benefits of PCC for staff and people living with dementia (Barbosa et al., 2014; Brownie & Nancarrow, 2013; Fossey et al., 2014; Kim et al., 2017; Olsson et al., 2013); on the effectiveness of general education and training in dementia services (i.e. not specific to PCC; Aylward et al., 2003; Rapaport et al., 2017; Surr & Gates, 2017); or on a broader review of PCC interventions (i.e. not specific to education; Mohr et al., 2021). This review focuses specifically on the effectiveness of education in improving staff understanding and application of PCC.

Method

Literature search

A systematic search of articles published between January 1988 (which predates Kitwood's introduction of the term "person-centred care") and January 2022 was carried out using the following eight databases: CINAHL Plus, Web of Science, Applied Social Sciences Index and abstracts, PsycINFO, International Bibliography of the Social Sciences, PubMed, Medline and SCOPUS. The initial search was restricted to titles, abstracts and key words. Exact search terms varied according to the database searched, but they always included "dementia" and "Alzheimer," terms related to intervention (specifically, variants of "intervention," "education," "training" and "therapy") and terms related to person-centered care (specifically, different spellings of this term). These three blocks of terms were combined using the AND operator.

The initial search resulted in 3102 papers, 1401 of which were duplicate papers. The titles and abstracts of the remaining 1701 papers were then screened by the first author (CC) using the inclusion and exclusion criteria listed in Table 1. Following this screening, 314 articles remained. The full texts of these were obtained, and the inclusion and exclusion criteria reapplied by the first author. In cases where there was uncertainty about whether the article met the criteria, these were discussed within the research team and a decision made about inclusion. Seventeen articles met the inclusion/exclusion criteria. The reference lists of these articles were also examined, resulting in one additional paper (Conway & Chenery, 2016). The PRISMA diagram in Figure 1 illustrates the selection process in more detail.

The nature of some of the excluded papers merits comment. Many papers reported on interventions that included an educational component designed to

Table 1. Inclusion and exclusion criteria.

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> • Study evaluated effectiveness of an intervention intended to increase PCC. • Educational methods were the primary component of the intervention. • Participants were staff working in services whose main purpose was to provide care for people living with dementia. • Study used quantitative measures of PCC. • Measure of PCC was completed before and after the intervention. 	<ul style="list-style-type: none"> • Study only used measures of the assumed consequences of PCC (e.g., reduced use of medication) rather than a measure of PCC itself. • Participants worked in services that were not specific to dementia (e.g., acute hospitals). • Study was not in a peer-reviewed journal, was not available in English or did not report original data (e.g., reviews).

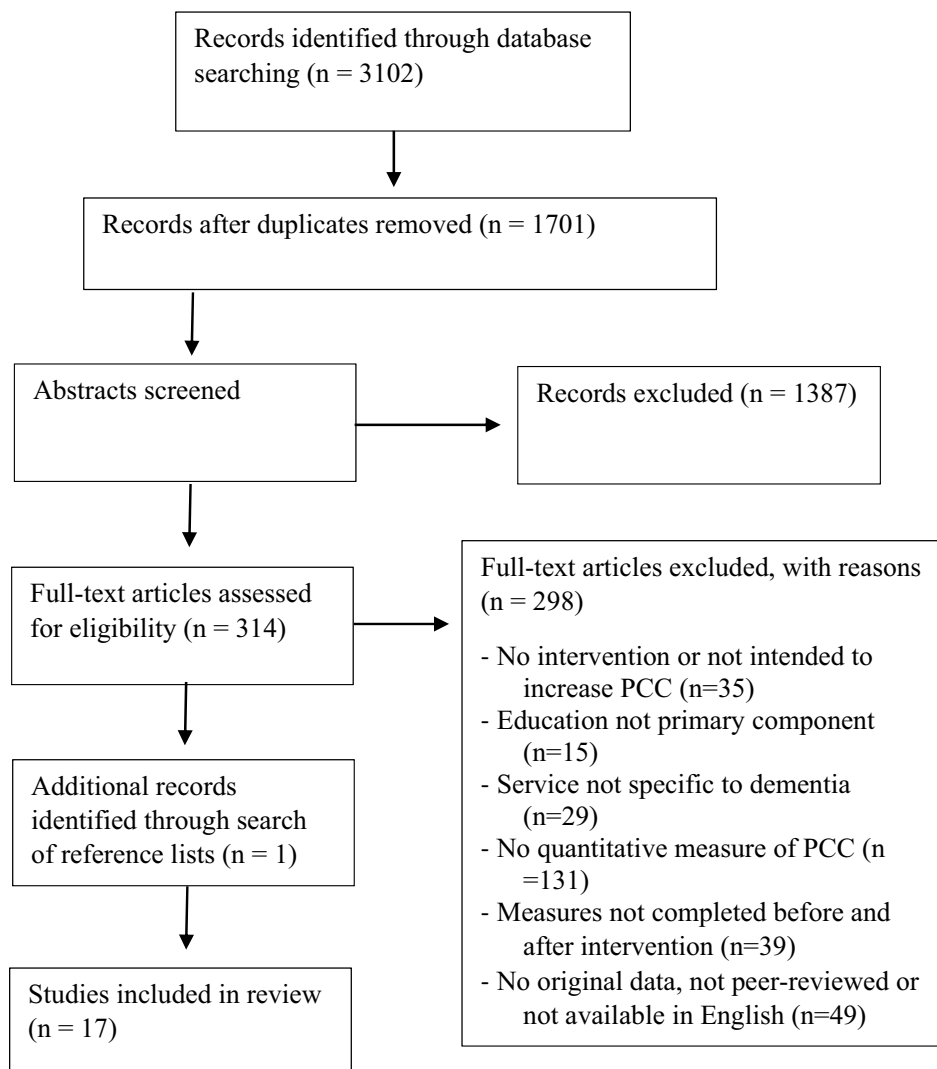


Figure 1. Prisma flowchart.

enhance PCC, but they did not include a measure of whether PCC increased. Instead, they measured the potential beneficial consequences of PCC, related to the wellbeing of either the staff providing care (e.g., Isaac et al., 2021) or the person with dementia (see, Mohr et al., 2021 for a review). Given the concerns about whether educational interventions are an effective way of increasing PCC (Aylward et al., 2003; Hunter et al., 2016b), it is important to establish this before making the assumption of these studies that such interventions are effective in this respect. Accordingly, this review focused exclusively on studies that directly measured PCC.

Other exclusions should also be noted. Some studies were excluded because they used an outcome measure that included items relevant to PCC, but only a total score was reported and no specific

score related to PCC was provided (e.g., Inker et al., 2021). The interventions were required to be conducted within dementia services. Some excluded studies reported using an educational intervention in other settings such as general hospitals (e.g., Chenoweth et al., 2022). Education was conceptualized in the traditional sense of involving the explicit communication of knowledge. Some excluded studies described more creative approaches to increasing PCC such as using simulation as a way of helping participants appreciate the experience of people living with dementia (e.g., Kimzey et al., 2021). Finally, studies were excluded if the measure of PCC was not taken before as well as after the intervention. Some excluded studies used measures that made no reference to preexisting knowledge and skills relating to PCC, and so it was unclear if

the intervention was associated with an improvement (e.g., Kemeny et al., 2006). This criterion also excluded studies (e.g., DeSouza et al., 2020) that involved asking participants how useful they had found the intervention in terms of PCC, but did not collect any pre-intervention data.

Quality assessment

Following Higgins et al. (2011), factors undermining the quality of the study were divided into risks to internal validity (i.e. factors that undermine confidence in attributing any difference in the outcome measure to the intervention), risks to external validity (i.e. factors that hinder generalization of the findings to other situations) and risks to precision (i.e. random non-systematic errors that decrease the accuracy of the estimates of a summary statistic).

External validity was assessed in terms of how representative the participants were likely to be of the population of staff working in dementia services (based on sample size, method of selection and drop-out rate); and precision in terms of the adequacy of the sample size and the psychometric properties of the measures of PCC that were used. Internal validity was assessed using the Cochrane Collaboration Risk of Bias Tool (Higgins et al., 2011). The authors suggest supplementation of this tool with other criteria considered particularly relevant to the studies being reviewed. In the present case, criteria relating to treatment fidelity and measurement bias were added. In terms of design, studies either used a control group (i.e. randomized or non-randomized controlled trials) or just used one group (i.e. before-and-after design). These two types of design were evaluated separately in the assessment of internal validity because the selection bias item in the Cochrane Tool only applies to studies with control groups. This means that ratings of internal validity bias across the two types of design are not comparable. In terms of minimizing the risk to internal validity, controlled studies are, in general terms, more effective because they control for variables unrelated to the intervention that may have led to changes in outcome.

Instructions for applying the quality assessment tool are contained in supplementary online material (<https://data.mendeley.com/datasets/>

52xfmfsfyf/1). For each paper, each criterion was rated as being low (scored as 0), moderate or unreported (=1) or high (=2). Higher scores indicated higher internal and external validity and precision. Ratings were completed independently by the first and fourth author. Cohen's kappa indicated a high level of interrater reliability, $K = .933$, $p < .001$.

Estimating the summary effects

The studies measured PCC using different types of outcome and different measures within each type of outcome. To avoid comparing dissimilar outcomes, summary effect sizes were calculated across each of these different types (specifically, direct knowledge, applied knowledge, attitudes, self-reported working practices and observed working practices). To allow comparison across the studies within each type, the standardized mean difference (Cohen's d) was calculated. In calculating the summary effect, each mean difference was weighted according to the precision of the estimate it provided. Analysis was conducted using the "Meta" package in R studio (R Core Team, 2018; Schwarzer et al., 2015) and a random-effects model was used to calculate the summary effects.

Four of the 18 reviewed papers were excluded from calculations of the summary effects. Brooker et al. (2016) and Passalacqua and Harwood (2012) provided insufficient statistical data. Elpers et al. (2017) was excluded because of the small number of complete data sets ($n = 7$). The two papers by Barbosa et al. (2016) and (2017)) reported two different measures of the same type of outcome (observed working practices) from the same study. The 2017 paper was preferred for use in calculating the summary effect because it used a more robust outcome measure that had been previously evaluated. Although some studies reported data from follow-up measures, only the immediate post-training measures were included in the analyses.

In relation to calculating Cohen's d for studies with a control group, only one paper (Ballard et al., 2018) provided sufficient data to enable a comparison between the change scores of the two groups. Accordingly, the difference between the post-intervention means of the training and

control groups, and the pooled standard deviation, were used. This method does not account for baseline differences between the two groups and will tend to reduce the effect size if the control group scores are better and inflate it if the control group scores are lower. However, for all but two of the papers (Conway & Chenery, 2016; Hattink et al., 2015), the baseline difference between groups was relatively small (<0.3 standard deviations). For the before-after studies, following the recommendation of Morris and DeShon (2002), the difference between the baseline and post-intervention mean, and the standard deviation of the baseline scores, were used to calculate the standardized mean difference. Further details about the calculation of Cohen's *d* are available in the supplementary online material: <https://data.mendeley.com/datasets/52xfmfsyf/1>.

Results

Quality assessment of studies

Tables 2 and 3 provide a summary of the ratings of validity and precision for the before-after and the controlled studies respectively. Internal validity was generally poor. Inevitably, all studies received a zero rating for performance bias because it was impossible to blind researchers or participants to the intervention received. Only two studies explicitly reported that the outcome data were collected by researchers unaware of group allocation (or in the case of before-after studies the nature of the intervention). In all but four studies, levels of attrition were high (over 10%) and not addressed with appropriate intention-to-treat or missing data analyses. Only four studies assessed treatment fidelity. Measures of attitude and self-reported working

Table 2. Quality ratings for before-after studies.

	Barbosa et al. (2016)	Barbosa et al. (2017)	Brooker et al. (2016)	Coleman et al. (2015)	Edvardsson et al. (2014)	Elpers et al. (2017)	King et al. (2011)	Passalacqua and Harwood (2012)	Pleasant et al. (2017)	Williams et al. (2018)
Internal validity										
Performance	0	0	0	0	0	0	0	0	0	0
Detection	1	1	1	1	1	1	1	1	1	1
Attrition	1	2	0	0	0	0	1	0	0	1
Reporting	2	0	2	2	2	2	2	0	2	1
Fidelity	1	1	1	1	1	1	1	1	2	1
Measurement*	0	2	0	2	0	0	0/2	0/0	2	2
External validity										
Participants	0	0	0	0	0	0	0	0	0	0
Drop-out	1	2	0	0	0	0	1	0	0	1
Precision										
Sample size	1	1	2	2	2	0	2	1	2	2
Measures*	0	1	1	0	1	1	0/2	1/1	2	2

* Some studies included more than one outcome measure

Table 3. Quality ratings for controlled studies.

	Ballard et al. (2018)	Chenoweth et al. (2014)	Conway and Chenery (2016)	Hattink et al. (2015)	Jacobsen et al. (2017)	Lood et al. (2020)	Torres-Castro (2022)	Williams et al. (2021)
Internal validity								
Selection	2	2	1	2	1	0	2	1
Performance	0	0	0	0	0	0	0	0
Detection	2	2	1	1	1	1	1	1
Attrition	1	1	0	0	0	0	2	0
Reporting	2	2	0	2	2	2	2	0
Fidelity	1	1	1	2	1	1	2	2
Measurement*	0	0	0/2	0	0	2	0	2/2
External validity								
Participants	0	0	0	0	0	0	0	0
Drop-out	1	1	0	0	0	0	2	0
Precision								
Sample size	2	2	0	0	2	2	2	2
Measures*	1	1	1/1	1	1	2	1	2/2

* Some studies included more than one outcome measure

practice were considered more liable to social desirability bias. As noted earlier, before-after studies offer no control over variables unrelated to the intervention that may have caused a change in the outcome measure (i.e. maturation and historical bias – Schweizer et al., 2016).

Studies generally fared better in terms of precision, although the precision of some was weakened by using measures whose psychometric properties were unclear. External validity was promoted by the selection criterion that participants were required to be working in dementia services. However, it was compromised by high levels of attrition, the fact that participants were volunteers rather than selected at random, and the failure to compare the sample composition with data about the workforce in the services involved in the study. It is thus unclear whether samples were representative of the general workforce, or had an over-representation of participants who were particularly interested or engaged in the training.

Characteristics of the studies

Key details about the studies are presented in Table 4 (before-after studies) and Table 5 (controlled trials). Some studies addressed a broader range of issues, but only the information relevant to evaluating the effectiveness of educational training on PCC is included in the tables.

The majority of studies were conducted in USA or Europe, with one conducted in Mexico and three in Australia. Baseline sample sizes ranged from 23 to 1782, with a total of 3544 participants. The studies by Ballard et al. (2018), Chenoweth et al. (2014), and Lood et al. (2020) are not included in these figures because they did not provide information about the number of staff who took part in the training.

Except for two studies, participants in the studies were all paid staff working in dementia services. Pleasant et al. (2017) included informal unpaid carers in their sample alongside paid staff and in King et al. (2011) it is unclear whether all the sample worked directly with people living with dementia. Reflective of the composition of the work force, the great majority of participants were female. Not all studies provided information about the job roles of the participants, but, in those that

did, all participants had roles that involved the direct provision of care to people living with dementia. In several of these studies, none of the participants had a professional caring-related qualification. The percentage with a professional qualification in the other studies was 25% or less, apart from the study by Lood et al. (2020) in which the figure was 88%.

The characteristics of the training varied. In some studies (e.g., Edvardsson et al., 2014), the educational component addressed other aspects of dementia and there was not an exclusive focus on PCC. Conversely, sometimes the training focused on one particular aspect of PCC such as communication (e.g., Passalacqua & Harwood, 2012). Training also varied in length, from three 30-minute sessions to 10 whole days. Some interventions involved additional components intended to supplement the educational training. For example, Barbosa et al. (2016) followed up the training with individual supervision during the morning care routine in which the trainers would make suggestions about how a person-centered approach could be implemented.

Five different types of PCC outcome were assessed in the studies. Three studies involved a test of *direct knowledge* in which participants had to answer questions concerning material covered in the content of the teaching. Three studies involved a test of *applied knowledge* in which participants were shown a video of an interaction between a carer and a person with dementia, and asked to rate how person-centered the carer was. Six studies used the same *Attitudes to Dementia Questionnaire* (Cheston et al., 2016) which has a subscale that evaluates *attitudes* related to PCC. Two studies asked participants to rate the service in which they worked in terms of how person-centered they considered it to be, and one asked participants to report on how they communicated with the people they were providing care for. These outcomes were categorized as *self-reported working practices*. Finally, five studies videoed participants providing care to people living with dementia and rated them in terms of PCC and a sixth (Lood et al., 2020) asked family relatives of the people living with dementia to rate the service as a whole in terms of how person-centered it was.

Table 4. Summary of before-after studies.

Author and setting	Participants	Intervention	Measures	Results
Barbosa et al. (2016) Portugal 2 care homes Only information about the control group from this study is reported here.	31 provided baseline data, 29 provided post-intervention and follow-up data Baseline sample: 100% female, all direct care workers, all without professional qualification	Eight 90-minute sessions at weekly intervals. Training focused exclusively on PCC Multi-component: After each session, teachers supervised participants individually during morning routine making suggestions about implementing a PCC approach.	<i>Observed working practices:</i> Video recordings made of morning care routine. Verbal and non-verbal communications rated on 26 dimensions for how PCC they were. Collected at baseline, post-training and at 6 months follow-up.	Mean score improved on some dimensions but declined on others, both at post-intervention and follow-up. No statistical analysis of overall change.
Barbosa et al. (2017) Same study as Barbosa et al. (2016) but reported a different outcome measure	See Barbosa et al. (2016), but all 31 provided complete data set.	See Barbosa et al. (2016)	<i>Observed working practices:</i> See Barbosa et al. (2016). Video recordings rated using Global Behavior Scale which evaluates how person-centered the care is	Significant improvement on ratings at post-intervention. Follow-up ratings not reported.
Brooker et al. (2016) UK 106 care homes involved at start and 67 involved throughout	100 recruited; 66 completed the programme; but only 51 provided complete data set. No data about gender or qualifications provided. It was recommended that participants were 'a care assistant, senior care assistant, registered nurse or activity co-ordinator.'	Ten days of training delivered over the course of 3 months Participants were trained to become 'dementia care champions' in their care home, focused on the delivery of PCC; training also focused on how to identify issues within the home and how to cascade learning to others. Multi-component: After training, participants attended monthly supervision sessions for 6 months.	<i>Attitude:</i> Person-centered subscale of Approaches to Dementia Questionnaire Collected at baseline, post-training and after supervision period.	Significant improvement on PCC subscale between baseline and post-training and between baseline and post-supervision.
Coleman et al. (2015) USA 15 care homes Compared online with onsite delivery of intervention – so no control group that did not receive the intervention	211 participants from 8 homes took part in the online training; 327 from 7 homes took part in the onsite training. Not stated how many provided complete data set, but degrees of freedom for ANOVA implies it was 360. Demographic data only provided for a subsample of onsite training group (n = 45): All were direct care workers, with 4% being registered nurses; 82% were female.	Three sessions, one per week over 3-week period; unclear how long each session was. Training focused on person-centered communication. No additional interventions	<i>Applied knowledge:</i> Participants rated videos of staff-resident interactions on person-centered dimensions. Data collected at baseline and post-intervention	Onsite training group showed a significant improvement in identifying person-centered communication; but online training group did not.
Edvardsson et al. (2014) Sweden 1 care home containing 24 residential units	171 took part and 143 provided full data set. Baseline sample: 84% female, 14% registered nurses and remainder not professionally qualified; all direct care staff	Two day-long seminars Training covered national care policies (including PCC) and how the unit matched up to these policies Multi-component: Following training, there were 10 2-hour seminars focused on developing and evaluating a unit-based practice improvement. There was also a day on which units shared information about their improvements. Whole intervention delivered over 10-month period.	<i>Self-reported working practices:</i> Participants completed the Person-Centered Care Assessment Tool, rating how person-centered they considered the care provided on their unit; and the Person-Centered Climate Questionnaire, rating how person-centered the physical and social environment were. Data collected at baseline and at 12 months.	Scores on the Care Assessment Tool showed significant improvement, but scores on the Climate Questionnaire did not.
Elpers et al. (2017) USA 1 care home	23 took part and 7 provided complete data set. Sample providing complete data: 6 females; all direct care staff, 2 of whom were registered nurses.	Three 30-min training sessions Training covered understanding of dementia and managing behavior, with emphasis on improving attitudes and provision of PCC. No additional interventions	<i>Attitude:</i> Person-centered subscale of Approaches to Dementia Questionnaire Data collected at baseline and post-intervention	Because of low number, reliable change index used. Only 2 participants showed reliable improvement on PCC subscale of ADQ, 3 showed no change, and 2 showed a reliable deterioration.

(Continued)

Table 4. (Continued).

Author and setting	Participants	Intervention	Measures	Results
King et al. (2011) USA 84 care homes, only 28% of which had dementia-specific units	1782 completed at least 1 module, varying numbers completed the knowledge test after each module, ranging from 1078 to 1805; and numbers completing each item on attitude questionnaire ranged from 1045 to 1666. Sample completing at least 1 module: 90% female, all direct care workers, unclear if any had a professional qualification.	Four one-hour sessions delivered by staff trained by the researchers. Training focused on creating a person-centered environment and providing PCC. No additional interventions	<i>Direct knowledge:</i> Knowledge tests about each session. Administered before and after the session to which it applied. <i>Attitude:</i> Questionnaire developed for study. Administered at baseline and post-intervention.	<i>Knowledge:</i> Significant improvement on all tests. <i>Attitude:</i> Items analyzed individually because of poor internal consistency. Nature of analysis makes it difficult to interpret what changes occurred.
Passalacqua and Harwood (2012) USA 1 care home	50 were eligible, but only 26 provided complete data set. Data provided about sample, but unclear whether it refers to sample of 50 or sample of 26: 89% female, all direct care workers, no information about professional qualification	Four weekly 1-hour workshops, one a week over 4-week period Training focused on person-centered communication No additional interventions	<i>Attitude:</i> Abbreviated person-centered subscale of Approaches to Dementia Questionnaire <i>Self-reported working practices:</i> Questionnaire developed for study. 14 items about how the participant communicate with residents. Data collected at baseline and 6 weeks following the intervention	<i>Attitude:</i> No significant improvement <i>Self-reported working practices:</i> Significant improvement on 3 of the 14 items
Pleasant et al. (2017) USA OnlineHT	Sample included both formal and informal carers. 144 provided baseline data, 62 at post-intervention and 51 at follow-up. Sample completing the follow-up: 88% female; 71% described themselves as formal carers and 54% as 'licensed' carers.	Four online modules. A minimum of 40 minutes had to be spent on a module before being allowed to progress to the next one. Training provided general introduction to dementia as well as information about PCC. No additional interventions	<i>Applied knowledge:</i> Developed for study. Participants watched a video of a carer assisting someone with dementia and rated how person-centered the care was. Data collected at baseline, post-intervention and at 30-day follow-up	No significant improvement on identification of PCC either at post-intervention or follow-up.
Williams et al. (2018) USA 11 care homes	39 provided data at baseline, 38 post-intervention and 32 at follow-up, 82% were female and all were 'certified nursing assistants' providing direct care	Three 1-hour sessions over a period of 3 weeks. Training focused on PCC communication and had similar content to Williams et al. (2021) No additional interventions	<i>Observed working practices:</i> Participants were videoed during routine care and communication was rated on 8 PCC-related dimensions, using previously evaluated measure. Data collected at baseline, post-intervention and at 3-month follow-up.	Significant improvement at post-intervention on two of the eight dimensions, and this improvement was maintained at follow-up for one dimension. No significant change on other dimensions.

These outcomes were categorized as *observed working practices*.

Findings

The findings were mixed. Although many papers reported improvements following training, some reported a failure to improve and some even reported a deterioration. In terms of the *direct knowledge* outcome, two papers reported significant improvements following training (King et al., 2011; Williams et al., 2021). Conway and Chenery (2016) also reported significant improvement, but this was not significantly greater than the improvement also shown by the control group. For the

applied knowledge outcome, one study reported significant improvement (Williams et al., 2021) one reported no improvement (Pleasant et al., 2017) and one reported significant improvement for the on-site training but not for the online training (Coleman et al., 2015). Outcomes for the PCC subscale of the *Attitudes to Dementia Questionnaire* were also varied. Only one paper (Brooker et al., 2016) reported an improvement; three papers reported no significant change (Conway & Chenery, 2016; Hattink et al., 2015; Passalacqua & Harwood, 2012); and one paper reported a significant decline following training (Torres-Castro et al., 2022). Elpers et al. (2017) analyzed outcomes for individual participants on this

Table 5. Summary of controlled studies.

Author, setting and design	Participants	Intervention	Measures	Results
Ballard et al. (2018) UK 69 care homes RCT: Care homes randomly allocated to intervention or control group. Control group did not receive the training.	Focus was on outcomes for people with dementia; no details about staff participants provided. In intervention homes, 443 people with dementia at baseline and 296 post-intervention; in control homes, 440 and 257 respectively. PCC measure was completed in 62 homes.	Training given to 'champions' who cascaded training to other staff. Delivered over 9-month period. Training not exclusively focussed on PCC Multi-component, including on-site consultation sessions, team formulations and goal planning	<i>Observed working practices:</i> Observed interactions between staff and persons with dementia were coded using the Quality of Interaction Scale. Context of the interactions is unclear. Data collected at baseline and at 9-months (at point when intervention was concluded)	Improvement in ratings for intervention group were significantly larger than any shown by control group
Chenoweth et al. (2014) Australia 38 care homes RCT: Care homes randomly allocated to intervention or control group. Control group did not receive the training.	Focus was on outcomes for people with dementia; no details about staff participants provided. In intervention homes, 142 at baseline, 95 post-intervention and 64 at follow-up; in control homes, 155, 98 and 64 respectively	Five staff from each home received 32 hours of training in PCC, delivered over 6-month period. Training exclusively focussed on PCC, though little detail provided. Multi-component, including on-site supervision in applying principles and telephone support	<i>Observed working practices:</i> Observed interactions between staff and persons with dementia were coded using the Quality of Interaction Scale. Context of the interactions is unclear. Data collected at baseline, post-intervention and at 8 months	No significant improvement in ratings for training group, either at post-intervention or follow-up
Conway and Chenery (2016) Australia 12 centers providing community care RCT: Centers randomly assigned to intervention and control groups. Control group did not receive the training.	Intervention group: 29 at baseline and 19 provided complete data set. Control group, 30 and 16 respectively. Samples providing complete data. Intervention group: 82% female and 5% had nursing qualifications; for control group, 87% and 6% respectively. All direct care workers.	No information provided about length of training. Training focused on PCC communication No additional interventions	<i>Direct knowledge:</i> Communication Support Strategies in Dementia knowledge test, adapted from a measure used in previous studies. <i>Attitude:</i> Person-centered subscale of Approaches to Dementia Questionnaire Collected at baseline, post-intervention and 3-month follow-up for intervention group, but only at baseline and follow-up for controls.	<i>Knowledge:</i> Significant improvement for intervention group at post-intervention and at follow-up, but the improvement was not significantly greater than that shown by the control group at follow-up. <i>Attitude:</i> No significant improvement in intervention or control groups.
Hattink et al. (2015) Netherlands & UK Online RCT – participants randomly allocated to intervention or control group. Training made available to control group after completion of the research.	46 recruited; 10 in intervention group provided complete data set and 14 in control group. Sample providing complete data set: Intervention group – 80% female; for control group 100% female. All described as 'professional caregivers.'	Training delivered online, available for 4-month period. Unclear how long training took. Training covered general issues about dementia and providing dementia care, including person-centered communication. No additional interventions	<i>Attitude:</i> Person-centered subscale of Approaches to Dementia Questionnaire Collected at baseline and post-intervention	No significant improvement in intervention group, and not significantly greater than control group.
Jacobsen et al. (2017) Norway 24 care homes RCT: Care homes randomly allocated to intervention or control group. Control group offered the training after completion of the research.	In intervention group, 122 at baseline, 84 at follow-up; in control group, 127 and 120 respectively. Detailed information about participants not provided. Across all 24 homes, the percentage of registered nurses was 40%.	Training was given over 2 full days. Training focussed on a decision-making model to facilitate the use of a person-centered approach rather than restraint in challenging care situations. Multicomponent: One-hour monthly coaching sessions over a 6-month period, focused on helping staff apply the decision-making model to real situations.	<i>Self-reported working practices:</i> Participants completed the Person-Centered Care Assessment Tool (PCAT) rating how person-centered they considered the care provided by their care home. Data collected at baseline and after the end of the 6-month coaching period.	No significant improvement

(Continued)

Table 5. (Continued).

Author, setting and design	Participants	Intervention	Measures	Results
Lood et al. (2020) Australia, Norway and Sweden 6 nursing homes Homes assigned to intervention and control groups, but this was not random. Control group received one lecture on PCC immediately after collection of baseline data.	Data were collected from relatives of people living in the home. Baseline data provided by 459 relatives, with 149 providing post-intervention and 132 follow-up data. Staff receiving training: 90% women and 88% with a professional qualification. All were direct care staff.	Training was given over a 14-month period. No further details given about number of hours/sessions. Training focused on understanding of PCC and how this translates into caring and the physical and social environment. Additional interventions: Training involved identifying how site-based reflection and evaluation could take place, and follow-up discussions of this reflection/evaluation.	<i>Observed working practices</i> Relatives completed the Person-Centered Climate Questionnaire, rating how person-centered they considered the overall service provided by the home. Data collected at baseline, post-intervention, and at 6 months follow-up.	No significant improvement at post-intervention or at follow-up for intervention group, with scores showing a non-significant decline.
Torres-Castro et al. (2022) Mexico 8 care homes RCT: Care homes randomly allocated to intervention or control group. Control group did not receive the training.	In intervention group, 57 at baseline, post-intervention and follow-up (i.e. no attrition); in control group, 39 at all three points. 72% female in intervention group and 55% in control group. No details about work role or qualifications.	Participants received 2 full days of training. Training not exclusively focussed on PCC No additional interventions	<i>Attitude</i> : Person-centered subscale of Approaches to Dementia Questionnaire Collected at baseline, post-intervention (12 weeks) and follow-up (24 weeks)	Significant decline in scores for the intervention group, for both baseline vs. post-intervention and baseline vs. follow-up.
Williams et al. (2021) USA 7 care homesHT RCT: Care homes randomly allocated to intervention or wait-list control. Control group received intervention after the experimental group completed the post-intervention measures.HT	Intervention group: 147 completed baseline communication rating task, 134 completed baseline knowledge task; 67 completed post-intervention communication task and 94 completed post-intervention knowledge task Wait-list control: figures were 72, 64, 64 and 64 respectively, and then 35 completed both tasks following receipt of training. Of the 219 participants who completed the baseline communication rating task, 93% were female and 25% were professional nurses. All were direct care staff.	Three 1-hour modules delivered online. The modules did not have to be completed in one sitting. Training focused on PCC communication and had similar content to Williams et al. (2018). No additional interventions	<i>Direct knowledge</i> : Questionnaire assessing knowledge of person-centered communication. <i>Applied knowledge</i> : Participants rated video of interaction between a carer and a person with dementia on four dimensions, including two related to person-centered communication. Data collected at baseline and post-intervention	<i>Direct knowledge</i> : In the first phase of the study (i.e. prior to control group receiving the intervention), participants in the intervention group showed significantly greater improvement than the control group. When scores for both groups were combined, there was a significant improvement in scores from baseline to post-intervention. <i>Applied knowledge</i> : When both groups were combined, there was a significant improvement on both person-centered dimensions. Separate analysis for each group not reported.

questionnaire: Two showed reliable improvement, three showed no change, and two showed reliable deterioration.

The primary aim of training is to change actual working practices. Again, the findings about this were mixed. In terms of self-reported changes in communication, Passalacqua and Harwood (2012) reported significant improvement on only three out of 13 dimensions. For participants who rated the quality of care provided by the service in which they worked, Jacobsen et al. (2017) reported no improvement, while Edvardsson et al. (2014) reported significant improvement

on one measure but no change on another. Observations are more likely to provide a less biased assessment than self-report. Again, findings were mixed. While two studies reported significant improvement (Ballard et al., 2018; Barbosa et al., 2017), two reported no significant change (Chenoweth et al., 2014; Lood et al., 2020) and one reported significant improvement on only two of the eight dimensions that were evaluated (Williams et al., 2018).

Eight studies included a follow-up evaluation of outcome as well as a post-intervention evaluation, ranging from 30 days to 8 months. Four of these

studies failed to observe any significant improvement at both post-intervention and follow-up. Of the remaining four, Barbosa et al. (2016) did not provide a relevant statistical analysis and Williams et al. (2018) reported that there was significant post-intervention improvement on two out of eight dimensions and that this was sustained at follow-up. In Brooker et al. (2016), there was a post-intervention improvement in attitude that was sustained at follow-up (although participants continued to receive supervision during the follow-up period); and in Torres-Castro et al. (2022) a post-intervention decline in attitude was sustained at follow-up.

In terms of effect sizes, Figure 2 provides forest plots for the five analyses. The largest effect was for direct knowledge (standardized mean difference = 0.60). Using the benchmarks suggested by Sawilowsky (2009) ($>.1$ = very small; $>.2$ = small; $>.5$ = medium; $>.8$ = large; >1.2 = very large), this represents a medium-sized effect. Smaller effects were obtained for the ability of participants to apply what they had learnt to identifying examples of good and bad care practice (SMD = 0.29), and for the impact on working practice, both self-reported (SMD = 0.06) and observed (SMD = 0.25). For attitude change, there was a very small negative change (SMD = -0.17).

Discussion

This review provided little evidence that educational interventions can provide reliable and substantial benefits in terms of ensuring that staff provide person-centered care. Viewed from the perspective of significance testing, results were mixed, with some studies reporting significant improvement, some reporting no significant effect and some that evaluated attitude change even finding a significant decline in outcome following training. The analysis of effect sizes similarly suggested limited benefits. There was a medium effect on direct knowledge but the effect size was disappointingly small for applied knowledge and work practices. The overall effect on attitudes represented a reduction in person-centredness. There was also little evidence that educational interventions can bring about longer-term positive change. Of the eight studies that included a follow-up measure,

only two reported sustained positive change. However, in Williams et al. (2018) this change occurred on only two out of the eight dimensions measured, and in Brooker et al. (2016), participants continued to receive supervision during the follow-up period.

These effect sizes need to be considered in the context of the high probability that, because of the failure to control some major sources of bias, the effect sizes exaggerated the effectiveness of the intervention (although, in the case of the studies that evaluated attitude, there were some methodological issues, discussed below, that may have served to reduce the effect size). A range of factors may have inflated effect size. First, there was a high attrition rate in most of the studies that was unaccounted for in the statistical analysis (Tables 2 and 3). Participants who find the training valuable seem more likely to remain engaged with it than those who find it unhelpful. Second, some of the outcome measures (specifically, attitude measures and self-report measures about working practices) were subject to social desirability bias that would increase the apparent effectiveness of the intervention. Another inflationary influence is the fact that the methods of assessing outcome in some studies were likely to result in practice effects such that the repeat of the assessment would result in higher PCC scores regardless of any impact of the training. For example, following a knowledge test, participants can think about their answers, discuss them with colleagues etc., and this is likely to lead to better performance on the second test. This seems a likely explanation of the fact that, in the study by Conway and Chenery (2016), participants in the control group also showed a significant increase in knowledge scores when before and after scores were compared. Finally, several of the studies included additional components to the intervention (Tables 4 and 5), such as participants being supervised during the provision of routine care to enhance their application of what they had learnt (Barbosa et al., 2016), which seem very likely to have increased the size of the effect.

Developing knowledge and skills

Overall, there was only a medium effect size in terms of improvements in direct knowledge. This

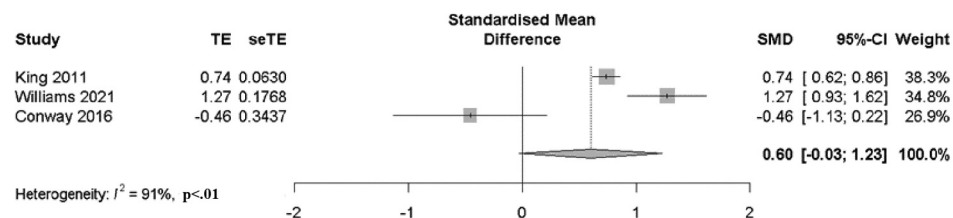
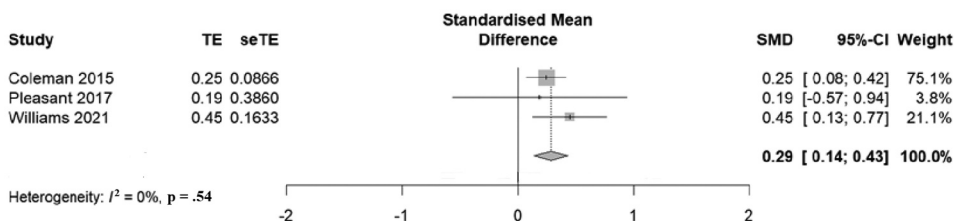
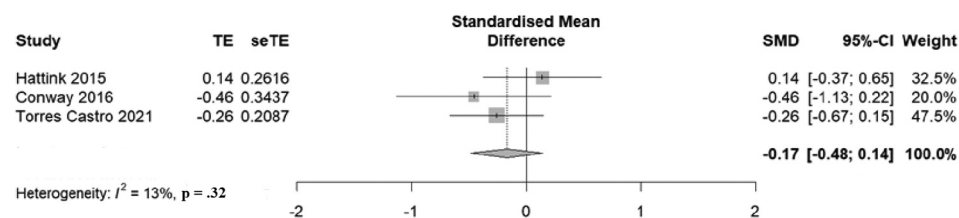
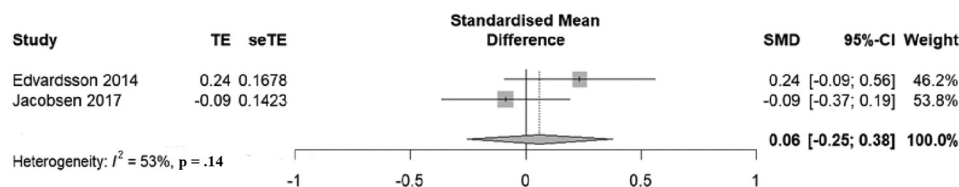
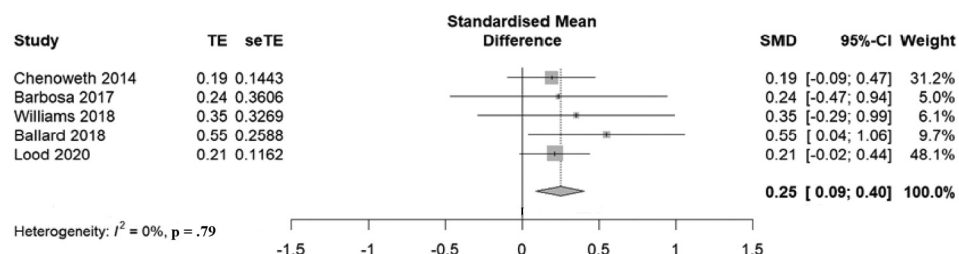
Direct knowledge:**Applied knowledge:****Attitude:****Self-reported working practice:****Observed working practice:**

Figure 2. Forest plots for the five different types of outcome. [Explanatory note to appear beneath Figure 2] Note: Each of the SMDs from the studies are plotted and shown as a square, with the 95% confidence interval displayed. The size of the square represents the weighting of the study within the random effects model. The vertical line at 0 on the x axis represent the value associated with the null hypothesis; if the 95% confidence intervals for an SMD cross this vertical line then the effect is non-significant. The weighted average of the SMDs (i.e., the summary effect) is shown as a diamond, the center of which represents the weighted average, and the left and right extremities represent the 95% confidence intervals of the estimate.

is somewhat surprising, given that this simply reflects the participants' ability to understand and remember what they have been taught. Consistent with this finding, studies that involved interviewing staff working in dementia services have found that those who have received training in PCC often struggle to articulate its meaning, and that there are misunderstandings and gaps in their knowledge (Colomer & de Vries, 2016; Skaalvik et al., 2010). In part, this finding might stem from the abstract nature of the principles of PCC that increase the difficulty of understanding them. Indeed, some have gone further and argued that the principles are unclear and ambiguous, further complicating their understanding (Clissett et al., 2013; Kogan et al., 2016). In part, the finding may also reflect shortcomings in the educational methods used. Based on a review of educational provision in dementia services, Surr and Gates (2017) made recommendations about educational methods, such as avoiding independent e-learning, the availability of in-service experts, and providing a minimum of the equivalent of one day's training, preferably in full day sessions or in sessions lasting at least one hour. Similarly, Rapaport et al. (2017) reported greater effectiveness for educational interventions that included individual training and ongoing supervision as well as didactic group learning. These recommendations were not always satisfied in the studies included in the present review.

Limited understanding of PCC may also contribute to the lack of any substantial benefit in terms of applying the principles to rating imaginary and real examples of care provision in terms of how person-centered they were. If staff do not understand the principles, then they will find it difficult to determine how to provide PCC in particular situations. Consistent with this, participants in qualitative studies have highlighted the gap between theory and practice as a major obstacle to their application of training (Kong et al., 2022). One approach to addressing this issue is to provide more information to staff about how to be PCC in particular aspects of their working practice, rather than expecting them to work this out for themselves (Surr et al., 2021a). For example, in addition to the structured training session about communicating in a person-centered way, Conway and Chenery (2016) provided follow-up sessions in

which participants were observed conversing with someone living with dementia and then provided with feedback about how well they were following the principles. Providing more detailed and specific information about how to be PCC in practice is also a feature of *dementia care mapping*, an alternative approach to fostering PCC (Brooker & Surr, 2006). This involves training a small group of staff; these staff then formally observe working practices; and meetings are then held with all staff to discuss the observations, to highlight good and poor practices, and to devise action plans to improve the quality of care.

It may also be helpful to consider this issue in the context of broader research about procedural/skill learning in which people acquire the ability to make specific responses that comply with general rules without necessarily ever knowing what the general rules are (i.e. implicitly; Reber et al., 2019). Learning occurs not through being taught explicit rules and then learning how to apply those rules in practice, but through frequent exposure to a wide range of different specific situations in which the individual makes a response or observes others responding, and is given timely feedback about whether the responses are compliant with the rules or not. For example, children learn complex grammatical rules of speech not by being told what those rules are and then working out how to apply the rules in each situation (the inefficient declarative route, which adult learners of a second language usually use), but through frequent exposure to correct application of the rules by themselves and others in a very wide range of specific circumstances and feedback about errors (Cochran et al., 1999; Reber et al., 2019; Smalle et al., 2017). The learning is not explicit: Children learn to apply the rules successfully without ever knowing (in a declarative sense) what the rules are. This is not to say that explicit learning of the rules is never helpful (adult learners of a second language do make some progress), but it is not necessary and not always the most effective method of acquiring a skill.

In the present context, this comparison with procedural/skill learning research suggests that the most effective method of learning how to provide

PCC may be for staff to engage in, and observe others in, a wide range of specific care situations, along with timely feedback about whether the care was person-centered or not. In practical terms, this might be achieved by working alongside someone skilled in PCC who models good practice and provides regular feedback to others about their approach. This aligns, in part, with the WHELD approach (Fossey et al., 2019) which involves training some existing members of staff to act as “Dementia Champions” to model and cascade good practice down to work colleagues. Another option would be work placements in which staff from other services work for several months within a service which is known to provide a high standard of PCC. This experience could provide them with more effective opportunities for acquiring the skill of providing PCC.

Changing attitudes

Findings from studies that measured changes in attitude following training were very mixed, with evidence for significant improvement, no significant change and significant deterioration. The summary effect was negative, although this was very small (-0.17). To some extent, this outcome may have been influenced by methodological flaws. The three studies included in the calculation of the summary effect size all involved control groups. In Conway and Chenery (2016), the control group scored nearly 1 standard deviation higher at baseline than the training group, which would have reduced the effect size. The reverse was the case for the study by Hattink et al. (2015) in which the control group scored nearly 1 standard deviation lower, but the results from this study appear to have been distorted by ceiling effects. Methodological flaws are, however, unlikely to provide the full explanation of the findings about attitude change. The study by Torres-Castro et al. (2022) suffered from neither of these problems (baseline differences and ceiling effects), but the training group still scored lower post-intervention than the control group and showed a significant before-after decline.

Improving working practice

The review suggested that the educational programmes had a minimal impact on improving the working practices of the participants. Although limited understanding and skill may have contributed to this, it is unlikely that this provides a complete explanation. Other studies, focused on aspects of care unrelated to PCC, have measured both knowledge and working practice, and found that staff failed to change their working practices even though they knew what to do (e.g., Cohen-Mansfield et al., 1997). Approaches such as *dementia care mapping* that do focus on providing more specific guidance about working practice have also found it difficult to make an impact. A recent large scale randomized controlled trial of dementia care mapping found that implementation of PCC did not increase following the intervention (C. A. Surr et al., 2021b; Surr et al., 2020a).

Such findings have led many to argue that organizational and systemic changes are required alongside training to create an environment in which staff are supported to apply PCC in practice (Aylward et al., 2003; Clissett et al., 2013; Fossey et al., 2019; Griffiths et al., 2019; Hunter et al., 2016b; Surr et al., 2020). In qualitative studies, staff have also highlighted that organizational issues prevent them implementing more person-centered care (Griffiths et al., 2019; Kong et al., 2022; Røsvik & Mjørud, 2021; Watson & Hatcher, 2021).

To understand why organizational and systemic changes are needed, and what form those changes should take, it is useful to consider the issue from the perspective of models of behavior change such as the Theory of Planned Behavior (Ajzen, 2011), the Health Belief Model (Abraham & Sheeran, 2005) and the Behavior Change Wheel (Michie et al., 2011). Although these approaches differ in constructs and emphasis, common components relevant to the present context include the idea that, if a person is to behave in a certain way, they need to know what to do; they need to be motivated to do it; they need to have the opportunity to it; and they need to be reminded to do it (or, considered from the perspective of skill learning, they need to be cued to do it). The educational approach to improving PCC addresses knowing what to do and, to some extent, motivation (through its impact on attitudes),

but it does not address opportunity, reminder/cues to action and many aspects of motivation. An example can illustrate the importance of these other factors. PCC requires staff to spend more time with residents, and to provide care and support in a way that is not necessarily the most time or resource efficient way of getting something done (e.g., it is quicker to feed someone than to encourage them to feed themselves). Yet staff are expected to do this in the context of under-resourced services that prioritize quick and efficient task completion (Clissett et al., 2013; Colomer & de Vries, 2016; Cooper et al., 2013; Hunter et al., 2016a; Rapaport et al., 2017). Although the staff member may know they should be encouraging the person to feed themselves (knowledge), there may be other demands on their time that reduce the time the staff member can allocate to mealtimes (opportunity) and create pressure from others to get the job done quickly (motivation). Low staffing levels may also mean the absence of any senior member of staff at mealtimes to provide explicit and implicit reminders of the expected standard of care (motivation and cues to action). Addressing these problems would require organizational change, such as higher staffing levels and shifting to a culture that values quality over the quantity of work completed.

Conclusions

To promote the implementation of PCC by staff, the great majority of dementia services rely on educational sessions that explain the principles of PCC. Evidence from this review suggests that such training may not be sufficient to bring about meaningful change. Staff may struggle to understand the principles because of their abstract nature and may find it difficult to translate the principles into working practice. Education about the general principles should be supplemented by steps to ensure this knowledge is translated into an understanding (not necessarily an explicit understanding) of how PCC should be delivered in practice. Options include clinical supervision, “dementia champions” to model and cascade good working practices to colleagues, and the provision of work placements in services known to provide a high standard of person-centered care. Furthermore, developing staff understanding of what needs to be done, although necessary, is not sufficient to change

working practice. Organizational and systemic changes are also required to ensure that staff are motivated to provide person-centered care and are given sufficient opportunity and cues to action.

Clinical implications

- Relying on educational training alone is unlikely to be sufficient for establishing high standards of person-centered care in dementia services.
- To establish skills in the delivery of such care, education may need to be supplemented by other learning methods such as working alongside those who can model good practice.
- Establishing these skills may not be sufficient to ensure their use in everyday working practice. Organizational support is also needed to ensure that staff have the required cues, motivation and opportunity to deliver person-centered care.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by The Alzheimer’s Society, United Kingdom under Grant 459 AS-PhD-18-012

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Data availability statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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