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THE EFFECTIVENESS OF THE EDUCATIONAL INTERVENTION ON PROFESSIONAL NURSES' PERSON-CENTRED CARE COMPETENCE –

Mari Pakkonen

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to my family,
Petri, Tuomas, Nea and Topias

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ABSTRACT

Person-centred care is linked to quality of care. The goal of person-centred care is a meaningful life, which is particularly relevant in long-term care, where residents live their everyday lives. This two-phased study aimed to develop a continuing education intervention and evaluate its effectiveness in promoting professional nurses' person-centred care competence.

In Phase I, the 'Person First - Please' continuing education intervention was developed based on the literature reviews. In Phase II, i) the level of nurses' person-centred care competence, their perceptions of person-centred care climate and the relationship between them were investigated by a cross-sectional survey (n = 200 nurses) using validated international instruments; ii) the effectiveness of the intervention was tested using a quasi-experimental design. Cluster sampling was used, including long-term care settings for older people from two cities in the western Finland region. The data were collected from nurses (n = 77 in the intervention group, n = 123 in the control group), residents and their next of kin (n = 18 dyads in intervention units, n = 21 dyads in control units) using validated international instruments at three time points. iii) a mixed-method process evaluation was used to assess the fidelity and acceptability of the intervention implementation. The process evaluation data were collected from nurses in the intervention group using a developed scale (n = 51) and focus group interviews (n = 14). The fidelity of the intervention implementation was observed by nurse managers (n = 3) using a developed structured questionnaire. The data were analysed using statistical methods and content analysis.

Person-centred care competence and perceived person-centred care climate were found to be associated. The intervention improved nurses' person-centred care competence and strengthened the perceived person-centred care climate by the nurses, the residents, and their next of kin. The intervention was implemented as planned and was found to be acceptable. The 'Person First – Please' intervention can be an effective way to strengthen nurses' person-centred care competence and can be implemented in Finnish long-term care units. Further research is needed to conduct a larger-scale study with multiple clusters and a longer follow-up time to ensure the stability of the results.

KEYWORDS: climate, competence, continuing education, long-term care, nursing older people, person-centred care,

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TIIVISTELMÄ

Persoonakeskeinen hoitotyö liitetään hoitotyön laatuun. Sen tavoitteena on elämän merkityksellisyys, mikä on olennaista erityisesti pitkäaikaishoidon kontekstissa, jossa asukkaat elävät jokapäiväistä elämäänsä. Tämän kaksivaiheisen tutkimuksen tarkoituksena oli kehittää täydennyskoulutusinterventio ja arvioida sen tehokkuutta edistää hoitajien persoonakeskeisen hoitotyön kompetenssia.

Tutkimuksen ensimmäisessä vaiheessa kehitettiin ”Ihminen ensin – kiitos” -täydennyskoulutusinterventio. Toisessa vaiheessa i) Toteutettiin kyselytutkimus, jossa analysoitiin hoitajien persoonakeskeisen hoitotyön kompetenssin tasoa, heidän käsityksiään persoonakeskeisen hoidon ilmapiiristä sekä näiden välistä yhteyttä (n=200 hoitajaa) validoiduilla kansainvälisillä mittareilla. ii) Interventio vaikuttavuutta testattiin kvasikokeellisella asetelmalla käyttäen klusteriotantaa kahden länsisuomalaisen kaupungin pitkäaikaishoidon yksiköistä. Interventiotutkimuksen aineisto kerättiin hoitajilta (n=77 interventioryhmässä, n=123 kontrolliryhmässä), asukkailta ja heidän läheisiltään (n=18 paria interventio-osastoilla, n=21 paria kontrolliosastoilla) validoiduilla kansainvälisillä mittareilla kolmessa aikapisteessä. iii) Monimenetelmäisesti toteutetussa prosessiarvioinnissa interventioryhmän hoitajat (n=51) arvioivat intervention toteutuksen uskottavuutta sekä hyväksyttävyyttä tätä varten kehitetyllä mittarilla ja fokusryhmä-haastatteluilla (n=14). Lähiesihenkilöt (n=3) havainnoivat intervention toteutusta tätä varten kehitetyn strukturoidun lomakkeen avulla. Aineistot analysoitiin tilastollisin menetelmin ja käyttäen sisällön analyysia.

Persoonakeskeisen hoitotyön kompetenssi ja koettu persoonakeskeisen hoitotyön ilmapiiri olivat yhteydessä toisiinsa. Interventio kehitti hoitajien persoonakeskeisen hoitotyön kompetenssia, jonka hoitajat, asukkaat ja heidän läheisensä tunnistivat persoonakeskeisen ilmapiirin vahvistumisena. Interventio toteutettiin suunnitellusti ja on hyväksyttävästi toteutettavissa. ”Ihminen ensin – kiitos” -interventio voi olla tehokas keino vahvistaa hoitajien persoonakeskeisen hoitotyön osaamista ja se osoittautui mahdolliseksi toteuttaa suomalaisissa pitkäaikaishoidon yksiköissä. Jatkotutkimusta tarvitaan laajemman tutkimuksen toteuttamiseksi ja pidempää seuranta-aikaa tulosten pysymisen varmistamiseksi.

AVAINSANAT: hoitotyö, ikääntynyt, ilmapiiri, kompetenssi, persoonakeskeinen hoitotyö, pitkäaikaishoito, täydennyskoulutus

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Abbreviations

CE	Continuing Education
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CG	Control Group
CReDECI2	Criteria for Reporting the Development and Evaluation of Complex Interventions in Healthcare: Revised Guideline
ECP	Elderly Care Professional
EQF	European Qualifications Framework
ERIC	Education Resources Information Center
FA-Q	Fidelity and Acceptability Questionnaire
H	Hypothesis
IG	Intervention Group
JTS	Jigsaw Teaching Strategy
LPN	Licensed Practical Nurse
LTC	Long-Term Care
MEDLINE	Medical Literature Analysis and Retrieval System Online
MMSE	Mini-Mental State Examination
MRC	Medical Research Council
NA	Nursing Assistant
PCC	Person-Centred Care
PCC-S	Patient-Centred Care Competence Scale
PCQ-P	Person-Centred care Questionnaire Patient version
PCQ-S	Person-Centred care Questionnaire Staff version
PFP	Person First – Please continuing education intervention
QSEN	Quality and Safety Education for Nurses
OT	Observation Tool
RN	Registered Nurse
RQ	Research Question
RR	Response Rate

List of Original Publications

This dissertation is based on the following original publications, which are referred to in the text by their Roman numerals:

I Pakkonen, M., Stolt, M., Charalambous, A, & Suhonen, R. Continuing education interventions about person-centered care targeted for nurses in older people long-term care: a systematic review. *BMC Nursing*, 2021; 20:67. doi.org/10.1186/s12912-021-00585-4

II Pakkonen, M., Stolt, M., Edvardsson, D., Pasanen, M. & Suhonen, R. Person-centred care competence and person-centred care climate described by nurses in older people's long-term care – A cross-sectional survey. *International Journal of Older People Nursing*, 2023; 18, e12532. doi.org/10.1111/opn.12532

III Pakkonen, M., Stolt, M., Edvardsson, D., Charalambous, D., Pasanen, M. & Suhonen, R. Effectiveness of an educational intervention to increase professional nurses' person-centred care competence in long-term care of older people – quasi-experimental study. *Scandinavian Journal of Caring Sciences,* 2023;00:1–15. doi.org/10.1111/scs.13230

IV Pakkonen, M., Charalambous, D., Stolt, M., Pasanen, M. & Suhonen. Fidelity and acceptability of the continuing educational intervention of person-centred – mixed-method study. *(Manuscript)*

1 Introduction

This study focuses on professional nurses' person-centred care (PCC) competence and perceptions of PCC climate as part of the service culture in long-term care (LTC) settings for older people. This study is applied research in nursing science and is situated at the interface among gerontological nursing research, nursing education research and health service research. It covers all major concepts of nursing science (Fawcett, 1984; Kim, 2010, p. 25–26;). In LTC settings for older people, nurses are required to possess multifaceted (Kiljunen et al., 2018) and comprehensive (Bing-Jonsson et al., 2015a) competence, which fits well with Kim's typology and the holistic view of nursing (Kim, 2010 , p. 25–26).

The main concept in this study is PCC, which is based on recognising the uniqueness of a person, partnership with the person, meeting the needs of the person, shared decision-making, engagement in the care process and a workplace culture where there is space and power to practice PCC (Byrne et al., 2020). PCC is particularly suited to the context of LTC, whose goal is to provide the best possible quality of life, with some extent of independence, autonomy, participation, personal fulfilment and human dignity (World Health Organization, 2021). In the literature, PCC appears to be sometimes a synonym used for individualised nursing care (Morgan & Yoder, 2012). However, both the individual approach in individualised care (Suhonen et al., 2019) and the person approach in PCC (Håkansson Eklund et al., 2019) deliver nursing care. PCC is linked to the person-centredness of individuals by considering the person's entire life. The concept of PCC is especially appropriate in LTC settings for older people, as the last years of life can be made meaningful by including PCC (Håkansson Eklund et al., 2019).

Older people are not homogeneous but even more heterogeneous than expected (Kortelainen et al., 2020). Over 40,000 people over 75 years old in Finland lived in LTC settings for older people at the end of 2022 (Finnish Institute for Health and Welfare, 2023). The projected population growth of older people over 85 years from 2019 to 2040 was 125.4% in Finland (OSF, 2024), and 113.9% in Europe from 2019 to 2050 (Eurostat, 2024). In 2040, the number of people over 85 years in Finland is predicted to be over 339,000 (OSF, 2024). The shortage of nurses in many countries (World Health Organization, 2020) can pose challenges to the availability and

quality of LTC. Ensuring human care highlights the person in older people and the need for the development of PCC as part of quality nursing (World Health Organization, 2017).

Person-centredness is a key principle in the European Union's quality standards of nursing in LTC settings. Nursing care, especially in LTC settings, aims to consider and respect individuals' needs and understand the older persons' involvement in service planning, shared decision-making and quality assessment (The Council of the European Union, 2022/C 476/01, 2022.) In LTC settings for older people, dignity, beliefs, needs and privacy for the right to make decisions about their care and the quality of their lives have to be respected (United Nations 46/91, 1991). At the national level, through legislation regulations, efforts have been made to protect the rights of older people and ensure human care and treatment (Act on Supporting the Functional Capacity of the Older Population and on Social and Health Care Services for Older Persons, 980/2012). Based on laws, regulations and ordinances, quality recommendations for nursing care have been provided, where one of the vital elements is individual needs with age-friendliness of living environments (Ministry of Social Affairs and Health, 2024:4).

Promoting PCC is essential from the perspectives of both service providers and service users. From the perspective of service providers, PCC is associated with quality of care (Edvardsson et al., 2017) and can reduce stress and job fatigue among professional nurses and improve job satisfaction (Barbosa et al., 2015). From the perspective of service users, PCC is associated with quality of life (Terada et al., 2013; Yasuda & Sakakibara, 2017; The Council of the European Union, 2022/C 476/01, 2022), and is not limited to health problems only (Håkansson Eklund et al., 2019). Working according to PCC can lead to better interaction and caring culture (Barbosa et al., 2016; Boersma et al., 2019; Gillis et al., 2019a); improve everyday life, such as night-time sleeping (Li et al., 2017) and oral healthcare (Sloane et al., 2013); and reduce the use of antipsychotic drugs, which are widely used to treat people with memory disorders (Azermai et al., 2017; Richter et al., 2019). The quality of LTC is measured in line with PCC from different perspectives, such as resources, care delivery, quality of life and functionality (European Commission. Directorate General for Employment, Social Affairs and Inclusion., 2021).

Despite the various benefits of PCC, evidence of neglecting the care of older people in LTC facilities exists, which might impact their safety, privacy, respect and dignity (Kalánková et al., 2021; Kangasniemi et al., 2022). Neglecting care indicates the need for CE for professional nurses to promote their PCC competence. The general competence of nurses has been studied from various perspectives, such as clinical practice (O'Rourke et al., 2023), culture (Vella et al., 2022), management (Gunawan et al., 2022), informatics (Strudwick et al., 2019; Kleib et al., 2021) and interprofessional collaboration (Clausen et al., 2017). However, there is a lack of

research on the competence of professional nurses to provide PCC, especially in LTC settings for older people. A possible explanation for this is the lack of sufficient number of instruments for measuring PCC competence (Hwang, 2015).

This two-phased study aims to develop the continuing education (CE) intervention of PCC to promote nurses' PCC competence in LTC settings for older people and evaluate its effectiveness. A CE intervention called person first - please (PFP) targets professional nurses [registered nurses (RNs), elderly care professionals (ECPs), European qualifications framework (EQF level 6), licensed practical nurses (LPNs) (EQF level 4) and nursing assistants (NAs), later named in this summary as nurses]. The development phase included literature reviews to examine previous PCC interventions and pedagogical methods in CE interventions targeted at nurses in LTC settings for older people (Paper I). In addition, it examined perceptions and levels of PCC competence and PCC climate among the targeted nurses. Based on this synthesis of literature reviews and expert teams' knowledge, the PFP intervention was developed. The intervention implementation and evaluation phase examined the level of nurses' PCC competence and associations between PCC and PCC climate (Paper II). The effectiveness of the PFP intervention targeted at nurses in LTC settings for older people was tested and assessed by nurses, residents and their next of kin (Paper III). The fidelity and acceptability of the PFP intervention were assessed by the nurses and nurse managers in the intervention group (IG) (Paper IV). This study aimed to develop and test the CE intervention of PCC to promote nurses' PCC competence and to explore its relationship with PCC climate as part of a change in the service culture (Figure 1).

The aim: To develop and evaluate the effectiveness of the Person-First - Please continuing education intervention of person-centred care targeted at professional nurses in Long-Term Care settings for older people.

PHASE I 2019–2021 **Paper I, Summary**

DEVELOPMENT PHASE

Purpose: To identify existing evidence on educational interventions and pedagogical methods, intervention development and instrumentation

PHASE II 2021–2022 **Paper II, III, IV**

INTERVENTION IMPLEMENTATION AND PROCESS EVALUATION PHASE

II a) BASELINE (Paper II)

Purpose: To analyse the level of PCC competence and perceptions of PCC climate, as well as the associations between PCC competence and PCC climate.

II b) INTERVENTION IMPLEMENTATION (Paper III)

Purpose: To evaluate the effectiveness of an educational intervention, the PFP

II c) PROCESS EVALUATION (Paper IV)

Purpose: To evaluate the fidelity and acceptability of an educational intervention, the PFP

SUMMARY 2024

Description of the present levels of nurses' person-centred care competence and perceptions of person-centred care climate by nurses, residents and their next of kin in long-term care settings for older people.

Description of the effectiveness of an educational intervention, the Person First – Please.

Description of the fidelity and acceptability of an educational intervention, the Person First – Please.

Implications for policymaking, nursing education and nursing practice.

Figure 1. Study phases.

2 Theoretical Background

The theoretical background of this study is based on scientific literature (Phase I). Four reviews (I–IV) were conducted (Table 1) to identify, evaluate and synthesise scientific knowledge about the identification of the studies regarding CE, defining the concepts, developing the intervention and seeking suitable instruments for study. This section first describes the literature reviews conducted in the study. Second, the definitions of PCC, PCC competence and PCC climate are illustrated. PCC competence, climate and their known levels are described, especially in LTC settings for older people. Third, an updated systematic literature review (Paper I) of earlier CE interventions of PCC and existing pedagogical methods is provided. Finally, gaps in the literature are presented. All literature reviews were updated in December 2023.

2.1 Literature reviews

Altogether, four literature reviews were conducted. **Review I** was a systematic literature review of existing PCC interventions and pedagogical methods (Phase 1, Research Questions 1 and 2). A systematic search from five databases [PubMed (Medline), CINAHL, PsycINFO, Cochrane and ERIC] using keywords and Boolean operators without any time limit was conducted in June 2019 and updated in June 2020 (Paper I) (Appendix 1). The last update was conducted in December 2023. The inclusion criteria were as follows: 1) experimental study designs as random control trials (RCTs), controlled clinical trials and quasi-experimental and pre-post-test studies with or without control groups (CGs); 2) intervention studies with PCC elements; 3) studies focused on CE interventions targeted at nurses in LTC settings for older people and 4) studies that have been peer-reviewed and published in English. The exclusion criteria were as follows: 1) implementation studies or feasibility studies not assessing any outcomes and 2) studies other than PCC-based CE interventions targeted at nurses in LTC settings for older people.

Table 1. Literature reviews.

NUMBER	AIM	TIME OF SEARCH	DATABASES	SEARCH TERMS	LIMITERS	NUMBER OF FULL TEXTS INCLUDED
I	To analyse existing CE interventions of PCC and its pedagogical methods in LTC settings targeted for nurses in LTC settings for older people	6/2019 updated 6-7/2020, 12/2023	PubMed (Medline) CINAHL PsycINFO Cochrane ERIC	person-centred care OR person-centered care AND older people AND long-term care (Appendix 1.)	no time limit, English	27 +7
II	To define the concept of PCC	6/2020 updated 12/2023	PubMed (Medline) CINAHL PsycINFO	person-centred care OR person-centered care AND concept	no time limit, English	34
III	To define the concept of PCC competence and describe nurses' PCC competence level	7/2020 updated 6-7/2021, 12/2023	PubMed (Medline)	person-centred care OR person-centered care AND competence OR competency	no time limit, English	20
IV	To define the concept of PCC climate and describe the level of assessed PCC climate	7/2020 updated 6-7/2021, 12/2023	PubMed (Medline)	person-centred care OR person-centered care AND climate OR environment	no time limit, English	33

The studies were retrieved systematically in four steps (Moher et al., 2009) (Paper I), including the last update (Figure 2). For inclusion, all articles were screened first for the titles and abstracts and then the full text. The doctoral researcher and both supervisors were involved in all steps, except for the most recent update, which was conducted by the doctoral researcher only. Quality appraisal was recorded using the Joanna Briggs Institute checklist for quasi-experimental studies (The Joanna Briggs Institute, 2017) but was not used as part of the inclusion criteria. The search yielded 27 research articles (n = 27, Paper I), which was then updated, resulting in seven scientific empirical research articles (n = 7, Summary). The review results in Paper I were used to develop the PFP intervention background, content, theoretical framework and teaching methods.

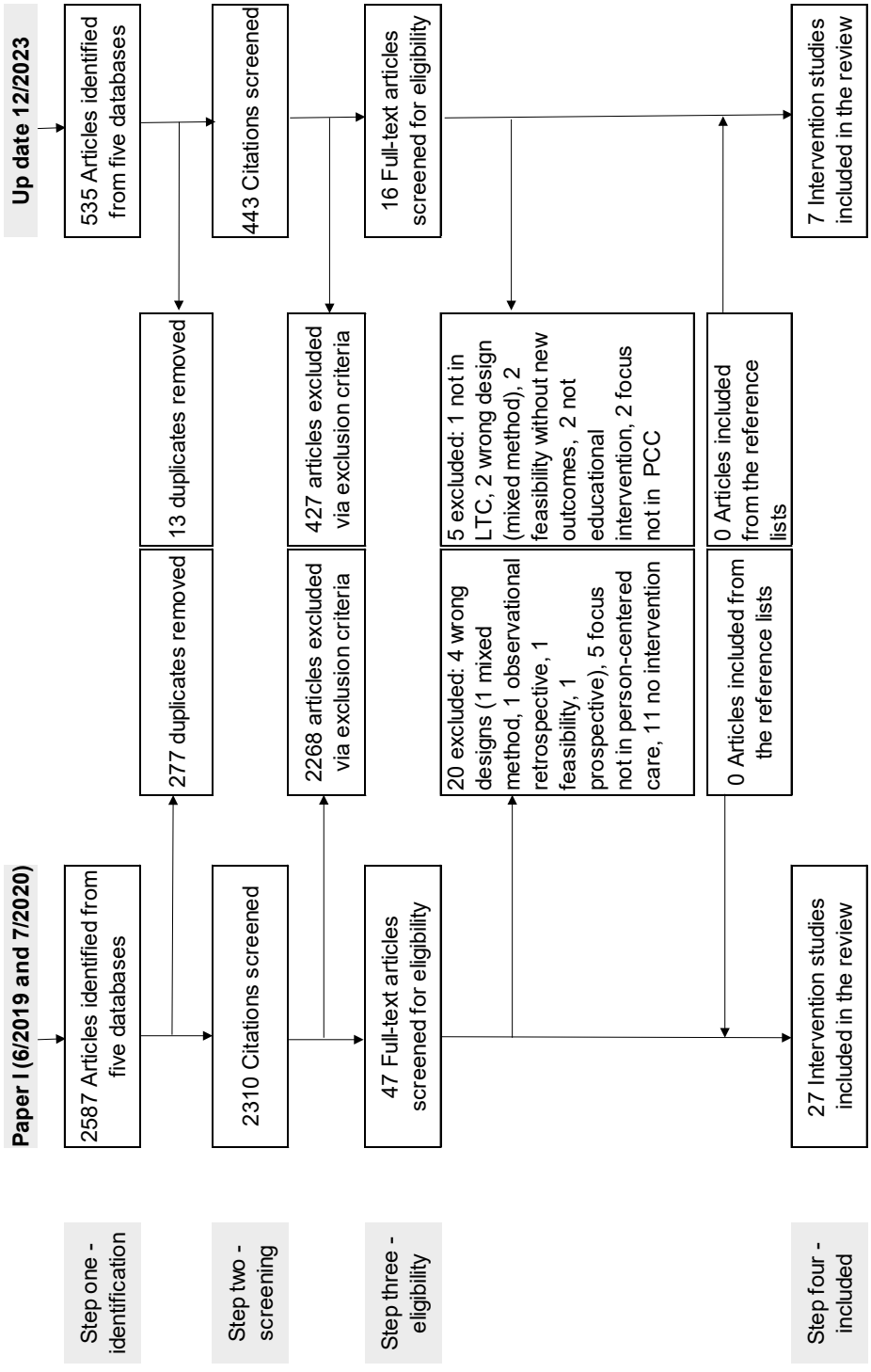

Figure 2. Retrieval of studies in Review I (Paper I).

In Review II, a literature search was conducted on the definitions of the PCC using three relevant databases: PubMed (Medline), CINAHL and Cochrane. These databases were selected because of this study's focus on nursing science, concept analyses and concept reviews. The review was conducted in June 2020 and updated for this summary. The aim was to examine the development of the PCC concept over time within the nursing science field and to explore its various definitions. To be included in the review, a study had to be published in scientific journals in nursing science, focusing on the PCC concept's definitions or analyses in English.

In Review III, a literature search of the definitions of PCC competence was conducted using only the PubMed (Medline) database. The use of only one database was based on previous knowledge of the literature in other databases, which demonstrated the adequacy of PubMed (Medline). The aim was to define the concept of PCC competence and to describe perceptions of nurses' levels of PCC competence. The review was conducted in July 2020 and updated for this summary. To be included in the review, a study had to be published in scientific journals in nursing science, focus on the concept of PCC competence and be in English.

In Review IV, definitions of PCC climate were searched in July 2020 and updated for this summary using the PubMed (Medline) database. The aim was to define the concept of PCC climate and describe perceptions of levels of PCC climate assessed by the study participants. To be included in the review, a study had to be published in scientific journals in nursing science, focus on the concept of PCC climate and be in English.

Review I used a comprehensive and exhaustive systematic literature search, reviews II-IV used a comprehensive search (Grant & Booth, 2009). Manual searches from the article reference lists and grey literature were also used. The results of these reviews were utilised in developing the PFP intervention content and theoretical framework.

2.2 Definition of the concepts

This chapter focuses on the concepts of person-centred care, person-centred care competence and person-centred care climate. First, the concept of PCC will be explained and described based on conceptual analyses and defined in terms of how it is understood in this study. Second, it describes the concept of PCC competence in general and in the context of LTC settings for older people and the level of PCC competence. Third, the concept of PCC climate in general and in the context of LTC settings for older people and its associated level will be described.

2.2.1 Person-centred care

The foundation of PCC rests upon the notion of seeing individuals as persons. The concept of a person has historical and philosophical roots and dates back to ancient Greece. In the early modern period, Descartes argued, 'I think, therefore I am'. This led to the conception of man as a self-existent being with an existential self-identity. A person is also conceived of as a rational subject with the capacity for communion (Green, 2009; Williams & Bengtsson, 2016). Interest in personality and personal growth began in the early 1940s by psychologist Carl Rogers, and in 1961, he published his book '*On Becoming a Person*'. Rogers described the importance of understanding human emotions and seeing them as separate persons with their rights. In this way, a person who has been heard can find a direction that leads to positive and constructive interactions with others. A person can move towards self-actualising and find meaning in their life. People can become more social and cooperative with the environment in which they live. Rogers started using the concept of client-centredness and refuted his earlier hypothesis in this thinking: 'How can I treat, cure, or change this person?' He understood that the right question would be 'How can I provide a relationship that this person may use for his personal growth' (Rogers, 1961, p. 32). However, Rogers' view has been criticised as complex and challenging to implement in nursing practice because, in reality, it contains 19 different principles of authentic personality (McCormack et al., 2012).

In the 1990s, in the context of care of persons with dementia, Tom Kitwood used the concept of personhood and published his person-centred dementia care model (Kitwood & Bredin, 1992). He emphasised psychosocial needs and saw the persons as their own. Kitwood's vision of personhood has been interpreted as its social constructability and maintainability. According to this view, personhood can be decoupled from autonomy and cognitive functions and is not dependent on cognitive abilities, memory or communication (Brooker & Latham, 2016). It is the responsibility of those who have retained the cognitive ability to try and maintain personality through effective interaction (O'Connor & Purves, 2009), for example, in caring for older people with memory disorders. Kitwood's pioneer work has been both appreciated and criticised for validating his methods (Adams, 1996). The definitions of PCC also represent an attitude of respect for ordinary individuals making rational decisions and determining their ends (McCormack, 2003). Including personhood in PCC has also been criticised for assuming that everyone has the capacity for rational thought and interaction with their environment, as well as the ability to make decisions (Smith et al., 2022). Based on these two historical perspectives by Rogers and Kitwood, there was a fundamental shift in thinking. The person, previously the object of care, is now seen as a subjective individual who actively participates in their care (Rogers, 1961, p. 32). Later, responsibility beyond

the person's abilities shifted to nurses, whose role is to ensure the person's involvement in their care (O'Connor & Purves, 2009).

From a philosophical perspective, a person is seen as a subjective person who has an active role in their care. The PCC concept can be defined as belonging to a phenomenological philosophy. Underneath, it is a personalism close to existentialism, according to which the human being is a valuable and unique individual. The human person has an inner development that is also shaped by interactions with the rest of the existing world. (Kristensson Uggla, 2022.) Personalism is characterised by its affirmation of human dignity and concern for the subjectivity and autonomy of the human person, particularly their social nature. It regards personhood as the fundamental notion that focuses on practical, moral actions and ethical questions. (Williams & Bengtsson, 2016.) Core values of personalism are a person, autonomy, and dignity (Rist, 2019). The definitions related to these values can be found in analyses that conceptualise only the concept of PCC in general or conceptualise PCC in the context of care for older people (McCormack, 2003; Slater, 2006; Edvardsson et al., 2010a; Morgan & Yoder, 2012; Lusk & Fater, 2013; Edvardsson et al., 2014; Håkansson Eklund et al., 2019). (Table 2) From a philosophical perspective, a posthumanism view has also been proposed, according to which, in care environments, personality is created through cooperation and interaction both in the environment and in the relationship between nurses and older people (Smith et al., 2022). The personalism perspective, when coupled with the PCC concept, is a novel interpretation but could help to better understand and develop the concept (Kristensson Uggla, 2022). The difference in philosophical views reinforces the fact that no common consensus has been found in defining the concept (Byrne et al., 2020).

In terms of the care for older people, the PCC concept includes three key elements: resident involvement and participation, relationship between residents and nurses and an understanding of the context in which care is provided (Kitson et al., 2013). Resident involvement and participation is based on the knowledge of the person, which is essential for providing holistic care that is not limited to health problems (Håkansson Eklund et al., 2019). Knowing the person and their life history improves PCC and can contribute to reduced behavioural symptoms, such as the use of psychotropic medication (Li & Porock, 2014). Knowing the person is key to PCC, as it provides the status of an individual person, especially in LTC settings where older people live their daily lives (Clarke et al., 2003; McKeown et al., 2010; Grøndahl et al., 2017). The relationship between residents and nurses is based on the interactions required to understand residents' beliefs, needs and preferences (Saha et al., 2008) and to make shared decisions (McCance & McCormack, 2017). In the context of aged care environments for older people, health problems can be related to behavioural changes associated with dementia (OECD, 2023, pp. 209–218). Also

noteworthy in the context of LTC settings for older people is the LTC relationship between older persons and nurses. In this case, the understanding of person-centredness (McCormack et al., 2010) is not only limited to residents but also involves nurses (McCance & McCormack, 2017) in the environment in which care is provided (Edvardsson, 2008).

PCC has related concepts in the context of nursing, such as individualised care, patient-centred care, client-centred care and resident-centred care (Morgan & Yoder, 2012; Suhonen & Charalambous, 2019). The core of these concepts is based on human autonomy and respected dignity (Morgan & Yoder, 2012; Zhao et al., 2016; Suhonen et al., 2019; Håkansson Eklund et al., 2019). These concepts can differ depending on the person's status, such as patient, client, resident or person (Morgan & Yoder, 2012). Compared to patient-centred care, in PCC, the moment of contact with the person is not only meaningful but also sees, from the person's perspective, the purposes that give the person's life extension and structure. In addition, the goals of these different concepts differ. It is not only a functional life but a meaningful life (Håkansson Eklund et al., 2019.) Therefore, it fits well into the context of LTC settings for older people, where most people have memory disorders. In LTC, older people live daily with all their needs, wishes, feelings, personality traits and social relationships, aiming for a meaningful life.

Table 2. Core values of PCC.

AUTHOR	PERSON	AUTONOMY	DIGNITY
McCormack, 2003	- Be aware of the person that the patient is through an understanding of the person's authentic values	- Maximise opportunities for authentic decision-making	- Respecting the values of the person
Slater, 2006	- Unique, respectful, individual person - Lived experiences, a person's story - Needs, wants, and values of the person	- Autonomy and rights to keep it - Ability to make decisions - Respect for decisions	- Dignity as a fundamental value - Professional, ethical standards with a therapeutic relationship
Edvardsson, et al., 2010a	- Be the person you are based on understanding a person's history, preferences, needs, interests, and characteristics. - Knowing a person also requires knowing and understanding their health. - Promote a sense of self and the continuation of ordinary life as the individual is accustomed to living it.	- Empowered to make choices and decisions	- Being addressed and acknowledged as a valuable and competent person whom people know and respect
Morgan & Yoder, 2012	- Taking care of personal needs - A holistic view of a person - An individualised, unique person	- Empowering as part of the autonomy	- Respectful as limited to the dignity
Lusk & Fater, 2013	- Understanding the lived individual experience - Care for the person as a unique individual - Response to persons' needs	- Persons' right to make decisions and solve problems - Encouraging persons' autonomy - Shared decision-making as part of the autonomy	- Moral and ethical behaviour to promote dignity - Respecting the values of the person
Edvardsson et al., 2014	- Seeing older people as a valuable person - Listening to older peoples' life stories	- Promoting decision-making by offering choices and respecting older people's choices.	- Seeing person-centredness more as a cultural and philosophical aspect, where older people's dignity is one of the keys elements
Håkansson Eklund et al., 2019	- Listening empathetically to a person and paying attention to their thoughts and the world they see - Identifying the person as the centre of care, communication and relationships - Recognising the whole life of the person behind the illness or disability	- Shared decision-making as part of the autonomy - Respect and support the person's decisions	- Respect a person's beliefs and values and support their dignity - Be present and committed

The PCC concept has been used and defined in different contexts, for example, concerning related concepts (Morgan & Yoder, 2012; Lusk & Fater, 2013; Louw et al., 2017; El-Alti et al., 2019; Håkansson Eklund et al., 2019), in an empirical context (Thórarinsdóttir & Kristjánsson, 2014), as part of ethical decision-making in nursing (Loughlin et al., 2019; Summer Meranius et al., 2020), in connection with nursing practice (McCormack et al., 2010; Byrne et al., 2020), in different nursing environments (McCormack, 2003; Gabrielsson et al., 2015; Ross et al., 2015; Waters & Buchanan, 2017; Behrens et al., 2019), in the development of healthcare systems (Rosengren et al., 2021) and in political decision-making (Pelzang, 2023). Although nurses are familiar with the concept of PCC, its implementation in nursing practice varies (Byrne et al., 2020.) Some ethical aspects in the concepts of PCC and patient-centred care can be related to holism, shared decision-making and personal relationships, which is essential to be considered (Hansson & Fröding, 2021).

In this study, PCC is defined as follows: older persons are considered valuable individuals with distinctive features, personal life histories and needs. Their personalities and values are respected, and interaction with them is emphasised, ensuring their presence. Their participation in decision-making is supported. Nursing care based on PCC aims to promote a meaningful life and dignified encounters.

2.2.2 Person-centred care competence

The requirement for PCC delivery is a nurse's professional competence (McCance & McCormack, 2017), which forms the basis for PCC competence (McCance & McCormack, 2017; Moore et al., 2017). In the literature, the concept of competence has been used in various ways. One of the first attempts to explain the field of nursing is Benner's theory of the novice to the expert, in which she describes the process of increasing competence as not linear but circular and in which a nurse can become competent through increased knowledge and skills. To be competent does not mean that you have to be an expert. (Benner, 1982.) Competence refers to the knowledge, skills, performance, attitudes and values that an individual nurse requires to work in various nursing environments (Zhang et al., 2001; Meretoja et al., 2004; Scott Tilley, 2008; Mrayyan et al., 2023). The concept of competence refers to the ability to make decisions and understand the nature of a decision and its consequences. It is specific to a situation rather than being universal. Competence is not categorised as competent or incompetent; it can vary and be intermittent. (Beauchamp & Childress, 2001.)

Antecedents of competence include personal and external motivations, integrating knowledge into practice, experience, critical thinking, nursing skills, caring, communication, environment, motivation and professionalism (Smith, 2012; Sundberg, 2001). A general agreement in the existing definitions is that competence includes individuals' knowledge; comprehension; judgement; cognitive, technical, psychomotor and interpersonal abilities; and personal traits and attitudes (Mrayyan et al., 2023). Competence refers to nurses' skills, traits, motives and attitudes. The importance lies in nurses' use of competence with interpersonal understanding for good nursing performance. (Zhang et al., 2001.) Competence is not just about the skills of individuals but also about how these abilities fit with decision-making and how individuals interact with others (Beauchamp & Childress, 2001). The characteristics predicting competence are age, CE, length of work experience (Kiljunen et al., 2019; Sundberg, 2001), education level and work environment (Bing-Jonsson et al., 2016; Sundberg, 2001).

Competence has been seen as a prerequisite for PCC, including the practitioner's knowledge, skills and attitudes to negotiate care options and effectively provide holistic care (McCance & McCormack, 2017; Moore et al., 2017), which also needs attention in nursing education (Moore et al., 2021). Individual competence in terms of knowledge, skills and personal abilities is a relational and contextual aspect of competence in LTC settings for older people (Bing-Jonsson et al., 2016). Organisations need to be aware of the ability of individual nurses to work in accordance with PCC and build teams in which individuals complement each other's competence (McCance & McCormack, 2017). In the context of LTC for older people, this definition reinforces the notion that competence is based on collective action (Bing-Jonsson et al., 2016). Interprofessional communication, interprofessional collaborative teamwork, leadership, and patient-centred communication competence are needed in PCC (Michielsen et al., 2023). For this reason, the theory of collective competence (Boreham, 2004) is adopted in this study. A team may be competent even if a member is incompetent (Lingard, 2016). It has been argued that individual competence can only be developed by creating a framework, providing tools and acting as a catalyst (Sundberg, 2001).

PCC competence is associated with quality of care (Lood et al., 2019, 2020), quality of life (McDermid et al., 2023), nurses' job satisfaction (Van Diepen et al., 2020) and patient safety (Rossiter et al., 2020). The Quality and Safety Education for Nurses (QSEN) institute in the USA has indicated the competence areas that improve the quality and safety of healthcare systems. QSEN has defined patient-centred care competence and detailed the required knowledge, skills and attitudes (Cronenwett et al., 2007.) Based on this framework, the Patient-centred Care Competence Scale (PCC-S) instrument was developed (Hwang, 2015). The competence areas in this scale involve respecting patients' perspectives, promoting

patient involvement in care processes, providing for patient comfort and advocating for patients' needs (Hwang, 2015). Patient-centred care competence is closely related to the concept of PCC competence, even though their goals are different (Håkansson Eklund et al., 2019). Person-centredness, considering the individual characteristics of the person; shared decision-making and value base are central to a nurse's competence in both patient-and person-centred care concepts (Cronenwett et al., 2007; Hwang, 2015; Håkansson Eklund et al., 2019). Therefore, the PCC-S was adopted in this study to measure PCC competence.

The nature of the competence influences its assessment. Typically, self-assessment instruments have been used to measure competence (Nilsson et al., 2020; Taylor et al., 2020; Meretoja et al., 2004). Especially in nursing care for older people, some instruments include both nurses' self-evaluation and knowledge tests to evaluate competence (Bing-Jonsson, et al., 2015b). Nurses' professional competence has been assessed to be at a good level in different countries and different work environments (Flinkman et al., 2017) using the widely adopted Nurse Competence Scale (Meretoja et al., 2004). In LTC settings for older people, nurses have self-assessed their clinical and decision-making competence as good or excellent. Nevertheless, there is a gap in the knowledge test regarding the level of competence, which is lower on the test part (Vikström-Dahl et al., 2023). From the PCC competence perspective, nurses have assessed their competence to be at a reasonable level in acute-care general hospitals (Hwang et al., 2019) and in a university hospital (Suhonen et al., 2021; Lahtinen et al., 2023). The literature search did not provide studies of nurses' PCC competence in LTC settings for older people.

In this study, PCC competence is defined as nurses' knowledge, skills and attitudes towards respecting the perspective of older individuals, involving them in their care processes, providing competence to enhance their comfort and advocating for them. Thus, PCC competence is required for the manifestation of PCC in nursing practice.

2.2.3 Person-centred care climate

PCC climate includes the environment (Edvardsson et al., 2005) and climate in which the care is being provided (Edvardsson et al., 2008). The theoretical ideas about the environment in nursing science originate from Kim (2010, p. 231−278, also Kim, 1987), who, in her typology, divided the environment into three components: physical, social, and symbolic. She believed that the environment is an integral part of human existence, a complex entity with spatial, temporal and qualitative dimensions. In definitions of the PCC environment (McCance &

McCormack, 2017) or PCC climate (Edvardsson et al., 2008, 2015), all components of this typology (Kim, 2010, p. 231−278) can be found. In this study, the concept of PCC climate was examined from the perspective of older people as service users and nurses as members of organisations.

The physical environment includes a functional environment that includes objects and people, which stimulate unexpected or expected difficulties, a system of interdependence, limited freedom and objects for control by clients (Kim, 2010, p. 242). It can symbolise care or uncaring, influence interaction, facilitate a shift in focus and contain scents and sounds (Edvardsson, 2008). The physical environment has been seen as a balance between aesthetics and functional environment, promoting dignity, privacy, safety and performance (McCance & McCormack, 2017). Positive sensory stimulation, such as music or the possibility of going outside, directly impacts the health and well-being of older people in LTC (Lee et al., 2021). The cleanliness of the physical environment and the possibility of regular social interactions with others reinforce the feeling of a safe climate and well-being (Edvardsson et al., 2008). In the physical environment, older people, their next of kin and nurses have enough space and time just 'sitting together and chatting' in daily life (Lee et al., 2021). Appropriate modifications to support individual residents' routines, preferences and needs support their quality of life and well-being. Thoughtfully designed environments are valuable therapeutic resources for caring for residents with dementia, such as creating positive dining experiences (Chaudhury et al., 2013.) Therefore, even though the existing physical environment facilities have not been designed for PCC, it is essential to consider if some changes can still be made to improve PCC (McCance & McCormack, 2017).

The physical environment plays an important role in the implementation of PCC. The environments of LTC facilities for older people have shortcomings in their ability to support cognition and daily functioning (Wahlroos et al., 2021). In these settings, the physical environment can enable or limit social and care interactions and facilitate or hinder the effectiveness of care delivery (Lee et al., 2021). Single rooms, typical in LTC settings for older people, can facilitate or hinder PCC. Privacy and engagement are easier to account for; however, loneliness could be a barrier if the patient spent considerable time in their room. (Nordin et al., 2021.) The design of the physical environment influences older people's activities and interactions. The environments that allow older people to use the facility independently are optimised. (Nordin et al., 2017.) In the policies and strategies implemented by stakeholders in LTC facilities, the physical environment receives low consideration (Van Loon et al., 2023). Thus, research into physical environments is essential, and older people (Wahlroos et al., 2021) and nursing staff need to be involved in their development (Chaudhury et al., 2013; Lee et al., 2021).

In the social environment, individuals bring factors from their genetics, developed traits, and personalities. People possess social skills and personal histories that guide their behaviour in different environments towards a specific, partially predictable direction. This behaviour can be conscious or unconscious. (Kim, 2010, p. 243.) The social environment can be seen as an environment in which people are doing and being. It includes welcomeness, willingness to serve, a calm pace and safety (Edvardsson, 2008). Meanwhile, whether an environment can be perceived as homely depends on three elements: an atmosphere of hospitality, safety and everydayness (Rasmussen & Edvardsson, 2007). When living in LTC in an institution, everydayness is essential. It refers to not just focusing on treating illnesses but living a life without them. The homeliness of the environment enhances this climate, with things to see and social activities that take your mind off the illnesses and keep you up-to-date with, for example, world events (Edvardsson, 2008.)

A supportive social environment is comfortable and creates opportunities for success. It is an environment in which every person is valued, individual differences are respected, and achievements and opportunities are celebrated. An excellent social environment provides opportunities for autonomy, engagement and shared experiences. (Fazio et al., 2018.) The social environment can be linked to effective interpersonal relationships and power-sharing associated with PCC. From a broader perspective, these include relationships among the older person, their next of kin and nurses, as well as those between nurses themselves and between nurses and nurse managers. (McCance & McCormack, 2017.) The way how people are and do in the environment (Edvardsson, 2008) is a manifestation of the social environment. Nurse managers are key in fostering social relationships among nurses, older people and their next of kin. Their support contributes to the implementation of PCC. (Rutten et al., 2021.) Nurses need to undertake a collaborative planning process in social integration because it can affect PCC practice (Jobe et al., 2020). However, concerns have been raised as to whether PCC overlooks the very existence of the human being as a social, historical and biographical being (Tieu et al., 2022). Kitwood (1997) explicitly argued that an older person with memory problems may have as strong a need for social attachment as in early childhood. This would be considered when creating a social environment between nurses and older people in LTC settings.

The symbolic environment has three specific components in the nursing context: health and illness, resources in dealing with health issues and elements that prescribe role relationships in healthcare and nursing practice. The symbolic environment includes shared ideas that govern behaviours. (Kim, 2010, p. 247–249.) This can also be called an organisational philosophy of care (Edvardsson, 2008). From the perspective of older people, they meet the symbolic, physical and social environments as soon as they move to LTC settings. The culture of the organisation

as part of the symbolic environment can be a facilitator of transition. (Fitzpatrick & Tzouvara, 2019.) The organisation's philosophy of care (Edvardsson, 2008) or culture (Fitzpatrick & Tzouvara, 2019) can affect how nurses use their skills and make shared decisions, or how supportive an organisation system is (McCance & McCormack, 2017).

The idea of PCC is to see people through their characteristics as holistic persons, not their illnesses (Håkansson Eklund et al., 2019). This also allows a broader view of the symbolic care environment, especially in LTC settings for older people, where the homeliness and everydayness of the environment are important factors (Edvardsson et al., 2008). If the philosophy of care, and therefore the culture of care, in an LTC unit follows recommendations focused on quality of care (The Ministry of Social Affairs and Health, 2020:37), then a framework of PCC practice (McCance & McCormack, 2017) will guide everything that is done in this care environment. The literature often emphasises the support of nurse managers (Moore et al., 2017; Backman et al., 2020, 2021; Lindner et al., 2023), the importance of teamwork (McGilton et al., 2012), and the sharing of knowledge and commonly agreed upon practices that guide nursing practice (McCance & McCormack, 2017). Nurses' attitudes towards PCC can positively (Ross et al., 2015) or negatively (Moore et al., 2017) affect the engagement with PCC as an organisational culture.

PCC climate has been studied from the viewpoint of patients/clients in different nursing settings, such as hospitals (Johnston, Gaffney, et al., 2015; Johnston, Pringle, et al., 2015; Forsberg & Rantala, 2020; Al-Sahli et al., 2021), LTC settings for older people (Bergland et al., 2015; Kelly et al., 2019; Yang, et al., 2019; Xu et al., 2022), paramedics (Rantala et al., 2018), and radiotherapy wards (Mullaney et al., 2016). Nursing staff assessment has been studied in different types of hospitals and wards (Lehuluante et al., 2012; Al-Surimi et al., 2021; Johnson et al., 2021) as well as in LTC settings for older people (Bökberg et al., 2019; Yang, et al., 2019; Vassbø et al., 2020). PCC climate has been studied from the perspectives of dignity (Johnston, Gaffney, et al., 2015), patients' anxiety (Mullaney et al., 2016), role of care providers (Al-Surimi et al., 2021), job satisfaction (Lehuluante et al., 2012; Vassbø et al., 2020) to older people's well-being in LTC settings (Xu et al., 2022), to test the effectiveness of the intervention (Johnston, et al., 2015; Bökberg et al., 2019; Johnson et al., 2021), comparing older people's and nursing staff's assessments of PCC climate in LTC settings for older people (Yang, et al., 2019), nursing home facilities, residents' characteristics (Bergland et al., 2015), and quality of care (Lood et al., 2019).

Older people have self-assessed PCC climate in LTC settings for older people as high (Bergland et al., 2015; Kelly et al., 2019; Xu et al., 2022) or between moderate and good levels (Yang, et al., 2019). Nurses have assessed it as high (Bökberg et al., 2019) or good (Vassbø et al., 2020) or between moderate and good levels (Yang, Li,

Xiao, et al., 2019). However, the association between PCC competence and climate has not been studied.

> In this study, PCC climate is defined as encompassing physical, social and symbolic environments, constituting a safe, familiar and hospitable community. It promotes interaction between older individuals and nurses.

2.3 Overview of continuing educational interventions of person-centred care

As this study aimed to develop a CE intervention for PCC, a review of earlier educational interventions for older people in LTC settings was conducted. Existing PCC interventions were explored in Paper I, and seven more articles are provided in this summary. Retrieval of the studies is presented in section 2.1 (Figure 2). PCC interventions were conducted on six themes: medication, interaction and caring culture, nursing activities, nurses' job satisfaction, older peoples' quality of life (Paper I) and older people's quality of care (Summary). This section first provides a general description of the new studies (n = 7) and then a broader description of the measurement methods used in the interventions (n = 34) (Paper I and Summary). In section 2.3.1, the characteristics of the updated studies (n = 7) are described. Finally, in section 2.3.2, pedagogical and detailed teaching methods are described.

The included new studies were published between 2020 and 2023 and were carried out in Australia (n = 2) and the United Kingdom (n = 3) in a multinational research collaboration among Sweden, Norway and Australia (n = 2). The designs of the studies were RCTs (n = 1), cluster RCTs (n = 2), quasi-experimental designs without a CG (n = 2) and pre-post-test designs (n = 2). All studies used baseline and post-test data after the intervention. In quality appraisal via the JBI checklist for experimental studies, the mean was 8.0 and the median score was 8 out of 9. The informants in the studies were older people (n = 6), nurses (n = 1) and next of kin (n = 1). In the experimental groups, the sample's mean was 98 (range 8–388) and 184 (range 53–306) in the CGs. The studies are detailed in Appendix 2.

Altogether, data were collected in 75 ways (Appendix 3) in 34 studies (Paper I and Summary), using questionnaires, observation, interviews, recorded documentation, electronic devices and various physical examinations, such as oral health examination. Only five questionnaires focused on PCC and its measurement in the questionnaire development. These measured either PCC alone, PCC climate or a combination of both. Other aspects of data collection were related to the culture of care and the physical environment, quality, the health of older people and related

care such as medication management, the relationship between older people and nurses, the daily living activities of older people and the professional well-being of nurses.

2.3.1 Characteristics of the interventions

The themes of PCC's CE interventions can be divided into five sub-themes: medication, interaction and caring culture, nurses' job satisfaction, nursing activities and older people's quality of life (Paper I). In the updated search, themes with primary outcomes of medication (n = 1), interaction and caring culture (n = 3) and older people's quality of life (n = 2) were still found. One new, sixth theme, namely older people's quality of care, was identified (n = 1) (Summary) (Appendix 4).

First, when the nursing staff were provided with CE on PCC, no statistically significant reduction in the use of psychotropic medications was observed (Parajuli et al., 2021; McDermid et al., 2023). Interprofessional cooperation may be significant for the effectiveness of the intervention. CE aimed at nurses may not affect doctors' prescription of medications unless there is cooperation or shared values and goals between professional groups. (Parajuli et al., 2021.)

Second, CE of PCC is an effective way to increase interaction and influence the culture of care in LTC for older people (Isaac et al., 2021; McDermid et al., 2022; Sjögren et al., 2022). Improving the interaction between older people and nurses in LTC settings through music also seems to reduce nurses' stress and residents' anxiety and aggressive behaviour (Isaac et al., 2021). Focusing on caring culture and residents' well-being can increase significant engagement in activities. To receive such a result in caring culture, nurses require not only digital CE but also virtual coaching during the digital intervention. (McDermid et al., 2022.) In the 'interaction and caring culture' sub-theme, one study clearly described the theoretical framework of the intervention, which was effective in increasing residents' experiences of thriving (Sjögren et al., 2022). Working more in accordance with PCC, specifically by implementing tailored activities for older people, can increase their activity levels (McDermid et al., 2022). Male residents gave higher ratings to thriving and person-centredness in the environment where nurses receive CE of PCC and promote thriving in the caring environment (Sjögren et al., 2022).

Third, the intervention did not affect the quality of life in one study. The researcher indicated that the intervention dose might have affected the results. (Surr et al., 2021.) Some unit nurses implemented this intervention as mentors for improving PCC competence. In a previous review (Paper I), the effectiveness of the intervention was linked to broader training of nurses on the units.

Finally, no effects on quality of life were found in the theme of older peoples' quality of care. However, one significant factor was found, that is, safety, which is

strongly associated with the quality of care assessed by the next of kin (Lood et al., 2020.) To the best of the researcher's knowledge, it was the second PCC intervention targeted at nurses, where the assessment of the next of kin was collected.

2.3.2 Pedagogical background in the interventions

As this study aimed to develop an educational intervention, a closer analysis of the pedagogical background was required. The literature defines concepts related to pedagogy, teaching or learning differently. The concept of pedagogy is a higher concept for teaching; its sub-categories can be methods and models. Methods can be related to the research or to understanding the need for learning. (Shah & Campus, 2021.) In general, the pedagogical approach can be based on learning theories and be constructivist or behaviourist, which are not mutually exclusive (Boghossian, 2006). Models can be divided into teacher-centred and learner-centred categories (Shah & Campus, 2021). Understanding the pedagogical methods and models helps select an appropriate teaching method which supports learning (Oyelana et al., 2022). The pedagogical method adopted in this study is a higher-level concept that directs the understanding of the different teaching methods.

As pedagogical approaches, behaviourism and constructivism have traditionally been seen as opposite. However, different levels of learning and teaching can be associated with other approaches to learning and teaching, such as immersion, injection, construction and integration. (Cronjé, 2006.) All these aspects of learning are needed to achieve profound learning results. The literature defines a learning curve as starting from a traditional behaviourist area as an injection, continuing via immersion and reaching the integration level through construction, which is an expert level in learning. It is also the level at which learners can decide what they need the most based on their expertise. At the injection level, typical teaching methods adopted include lectures and tutorials. Immersion-level teaching methods include apprenticeship, field trips, experience and journaling. The teaching methods used at the construction level are construction, exploration and experiments. At higher integration levels, the teaching methods are puzzle, discussion, debate, projects and collaboration(Aylward & Cronjé, 2022.) Based on this evidence, the pedagogical approaches and teaching methods of CE interventions were analysed in this study.

Twenty teaching methods, including lectures, various forms of support on-site and via the Internet and telephone, reflections, discussions and written or video material, were used in the CE interventions of PCC targeted at nurses in LTC settings for older people (n = 34) (Paper I and Summary). In the selected studies, pedagogical approaches and teaching methods were not justified based on pedagogical theories.

One CE intervention (n = 1) used teaching methods covering all (Li et al., 2017) parts of the learning curve. Teaching methods covering the three parts of the learning

curve have been used in only two interventions (n=2) (Coleman & Medvene, 2013; Sposito et al., 2017). In most of the interventions, two (n = 22) or only one (n = 9) (Fossey et al., 2006; Roberts et al., 2015; Boersma et al., 2019; Bökberg et al., 2019; Cornelison et al., 2019; Parajuli et al., 2021; Surr et al., 2021; Isaac et al., 2021; McDermid et al., 2022) part of the learning curve was used in teaching. Unfortunately, some intervention studies did not open up pedagogical approaches or teaching methods in a way that facilitated their evaluation and analysis (n = 1) (Gillis et al., 2019). Used teaching methods were analysed by a learning curve (Cronjé, 2006, Figure 3.). A limitation of the analysis is that specific pedagogical approaches and teaching methods might fall under a different part of the learning curve than the one in which they are currently classified within this analysis. When the teaching content is not explicitly presented in the articles, the pedagogical approach and teaching methods might be misunderstood or misinterpreted during the analysis.

The selected studies did not definitively assess the impact of pedagogical approaches or teaching methods on the research results. Analysing these methods through the components of the learning curve in this review does not resolve this issue. This is because in studies that fail to demonstrate the statistical effectiveness of CE, pedagogical approaches and teaching methods can be identified in different parts of the learning curve. Nevertheless, it is impossible to conclude their relationship to the statistical effectiveness of the interventions. This review of pedagogical approaches and teaching methods indicates that teaching methods are used more extensively and there is a lack of a broader analysis.

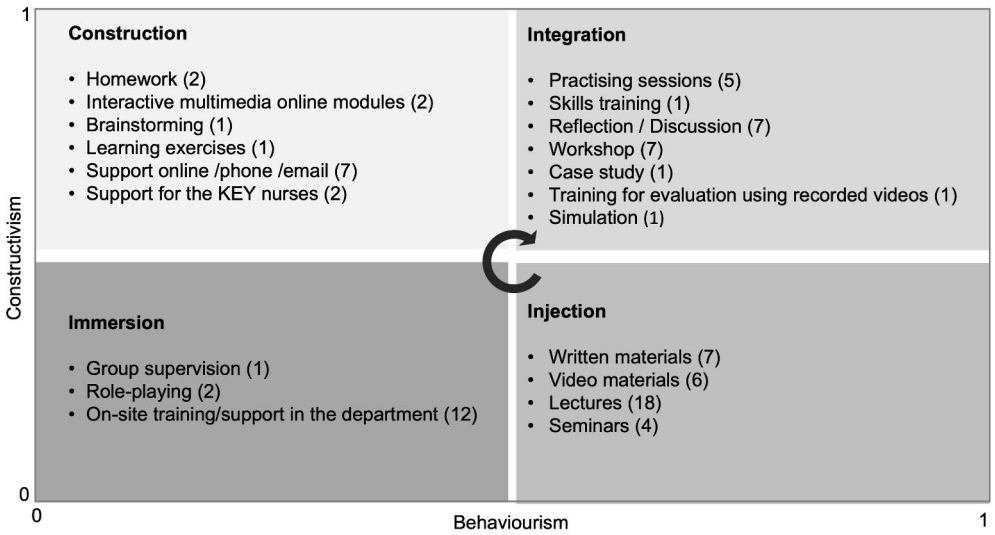

Figure 3. Used teaching methods in earlier CE interventions of PCC. (analysed by learning curve, Cronjé, 2006, (x) = Number of times the pedagogical method is used).

2.4 Summary of the literature review

The concepts of PCC, PCC competence, PCC climate and connection to Kim's typology have been extensively studied, providing a holistic view of nursing. PCC has been studied in LTC settings for older people; however, but the literature suggests limited research evidence regarding an effective way to promote nurses' PCC competence. **First**, there is limited research on the extent of nurses' PCC competence and its associated factors in LTC settings for older people. **Second**, it remains unclear whether an association exists between PCC competence and PCC climate. **Third,** CE interventions of PCC can be effective, but there is limited evidence of effective theory-based interventions with pedagogical methods. Moreover, it is uncertain if nurses' increased PCC competence can be perceived in a PCC climate. **Fourth,** PCC climate can be related to the service culture and, therefore, the changes that service users perceive. However, whether residents and their next of kin would perceive changes in the PCC climate if nurses' PCC competence were enhanced remains uncertain. Therefore, this study focused on nurses' PCC competence and perceptions of the PCC climate.

3 Aim of the Study

This two-phased study aimed to develop the continuing education intervention of person-centred care to promote nurses' person-centred care competence in long-term care settings for older people and evaluate its effectiveness. The research questions were as follows:

Phase I

1. What is the research evidence about continuing education of person-centred care targeted for nurses in long-term care settings for older people? (Paper I, Summary)
2. What teaching methods have been used in continuing education interventions of person-centred care targeted for nurses in long-term care settings for older people? (Paper I, Summary)

Phase II

3. What are the nurses' perceived level of person-centred care competence and assessments of person-centred care climate in long-term care settings for older people? (Paper II)
4. What is the association, if any, between nurses' perceived level of person-centred care competence and person-centred care climate in long-term care settings for older people? (Paper II)
5. What is the effectiveness of Person First – Please intervention in promoting nurses' perceived level of person-centred care competence and person-centred care climate in long-term care settings for older people? (Paper III)
6. What is the fidelity and acceptability of the Person First – Please intervention? (Paper IV)

The following hypotheses (H1-3) were set (Figure 4.):

H1: Compared to the control group, nurses in the intervention group have higher individual competence levels in person-centred care.

H2: The person-centred care climate is better in the intervention group than in the control group from the viewpoint of nurses, residents, and their next of kin.

H3: Higher individual competence of nurses relates to higher levels of person-centred care climate from nurses' viewpoint.

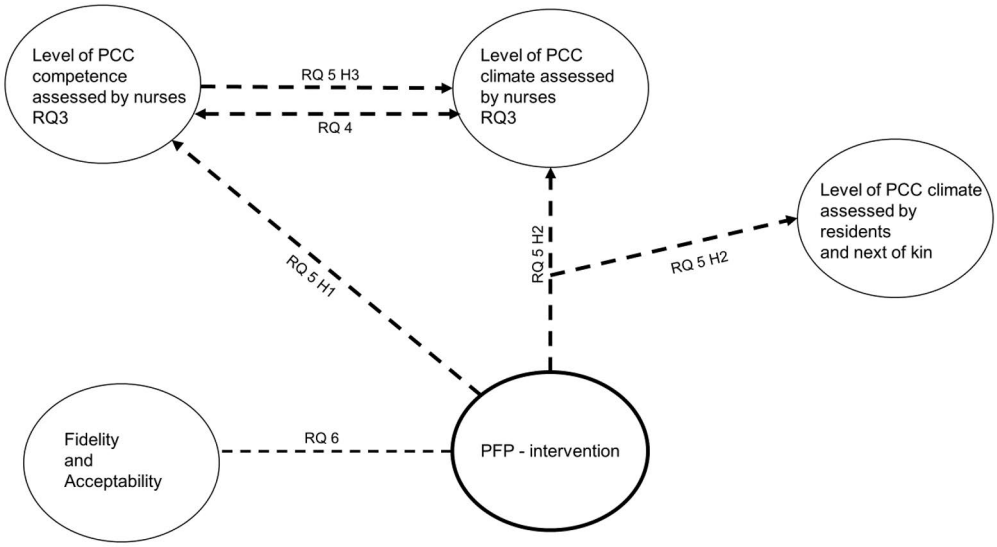

Figure 4. Research questions and hypotheses of the study in Phase II.

4 Materials and Methods

This is a two-phased study comprising the development phase and the intervention implementation and process evaluation phase with multiple methods. In Phase I, literature reviews were conducted to develop the PFP intervention. In Phase II, the PFP intervention was implemented to evaluate the effectiveness and process of the intervention (Figure 5). The study followed the Medical Research Council (MRC) framework for developing and evaluating complex interventions (Skivington et al., 2021). The study was conducted between 2019 and 2022 in LTC settings for older people at a regional level in Finland.

This section describes the study design, setting, sampling, and samples. It then discusses the development of the intervention, data collection, and instruments. Third, it discusses the data analysis of the sub-studies. Finally, it describes the ethical considerations of all study phases.

The aim was to develop and evaluate the effectiveness of the Person-First-Please (PFP) Continuing Education (CE) intervention of Person-Centred Care (PCC) targeted at professional nurses in Long-Term Care (LTC) settings for older people.

PHASE I 2019-2021, RQ 1-2 **Paper I, Summary**
DEVELOPMENT PHASE

I a) IDENTIFYING EXISTING EVIDENCE (Paper I)
Purpose: To analyse existing PCC educational interventions and pedagogical methods
Methods and samples: Systematic literature review (Review I) of empirical articles (n = 27, n = 7)

I b) INTERVENTION DEVELOPMENT
Purpose: To develop an educational intervention of PCC for nurses
Methods and samples: Complex intervention development according to CReDECI guidelines. Literature reviews to define concepts and perceptions of PCC (Review II), PCC competence (Review III), and PCC climate (Review IV). Expert panel I (n = 2), expert panel II (n = 8), expert panel III (n = 3)

I c) INSTRUMENTATION
Purpose: To choose the instrument to evaluate nurses' PCC competence and PCC climate and to develop instruments to evaluate the fidelity and acceptability of the PFP.
Methods and samples: A literature review of perceptions about PCC competence and PCC climate, expert panel I (n = 2), expert panel II (n = 8)

PHASE II 2021-2022, RQ 3-6 **Paper II, III, IV, Summary**
INTERVENTION IMPLEMENTATION AND PROCESS EVALUATION PHASE

II a) BASELINE (Paper II)
Purpose: To analyse the levels of PCC competence and perceptions of PCC climate and the associations between PCC competence and PCC climate.
Methods and samples: Cross-sectional survey design, nurses (n=200)

II b) INTERVENTION IMPLEMENTATION (Paper III)
Purpose: To evaluate the effectiveness of the PFP educational intervention
Methods and samples: Quasi-experimental design with intervention group (IG) and control group CG), with baseline (M_0), after 10 weeks of intervention (M_1) and 6 weeks of follow-up (M_2) measurements. Data were collected from 1) nurses, M_0 IG (n = 77), CG (n = 123); 2) residents and their next of kin as dyads M_0 in units of IG (n = 18) and units of CG (n = 21).

II c) PROCESS EVALUATION (Paper IV)
Purpose: To evaluate the fidelity and acceptability of the PFP educational intervention
Methods and samples: Convergent parallel mixed-method design. 1) A cross-sectional survey for professional nurses in IG after each three-intervention module: M_1 (n = 45), M_2 (n = 44), M_3 (n = 35) 2) three (n = 4, n = 5, n = 5) focus group interviews for nurses in IG and 3) nurse managers observations (n = 3)

Summary: Tested educational intervention named Person First – Please (PFP) for promoting professional nurses' PCC competence in LTC settings for older people

Figure 5. Phases, materials and methods of the study.

4.1 Study design, setting, sampling and samples

The study used multiple research designs in its sub-studies: a systematic review, methodological cross-sectional survey design, quasi-experimental design and convergent parallel mixed-method design. The sampling methods used were systematic, purposive, cluster and convenience sampling. (Gray et al., 2021.) (Table 3.)

4.1.1 Phase I Development Phase

Four reviews (I–IV) were conducted to identify, evaluate and synthesise scientific knowledge of existing CE interventions for PCC; the definitions of PCC, PCC competence and climate and their known levels in LTC settings for older people. The development phase included three phases (Ia–c).

In Phase Ia, a Systematic Review (I) (Grant & Booth, 2009) was conducted to identify and analyse existing PCC educational interventions and teaching methods of the interventions in LTC settings for older people.

In Phase Ib, a systematic literature search was conducted to define and describe PCC (Review II), PCC competence (Review III) and PCC climate (Review IV) and assess the levels of PCC competence and climate. The educational PFP intervention was developed following the Criteria for Reporting the Development and Evaluation of Complex Interventions in Healthcare (CReDECI 2) guidelines (Möhler et al., 2015). The methodological design, with three purposive sampled expert panels (I–III), was used to evaluate its theoretical base, content, usability and feasibility. The first expert panel (n = 2), which selected the theories behind the intervention, consisted of professors with specific knowledge of the context and pedagogical theories. The second expert panel (n = 8), which assessed the structure and content of the intervention, consisted of professors and doctoral researchers from the Department of Nursing Science. The third expert panel (n = 3) consisted of nurse managers of LTC settings for older people. This expert panel discussed feasibility in terms of time and implementation, fitting in with the management philosophy of the units as well as strategic objectives.

In Phase Ic, a systematic literature search was conducted to identify PCC competence (Review III) and PCC climate (Review IV) and how they were measured earlier (Review I). The selection and development of the instruments was based on a methodological design, with two purposive sampled expert panels (IV–V). The instrument for measuring the primary and secondary outcomes of the study was selected based on previous literature and the suggestion of the first expert panel. The instrument was forward-and back-translated (Sousa & Rojjanasrirat, 2011) and the language was edited by a specialist in linguistics. The developed instrument was used to measure the fidelity and acceptability of the intervention. The developed instrument was based on the literature on process evaluation (Craig et al., 2008; Hasson, 2015).

Table 3. Study designs, samples, and sampling methods.

PHASE	DESIGN	DATA COLLECTION METHOD	SAMPLE		SAMPLING METHOD
Ia **IDENTIFYING EXISTING EVIDENCE**	Systematic literature review	Systematic literature search	Review I n = 27 (Paper I), n=7 (up-date in Summary)		Systematic sampling
Ib **INTERVENTION DEVELOPMENT**	Systematic literature reviews, Methodological	Systematic literature search Three expert Panels	Review II n = 34 Review III n = 20 Review IV n = 33 Expert Panel I n = 2, Expert Panel II n = 8 and Expert Panel III n = 3		Systematic Purposive
Ic **INSTRUMENTATION**	Systematic literature review, Methodological	Systematic literature search Two expert panels	Review III n = 20 Review IV n = 33 Expert Panel IV n = 2, Expert Panel V n = 8		Systematic Purposive
IIa **BASELINE**	Cross-sectional design	Paper questionnaires	Nurses n = 200		Cluster (organisations) Total (nurses)
IIb **INTERVENTION IMPLEMENTATION**	Quasi-experimental design with IG and CG, baseline-, post- and follow-up measurements (M_0, M_1, M_2)	Paper questionnaires (nurses) Structured interviews (residents and next of kin as dyads)	Nurses IG: M_0 n = 77 M_1 n = 39 M_2 n = 53 In units of IG Residents/next of kin: M_0 n = 18 M_1 n = 17 M_2 n = 16	Nurses CG: M_0 n = 123 M_1 n = 91 M_2 n = 70 In units of CG Residents/next of kin: M_0 n = 21 M_1 n = 18 M_2 n = 17	Cluster (organisations) Total (nurses, residents and next of kin)
IIc **PROCESS EVALUATION**	Convergent parallel mixed-method design	Paper questionnaires (nurses) + Focus groups Observation	Nurses IG: M_1 n = 45 M_2 n = 44 M_3 n = 35 Nurse managers n = 3	Nurses IG: FG 1 n = 4 FG 2 n = 5 FG 3 n = 5	Cluster (organisations) Total (nurses) Convenience

4.1.2 Phase II Intervention implementation and process evaluation Phase

The intervention implementation and process evaluation phase involved three phase steps (IIa–c). In the first step, nurses' PCC competence levels, their assessments of PCC climate and the associations between PCC competence and climate were analysed. In the second step, the effectiveness of the implemented PFP intervention in promoting nurses' PCC competence and its association with PCC climate was analysed from the perspectives of nurses, residents and their next of kin. In the third step, the fidelity and acceptability of the implemented PFP intervention assessed by nurses and nurse managers were analysed. The design of the intervention and detailed evaluation are shown in Figure 6.

In Phase IIa, a descriptive, cross-sectional survey design was used to analyse nurses' self-assessed levels of PCC competence, their levels of the PCC climate and potential associations between PCC competence and climate in the context of LTC settings for older people. The cluster sampling of organisations was based on an email contact for directors of LTC settings for older people in three cities in western Finland in November 2020. The directors of the two cities expressed their interest in participating in the study and were informed of the inclusion criteria for participation in separate meetings in December 2020. From these cities, all public LTC units for the older people were selected first. The organisations were expected to not have implemented CE of PCC for nurses earlier, and organisational structures, working conditions, nurse education levels and nurse-resident ratio were expected to be similar across the organisations and units. Interval or short-term care units were excluded. The directors then showed the researcher the organisations that met the inclusion criteria and were willing to participate in the study. This willingness was influenced by the willingness and ability of the nurse managers to organise the study in their units. The researcher then arranged meetings with the nurse managers of all organisations and informed them of the study's progress for the first time in January and February 2021.

The sample size for the cross-sectional survey of 31 variables was calculated by the rule of thumb (Wilson Van Voorhis & Morgan, 2007) (N = 155). The nurses were recruited with the help of the nurse managers. The inclusion criterion was that the nurses worked permanently or as long-term locums (at least six months) in these organisations' units (N = 268). Data were collected in September 2021 via paper questionnaires; 200 responses (n = 200) were returned, and the response rate was 74.6%. There were no NAs. Most nurses (n = 200) had EQF level 4 education as LPNs (84%, n = 169); those with EQF level 6 education (16%, n = 31) were grouped together because the number of ECPs was so low. The mean age of the nurses was 46 years, and their average years of experience in social and health care was 17. At the time of the survey, they had worked in the current work unit for an average of 6 years. The descriptive information of the respondents is presented in Table 4. These data were also used in M_0 before the intervention implementation in Phase IIb.

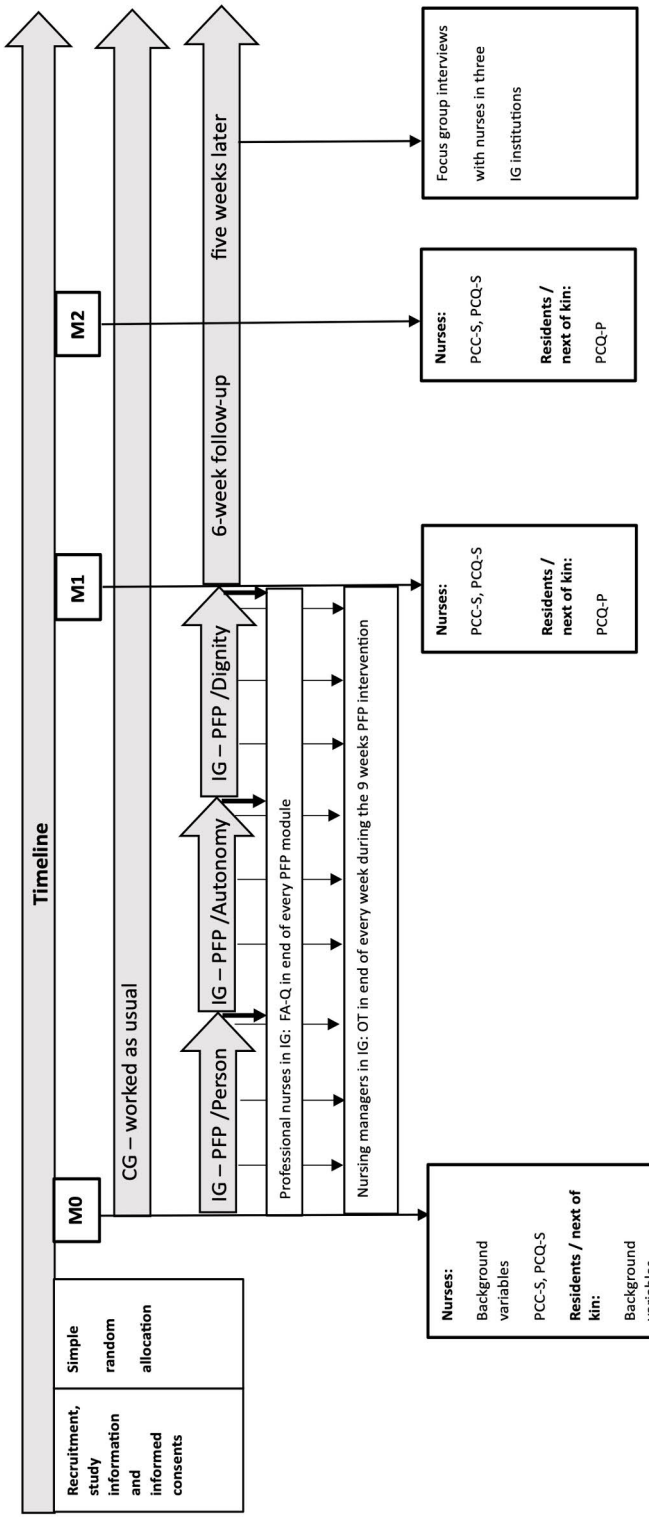

Figure 6. Design of the Person First - Please intervention and measurements. Modified from Figure 1 in Paper III.

M0-M2 = measurements time, CG = Control Group, IG = Intervention Group, PFP = The Person First Please intervention, FA-Q = Fidelity and Acceptability Questionnaire, OT = Observation Tool, PCC-S=Patient-Centred Care Competence scale, PCQ-S=Person-Centred care Questionnaire staff version, PCQ-P = Person-Centred care Questionnaire patient version

Table 4. Descriptive information of respondents in Phase IIa.

PROFESSIONAL NURSES			
Education	**Response rate 74.6%**		
EQF 6 level education	16%	n = 31	
EQF 4 level education	84%	n = 169	
	Mean	**SD**	**Range**
Age	46 years	10.81	20.00–63.00
Working experience in social and healthcare	17 years	9.92	1.33–40.50
Working experience in the current organisation	6 years	6.38	0.00–35.00

In Phase IIb, a quasi-experimental design with IG and CG was used to evaluate the effectiveness of the implemented intervention, (i.e. the PFP), assessed by nurses, residents and their next of kin. The groups had similar organisational structures and working conditions, a comparable number of nurses per elderly and similar educational levels of nurses. The study protocol was registered in ClinalTrials.gov with the identifier NCT04833153.

Cluster sampling of organisations (IG n = 3, CG n = 3) and total sampling of nurses (N = 268) were used as described in Phase IIa. The sample size of nurses in IG was N = 94 and in CG was N = 174. To avoid contamination, one city was selected to participate in the intervention, and the other was chosen to be in control. IG and CG were decided by simple random allocation. The power calculation of the sample size for nurses was based on a 0.8 effect size, 0.8 power and statistical significance of 0.05, including three hypotheses. For the primary outcome, the sample size for the IG was 68 nurses and that for the CG was 128 nurses.

The timing of the intervention implementation was planned with the nurse managers of intervention sites in February 2021 to give them enough time to plan, for example, nurses' holidays and working shifts. Furthermore, in early August 2021, the researcher met the nurse managers of both the IG and CG separately to identify further information needs, confirm schedules and deliver an information poster to the units. In these meetings, nurse managers were informed of the recruitment process of nurses, residents and their next of kin. The nurse managers also received information letters to provide to nurses as well as to residents and their next of kin. They also received a list of possible times at which the residents and their next of kin could meet the researcher.

The nurses in the IG met all nurses in 30-minute information meetings. The CG received only a written information letter. If nurses of the IG decided to participate in the study, they had to sign informed consent forms and create a code to identify themselves at other data collection times.

Residents and their named next of kin from these organisations and units were recruited as a dyad. Residents and their next of kin could create only one code as a dyad. First, the nurse managers gave them oral and written information about the study. The inclusion criteria for the residents were a mini-mental state examination score of >12. The next of kin had to visit the units at least once per week during the study. Second, residents with the next of kin could choose a meeting time with the researcher from the list delivered to the nurse managers. At these meetings, the residents and next of kin were informed about the study both orally and through written material.

Data were collected before intervention implementation (M_0), at the end of the implementation (M_1) and after six weeks (M_2). The study involved 77 nurses in the IG (n = 77, response rate 82%) and 123 nurses in the CG (n = 123, response rate 71%). During the study, 24 (31%) nurses from the IG and 53 (43%) from the CG dropped out. As compared to the nurses, there were fewer residents and their next of kin in the IG and CG. The IG units comprised 18 residents/next of kin dyads (n = 18), and the CG units comprised 21 residents/next of kin dyads (n = 21). One resident/next of kin dyad dropped out of each group; other dropouts were due to the death of residents. Descriptive information of the respondents in the first measurement time is presented in Table 5.

In Phase IIc, a convergent parallel mixed-method design was used to evaluate the fidelity and acceptability of the PFP intervention. Nurses were recruited from among those who participated in the intervention study. All (N = 77) nurses who participated in the quasi-experimental study were also eligible to participate in this mixed-method part. From the IG, n = 51 (54%) nurses participated in the Fidelity and Acceptability Questionnaire (FA-Q) measurement part of this study. The number of participants varied due to missing values. Fourteen of the nurses (27%) dropped out during the FA-Q measurements. Most participants were vocational education-level nurses as LPNs (84%), and others were bachelor's-level nurses as RNs and ECPs. The nurses' education level or other background variables were not statistically significant in the FA-Q measurements. Paper questionnaires were used at the end of the three PFP modules.

A convenience sample was used for the three focus groups, one in each participating organisation. The nurse managers invited five volunteer nurses (n = 4, n = 5, n = 5) from each organisation for the focus group interviews to evaluate the fidelity and acceptability of the PFP intervention. The total focus groups were five nurses with bachelor's-level education and nine with vocational-level education. Three of the nurses took part in two modules of the PFP intervention, and the others participated in all modules. During the PFP intervention, the nurse managers (n = 3) observed the implementation of the PFP intervention with a structured instrument in every unit of their organisations. They also provided a written evaluation of the

implementation of the PFP intervention. The participants' flowchart through Phase steps IIa–c is described in Figure 7.

Table 5. Descriptive information of respondents in Phase IIb.

	INTERVENTION GROUP IG		**CONTROL GROUP CG**	
PROFESSIONAL NURSES	**n = 77 Response rate 81.91%**		**n = 123 Response rate 70.69**	
EQF 6 level education	17%	n = 13	15%	n = 18
EQF 4 level education	83%	n = 64	85%	n = 105
	Mean	**SD**	**Mean**	**SD**
Age	47.1 years	10.21	44.8 years	11.12
Working experience in social and healthcare	17.5 years	9.73	16.4 years	10.06
Working experience in the current organisation	8.5 years	8.44	5.4 years	4.35
RESIDENTS	**In units of IG (n = 18)**		**In units of CG (n = 21)**	
	Mean	**SD**	**Mean**	**SD**
Age	86.9	7.68	86.4	7.68
Resining in the current care organisation	1.8	3.27	2.6	2.44
NEXT OF KIN	**In units of IG**		**In units of CG**	
	Mean	**SD**	**Mean**	**SD**
Visit per week	1.5	0.86	2.2	2.04

Modified from Table 2 in Paper III.

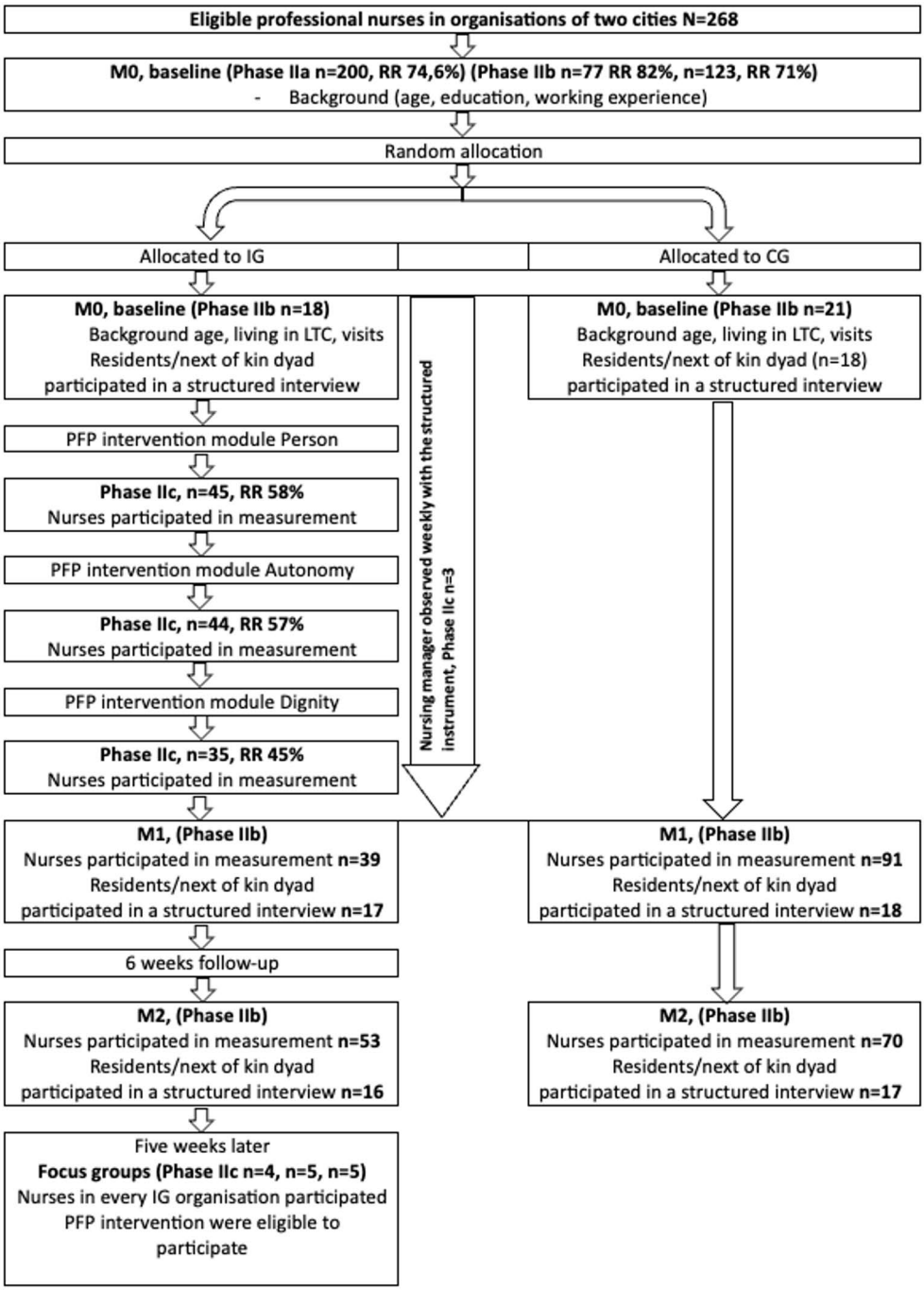

Figure 7. Participants' flowchart through phase steps IIa-c (RR = Response Rate). Modified from Figure 2 in Paper III.

4.2 "The Person First – Please" intervention

The educational Person First–Please (PFP) intervention was developed, implemented, and tested in this study. The development process followed the CReDECI 2 (Möhler et al., 2015). The content of PFP intervention was based on a systematic review (Pakkonen et al., 2021), a systematic literature search of the concepts of PCC (Review II), PCC competence (Review III), PCC climate (Review IV), person-centred practice framework (McCance & McCormack, 2017) and on the Theory of Collective Competence (Boreham, 2004). The PFP was delivered in 10 weeks. Paper III describes its structure, content, objectives, timetable and teaching methods.

The structure of the PFP was based on the PCC concept (see 2.1), where the core components were i) person and personality, ii) respect for persons' autonomy and iii) respect for persons' dignity (Håkansson Eklund et al., 2019).

The theory-base of the PFP intervention was developed within the Person-Centred Practice Framework (McCance & McCormack, 2017) which was later named as middle-range theory (McCance et al., 2021). In this study, it is understood and named as a framework, by its original publishing. In the literature, the person-centred practice framework has been used as the underpinning theoretical framework of analysis (McConnell et al., 2016; Kelly et al., 2019), on development and testing of the instruments named Person-centred Practice Inventory – staff version (Slater et al., 2017) and – student version (O'Donnell et al., 2021). It is base for the development of the person-centred situational leadership framework (Lynch et al., 2018), in the evaluation of a technological solution of an application based on a Person-Centred Practice Framework (McCance, Lynch, et al., 2020), as underpinning in the feasibility study of indicators to strengthen leadership in community nursing (McCance, Dickson, et al., 2020). Additional, it has been used in ethnography study as underpinning to exploring single-room environment and person-centred care practice (Kelly et al., 2022). The content of the PFP intervention was based on main components of the Person-Centred Care Practice Framework.

The person-centred practice framework involves four main components: prerequisites for PCC, a caring environment that promotes PCC, a person-centred process and person-centred outcomes. This framework is suitable for practicing teamwork and is used directly in practical nursing, ensuring that all aspects of PCC are considered. (McCance & McCormack, 2017.) This theory is based on the idea that individual nurses' motivation is insufficient for strengthening a PCC culture. Nevertheless, cultural change commitment is needed at the nursing team and organisational levels. Expert facilitation and an integrated approach to active learning are required to bring about cultural change for a stronger PCC culture (McCormack et al., 2011.) Nurses' competence is a prerequisite for working in PCC (McCance & McCormack, 2017). Meanwhile, time is not the only criterion to

consider when planning cultural change interventions in LTC settings for older people; it also requires education, practical training, effective communication, management and motivation. According to the literature, the implementation of cultural change can take four months. (McGreevy, 2016.) Based on this knowledge and discussions with nurse managers of IG organisations, the dosing of the PFP intervention was planned.

The pedagogical background of the PFP intervention was based on the theory of collective competence, which involved three steps: i) making collective sense of events in the workplace, ii) developing and using a collective knowledge base and iii) developing a sense of interdependency (Boreham, 2004). The theory of collective competence distinguishes between individual and collective competence. In this context, the literature has highlighted organisational culture and related factors, such as organisation goals and objectives, decision-making process, organisation structure, formal procedures and reward systems (Hofstede, 1980). Collective competence may be more comprehensive than the sum of individual competences (Bing-Jonsson et al., 2016). Therefore, even if individual competence was assessed in this study, the collective way to promote it can be marked for the caring culture and profession. The theory of collective competence has been linked to vocational learning as a collective process (Boreham, 2011). Although this theory has not been used in the context of healthcare, it has been discussed from the perspective of teamwork (Lingard, 2013) in various multidisciplinary healthcare contexts, such as operating rooms (Lingard, 2005), transplant team (Lingard et al., 2012) and care teams of heart failure patients (Lingard et al., 2013).

The concept of collective competence used in the study can be conceptualised as the distributed capacity of a system, an evolving relation phenomenon that emerges from the resources and constraints of contexts (Lingard, 2016). However, collective competence is not expected to be given privilege over individual competence. It should be understood that some activities are the responsibility of individuals and some teams. (Boreham, 2004.) To be a collectively competent team, individual team members in workplaces need to have the same values, understanding, direction and goals (Lingard et al., 2017). Dynamic and strongly tied to context, collective competence can form incompetent teams even if there are competent individuals. In contrast, a team can be competent even if one member is incompetent. (Lingard, 2013.) A prerequisite for developing collective competence is that nurses know their roles, responsibilities and team functions during nursing activities (Shinners & Franqueiro, 2017). Understanding individual and collective competence teaches us to promote both competencies in healthcare education (Lingard, 2016). The PFP intervention based on the theory of collective competence ensures that all aspects of collective competence are considered. In addition,

collective competence was included in the intervention, as because of working in shifts, all nurses might not be able to attend all contact sessions.

The teaching methods of the PFP intervention consisted of videos, lectures, and a jigsaw teaching strategy (JTS). From a learning curve perspective (Cronjé, 2006), lectures and videos form injection, brainstorming in the JTS forms immersion, expert groups form immersion or building and home groups form integration. At the beginning of the contact modules, there were short videos in which older people talked about personality, autonomy and dignity in LTC settings for older people. All lectures were recorded in advance to ensure that all IG organisations understood it the same way. The PowerPoint slides in the videos were available to the participants when the JTS part started. Jigsaw learning has been used in nursing education (Leyva-Moral & Riu Camps, 2016; Sanaie et al., 2019; Aydin & Ince, 2023; Ziyai et al., 2023), in CE of community health workers (Shakerian & Abadi, 2020), pharmaceutical education (Phillips & Fusco, 2015; Wilson et al., 2017), biochemistry education (Williams et al., 2018; Uppal & Uppal, 2020;), medical education (Buhr et al., 2014; Oakes et al., 2019; Alrassi & Mortensen, 2020; Goolsarran et al., 2020; Ng et al., 2020; Goreshnik et al., 2022; Zheng et al., 2022; Chopra et al., 2023; Jeppu et al., 2023), dental education (Sagsoz et al., 2017; Suárez-Cunqueiro et al., 2017), online education during the COVID-19 pandemic (Haftador et al., 2021). The positive results of using the JTS were first observed in elementary schools in the USA (Aronson & Bridgeman, 1979). Some students feel that the JTS generates a heavy workload and is not better than traditional group-working (Leyva-Moral & Riu Camps, 2016), others have found it to improve their self-regulated learning and academic motivation (Sanaie et al., 2019). JTS and flipped classroom methods are recommended for teaching ethics based on the evidence that they improve students' ethical sensitivity and decision-making skills (Ziyai et al., 2023). The JTS makes participants active in the learning process and dependent on each other (Alrassi & Mortensen, 2020) according to the theory of collective competence (Boreham, 2004). It fosters teamwork, communication, critical thinking and life-long learning (Buhr et al., 2014). Based on this knowledge of the JTS, earlier literature on the effectiveness of PCC interventions (Pakkonen et al., 2021) and pedagogical background theory (Boreham, 2004), the JTS was adopted as a teaching method for PFP intervention in this study. The JTS used in the PFP intervention is described in Figure 8.

The researcher **delivered the intervention**. The role of the researcher in the PFP intervention was to instruct nurses on the different stages of the JTS. If nurses had any questions, the researcher answered them by using the lecture content and supervising them to set goals that fit the content of the education modules. Between the education modules, the researcher provided online support via email or phone. The role of nurse managers' support for working according to PCC is important

(Sjögren et al., 2017). Thus, in this study, nurse managers supported nurses in developing activity goals during the contact sessions of the PFP intervention.

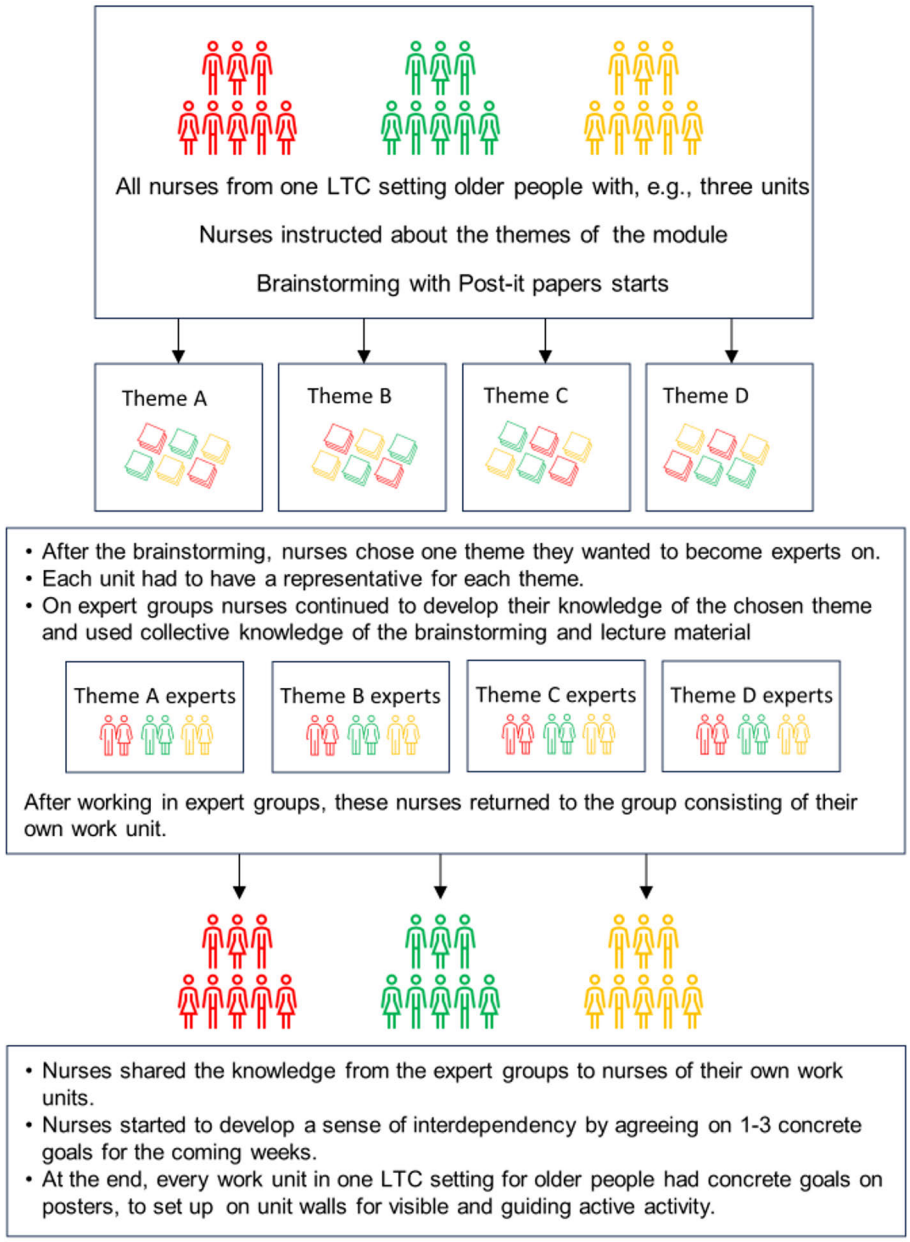

Figure 8. The Jigsaw Teaching Strategy used in the PFP intervention.

4.3 Instruments and data collection

In Phase Ia, data were collected from five electronic databases—PubMed (Medline), CINAHL, PsycINFO, Cochrane and Eric—based on recommendations of the literature (Goossen et al., 2020; Oermann et al., 2021) and an information specialist from the library of University of Turku. Research questions in nursing and pedagogy guided the choice of databases. The search terms for each database are described in Appendix 1. Section 2.1 describes the search criteria and flowchart of the studies listed in Figure 2. The data were collected on 06/2019 and updated on 6–7/2020 (Paper I) and 12/2023 for this summary.

In Phase Ib, data were collected through a systematic literature search. The search terms and databases for each literature review (II–IV) are described in section 2.1 and Table 1. The data were collected on 6–7/2020 and updated on 12/2023 for this summary.

In Phase Ic, data were collected through a systematic literature search and with the help of expert panels. The search terms and databases for each literature review are described in section 2.1 and Table 1. The data were collected on 6–7/2020 and updated on 12/2023 for this summary.

In Phase IIa, the data were collected with permissions from two validated instruments: The Patient-Centred Care Competence Scale (PCC-S) (Hwang, 2015) Finnish version (Suhonen et al., 2021) and the Person-centred Climate Questionnaire (PCQ-S) staff version (Edvardsson et al., 2015) which was translated into Finnish by standardised forward-back translation procedure (see Sousa & Rojjanasrirat, 2011), following the process of the previously adapted PCQ patient version (Stolt et al., 2021). Nurses' background variables were age, level of education, working experience in social and health care and working experience in the current unit.

The PCC-S was the primary outcome instrument used for nurses' self-assessment of PCC competence. It comprises 17 items using a 5-point Likert scale (1 = minimal competence to 5 excellent competence). The Cronbach's alpha (α) for internal consistency reliability was 0.92 for the total items of the instrument. It is divided into four subscales: respecting patients' perspectives (α = .85), promoting patient involvement in care processes (α = .81), providing for patient comfort (α = .84) and advocating for patients (α = .80) (Hwang, 2015.)

The Person-centred Climate Questionnaire staff version (Edvardsson et al., 2015) PCQ-S was the secondary outcome instrument used for nurses' self-assessment of PCC climate. It consists of 14 items using a 6-point Likert scale (0 = No, I disagree completely to 5 = Yes, I agree completely). The Cronbach's alpha (α) for internal consistency reliability was 0.88 for the total items of the instrument. PCQ-S is divided into three subscales: a climate of safety (α = .82), a climate of everydayness (α = .82), and a climate of community (α = .82) (Edvardsson et al., 2015.) (Table 6.)

Table 6. Instruments used in Phases IIa–c.

Instrument	Outcome variable	Used in phase	Items	Scale and scores	Cronbach's alpha (α)	Study groups	Participants	Copyright owner	Permission to use
	Background variables	**IIa** **IIb** **IIc**	5	Variations between items: categorical and ordinal		IG, CG	Nurses		
	Background variables	**IIb**	2+2	Variations between items: categorical and ordinal		IG, CG	Residents and their next of kin		
PCC-S	Person-centred care competence of Professional nurses	**IIa** **IIb**	17	5-point Likert–scale (1 = minimal competence – 5 = excellent competence)	α = .92 (total)	IG, CG	Nurses	Hwang, 2015	E-mail 5.12.2020
PCQ-S	Person-centred care climate	**IIa** **IIb**	14	6-point Likert–scale (0 = No, I disagree completely – 5 = Yes, I agree completely)	α = .88 (total)	IG, CG	Nurses	Edvardsson, et al., 2015	E-mail 3.12.2020
PCQ-P	Person-centred care climate	**IIb**	17	6-point Likert–scale (0 = No, I disagree completely – 5 = Yes, I agree completely)	α = .95 (total)	IG, CG	Residents and their next of kin	Edvardsson, et al., 2009	E-mail 3.12.2020
FA-Q	Fidelity and acceptability of the PFP intervention	**IIc**	22	5-point Likert–scale (1 = completely disagree – 5 = completely agree)		IG	Nurses	MP, MS, RS, 2021	
OT/ PERSON	Fidelity of the PFP intervention	**IIc**	11	Categorised, implemented or not		IG	Nurse managers	MP, MS, RS, 2021	
OT/ AUTONOMY	Fidelity of the PFP intervention	**IIc**	18	Categorised, implemented or not		IG	Nurse managers	MP, MS, RS, 2021	
OT/ DIGNITY	Fidelity of the PFP intervention	**IIc**	16	Categorised, implemented or not		IG	Nurse managers	MP, MS, RS, 2021	

CG = Control Group, IG = Intervention Group, PCC-S=Patient-Centred Care Competence scale, PCQ-S=Person-Centred care Questionnaire staff version, PCQ-P = Person-Centred care Questionnaire patient version, FA-Q = Fidelity and Acceptability Questionnaire, OT = Observation Tool

In Phase IIb, PCQ-S data collected from nurses in Phase IIa were used in the baseline measurement (M_0). The baseline data of the residents and their next of kin were collected using the Person-centred Climate Questionnaire patient version (PCQ-P) (Edvardsson, et al., 2009a)**,** which was translated and validated in Finnish in a previous study (Stolt et al., 2021). It comprises 17 items using a 6-point Likert scale (0 = No, I disagree completely to 5 = Yes, I agree completely). The Cronbach's alpha (α) for internal consistency reliability was .95 for the total Finnish version used. The PCQ-S is divided into three subscales: a climate of safety (α = .94), a climate of everydayness (α = .89) and a climate of hospitality (α = .86) (Stolt et al., 2021). The background variables for residents were age and length of living in LTC. The background variables for next of kin were their relationship with the resident and the number of visits per week in LTC. Using the PCC-S, PCQ-S and PCQ-P instruments, data were collected at three time points (Baseline M_0, M_1 and M_2, respectively) (Figure 6).

In Phase IIc, the nurses' data were collected using the instrument developed in this study, the FA-Q, and through focus group interviews. Nurse managers collected observation data simultaneously during the intervention using a new observation tool (OT) tailored for each module of the PFP intervention. New instruments were developed for this study because the literature search did not yield any instrument for measuring the fidelity and acceptability of the CE intervention of PCC. The FA-Q was developed following the process evaluation framework in MRC for fidelity evaluation, which is divided into five sub-categories: content, frequency, duration, coverage and timelessness (Hasson, 2015). The acceptability assessment consists of seven sub-categories: affective attitude, burden, perceived effectiveness, ethicality, intervention coherence, opportunity costs and self-efficacy (Sekhon et al., 2017). In contrast, the FA-Q does not contain items on opportunity costs; it comprises 22 items assessed by an expert panel. The FA-Q uses a 5-point Likert scale (1 = completely disagree to 5 = agree entirely). The FA-Q data were collected at three time points at the end of every PFP module. The OT measured fidelity from the perspective of implementation. Using the OT, the nurse managers could observe whether the nurses started implementing PCC in their nursing practice. Therefore, it was tailored for each PFP module; person, autonomy and dignity. The OT/person comprised 11 items, the OT/autonomy comprised 18 items and the OT/dignity comprised 16 items. All these items were categorised as whether they were implemented or not. The nurse managers collected the OT data at the end of every week of PFP intervention in each IG unit. Three focus group interviews were collected one month after the M_2 measurement (follow-up), one focus group in each IG organisation. The questions for the focus group interviews followed the FA-Q items (Figure 6).

4.4 Data analysis

Several data analysis methods were used in two study phases, including conventional content analysis, descriptive statistics, inferential statistics, deductive and inductive content analysis (Table 7).

In Phase I, through a systematic literature review (Paper I) (Harris et al., 2014), the included studies (n=27) were analysed using conventional content analysis (Hsieh & Shannon, 2005) to synthesise an existing study on CE interventions of PCC targeted at nurses working in LTC settings for older people. Content analysis is a systematic technique for categorising data into themes (Centre for Reviews and Dissemination, 2009). The quality of the included studies was assessed by two researchers using the checklist for quasi-experimental studies (The Joanna Briggs Institute, 2017). The quality appraisal was recorded and discussed with the research team to reach an agreement. It was not used as part of the inclusion criteria but to assess the methodological quality of studies considering bias in designs, research conduct and analyses. One researcher performed the analysis, and the research team validated the results before tabulation. Data were collected in tabular form (Paper I) and updated for this summary on 12/2023 (Appendix 2. and 4.). To reduce interpretation error, the authors used the original terms in their articles. Systematic literature review reported (Paper I) according to Preferring Reporting Items for Systematic Reviews and Meta-Analyses PRISMA (Moher et al., 2009).

In Phase IIa, baseline (Paper II), the quantitative data were analysed with descriptive (Fisher & Marshall, 2009) and inferential statistical methods (Giuliano & Polanowicz, 2008; Khakshooy & Chiappelli, 2018, p. 71–127) using R statistical software version 4.0.2 (R Core Team 2020), which were used in all phases of this study. The analysis included an examination of the background variables of the nurses, their assessed PCC competence level and PCC climate level, as well as possible associations between them. In descriptive analyses, frequency, percentage, mean, standard deviation (SD), min, max range and sum variables were analysed (Fisher & Marshall, 2009) and the response rate (RR) was calculated. The percentages were calculated for the respondents' education levels as the categorical background variables. The education levels were divided into vocational and bachelor levels. Mean and SD were determined for the numerical background variables related to the respondents' age, work experience in the social and health sector and work experience in the unit where they were currently working. Sum variables were formed by summing items in one sub-scale and dividing it by the total number of items. The PCC-S and PCQ-S scores were summarised and sum variables for both were formed according to the theoretical framework of the original references and authors. The PCC-S contains four subscales and PCQ-S contains three. Internal consistency was examined using Omega (Ω) bootstrapped 95%

Table 7. Methods and purposes of data analysis.

PHASE	METHOD	PURPOSE
PHASE I	Conventional content analysis (Hsieh & Shannon, 2005)	To analyse and synthesise the existing literature about PCC-based CE interventions for nurses working in LTC settings for older people
PHASE IIa	Summarised descriptive statistics (frequency, percentage, mean, SD, min, max and range, sum variables)	To describe participants' background characteristics and levels of their PCC competence and PCC climate
	Omega (Ω) with bootstrapped 95% confidence intervals (Dunn et al., 2014)	To evaluate the internal consistency of the instruments
	Spearman's rank correlation coefficient (statistical significance $p < .05$)	To test the association between the PCC-S and PCQ-S. To test the association between participants' numerical background variables and main study variables.
	Mann-Whitney U-test (statistical significance $p < .05$)	To test the association between participants' categorical background variables and main study variables.
PHASE IIb	Summarised descriptive statistics (frequency, percentage, mean, SD, min, max and range, sum variables)	To describe participants' background characteristics and levels of their PCC competence and PCC climate
	Omega (Ω) with bootstrapped 95% confidence intervals (Dunn et al., 2014)	To evaluate the internal consistency of the instruments
	Linear mixed model (95% confidence intervals)	To evaluate changes within the IG and CG and the difference in the change between the groups at the three time points
	Spearman's rank correlation coefficient (statistical significance $p < .05$)	To evaluate associations of changes between three time points of the IG and CG groups

PHASE	METHOD	PURPOSE
PHASE IIc	Summarised descriptive statistics (%, mean, SD, min, max and range)	To describe nurses' background characteristics and their assessed level of fidelity and acceptability in the FA-Q, nurse managers observed the implementation of PFP intervention using OT
	Spearman's rank correlation coefficient (statistical significance $p < .05$)	To test the association between the FA-Q and nurses' numerical background variables as age and work experience
	Mann-Whitney U-test (statistical significance $p < .05$)	To test the association between the FA-Q and nurses' categorial background variables as level of education
	Deductive content analysis (Kyngäs & Kaakinen, 2020), followed by inductive content analysis (Kyngäs, 2020)	To evaluate the nurses' assessments of the fidelity and acceptability of the PFP intervention

confidence intervals (CIs) (Dunn et al., 2014). Compared to Cronbach's alpha, Omega yields more realistic assumptions and fewer estimation problems; is more likely to reflect the actual population estimates in case of deleted items and, together with the CI, provides a more accurate degree of confidence in the consistency scale (Dunn et al., 2014). In inferential statistical analysis, the association between the PCC-S and PCQ-S was analysed using Spearman's correlation coefficient, which is a more robust statistical correlation test and less influenced by outliers (Mackridge & Rowe, 2018, p. 36). The same test was used to analyse associations between the participants' numerical background characteristics and total scores of the PCC-S and PCQ-S. The association between the participants' categorical background variables and the main study variables was analysed using the Mann-Whitney U-test (Giuliano & Polanowicz, 2008). The statistical significance level in all analyses was $p < 0.05$.

In Phase IIb, intervention implementation (Paper III), the analysis included the same background variables of the nurses, their self-assessed PCC competence level and PCC climate level at baseline (M_0) as in Phase IIa. In this phase of descriptive analysis, mean and SD were determined for the numerical background variables of residents and their next of kin: residents' age, living time in the current institution and next of kin visits per week. The instruments' internal consistency was examined using the Omega (Ω) (Dunn et al., 2014) bootstrapped 95% CIs calculated in Phase IIa. In the inferential statistical analysis, changes within the IG and CG and those between the groups at the three time points were evaluated using a linear mixed model (Khakshooy & Chiappelli, 2018, pp. 151–153) with 95% confidence intervals. The linear mixed model is ideal for analysing multisite data over intervention time (White & Barnett, 2019). The associations of changes between the IG and CG at the three time points were analysed using Spearman's rank correlation coefficient (Khakshooy & Chiappelli, 2018, pp. 129–136) with a statistical significance of $p < .05$.

In Phase IIc, evaluation (Paper IV), nurses' background variables and their association with nurses' assessed levels of fidelity and acceptability using the FA-Q were analysed. The nurse managers' observation data using the OT and nurses' focus group data were analysed. This evaluation focused only on the fidelity and acceptability of the PFP. Quantitative analyses were conducted using descriptive and inferential methods with R statistical software version 4.0.2 (R Core Team, 2020). Frequency, percentage, mean, SD, min, max and sum variables were analysed using descriptive analyses. The nurse managers' observations were classified as implemented or not implemented and described as percentages. An inferential statistical analysis was conducted to determine the association between nurses' numerical background characteristics, such as age and work experience, and the FA-Q scores using Spearman's correlation coefficient. The association between nurses' categorical background variables such as education level and FA-Q score was

analysed using the Mann-Whitney U-test. Statistical significance levels in all analyses were $p < .05$. The education levels were divided into vocational and bachelor's levels. The qualitative data were obtained from focus group interviews, and the answers to the last open-ended questions of the FA-Q were analysed using the deductive content analysis, followed by the inductive content analysis. In a deductive content analysis, the starting point is theoretical knowledge (Kyngäs & Kaakinen, 2020). In this study, the theory of fidelity was based on the MRC process and was divided into content, frequency, duration, coverage and timelessness (Hasson, 2015, pp. 281–282). In the MRC framework, acceptability has been seen as part of the feasibility and evaluation of complex interventions (Skivington et al., 2021). In the deductive content analysis conducted in this study, the theory of acceptability was based on a theoretical framework, including affective attitude, burden, perceived effectiveness, ethicality, intervention coherence and self-efficacy (Sekhon et al., 2017). Cost evaluation as part of the acceptability of the study was excluded. The deductive content analysis was followed by the inductive content analysis to describe experiences and perspectives of fidelity and acceptability (Kyngäs, 2020). Finally, multiple triangulations combined with different data sources, investigators, methodological approaches and analytical methods were applied. Multiple triangulations were adopted because they provide a more holistic perspective on the research question and increase the validity and credibility of the results (Thurmond, 2001).

4.5 Ethical considerations

The study was conducted according to the good scientific principles, standards, and guidelines (ALLEA - All European Academies, 2023; The Finnish National Board on Research Integrity TENK, 2023). The justification for conducting this study was gained from a literature review, which indicated the lack of research on nurses' PCC competence, its association with PCC climate and effective CE intervention to promote nurses' PCC competence in LTC settings for older people. The research was registered in the International Clinical Trials Registry (identifier NCT04833153) before the participants were recruited.

Ethical approval was obtained from the University Ethics Committee on 7th June 2021 (19/2021). The Amendment (32/2021) for this approval was obtained in December 2021 based on a change in the protocol. The proposed change concerned a focus group interview with the nurses who participated in the CE intervention after the intervention. Permissions for using the copyrighted instruments were granted by developers Jee-In Hwang (through email on 5th December 2020, PCC-S) and David Edvardsson (through email on 3rd December 2020, PCQ-S and PCQ-P). Permission

to reuse the items of the instruments was granted by Elsevier (PCC-S) and through email from David Edvardsson (PCQ-S and PCQ-S, 28th February 2023).

Permission to conduct the study was obtained from the participating organisations according to their standard procedures. The researcher agreed to a data management plan, strict anonymity of participants, voluntary participation in the study and the possibility of participants withdrawing. The researcher will submit the dissertation electronically to the authorising organisations and be prepared to present the study results to the organisations' representatives, if requested. The directors of nursing in charge of LTC settings for older people in both cities participating in the study indicated their organisations' willingness to participate in the intervention; thus, the IG was chosen by simple random allocation. The directors of nursing in charge of LTC settings for older people in the CG were promised that their organisations participating in the study would receive CE of PCC with the same content after the study.

A recruitment plan was created to facilitate participation. Following a previous recommendation based on the literature (Bruneau et al., 2021), nurse managers of the organisations were decided to be involved in the recruitment process. Face-to-face meetings were arranged, and the researcher supported the nurse managers during the recruitment. The plan defined their roles and allowed sufficient time for the recruitment process. According to the plan, explicit recruitment materials were produced, including posters on the walls of the organisations, informing them about the study; written information material for nurses, residents and their next of kin and an informed consent form. After random allocation, the nurse managers of both the IG and CG organisations were contacted and worked with to recruit nurses eligible for the study.

The nurse managers in the IG distributed written information to unit nurses about the possibility of participating in the study. They also made shift arrangements to enable nurses to attend the first meeting at the start of the intervention, which included an initial 30-minute verbal briefing of the study, volunteering, anonymity, study ethics, study protocol and the possibility of withdrawing from the study. If the nurses wanted to voluntarily participate in the study, they had to sign a written informed consent form. They created a code (four digits and four letters) that allowed their responses to be linked across the measurement points without being identified.

In the CG, the researcher first contacted the organisation's nurse managers, who distributed written information material to eligible nurses in their units. Those who wished to participate signed an informed consent form, created a code as in the IG and continued to work as usual without intervention during the study.

In the last focus group interviews regarding the IG, the nurse managers of the organisations informed all units of their organisation about the interview and, through shift arrangements, enabled those willing to participate. The nurses willing

to participate in the focus group signed a separate informed consent form for this part of the study.

The residents in the units where the study was conducted were in a vulnerable situation; therefore, ethical issues particularly related to older people were emphasised throughout the research process (Hubbard et al., 2003; Pesonen et al., 2011). In IG and CG, informative posters about the study were sent to the units' wall for information on the next of kin and residents. Nurse managers identified eligible residents and their next of kin, informed them with written material and asked about their willingness to participate. Then, the researcher contacted them and informed them orally and again with written material about the study, research ethics, voluntary participation, informed consent, the possibility of withdrawing, anonymity based on self-created code and reporting. Both the residents and next of kin signed written informed consent forms based on the guidance of the University Ethics Committee (19/2021) and suggestions from the literature (Suhonen et al., 2013). They were also given a memory card for the code they created as a dyad. The vulnerability and cognitive impairment of the residents were noted carefully during the study. Residents' burden was observed during the interviews, and the next of kin were asked to evaluate the responses together with the residents from the residents' perspective. This dyad of a resident and a next of kin of their choice was decided because, despite the various ethical problems, older people with memory disorders could not be excluded from the study. Ethically sound research methods that allow older people with memory disorders to tell us about their situation must be determined (Topo, 2021).

The data management plan was created and updated continuously according to the University of Turku's data policy using the DMP-Tuuli tool. Electronic data were stored in the university's Seafile cloud service, where only the researcher group could access the data. Hard copies of the data were stored in a locked repository to which only the researcher had access. The collected data will be stored for five years or until the dissertation has been published. The data protection statement for the scientific research form was completed following the General Data Protection Regulation (EU regulation, 679/2016; Ministry of Justice, 1050/2018) and the University of Turku's guidelines and made available to the public in each research unit. A data processing impact assessment was also carefully carried out before the start of the study. The core practices of publication ethics, including the publishing processes, were followed when publishing the results of the sub-studies (COPE, 2020).

5 Results

The main findings of the study are presented following the research phases, research questions and hypotheses, linked with the original articles (Papers I–IV). The development phase (I) results present the main findings of previously conducted CE intervention studies on PCC in the field of nursing and the pedagogical solutions related to CE interventions for PCC. The intervention implementation and evaluation phase (II) results first present the levels of PCC competence and PCC climate, as assessed by the nurses in the cross-sectional survey. In addition, a possible association between PCC competence and PCC climate is presented. Second, the effectiveness of the PFP intervention is presented. Third, the results related to the fidelity and acceptability of implementing the PFP intervention are presented. The final chapter summarises the results of Phase II.

5.1 Continuing educational interventions and pedagogical methods

The evidence regarding the CE of PCC targeted at nurses in LTC settings for older people identified five justifications for this study (RQ1). First, six themes of the interventions were identified: medication, interaction and caring culture, nurses' job satisfaction, nursing activities and older people's quality of life (Paper I) and older people's quality of care. This indicates that most CE intervention studies investigated PCC through individual components, such as behavioural disorders or medication management, without encompassing the entire caring culture. Second, not all studies clearly described the theoretical basis of interventions, although evidence suggests that interventions based on theoretical foundations can be effective (Zhao et al., 2017). Third, in the context of interventions, nurses' competence after CE was examined, but the actual instrument for assessing PCC competence was not utilised. Fourth, no evidence indicates a connection between nurses' PCC competence and the perceived climate of PCC in LTC settings for older people. Fifth, there is a lack of evaluation of service users' perceptions of PCC climate changes after the nurses' CE intervention of PCC in LTC settings for older people. According to the results concerning teaching methods (RQ2), further clarification is needed regarding the

description of the pedagogical background theories, teaching methods and their impact on the effectiveness of the interventions. The teaching methods primarily consisted of quite behaviouristic lectures and seminars. This evidence was used to develop the PFP intervention (Phases Ia–c).

5.2 The levels of person-centred care competence and climate

The total score of nurses' self-assessed PCC competence level (RQ3) was estimated to be closer to good than moderate at 3.8 (SD 0.45, range 2.65–5) (Phase IIa, Paper II). On the sub-scale level, the highest perceptions were on a good level of 4.04 (SD 0.57, range 3.00–5) in the sub-scale 'Providing for patient comfort'. This means that the nurses had good PCC competence in assessing residents' levels of physical and emotional comfort, the presence and extent of pain and suffering and knowledge of residents' pain, discomfort or suffering. The second highest perceptions were on a good level of 3.91 (SD 0.43, range 2.83–5) in the subscale 'Respecting patients' perspectives'. This means that the nurses assessed their PCC competence in seeing care situations through patients' eyes and respecting their values as good. They were competent in understanding multiple dimensions of PCC, such as the preferences of residents and their next of kin. They communicated the values, preferences and residents' needs in the nursing team on a good level. They were sensitive and respected the diversity of human experiences. They supported residents' and groups' values, which differ from theirs. The third highest perceptions were between moderate and good at 3.66 (SD 0.62, range 1.33–5) in the sub-scale 'Advocating for patients'. This means that the nurses did not clearly assess their PCC competence as good when required to facilitate residents' consent for care, communicate care provided for residents at each transition in care or build consensus resolving conflict in the context of residents' care. The lowest evaluations were between moderate and good at 3.60 (SD 0.54, range 2.00–5) in the sub-scale 'Promoting patient involvement in care processes'. This means that the nurses clearly assessed their PCC competence to be lower in situations where they examined barriers to the active involvement of residents in their care processes, assessed the level of residents' decisional conflict and provided access to resources. The nurses' perceptions of their PCC competence in developing strategies to empower residents or their next of kin in all aspects of the care process were not at a good level. Moreover, their perceptions of engaging residents in active partnerships that promote health, well-being, safety and self-care management, as well as respecting residents' preferences for the degree of active engagement in the care process, were not at a good level either (Table 8).

Table 8. Nurses' (n = 200) self-assessed perceptions of PCC competence.

	N	SUM (SD)	RANGE	MEAN (SD)	RANGE	Ω²
PCC-S TOTAL[1]	184	64.60 (7.57)	45–85	3.80 (0.45)	2.65–5	0.93
Respecting patients' perspectives	198	23.43 (2.60)	17–30	3.91 (0.43)	2.83–5	0.84
Promoting patient involvement in care processes	187	17.98 (2.72)	10–25	3.60 (0.54)	2.00–5	0.84
Providing for patient comfort	198	12.11 (1.71)	9–15	4.04 (0.57)	3.00–5	0.88
Advocating for patients	198	10.97 (1.85)	4–15	3.66 (0.62)	1.33–5	0.80

PCC-S[1]= Patient-Centred Care Competence scale (Hwang 2015); Ω² = OMEGA measure of reliability. Modified from Table 1 in Paper II; Number of respondents (n) do not always add up to 200 because of missing values.

The total score of nurses' self-assessed PCC climate level (RQ3) was estimated to be closer to good than moderate at 3.87 (SD 0.53, range 2.07–5). The highest sub-scale, 'A climate of safety', was assessed to be good at 4.08 (SD 0.56, range 2.17–5). This means that the nurses felt welcomed in the workplace, acknowledged as a person and able to be themselves. In addition, they felt that the residents are in safe hands; staff use a language the residents can understand, and the unit feels homely even though it is an organisation. The second highest sub-scale, 'A climate of community', was rated good at 4.03 (SD 0.69, range 1.50–5). This means that it is easy for residents to keep in touch with their next of kin, receive visitors and talk to the staff, and that there is someone to speak to if residents so wish. The sub-scale 'A climate of everydayness' was rated at a level closer to moderate than good at 3.41 (SD 0.71, range 1.50–5), which means that the units have something nice to look at, but there can be more. The units are not peaceful, neat and clean enough for nurses to rate them at a good level. The units do not reach a good level, as assessed by nurses, in terms of getting unpleasant thoughts out of their heads (Table 9). There were no associations between nurses' background variables and their assessed PCC competence or climate (Table 10).

Table 9. Nurses' (n = 200) self-assessed perceptions of PCC climate.

	N	SUM (SD)	RANGE	MEAN (SD)	RANGE	Ω²
PCQ-S TOTAL[1]	196	54.22 (7.42)	29–70	3.87 (0.53)	2.07–5	0.88
A climate of safety	197	24.50 (3.38)	13–30	4.08 (0.56)	2.17–5	0.79
A climate of everydayness	199	13.64 (2.83)	4–20	3.41 (0.71)	1.00–5	0.76
A climate of community	199	16.11 (2.75)	6–20	4.03 (0.69)	1.50–5	0.80

PCQ-S[1] = Person-centred Climate Questionnaire Staff version (Edvardsson et al. 2015); Ω² = OMEGA measure of reliability. Modified from Table 1 in Paper II; Number of respondents (n) do not always add up to 200 because of missing values.

A significant association was found between the total scores of the PCC-S and PCQ-S (RQ4) ($r = .37$, $p < .001$). The strongest association was found between the sub-scales of 'Respecting patients' values' and 'A climate of community' ($r = .45$, $p < .001$). The second strongest association was found between 'Advocating for patients' and 'A climate of community' sub-scales. The weakest association was found between 'Promoting patient involvement in care process' and 'A climate of everydayness' sub-scales. The associations ranged from $r = 0.15$ to $r = 0.45$ (Table 11).

Table 10. Associations between nurses' background variables and PCC competence or PCC climate (n = 200).

	PCC-S TOTAL[1]			PCQ-S TOTAL[2]		
	n	r[3]	p[5]	n	r	p
Nurses age	184	-0.13	0.08	196	-0.07	0.34
Working experience in social and healthcare	196	-0.04	0.55	194	-0.01	0.94
Working experience in the current unit	182	-0.08	0.30	194	-0.11	0.14
Nurses educational level[4]			0.19			0.13

PCC-S[1] = Person-Centred Care Scale; PCQ-S[2] = Person-centred Climate Questionnaire staff version; Spearman's rank correlation coefficient[3]; Mann–Whitney U-test[4]; p-value[5], statistically significant level < .05*. Number of respondents (n) do not always add up to 200 because of missing values.

Table 11. Associations between nurses' self-assessed level of PCC competence and PCC climate (n = 200).

	PCQ-S TOTAL[1]			A climate of safety			A climate of everydayness			A climate of community		
	n	**r[3]**	**p[4]**	**n**	**r**	**p**	**n**	**r**	**p**	**n**	**r**	**p**
PCC-S TOTAL[2]	182	0.37	<0.001*	183	0.34	<0.001*	183	0.24	0.001*	184	0.41	<0.001*
Respecting patients' perspectives	195	0.36	<0.001*	196	0.30	<0.001*	196	0.23	0.001*	198	0.45	<0.001*
Promoting patient involvement in care processes	185	0.23	0.002*	186	0.22	0.002*	186	0.15	0.044*	187	0.30	<0.001*
Providing for patient comfort	195	0.39	<0.001*	196	0.36	<0.001*	196	0.26	<0.000*	198	0.37	<0.001*
Advocating for patients	195	0.38	<0.001*	196	0.37	<0.001*	196	0.24	0.001*	198	0.38	<0.001*

PCQ-S[1] = Person-centred Climate Questionnaire staff version; PCC-S[2] = Person-centred Care Scale; Spearman's rank correlation coefficient[3]; p-value[4], statistically significant level < .05*. Table published in Paper II as Table 3; Number of respondents (n) do not always add up to 200 because of missing values.

The results from the cross-sectional study showed that nurses' self-assessed levels of PCC competence and PCC climate were close to good. A positive, weak but statistically significant association was found between PCC competence and PCC climate. (Figure 9) (Paper II)

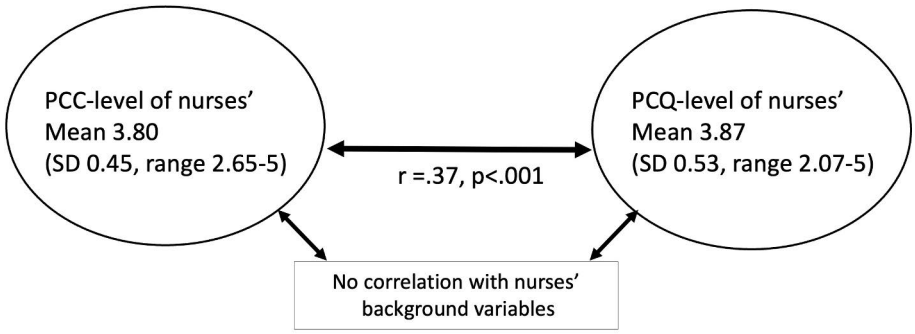

Figure 9. Results of the survey.

5.3 Effectiveness of the Person-First -Please intervention

Person-centred care competence

Regarding the level of PCC competence in the IG (RQ5, H1), statistically significant changes were observed in the total score of nurses' self-assessed PCC competence and all sub-scales between M_0 and M_2 (Phase IIb, Paper III). The mean level of PCC competence score at M_0 was perceived as slightly lower in the IG (mean 3.64, SD 0.43) than in the CG (mean 3.90, SD 0.42). Within the CG, no statistically significant changes were detected between M_0 and M_2 (Table 12). Changes between the IG and CG showed that the PFP intervention effectively promoted the nurses' PCC competence at all levels of PCC-S, except the 'Providing for patient comfort' sub-scale (Table 13). This means that the nurses' perceptions of their competence to evaluate residents' levels of physical and emotional comfort, the presence and extent of pain and suffering and residents' pain, discomfort or suffering were not increased in the IG. This result may be affected if nurses have more competence in, for example, pain management for older people, which was not clarified before the intervention was implemented. The statistically significant changes between the IG and CG confirmed H1, according to which nurses in the IG have higher levels of individual PCC competence than those in the CG.

Table 12. Changes in perceptions of PCC competence levels at the time within the IG (n = 77) and CG (n = 123) by nurses.

	CHANGES WITHIN THE IG					CHANGES WITHIN THE CG				
	M_0 n = 77	**M_0-M_1 n = 39**		**M_0-M_2 n = 53**		**M_0 n = 123**	**M_0-M_1 n = 91**		**M_0-M_2 n = 70**	
	mean[2] (SD)[3]	mean[2] (SD)[3]	REML-estimate[4] (SE)[5] [95% CI][6]	mean[2] (SD)[3]	REML-estimate[4] (SE)[5] [95% CI][6]	mean[2] (SD)[3]	mean[2] (SD)[3]	REML-estimate[4] (SE)[5] [95% CI][6]	mean[2] (SD)[3]	REML-estimate[4] (SE)[5] [95% CI][6]
PCC-S TOTAL[1]	3.64 (0.43)	3.86 (0.41)	-0.21 (0.06) **[-0.35, -0.08]**	3.94 (0.47)	-0.30 (0.05) **[-0.42, -0.18]**	3.90 (0.42)	3.94 (0.38)	-0.04 (0.04) [-0.13, 0.05]	3.97 (0.37)	-0.09 (0.04) [-0.19, 0.01]
Respecting patients' perspectives	3.77 (0.38)	3.96 (0.37)	-0.22 (0.06) **[-0.35, -0.08]**	4.04 (0.42)	-0.29 (0.05) **[-0.42, -0.17]**	3.99 (0.45)	4.06 (0.42)	-0.05 (0.04) [-0.15, 0.04]	4.06 (0.38)	0.00 (0.05) [-0.16, 0.05]
Promoting patient involvement in care processes	3.38 (0.54)	3.66 (0.52)	-0.28 (0.08) **[-0.46, -0.10]**	3.75 (0.56)	-0.36 (0.07) **[-0.52, -0.20]**	3.73 (0.51)	3.74 (0.44)	-0.01 (0.05) [-0.13, 0.11]	3.84 (0.47)	-0.13 (0.06) [-0.26, 0.00]
Providing for patient comfort	*3.95 (0.59)*	*4.01 (0.51)*	*-0.07 (0.08)* [-0.25, 0.12]	*4.19 (0.53)*	*-0.25 (0.07)* **[-0.41, -0.09]**	*4.09 (0.56)*	*4.21 (0.44)*	*-0.10 (0.05)* [-0.22, 0.02]	*4.20 (0.46)*	*-0.10 (0.0)* [-0.24, 0.03]
Advocating for patients	3.49 (0.60)	3.68 (0.62)	-0.24 (0.09) **[-0.44, -0.04]**	3.80 (0.60)	-0.35 (0.08) **[-0.53, -0.17]**	3.76 (0.61)	3.74 (0.55)	0.02 (0.06) [-0.11, 0.15	3.81 (0.48)	-0.06 (0.06) [-0.21, 0.09]

PCC-S[1] = Person-centred Care Scale; Mean[2]; (Standard deviation)[3]; REML-estimates of the change at the time[4]; (Standard Error)[5]; 95% Confidence interval [CI][6], statistically significant in bold. Modified from Table 3 in Paper III, Number of respondents (n) do not always add up to 77 or 123 because of missing values.

Table 13. Changes in perceptions of PCC competence levels between the IG and CG by nurses.

	CHANGES BETWEEN THE GROUPS	
	M_0-M_1	**M_0-M_2**
	REML-estimate[2] (SE)[3] [95% CI][4]	REML-estimate[2] (SE)[3] [95% CI][4]
PCC-S TOTAL[1]	-0.18 (0.07) **[-0.31, -0.04]**	-0.22 (0.07) **[-0.34, -0.09]**
Respecting patients' perspectives	-0.16 (0.07) **[-0.30, -0.02]**	-0.24 (0.07) **[-0.37, -0.11]**
Promoting patient involvement in care processes	-0.27 (0.09) **[-0.45, -0.09]**	-0.23 (0.09) **[-0.40, -0.06]**
Providing for patient comfort	0.04 (0.09) [-0.14, 0.22]	-0.14 (0.09) [-0.33, 0.02]
Advocating for patients	-0.26 (0.10) **[-0.46, -0.06]**	-0.29 (0.10) **[-0.49, -0.10]**

PCC-S[1] = Person-centred Care Scale; REML-estimates of the change at the time[2]; (Standard Error) [3]; 95% Confidence interval [CI] [4], statistically significant in bold. Modified from Table 3 in Paper III.

Person-centred care climate

Regarding the level of PCC climate in the IG (RQ5, H2), statistically significant changes were found in the total scores of nurses' self-assessed PCC climate and all sub-scales of PCQ-S between M_0 and M_2 (Phase IIb, Paper III). However, the mean of the PCQ-S total score at M_0 was slightly lower in the IG (mean 3.82, SD 0.51) than in the CG (mean 3.91, SD 0.54). Within the CG, no statistically significant changes were detected between M_0 and M_2 (Table 14). The statistically significant changes between the groups confirmed H2, according to which nurses' perceptions of PCC climate are higher in the IG than in the CG (Table 15).

Table 14. Changes in perceptions of PCC climate levels at the time within the IG and CG by nurses.

	CHANGES WITHIN THE IG					CHANGES WITHIN THE CG				
	M_0 n = 77	**M_0-M_1 n = 39**		**M_0-M_2 n = 53**		**M_0 n = 123**	**M_0-M_1 n = 91**		**M_0-M_2 n = 70**	
	mean[2] (SD)[3]	mean[2] (SD)[3]	REML-estimate[4] (SE)[5] [95% CI][6]	mean[2] (SD)[3]	REML-estimate[4] (SE)[5] [95% CI][6]	mean[2] (SD)[3]	mean[2] (SD)[3]	REML-estimate[4] (SE)[5] [95% CI][6]	mean[2] (SD)[3]	REML-estimate[4] (SE)[5] [95% CI][6]
PCQ-S TOTAL[1]	3.82 (0.51)	4.12 (0.46)	-0.26 (0.07) **[-0.43, -0.09]**	4.12 (0.52)	-0.30 (0.06) **[-0.45, -0.15]**	3.91 (0.54)	3.91 (0.56)	-0.01 (0.05) [-0.12, 0.11]	3.95 (0.55)	-0.02 (0.05) [-0.15, 0.11]
A climate of safety	4.05 (0.56)	4.33 (0.53)	-0.32 (0.09) **[-0.41, -0.02]**	4.25 (0.61)	-0.48 (0.08) **[-0.36, -0.01]**	4.11 (0.56)	4.04 (0.61)	-0.06 (0.06) [-0.07, 0.19]	4.04 (0.66)	-0.15 (0.07) [-0.08, 0.21]
A climate of everydayness	3.44 (0.64)	3.78 (0.73)	0.31 (0.09) **[-0.53, -0.09]**	3.92 (0.67)	0.48 (0.09) **[-0.67, -0.29]**	3.39 (0.75)	3.44 (0.78)	0.06 (0.06) [-0.21, 0.09]	3.54 (0.72)	0.15 (0.07) [-0.32, 0.01]
A climate of community	3.85 (0.70)	4.15 (0.51)	-0.31 (0.09) **[-0.51, -0.10]**	4.14 (0.62)	-0.28 (0.08) **[-0.47, -0.09]**	4.14 (0.66)	4.21 (0.60)	-0.06 (0.06) [-0.20, 0.09]	4.23 (0.60)	-0.01 (0.07) [-0.17, 0.15]

PCQ-S[1] = Person-centred Climate Questionnaire staff version; Mean[2]; (Standard deviation)[3]; REML-estimates of the change at the time[4]; (Standard Error)[5]; 95% Confidence interval [CI] [6], statistically significant in bold. Modified from Table 3 in Paper III; Number of respondents (n) do not always add up to 77 or 123 because of missing values.

Table 15. Changes in perceptions of PCC climate levels at the time between the IG and CG by nurses.

	Changes between the groups	
	M_0-M_1	**M_0-M_2**
	REML-estimate[2] (SE)[3] [95% CI][4]	REML-estimate[2] (SE)[3] [95% CI][4]
PCQ-S TOTAL[1]	-0.26 (0.09) **[-0.43, -0.09]**	-0.28 (0.08) **[-0.44, -0.12]**
A climate of safety	-0.27 (0.10) **[-0.47, -0.08]**	-0.25 (0.10) **[-0.44, -0.07]**
A climate of everydayness	-0.25 (0.11) **[-0.47, -0.03]**	-0.33 (0.11) **[-0.54, -0.11]**
A climate of community	-0.25 (0.11) **[-0.46, -0.04]**	-0.27 (0.10) **[-0.48, -0.08]**

PCQ-S[1] = Person-centred Climate Questionnaire staff version; REML-estimates of the change at the time[2]; (Standard Error)[3]; 95% Confidence interval [CI][4], statistically significant in bold. Modified from Table 3 in Paper III.

In the units where the PFP intervention was implemented, significant changes in the perceptions of the residents and their next of kin were found in the level of PCC climate between M_0 and M_2 for the PCQ-P total score and the sub-scale 'safety climate' (RQ5, H2, Phase IIb, Paper III). No statistical significance was found within the control units. In the between-group comparison, statistical significance was found in the units where the PFP intervention was implemented for the total score and all sub-scales except for 'everyday atmosphere'. This means that the residents and their next in kin did not notice any environmental changes in the unit that would make it feel like home. They did not necessarily always have something nice to look at, unpleasant thoughts could not always be pushed out of their minds and people talked more about illness than about everyday life (Table 16). Overall, the statistically significant changes between groups confirmed H2, according to which PCC climate is better in units where the PFP intervention is implemented than in control units from the perspective of residents and their next in kin (Table 17).

Table 16. Changes in perceptions of PCC climate levels at the time within the implementation (n = 18 dyads) and control (n = 21 dyads) units assessed by residents and their next of kin.

	CHANGES WITHIN THE IMPLEMENTATION UNITS					CHANGES WITHIN THE CONTROL UNITS				
	M_0 n = 18	**M_0-M_1 n = 17**		**M_0-M_2 n = 16**		**M_0 n = 21**	**M_0-M_1 n =18**		**M_0-M_2 n = 17**	
	mean[2] (SD)[3]	mean[2] (SD)[3]	REML-estimate[4] (SE)[5] [95% CI][6]	mean[2] (SD)[3]	REML-estimate[4] (SE)[5] [95% CI][6]	mean[2] (SD)[3]	mean[2] (SD)[3]	REML-estimate[4] (SE)[5] [95% CI][6]	mean[2] (SD)[3]	REML-estimate[4] (SE)[5] [95% CI][6]
PCQ-P TOTAL[1]	3.57 (0.69)	3.83 (0.63)	-0.23 (0.13) [-0.55,0.09]	3.93 (0.67)	-0.35 (0.13) **[-0.66, -0.03]**	3.86 (0.63)	3.75 (0.66)	0.10 (0.13) [-0.22, 0.40]	3.75 (0.68)	0.05 (0.13) [-0.27, 0.37]
A climate of safety	3.59 (0.74)	3.88 (0.63)	-0.29 (0.15) [-0.64, 0.07]	4.04 (0.69)	-0.43 (0.15) **[-0.80, -0.07]**	4.05 (0.61)	3.85 (0.65)	0.23 (0.14) [-0.11, 0.57]	3.91 (0.62)	0.15 (0.15) [-0.20, 0.50]
A climate of everydayness	3.74 (0.66)	3.91 (0.42)	-0.18 (0.12) [-0.47, 0.11]	3.91 (0.50)	-0.17 (0.12) [-0.46, 0.13]	3.99 (0.49)	3.84 (0.69)	0.15 (0.12) [-0.13, 0.43]	3.92 (0.61)	0.06 (0.12) [-0.23, 0.35]
A climate of hospitality	3.17 (0.98)	3.39 (1.12)	-0.11 (0.19) [-0.56, 0.35]	3.64 (0.88)	-0.34 (0.19) [-0.07, 0.11]	3.57 (1.10)	3.44 (1.04)	0.13 (0.18) [-0.30, 0.56]	3.25 (0.97)	0.26 (0.19) [-0.18, 0.70]

PCQ-P[1] = Person-centred Climate Questionnaire patient version; Mean[2]; (Standard deviation)[3]; REML-estimates of the change at the time[4]; (Standard Error)[5]; 95% Confidence interval [CI][6], statistically significant in bold. Modified from Table 5 in Paper III; Number of respondents (n) do not always add up to 18 or 21 because of missing values.

Table 17. Changes in perceptions of PCC climate levels at the time between the implementation and control units assessed by residents and their next of kin.

	CHANGES BETWEEN THE UNITS	
	M_0-M_1	**M_0-M_2**
	REML-estimate[2] (SE)[3] [95% CI][4]	REML-estimate[2] (SE)[3] [95% CI][4]
PCQ-P TOTAL[1]	-0.32 (0.18) [-0.68, 0.03]	-0.40 (0.19) **[-0.77, -0.04]**
A climate of safety	-0.52 (0.21) **[-0.92, -0.12]**	-0.58 (0.21) **[-1.00, -0.18]**
A climate of everydayness	-0.33 (0.17) **[-0.66, 0.00]**	-0.22 (0.17) [-0.56, 0.11]
A climate of hospitality	-0.24 (0.26) [-0.74, 0.26]	-0.60 (0.26) **[-1.11, -0.10]**

PCQ-P[1] = Person-centred Climate Questionnaire patient version; REML-estimates of the change at the time[2]; (Standard Error)[3]; 95% Confidence interval [CI] [4], statistically significant in bold. Modified from Table 5 in Paper III.

It was hypothesised that a **higher individual level of PCC competence is associated with higher levels of PCC climate from nurses' viewpoint** (RQ5, H3). Nurses' perceptions of PCC competence and PCC climate levels were higher within the IG (0.63 in M_0–M_2) than within the CG (0.45 in M_0–M_2). The correlations were moderate and statistically significant for total scores and all sub-scales within the IG (Table 18). Within the CG, statistically significant correlations were found between the total score and two sub-scales: 'Respecting patients' perspective' and 'Promoting patient involvement in care processes' (Table 19). The last one correlated only with the PCQ-S total score and the sub-scale 'A climate of community'. Overall, statistically significant, higher and broader correlations confirmed H3.

Table 18. Correlations of changes at the time within the IG (n = 77).

INTERVENTION GROUP		PCC-S TOTAL[1]			Respecting patients' perspectives			Promoting patient involvement in care processes			Providing for patient comfort			Advocating for patients		
		n	r[3]	p[4]	n	r	p	n	r	p	n	r	p	n	r	p
PCQ-S TOTAL[2]	M_0-M_1	32	0.57	**0.001**	38	0.47	**0.003**	35	0.41	**0.014**	36	0.49	**0.003**	36	0.58	**<0.001**
	M_0-M_2	43	0.63	**<0.001**	52	0.54	**<0.001**	46	0.57	**<0.001**	51	0.54	**<0.001**	50	0.57	**<0.001**
A climate of safety	M_0-M_1	32	0.58	**0.001**	38	0.41	**0.011**	35	0.46	**0.005**	36	0.55	**0.001**	36	0.59	**<0.001**
	M_0-M_2	43	0.63	**<0.001**	52	0.54	**<0.001**	46	0.61	**<0.001**	51	0.49	**<0.001**	50	0.51	**<0.001**
A climate of everydayness	M_0-M_1	32	0.54	**0.002**	38	0.41	**0.011**	35	0.39	**0.022**	36	0.41	**0.014**	36	0.46	**0.005**
	M_0-M_2	43	0.37	**0.016**	52	0.28	**0.041**	46	0.37	**0.011**	51	0.42	**0.002**	50	0.31	**0.027**
A climate of community	M_0-M_1	32	0.43	**0.013**	38	0.41	**0.011**	35	0.36	**0.036**	36	0.26	0.125	36	0.49	**0.003**
	M_0-M_2	43	0.54	**<0.001**	52	0.48	**<0.001**	46	0.45	**0.002**	51	0.41	**0.003**	50	0.58	**<0.001**

PCC-S[1] = Person-centred Care Scale; PCQ-S[2] = Person-centred Climate Questionnaire Staff version; Spearman's rank correlation coefficient[3]; p-values [4], statistically significant level < .05 in bold. Modified from Table 4 in Paper III; Number of respondents (n) do not always add up to 77 because of missing values.

Table 19. Correlations of changes at the time within the CG (n = 127).

CONTROL GROUP		PCC-S TOTAL[1]			Respecting patients' perspectives			Promoting patient involvement in care processes			Providing for patient comfort			Advocating for patients		
		n	r[3]	p[4]	n	r	p	n	r	p	n	r	p	n	r	p
PCQ-S TOTAL[2]	M_0-M_1	80	0.24	**0.033**	86	0.24	**0.029**	81	0.14	0.209	87	0.09	0.418	87	0.18	0.092
	M_0-M_2	60	0.45	**<0.001**	65	0.46	**<0.001**	62	0.26	**0.040**	66	-0.03	0.809	65	0.24	0.049
A climate of safety	M_0-M_1	83	0.26	**0.016**	89	0.22	**0.043**	84	0.20	0.069	90	0.15	0.169	90	0.15	0.168
	M_0-M_2	63	0.28	**0.025**	68	0.36	**0.002**	65	0.11	0.386	69	0.06	0.614	68	0.20	0.105
A climate of everydayness	M_0-M_1	81	0.28	**0.011**	87	0.24	**0.024**	82	0.18	0.104	88	0.20	0.062	88	0.07	0.498
	M_0-M_2	62	0.42	**0.001**	67	0.40	**0.001**	64	0.20	0.119	68	0.07	0.577	67	0.20	0.101
A climate of community	M_0-M_1	84	0.03	0.754	90	0.15	0.168	85	-0.06	0.571	91	-0.14	0.196	91	0.15	0.147
	M_0-M_2	63	0.44	**<0.001**	68	0.39	**0.001**	65	0.39	**0.001**	69	-0.11	0.381	68	0.25	**0.043**

PCC-S[1] = Person-centred Care Scale; PCQ-S [2] = Person-centred Climate Questionnaire Staff version; Spearman's rank correlation coefficient [3]; p-values[4], statistically significant level < .05 in bold. Modified from Table 4 in Paper III; Number of respondents (n) do not always add up to 127 because of missing values.

5.4 The acceptability and fidelity of the Person First - Please intervention

Acceptability

The nurses assessed acceptability during the contact sessions as the level of agreement, meaning that they could easily follow the steps of the JTS and develop and commit to the goals they implemented after the contact sessions. Thus, the nurses felt that they had been able to implement the goals of the PFP intervention in nursing practice as planned.

The nurses had a positive attitude towards the PFP intervention and their organisations eagerly anticipated the contact sessions, although the technical aspects of the PFP contact sessions, such as sound systems, needed improvement. The PFP intervention evoked positive feelings about developing the work and the challenges that they would face. In some responses, affective attitudes during the contact meetings were ambivalent, as nurses mirrored their residents with the older people interviewed in videos. In part, the nurses felt that the residents they cared for were in poorer health conditions than the interviewees in the videos, which might have influenced their attitudes towards implementing PCC in their unit. In contrast, many nurses described that the PFP intervention reinforced their previous knowledge of PCC and inspired them to further develop their work and learn more about PCC.

The burden of the PFP intervention was evaluated as two-fold: while the implementation was easy without any extra burden, there was an additional burden because of busyness and nurse shortages. This burden was also associated with resistance to changing work routines.

Regarding the perceived effectiveness of PFP intervention, the nurses responses can be divided into the following categories: person-centredness, collective competence, impact on their work and interaction. Regarding person-centredness, the nurses stated that the PFP intervention allowed them to get to know the residents' personalities better; it facilitated more individualised activities, circadian rhythms and increased presence with the residents. Increased collective competence was related to a more tolerant and flexible work culture, increased interaction between nurses and improved record-keeping. The impact on nurses' work was assessed as their increased presence in nursing, fun, spontaneity, flexibility in routines and use of their personality in nursing. Regarding interaction, the nurses rated the PFP intervention as having improved their interactions with the residents and their next of kin. They posted more often about their activities via social media, as they noticed that relatives are more interested in daily activities than in daily nursing routines.

The nurses expressed that implementing the PFP intervention was not ethically challenging, even though it increased the unit's ethical debate regarding restraint and

self-determination. They also felt that the PFP intervention was implemented coherently and related this to the teaching method, shared goals and support received.

Self-efficiency was expressed in two ways. First, the PFP intervention supported nurses' self-efficacy by facilitating their participation, and the nurses felt that their voices were heard during the intervention implementation. They were motivated to work according to PCC because of the PFP intervention. However, they also felt jealousy within units and between organisations, which affected their self-efficacy. Despite the partially dichotomous evaluations, the focus was on the acceptability of the intervention as perceived by the nurses. The nurses' assessments of fidelity and acceptability are shown in Table 20.

This evidence about acceptability during and after contact teaching, attitude, burden, perceived effectiveness, ethicality, coherence and self-efficacy suggests that the PFP intervention is acceptable and can be implemented in LTC settings for older people.

Fidelity

The nurses agreed that the content of the PFP intervention was evidence-based and clear, helped them understand the factors associated with PCC and enabled them to make changes in their work. They also described the content of the PFP intervention using terms such as thought-provoking and core issues of nursing based on previous knowledge. The highest scores in the FA-Q were assessed based on delivery during the contact, which means that the nurses completely agreed that the PFP intervention was delivered during the contact sessions as planned in the protocol. They assessed the frequency and duration of the PFP intervention as good and appropriate. Each contact session was allocated enough time, and the whole PFP intervention was considered to be of appropriate length.

The nurses agreed that the coverage of all nurses in the organisations supported their learning and helped them engage in the intervention. They described the coverage in very favourable terms, such as the participation of all nurses, increased engagement and involvement of all helped knowledge transfer within units, helped to see different ways of working within and between units in one organisation and helped develop collective competence. Although the coverage was rated as good, some nurses felt that implementing PFP in nursing practice was left to only a few nurses.

The timeliness of the PFP intervention were twofold: it was implemented as planned and was effective despite being implemented during the COVID-19 pandemic. The nurses assessed that the pandemic, which involved the isolation of residents and restrictions on family visits, weakened and hindered the

implementation of the PFP intervention. Despite the adverse effects of the pandemic, the focus group evaluation showed that the PFP intervention was implemented faithfully, as planned in the protocol.

The nurse managers found that the potential challenge of implementing the PFP intervention was not so much related to the intervention itself but to sick leaves, part-time work or resisting a change in work culture. They confirmed that nurses paid more attention to the wishes and needs of the residents and spent more time with them. They did not observe increased documentation and did not observe PCC in the residents' care plans. However, they confirmed increased interaction between nurses; there were more discussions on the residents' wishes, values and well-being. The nurse managers' observations also included some non-negative but noteworthy findings about the fidelity of the PFP intervention during implementation. There were only a few changes in the physical care environment. Some needs, such as physical and religious, were not increasingly considered. In addition, the collaboration with next of kin did not seem to improve. The nurse managers observed the coherence to be positive and goal-oriented, and the objectives to be based on the content of the intervention so that it could be implemented immediately in nursing practice. Nurses' cooperation among each other during the implementation of the first and second modules was high. In six out of the ten units, the nurse managers confirmed that the nurses enjoyed their work more than before the implementation. They observed that the PFP intervention increased nurses' PCC way of working and improved their collective competence. Nurse managers' observations of fidelity of the PFP intervention implementation are shown in Table 21. This evidence about content, delivery, frequency, duration, coverage and timeliness suggests that the fidelity of the PFP intervention was good and in accordance with the protocol.

Table 20. Nurses' (n = 51) assessment of the fidelity and acceptability of implementing the PFP intervention by FA-Q

1. MODULE / PERSON	**n**	**MEAN**	**SD**	**RANGE**
Total	**45**	**3.93**	**0.42**	**2.91–4.73**
Content	49	4.07	0.44	3.00–5.00
Delivery during the contact	51	4.65	0.59	3.00–5.00
Acceptability during the contact	49	4.02	0.53	2.40–5.00
Acceptability after the contact	50	3.58	0.64	2.00–4.75
Support and feedback	49	3.71	0.60	2.50–5.00
Coverage	50	3.89	0.63	2.00–5.00
Frequency and duration	50	3.95	0.81	1.50–5.00
2. module / autonomy				
Total	**44**	**3.95**	**0.42**	**2.86–4.77**
Content	47	3.88	0.63	2.50–5.00
Delivery during the contact	49	4.61	0.61	3.00–5.00
Acceptability during the contact	49	4.04	0.48	3.00–5.00
Acceptability after the contact	47	3.76	0.60	2.50–5.00
Support and feedback	46	3.85	0.59	2.75–5.00
Coverage	47	3.84	0.68	2.00–5.00
Frequency and duration	48	3.83	0.93	1.00–5.00
3. module / dignity	**n**	**MEAN**	**SD**	**RANGE**
Total	**35**	**4.02**	**0.54**	**2.45–4.91**
Content	36	4.19	0.59	2.25–5.00
Delivery during the contact	37	4.92	0.28	4.00–5.00
Acceptability during the contact	37	4.06	0.73	2.00–5.00
Acceptability after the contact	37	3.79	0.70	1.75–5.00
Support and feedback	36	3.87	0.58	2.75–5.00
Coverage	37	4.11	0.69	2.50–5.00
Frequency and duration	37	3.96	0.91	2.00–5.00

Modified from Table 4 in Paper IV; Number of respondents (n) do not always add up to 51 because of missing values.

Table 21. Fidelity of the PFP intervention implementation observed by nurse managers (n=3).

MODULES	OBSERVATION CONTENTS	PERCENTAGE
1. Module: objectives: to learn the importance of older peoples' individuality and knowledge of their personal history; to learn how the care environment can support and enable work in accordance with the PCC	Nurses have collaborated with older people on the objectives	100%
	Nurses have collaborated with next of kin on the objectives	100%
	Nurses work together to meet and achieve objectives	90%
	Older people's wishes and preferences are considered more than before	90%
	Nurses are committed to the objectives	80%
	Nurses have used their personality traits to achieve their goals	70%
	Older people's life histories are featured in the discussions	70%
	Older peoples' life histories are taken more into account in everyday life.	60%
	In the public areas of the units, changes have been made to the environment to consider the individuality of older people.	30%
	Older people's rooms show new changes that highlight the resident's individuality.	20%
	PCC can be noticed in the documentation	20%
MODULES	**OBSERVATION CONTENTS**	**PERCENTAGE**
2. Module: objectives: to learn the process of the PCC; to learn the importance of older peoples' autonomy and ethical considerations; to learn how to facilitate the older peoples' autonomy in LTC	Nurses worked together to meet and achieve objectives	100%
	Nurses are more attentive to the social needs of older people.	100%
	Nurses are committed to the objectives set together	90%
	The wishes of older people are at the forefront of nurses' discussions.	90%
	The values of the older people are at the forefront of discussions among nurses.	90%
	Nurses are more attentive to the psychological needs of older people.	90%
	Nurses have collaborated with older people on the objectives	80%
	Nurses have collaborated with next of kin on the objectives	80%
	Increased empowerment of older people to make choices in everyday care situations.	80%
	Nurses spend more time with older people than just in care situations.	80%

	Nurses are discussing more options and the different caring possibilities in care situations.	60%
	Nurses are more attentive to the cultural needs of older people.	40%
	Nurses are more attentive to the physical needs of older people.	30%
	In the public areas of the units, changes have been made to the environment to consider the individuality of older people.	30%
	PCC can be noticed in the documentation	20%
	Nurses are more attentive to the religious needs of older people.	0%
MODULES	**OBSERVATION QUESTIONS**	**PERCENTAGE**
3. Module: objectives: to learn how to improve older people's dignity in LTC; to learn about PCC outcomes and how to improve them.	Nurses are committed to the objectives	100%
	Nurses use respectful language with older people.	100%
	Nurses use respectful language when interacting with each other.	100%
	Older people are actively involved in care situations, not just passively cared for.	100%
	Nurses work together to meet and achieve objectives	90%
	Older people's well-being is more important to nurses than before.	90%
	In the discussions, nurses say they enjoy their work more than before.	60%
	In discussions, nurses have raised the dignity of residents as individuals.	50%
	Nurses have tried to develop new alternative forms of communication with older people	30%
	The public areas of the unit show change that considers the dignified treatment of older people.	30%
	Nurses have collaborated with older people on the objectives	30%
	PCC can be noticed in the documentation	30%
	Nurses have collaborated with next of kin on the objectives	0%
	In the discussions, nurses said that they feel that their work is more valuable than before.	0%

Modified from Table 5 in Paper IV.

5.5 Summary of main results

This two-phased study tested the theory-based CE intervention to promote nurses' PCC competence in LTC settings for older people. This fills the existing gap in the literature, as no previously reported CE intervention to promote nurses' PCC competence with effective pedagogical methods was identified (Paper I). This study's nursing and pedagogical theoretical background of the PFP intervention was based on comprehensive literature reviews (Paper I, Summary). A novel finding is the association between nurses' PCC competence and perceptions of PCC climate (Paper II). Another novel finding is the effectiveness of the PFP intervention in promoting nurses' PCC competence, which can be noticed in the PCC climate assessed by nurses, residents and their next of kin (Paper III). The third novel finding is that nurses' higher PCC competence is associated with a higher perceived PCC climate (Paper III). This evidence indicates a causality between PCC competence and PCC climate, which can be noticed in the organisation's service culture. This suggests that the increase in PCC competence can promote PCC climate, posing elements of quality of care, atmosphere and culture for nursing care professionals and living space for older individuals. In process evaluation, the nurses confirmed the fidelity and acceptability of the PFP intervention and its impact on the service culture. The nurse managers confirmed this through their observations of the implementation (Paper IV). Thus, the PFP is an effective CE intervention to promote nurses' PCC competence. All corresponding Finnish LTC settings for older people could benefit from implementing this intervention to promote nurses' PCC competence and thus improve PCC climate (Figure 10).

The aim was to develop and evaluate the effectiveness of the Person-First—Please (PFP) CE intervention of Person-Centred Care (PCC) targeted at professional nurses in Long-Term Care (LTC) settings for older people.

I DEVELOPMENT PHASE (2019-2021) **Paper I, Summary**

RQ1: There is a lack of theory-based interventions, PCC instruments, evidence of association between PCC competence and climate, and service users' perceptions of changes in PCC climate. Six themes were identified.

RQ2: Lack of pedagogical theories and effective teaching methods

THE PFP INTERVENTION WAS DEVELOPED

II INTERVENTION IMPLEMENTATION AND EVALUATION PHASE **Paper II, III, IV**

II a) BASELINE (Paper II)

RQ3: The levels of PCC competence and PCC climate were estimated to be good.

RQ4: A significant association between PCC competence and PCC climate was found.

II b) INTERVENTION IMPLEMENTATION (Paper III)

RQ5:

- The PFP intervention effectively promoted nurses' PCC competence in IG.
- From the viewpoint of nurses, residents, and their next of kin, perceptions of the PCC climate were higher in IG than in CG.
- Nurses' perceptions of a higher level of PCC competence were associated with higher levels of PCC climate.

II c) PROCESS EVALUATION (Paper IV)

RQ6: The fidelity of the PFP intervention is good, and nurses perceive its implementation in LTC settings for older people as acceptable. Nurses and nurse managers confirmed that implementing the PFP intervention contributes to a change in the service culture in practice nursing.

SUMMARY 2024

A comprehensive description of the development and testing process of the PFP intervention. The Person First—Please provides an effective and acceptable CE intervention for promoting nurses' PCC competence in LTC settings for older people.

Figure 10. Summary of the main results.

6 Discussion

This chapter discusses the main results of the study and their validity and reliability. It offers suggestions for further research and discusses the practical implications of the results for nursing education, CE, clinical practice and administration.

6.1 Discussion of the results

This two-phased study provides a new CE intervention, the PFP, to promote nurses' PCC competence in LTC settings for older people. The theory-based PFP intervention was carefully developed, paying attention to previous research regarding CE interventions of PCC and background theories. In developing the PFP intervention, particular attention was paid to the pedagogical background theory and, consequently, the teaching methodology. The effectiveness of the PFP intervention was tested using a quasi-experimental design in which nurses' assessments of PCC competence and climate and residents' and their next of kin's assessments of PCC climate were examined. The results of this study suggest that the PFP intervention is effective and acceptable in promoting nurses' PCC competence and acceptable in nursing practice. These results can be connected to the higher PCC climate, which promotes a better service culture.

The novelty of this study is that the PFP intervention effectively promotes nurses' PCC competence in LTC settings for older people. This is because the content of the PFP intervention focuses specifically on PCC, and the primary outcome is measured by an instrument which measures PCC competence. The lack of PCC instruments in intervention studies of PCC has been criticised (Blake et al., 2020). In this study, the measurement of PCC competence was based on the definition proposed by the QSEN (Cronenwett et al., 2007; Hwang, 2015). This is the first study to explicitly use the PCC-S (Hwang, 2015) in the context of LTC settings for older people to assess nurses' PCC competence level. Nurses in the IG assessed their level of PCC competence after the intervention as good, comparable to the previous assessments of nurses in a hospital setting (Hwang et al., 2019; Suhonen et al., 2021). Factors influencing PCC can be based on the personal and organisational levels (Park et al., 2021). Thus, collective competence was considered important in this intervention and anticipated to be reflected in PCC climate as a

secondary outcome. Nurses assessed their perceptions of the PCC climate in the organisation after the intervention to be at a good level, corresponding with earlier studies (Edvardsson et al., 2015; Yang et al., 2019).

The novelty of the PFP intervention content and the measurement of outcomes in this study are further highlighted compared to previous studies. For example, compared to the effectiveness of CE interventions on nurses' ability to work according to PCC, the CE of PCC targeted at nurses reduced the use of antipsychotic drugs by older people. However, the study did not provide evidence that PCC competence was increased, although medication management could be increased (Wauters et al., 2019). The researchers in general might think that PCC competence is reflected in the results, for example, as an increase in interaction between nurses and residents in different nursing activities (Barbosa et al., 2016) or changes in residents' behaviours (Gillis et al., 2019), so it may not have been measured separately. The potential association between PCC competence and PCC climate reinforces the idea that PCC competence can manifest in nursing practice, and that strengthening competence may impact changes in nursing practice.

The study provided a novel finding on the effectiveness of the PFP intervention in promoting nurses' PCC competence. PCC competence increased in total scores and almost all sub-scales just after the 10-week intervention and continued to increase in total scores during the six-week follow-up. This result, where effectiveness was observed in all variables and is expected to increase during the follow-up, is not typical of educational interventions (Blake et al., 2020). An explanation for this can be that the theory-based PFP intervention provided a more comprehensive understanding and learning of PCC and the competence needed. Earlier evidence has also supported the effectiveness of theory-based interventions (Zhao et al., 2017). Even though the level of education was not statistically significant in this study, an explanation can also be that the participants were mostly LPNs. Based on the literature, lower-educated nurses predict higher competence improvement in CE programmes (Bing-Jonsson et al., 2023). Ensuring PCC competence from this perspective might be important in vocational and bachelor's-level education. At least in the newly revised qualification criteria for the publicly available social and health care undergraduate degree, there is no discernible target for achieving this competence (Finnish National Agency for Education, 2023). RNs' qualifications and competencies include competence objectives for individual or PCC (Silen-Lipponen & Korhonen, 2020), which are expected to be reflected in the course content and guide the choice of the teaching method. Educators' competence in choosing teaching methods may be needed to support essential CE factors, such as positive work culture, leadership and motivation of individual nurses and teams (King et al., 2021). Regarding the teaching method in this study, previous studies showed that the participants need to work collaboratively in the JTS to get the whole

picture of the learning content (Aronson & Patnoe, 2011). The JTS leads to improved communication, interpersonal skills, critical thinking, interdependence, responsibility, interaction and understanding (Jeppu et al., 2023). These competencies are associated with improving the quality of organisational culture (Mannion & Davies, 2018) and recommended to promote teamwork in healthcare (Jeppu et al., 2023). In this study, compared to the CG, within the IG, the nurses assessed PCC climate higher after the PFP intervention in terms of the total score and all sub-scales. This result indicates the cultural change in nursing practice and confirms that the theory of collective competence (Boreham, 2004) and the JTS as a teaching method can promote PCC competence and, therefore, PCC climate.

Previously, nurses' overall competence in LTC settings of older people has been studied (Bing-Jonsson et al., 2016, 2023; Kiljunen et al., 2017, 2019; Piirainen et al., 2021) using self-assessments as in this study. Nurses assessed their clinical competence level higher compared to testing with the knowledge test (Vikström-Dahl et al., 2023). This should also be considered when looking at the results of this study. The characteristics predicting better competence of nurses are age (Kiljunen et al., 2019; Wang et al., 2020), participation in CE courses (Kiljunen et al., 2019), length of work experience (Kiljunen et al., 2019; Wang et al., 2020; Piirainen et al., 2021), education level and work environment (Bing-Jonsson et al., 2016). The lower the education level of nurses, the higher the improvement in competence in the CE programme (Bing-Jonsson et al., 2023). Especially in the field of PCC competence, nurses' older age (Hwang, 2015; Hwang et al., 2019), higher education level, longer work experience (Hwang, 2015) and higher job position (Hwang et al., 2019) have been associated with better PCC competence. Contrary to the earlier evidence of competence, this study did not find any characteristics of nurses to explain their assessment of the level of PCC competence. This suggests that nurses have equal opportunities to develop their PCC competence collectively in nursing practice in LTC settings for older people.

The study provided a novel finding that nurses' higher PCC competence level is associated with a higher assessed PCC climate. This result can demonstrate preliminary evidence of the possible causality between PCC competence and PCC climate. However, the cross-sectional study design does not confirm this. Despite careful planning of the survey design, selection bias may exist (Harris et al., 2006), making the result tentative. The literature describes the need for nurses to have PCC competence to manifest it in nursing practice (McCance & McCormack, 2017). Based on the PFP intervention's content, this study's results and earlier literature, the direction of the causality can be from competence to climate. This result indicates that promoting nurses' PCC competence can be considered a prerequisite for changes in the LTC setting's PCC climate and service culture. The service culture, associated with the quality of care and quality of older people's lives, is essential in an LTC

setting for older people because they live there. It is their everyday living environment after moving into an LTC. Their daily lives are expected to be meaningful following the goal of the PCC. Changing service culture can be a varied and lengthy process, with multiple determinants related to the residents and their next of kin, nurses and organisation (Marulappa et al., 2022). The CE of nurses may not be enough without the support of the nurse managers and the organisation's risk management policy (Kirkley et al., 2011; Marulappa et al., 2022). If the organisation's culture is not allowed to be innovative and adopts practices that involve risk-taking, it may hinder the change in the service culture (Kirkley et al., 2011). Organisational factors can influence individual nurses' perceptions of PCC (Park et al., 2021). Therefore, in such an intervention study in the development phase, cooperation of the stakeholders in the research is important (O'Cathain et al., 2019). The results of this study also reveal two key elements. During the development phase, the three nurse managers of the IG organisations collaborated with the researcher. Their wishes and ideas for implementing the intervention were taken into consideration. Second, developing the PFP intervention based on the theory of collective competence could be a good solution in this study.

In this study, residents and their next of kin in the intervention implementation units also perceived positive changes in the PCC climate despite the small sample size. This shows that nurses' enhanced PCC competence can influence the service culture of the unit. However, there are many challenges based on the older people, next of kin, nurses, investigators methodological, ethical and legal factors (Lam et al., 2018). Excluding older people with memory disorders from the research is unethical. It is recommended that older people should not be ignored as informants; consideration should be given to how their participation in the study can be supported and what research ethics considerations need to be considered (Hosie et al., 2022). In this study, residents and their next of kin were dyads, and perceptions of PCC climate were collected in structured interviews using the PCQ-P. Based on the literature review, the same instrument as that used earlier in LTC settings for older people was adopted, but the staff members were asked to conduct the assessments from residents' perspectives (Sjögren et al., 2022). The dyad model has also been used in previous studies; however, in this study, the dyad was formed by the nurses and residents (Coleman & Medvene, 2013). The perceptions of the next of kin were examined in a previous intervention study of PCC in LTC settings for older people (Roberts et al., 2015). Researchers are encouraged to focus more on the thoughts of older people and their next of kin when planning their studies (Hosie et al., 2022). Despite the many ethical issues, the Finnish Ombudsman for Older People is convinced that people with memory problems should also be able to talk about their situation and, from the viewpoint of research, be heard (Topo, 2021). A diary was maintained during this study, which was not included in the analysis. Based on the

diary entries, residents and their next of kin often mentioned their satisfaction with the possibility of participating in this study during the interviews, which corresponds with earlier evidence (Hosie et al., 2022). The dyad of residents and next of kin can be one solution to solving ethical problems and allowing participation for vulnerable older people.

In line with Kim's typology (Kim, 2010, p. 97−278), the outcomes defined by the nurses appear in all four dimensions (client, client-nurse, environment and nursing), reinforcing the notion of the holistic nature of PCC and the ability of the PFP intervention to encompass it. The dimensions of Kim's typology are also evident in previous PCC intervention studies but not usually found in intervention outcomes as in the PFP intervention (Ebrahimi et al., 2021; Pakkonen et al., 2021). In the focus group interviews conducted in this study, the nurses presented their in-depth experiences, confirming that the PFP intervention can contribute to the quality of care by promoting nurses' PCC competence (cf. Lood et al., 2020), the quality of life of older people (cf. Surr et al., 2021; McDermid et al., 2023) and nurses' job satisfaction (cf. Barbosa et al., 2015; Boersma et al., 2017). The theoretical basis for such a PCC intervention is good to robust, and the entire nursing staff, as in Kim's typology, could be better internalised in the CE interventions of PCC, especially if the aim is to support nurses' PCC competence and, therefore, develop a service culture.

6.2 Validity and reliability of the research process

The validity and reliability of this study were ensured in various ways and using different methods during the research process. The main strength of this study lies in the development of the intervention and use of various methods, following the criteria for reporting the development and evaluation of complex interventions in healthcare (Möhler et al., 2015), to evaluate the effectiveness, fidelity and acceptability of the developed PFP intervention. The validity and reliability of this study were considered throughout both study phases (Phases I and II). The following sections discuss the validity and reliability of the data (collection and analyses), instruments, intervention and study results. The study's strengths, limitations and generalisability are presented in Table 22.

Table 22. Strengths, limitations and generalisability of the study.

	STRENGTHS	LIMITATIONS	GENERALISABILITY
PAPER I	- Systematic literature retrieval - Five databases - The research team did a study selection - Search updated	- Limited language - Meta-analysis was not applicable	- Quality of the original studies (–)
PAPER II	- High response rate (74.6%) - Sufficient large sample - The low number of missing values - High internal consistency of measurements - Analysis with a statistician	- Cross-sectional design - Cluster sampling - Overlapping in some items of instruments - Self-assessment instruments - Instrument translation without pilot testing - Data collectors also out of the research team	- Conducted in one region (–) - Conducted in two cities (–)
PAPER III	- Quasi-experimental design with CG - Careful intervention development - The study followed the protocol - The low number of missing values - High internal consistency of measurements - The multiple perspectives of different participants	- The same person implemented, evaluated and reported the results of the intervention - Overlapping in some items of instruments - Self-assessment instruments-Instrument used for the first time in LTC settings for older people - Instrument translation without pilot testing - High drop-out between measurement timepoints - Data collectors also out of the research team	- Conducted in one region (–) - Conducted in two cities (–) - The same staff structure typically in LTC settings for older people in Finland (+)
PAPER IV	- The multiple methodology - Multiple triangulations of the multiple empirical data - The multiple perspectives from different participants - The simultaneous involvement of several researchers	- The new instrument was not psychometrically tested - Recruitment of the nurses to the focus group - The participation of the intervention provider to the focus group interview	- Conducted in one region (–) - Conducted in two cities (–) - The same staff structure typically in LTC settings for older people in Finland (+)

- = Generalisation restrictions, + = generalisation advantages

6.2.1 Validity and reliability of the data

In Phase Ia and Summary, a systematic review of the empirical research literature method (Harris et al., 2014) was conducted to analyse and synthesise the existing literature. Five scientific databases were selected for the review—PubMed (Medline), CINAHL, PsycINFO, Cochrane and ERIC—which are essential and comprehensive sources for identifying previous studies in the field of PCC and CE (Lehtiö & Johansson, 2016; Higgins et al., 2023). Additionally, the database searches were complemented by manual searches of the reference lists of the articles. The MeSH terms were used to ensure that everything indexed on that topic would be retrieved regardless of the keywords used in the articles (Brennan et al., 2019). Moreover, search terms were carefully determined by the researcher and information specialist. There is a risk of selection bias in systematic reviews (Drucker et al., 2016). To avoid this bias, the researcher collected the data in cooperation with other researchers to ensure reliability. Quality appraisal of the included studies was assessed by two researchers using the JBI appraisal tool for quasi-experimental studies (Tufanaru et al., 2020). First, one researcher tabulated the data systematically and then analysed them using a conventional content analysis (Hsieh & Shannon, 2005). Then, the research team confirmed the analysis. The rigorous guidance on reporting reviews provided by the PRISMA statement for reporting systematic reviews was followed (Moher et al., 2009). However, the literature search also had some limitations. First, the language of the studies was limited to English. Other languages might have uncovered some beneficial additional literature. Second, the quality of the available studies posed challenges for quality appraisal. Third, a meta-analysis was not applicable because of the selected studies' different designs and outcome variables. Fourth, the review protocol was not registered beforehand, even though it has been recommended in the literature (Drucker et al., 2016). **Phase Ib–c** (Paper I) used the same databases and search terms, including broader research designs, to develop evidence-based content of the PFP intervention. However, only the researcher collected these data, although the search results were discussed in different expert panels.

In Phase II-a, cluster sampling was conducted, and the sample size was calculated using the rule of thumb (Wilson Van Voorhis & Morgan, 2007). The sample size was sufficient (n = 200) for the 31 variables of the PCC-S and PCQ-S. The sample criteria were developed to make the target population as homogenous as possible (Handley et al., 2018). The clusters were randomly allocated because the same data were used as a baseline in Phase IIa-c. Data were collected from six LTC institutions in two cities in one region via paper questionnaires. The researcher and nurse managers in the CG collected the data under the researcher's guidance. Therefore, some variations in the data collection might have existed. The data were analysed by statisticians using descriptive and inferential statistics with R statistical

software version 4.0.2 (R Core Team, 2020). The RR was high (74.6%), with a few missing values. The internal consistency reliability of the PCC-S and PCQ-S was based on Omega (Ω) according to the literature (Cho & Kim, 2015; Dunn et al., 2014; Hayes & Coutts, 2020), and both instruments' internal consistency was high [PCC-S (Ω = 0.93) and PCQ-S (Ω = 0.88)], confirming the reliability of the data. The limitations were related to generalisation because of the limited cities and regions for the data collection and use of a cross-sectional design (Paper II).

In Phase IIb, the sample size calculations for nurses were made by a statistician using a power of 0.8, a statistical significance of .05 based on the three hypotheses and an ICC of 0.1, which is based on the previously validated PCC-S Finnish version (Suhonen et al., 2021). The sample size was sufficient in M_0 (n = 77 in IG and n = 123 in CG). Two Finnish cities were randomly allocated to the IC and CG. The risk of allocation bias is that allocation is rarely concealed (Higgins et al., 2013). This bias was avoided by choosing one city as IG and another as CG. Paper questionnaires were used to collect data from IG and CG nurses at three time points (M_0–M_2). The data for residents and their next of kin were collected as dyads through structured interviews. The researcher collected the data on IG nurses, as well as residents and their next of kin, herself at M_0–M_1 throughout the data collection period. Nurse managers collected nurses' data at M_2 under the researcher's guidance. In the CG, the researcher collected residents' and their next of kin's data with the help of a research assistant. The involvement of multiple individuals in data collection could have affected the data quality (Hammer et al., 2009). Data were analysed by statisticians using descriptive and inferential statistics with R statistical software version 4.0.2 (R Core Team, 2020). The RR was high (82% in IG and 71% in CG) at M_0, but some nurses dropped out during the study. Based on recommendations from the literature (Bell et al., 2013), using the linear mixed-model method for the data analysis, efforts were made in this study to reduce bias caused by dropouts and missing data. However, the generalisation was limited because of the limited cities and regions where the data were collected (Paper III).

In Phase IIc, the sample size was based on Phase IIb. Nurses' quantitative data were collected using paper questionnaires in all three modules of the PFP. Nurses' data were collected by the researcher in person and autonomy modules. Nurse managers collected data from the dignity and observational modules. The involvement of two data collectors could have affected the data quality (Hammer et al., 2009). Focus group interview data were collected by two researchers, with one researcher acting as the moderator, as recommended in the literature (Gill et al., 2008). Quantitative data were analysed by statisticians using descriptive and inferential statistics with R statistical software version 4.0.2 (R Core Team, 2020). The qualitative data were analysed using NVivo software first with deductive frameworks (Hasson, 2015; Sekhon et al., 2017) and then with an inductive content

analysis (Elo & Kyngäs, 2008). Using NVivo might have increased the validity and reliability of the study (Leech & Onwuegbuzie, 2011). The trustworthiness of the data collection process can be justified by the use of multiple empirical data, as well as the involvement of the research team. In Phase IIc, bias was avoided using the multi-triangulation method with empirical data, multiple methodologies and multiple perspectives of participants, and the results were confirmed by several researchers. Because the instrument did not involve psychometrical testing, qualitative analysis was used to confirm the quantitative results (Mitcbell, 1986) (Paper IV).

6.2.2 Validity and reliability of the instruments

The validity and reliability of an instrument are based on the theoretical framework development of the phenomenon before developing an instrument. Validity is a broad concept, which can be estimated using different methods, which contributes to confirming that the instrument measures what it claims to be measuring. Reliability is an instrument's ability to reproduce a consistent result in time and space or from different observers, presenting aspects of coherence, stability, equivalence and homogeneity. (Mikkonen et al., 2022.) It is the most important quality criterion of the instrument and is typically considered along with the internal consistency of the study (Terwee et al., 2007). As described in Section 2.3, the QSEN institute in the US has defined patient-centred care competence and developed a theoretical framework for this competence area (Cronenwett et al., 2007). The validity of the PCC-S has been evaluated for Finnish nurses (Suhonen et al., 2021) in the original development and testing phase (Hwang, 2015) and in validation from different perspectives: content validity (Hwang, 2015; Suhonen et al., 2021), construct validity (Hwang, 2015; Suhonen et al., 2021), sensitivity (Suhonen et al., 2021), concurrent validity (Hwang, 2015), convergent and discriminant validity (Hwang, 2015) and inter-scale correlations (Hwang, 2015; Suhonen et al., 2021). The PCC-S has been validated in the Finnish healthcare context, as suggested by acceptable reliability, content construct validity and sensitivity (Suhonen et al., 2021). One limitation is that, in the literature, the recommended cross-cultural adaptation process of research instruments (Gjersing et al., 2010) in the new setting was not used. This study trusted the validation of the original PCC-S and Finnish version. Only internal consistency reliability was examined using omega (Ω), because of its lower risk of overestimation or underestimation of reliability (Dunn et al., 2014). The examined omega for PCC-S was 0.93 in this study, which is in line with the original validations' Cronbach's alpha coefficient (0.94) (Hwang, 2015) and earlier Finnish context validations' Cronbach's alpha coefficient (Dataset 1 $\alpha = 0.93$ and Dataset 2 $\alpha = 0.91$) (Suhonen et al., 2021). The results are presented in Table 23.

Table 23. Internal consistency of the PCC-S compared to earlier validations.

	PCC-S TOTAL	Respecting patients' perspectives	Promoting patient involvement in care processes	Providing for patient comfort	Advocating for patients
HWANG, 2015					
Cronbach's α	0.92	0.85	0.81	0.84	0.80
HWANG ET AL. 2019					
Cronbach's α	0.93	0.89	0.88	0.81	0.81
SUHONEN ET AL. 2021					
Cronbach's α dataset 1	0.93	0.84	0.85	0.85	0.78
Cronbach's α dataset 2	0.91	0.82	0.77	0.83	0.74
PAKKONEN ET AL. 2023 (PAPER II)					
Omega (Ω)	0.93	0.84	0.84	0.88	0.80

The theoretical frameworks of the PCQ-S and the PCQ-P instruments are based on an understanding of the therapeutic environments: physical, the way people are and do and the philosophy of care (Edvardsson, 2008), which are described in section 2.2. The PCQ-S instrument's reliability and validity have been tested in the original Swedish version (Edvardsson et al., 2009b), English version (Edvardsson et al., 2010b), Norwegian version (Bergland et al., 2012), Chinese version (Cai et al., 2017), Slovenian version (Vrbnjak et al., 2017) and Arabic version (Aljuaid et al., 2018) in healthcare contexts such as LTC settings for older people (Bergland et al., 2012; Edvardsson et al., 2015; Wilberforce et al., 2019) and hospitals (Edvardsson et al., 2009a, 2010b; Cai et al., 2017; Vrbnjak et al., 2017; Aljuaid et al., 2018). The PCQ-S rigour has also been tested through Rasch analysis, and the scale has been found to be reliable, but amongst nurses who already perceive PCC as very good in their environment, there are some inefficiencies due to too few high thresholds inhibiting discriminations (Wilberforce et al., 2019). This study trusted the validation in residential aged care (Edvardsson et al., 2015), where the Cronbach's alpha value for the PCQ-S total was 0.88. The examined omega for this study was 0.88, which is in line with earlier instrument validation. The results are presented in Table 24.

Table 24. Internal consistency of the PCQ-S compared to earlier validations in LTC settings for older people.

	PCQ-S TOTAL	A climate of safety	A climate of everydayness	A climate of community
BERGLAND ET AL. 2012				
Cronbach's α	0.92	0.81	0.89	0.87
EDVARDSSON ET AL. 2015				
Cronbach's α	0.88	0.82	0.82	0.82
WILBERFORCE ET AL. 2019 (12 ITEMS)				
Cronbach's α	0.79	0.78	0.81	0.83
PAKKONEN ET AL. 2023, PAPER II				
Omega Ω	0.88	0.79	0.75	0.80

The PCQ-P instrument's reliability and validity have been tested in the original Swedish version (Edvardsson et al., 2008), English version (Edvardsson et al., 2009a), Persian version (Kobrai-Abkenar et al., 2020), Finnish version (Stolt et al., 2021) and Arabic version (Aljuaid et al., 2023) in different healthcare contexts, such as hospitals (Edvardsson et al., 2008, 2009a; Kobrai-Abkenar et al., 2020; Stolt et al., 2021; Aljuaid et al., 2023), LTC settings for older people (Yoon et al., 2015) and paramedic (Rantala et al., 2018). All of these studies confirmed the validity and reliability of the PCQ-P instrument. This study trusted the validation of the Finnish version (Stolt et al., 2021), where the Cronbach's alpha value for the PCQ-P total was 0.95.

The main outcomes of this study were that the nurses assessed PCC competence and climate. Based on the comparison of earlier literature with the results of this study, it can be confirmed that the study used reliable and validated instruments. No bias was expected, based on the instrumentation in the results, despite the use of self-assessment instruments. The assessments of the nurses, residents and their next of kin can be too critical or too positive based on the problems in self-assessment instruments (Bing-Jonsson et al., 2016; Karpen, 2018; Vikström-Dahl et al., 2023). In Phase IIC, the newly developed instruments for the evaluation of fidelity and acceptability were not psychometrically tested and, therefore, validated. The FA-Q instrument still has the theoretical framework for fidelity (Hasson, 2015) and acceptability (Sekhon et al., 2017), which is described in section 4.3.

6.2.3 Validity and reliability of the intervention

This study produced a theory-based CE intervention named PFP targeted at nurses in LTC settings for older people. The intervention development was guided by the CReDECI 2 guidelines (Möhler et al., 2015). Intervention development was needed because there was no effective, theory-based CE intervention to enhance nurses' PCC competence and PCC climate in LTC settings for older people.

The PFP was based on evidence from the literature (Pakkonen et al., 2021) and the globally adopted midrange theory named person-centred practice framework (McCance & McCormack, 2017). The learning method was chosen based on earlier evidence of the effectiveness of the CE of PCC in LTC settings for older people (Pakkonen et al., 2021), that of the JTS as a teaching method (Alrassi & Mortensen, 2020; Buhr et al., 2014; Sanaie et al., 2019) and the theory of collective competence (Boreham, 2004). In the development phase, three expert panels, comprising experts in PCC, pedagogy and research methods, reached a consensus on the PFP intervention context and timetable. The theory-based intervention was carefully developed in Phase Ib, and the protocol was registered before starting the study (Clinical Trials.gov identifier NCT04833153).

A pre-planned strategy for the delivery of the PFP intervention (Möhler et al., 2015) was used to maintain a standardised delivery of the intervention to all nurses in the IG. The lectures were recorded, the same content was used as that in the JTS, the same format of the JTS was used throughout the study and the timetable was precisely the same and followed throughout. In the process evaluation, the fidelity of implementing the PFP intervention was explored through nurses' assessments and focus group interviews.

The process evaluation recommends collecting data several times and using various data-collecting methods to avoid start-up problems at the beginning of the intervention (Moore et al., 2015). This was considered by collecting data using different methods at different times (Figure 6). A limitation in evaluating the PFP intervention implementation process may be the lack of documentary analysis or qualitative observation by persons other than nurse managers. This study also lacks economic assessment. The addition of these would have enhanced the process evaluation. However, fidelity and acceptability were studied as part of the evaluation process for the implemented PFP intervention. The relation of process evaluation to the outcomes of the PFP intervention in this study can be demonstrated in the way recommended for the evaluation of complex interventions (Moore et al., 2015).

The PFP intervention was carried out during COVID-19, which might have affected the results. The difficulties faced in conducting research during the pandemic are related to data collection, interventions, publications, changes to the study designs and research questions (Bratan et al., 2021). Guidelines for researchers were updated (European Commission, 2022; NHS Health Research Authority,

2021). Problems with the conducted trials when the protocols had to change during the COVID-19 pandemic were published based on participants' recruitment, enrolment and involvement (Abshire et al., 2021) in data collection (Brundle et al., 2022). In this study, no changes had to be made to the research protocol. However, a larger classroom with a safe distance between the participants had to be rented. Given that this study aimed to promote nurses' PCC competence through collective competence, online implementation might not have been an option. In the future, it will be essential to retest the effectiveness of the PFP when the pandemic does not limit participation or drain nurses' resources.

6.3 Suggestions for further research

The results of this study suggest that the PFP intervention effectively increased nurses' PCC competence, but further research is needed. The effect of the PFP intervention on the 'Providing for patients' comfort' sub-scale was not statistically significant; thus, future work should consider how to strengthen the intervention in this area to ensure that this sub-scale is also effective. A larger sample and a more significant number of clusters nationwide are also needed to provide more evidence on the effectiveness of the PFP intervention, to demonstrate a more intense association between PCC competence and PCC climate and to show the direction of this potential causality.

The content of the PFP intervention could be further developed, even though it was effective in this study. The concept could be made clearer and have a more personhood perspective (McCormack, 2004). Nurses might now associate PCC directly with the topic of individualised care, and there can be overlaps as well as differences between these concepts. If the content of the PFP intervention is strengthened in the future, its effectiveness needs to be tested again. Then, it can be tested using a three-arm design (the original PFP, PFP 2.0 and the control). A longitudinal study could also be conducted to examine the effects of the PFP intervention and to determine whether the positive changes observed are sustainable, how they evolve and how much intensification or additional dosing is needed to achieve lasting results.

Nurse managers could benefit from being trained on their leadership competence and the ability to create an ethically sustainable culture in their work organisations (Ministry of Social Affairs and Health, 2024:4). Evidence suggests that nurse managers need support in shifting from a task-oriented to a PCC or individual-oriented culture (Suhonen et al., 2011). Therefore, the PFP intervention can be used to develop a CE intervention specifically for nurse managers to promote their PCC competencies to better support nurses in changing the service culture towards a PCC approach. A CE intervention of PCC for nurse managers could be organised before

or at the same time as that for nurses or at the same time. Exploring the most practical combination to implement the PFP intervention for nurses and their managers could be essential. Therefore, the research method would use a multiarm, quasi-experimental design as a stepped wedge design. The process evaluation could be based on several methods to more broadly demonstrate the relevance of CE for nursing practice. In addition, the validated measurement in the process evaluation is important for future use. This information would be required to promote the quality of care and quality of life in LTC settings for older people.

The process evaluation of the intervention indicated that working according to PCC could impact nurses' job satisfaction, which is in line with earlier studies (Jeon et al., 2012;Barbosa et al., 2015), but more evidence is needed in this area. The nurse managers' increased competence of PCC, in association with the nurses' increased PCC competence and their associations with the nurses' job satisfaction and well-being, is one possibility for further research. Instruments measuring nurses' job satisfaction or retention in LTC settings for older people could be an excellent addition to data collection in the future.

Further research could continue to involve residents and their next of kin. Assessment by service users is crucial when discussing PCC, which is strongly linked to the quality of nursing care and the service culture. Service design is part of the development methods in social and health care (Roberts et al., 2016; Eines et al., 2019) , which could also be more widely highlighted in shaping the service culture of LTC settings for older people. From the perspective of person-centredness, future research could involve a broader range of service users of LTC settings in service design. For example, the next of kin of residents with experience in LTC settings for older people could be valuable sources of information.

6.4 Practical implications

The results of this study suggest practical implications for policymaking, nursing practice and education.

Suggestion for policymaking: The roadmap for 2022–2027 ensures the sufficient availability of healthcare and social welfare personnel in Finland and provides information about the lack of LPNs and increased number of nursing assistants required in services for older people (The Ministry of Social Affairs and Health, Finland 2023:8). In earlier evidence, lower levels of education have been associated with excellent competence development through CE (Bing-Jonsson et al., 2023). The findings of this study could be considered in discussions regarding the funding and benefits of CE aimed at enhancing the quality of nursing care. Given that PCC is associated with improved quality of life, care quality and nurses' job satisfaction, this study suggests that investments in nurses' CE to promote PCC competence can

contribute to these objectives in healthcare. Resources could be allocated to nurses' CE and professional development to enhance both the quality of nursing care and the satisfaction of nurses and residents, thereby significantly improving the efficiency and effectiveness of healthcare significantly.

Suggestion for nursing education: This study suggests that nurses' PCC competence can be enhanced through education. This indicates that vocational and bachelor's-level education can further strengthen PCC competency during undergraduate education.

Suggestion for nursing practice: The development of PCC competency based on this study could lead to a better understanding of residents' personality, development of the nurse–resident relationship and development of a care environment, particularly the social environment.

7 Conclusion

According to the existing quality recommendation, LTC facilities for older people are expected to ensure a personalised and meaningful life based on their habits and customs (Ministry of Social Affairs and Health, 2024:4). This means that nurses need PCC competence to provide care that aligns with the quality recommendation. However, previous studies suggest that nurses lack PCC competence and do not know how to implement it in practice (Kangasniemi et al., 2022). Personal development and continuous learning are expected to be guaranteed for many social and health professionals, as they are seen as an attraction and a critical factor in developing their skills while improving the quality of services (The Ministry of Social Affairs and Health, Finland 2023:8).

This study makes the following novel contributions to the literature. First, the literature review showed insufficient evidence of CE interventions that promote nurses' PCC competence in LTC settings for older people and served as the driving force to develop the CE intervention in this study. Second, teaching methods and theories for PCC-related CE interventions have been poorly described in the literature, and thus, the PFP intervention in this study was developed to be theory-based. Third, this study described nurses' PCC competence and PCC climate levels in LTC settings for older people and showed them to be at a good level. Fourth, this study showed the association between nurses' PCC competence and climate. Fifth, the PFP intervention is acceptable and might influence the changes in the work culture. Sixth, this study showed that service users may perceive increased nurses' PCC competence in the PCC climate. This indicates a better service culture, which is critical to improving the quality of care and the residents' quality of life in LTC settings for older people.

The study's design and settings do not allow for generalisation of the results, but the PFP intervention can be implemented in Finnish LTC setting for older people.

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Appendices

Appendix 1. Databases and search phrases used in systematic review.

DATABASE	SEARCH PHRASE
PUBMED (MEDLINE)	("Patient-Centered Care"[Mesh] OR "person-centered car*" OR "person-centred car*" OR “person centered car*” OR “person centred car*” OR “patient centered car*” OR “patient centred car*” OR "patient-centered car* "OR “patient-centred car*” OR “client centered car*” OR “client centred car*” OR "tailored car*" OR “resident centered car*” OR “resident centred car*” OR “resident-centred car*” OR “resident-centered car*” OR "individualized car*" OR "individualized car*") AND ("Frail Elderly"[Mesh] OR "Aged"[Mesh] OR "Aged, 80 and over"[Mesh] OR "Senior Centers"[Mesh] OR older* OR elder* OR aged OR senior* OR resident* OR "old people*" OR "old person*") AND ("Insurance, Long-Term Care"[Mesh] OR "Long-Term Care"[Mesh] OR "Nursing Homes"[Mesh] OR "After-Hours Care"[Mesh] OR "Conservative Treatment"[Mesh] OR "long-term car*" OR LTC OR "nursing home*" OR "24-hour treatment*" OR "24-hour car*" OR "enhanced treatment*" OR "enhanced car*" OR "long-term treatment*")
CINAHL	(MH "Patient Centered Care" OR "person-centered car*" OR "person-centred car*" OR "person centered car*" OR "person centred car*" OR "patient centered car*" OR "patient centred car*" OR "patient-centered car*" OR "patient-centred car*" OR "client centered car*" OR "client centred car*" OR "tailored car*" OR "resident centered car*" OR "resident centered car*" OR "individualized car*" OR "individualised car*") AND (MH "Aged+" OR MH "Frail Elderly" OR MH "Aged, Hospitalized" OR MH "Gerontologic Nursing+" OR MH "Gerontologic Care" OR older* OR MH "Senior Centers" OR "older people*" OR MH "Nursing Home Patients" OR elder* OR "elder people*" OR aged OR senior* OR resident* OR "old people*" OR "old person*") AND (MH "Long Term Care" OR MH "Nursing Homes+" OR "long-term car*" OR LTC OR "nursing home*" OR "24-hour treatment*" OR "24-hour car*" OR "enhanced treatment*" OR "enhanced car*" OR "long-term treatment*")
PSYCINFO	("person-centered car*" OR "person-centred car*" OR "person centered car*" OR "person centred car*" OR "patient centered car*" OR "patient centred car*" OR "patient-centered car*" OR "patient-centred car*" OR "client centered car*" OR "client centred car*" OR "tailored car*" OR "resident centered car*" OR "resident centered car*" OR "individualized car*" OR "individualised car*") AND (DE "Geriatrics" OR DE "Gerontology" OR older* OR "older people*" OR elder* OR "elder people*" OR aged OR senior* OR resident* OR "old people*" OR "old person*") AND (DE "Nursing Homes" OR DE "Group Homes" OR DE "Long Term Care" OR DE "Residential Care Institutions" OR "long-term car*" OR LTC OR "nursing home*" OR "24-hour treatment*" OR "24-hour car*" OR "enhanced treatment*" OR "enhanced car*" OR "long-term treatment*")

COCHRANE	("person-centered" NEXT car* OR "person-centred" NEXT car* OR person NEXT centered NEXT car* OR person NEXT centred NEXT car* OR patient NEXT centered NEXT car* OR patient NEXT centred NEXT car* OR "patient-centered" NEXT car* OR "patient-centred" NEXT car* OR client NEXT centered NEXT car* OR client NEXT centred NEXT car* OR tailor* NEXT car* OR resident* NEXT centered NEXT car* OR resident NEXT centered NEXT car* OR individualized NEXT car* OR individualised NEXT car*) AND (older* OR older* NEXT people OR elder* OR elder* NEXT people OR aged OR senior* OR resident*) AND ("long-term" NEXT car* OR LTC OR nursing NEXT home OR "24-hour" NEXT treatment* OR "24-hour" NEXT care OR enhanced NEXT treatment* OR enhanced NEXT car* OR "long-term" NEXT treatment*)
ERIC	("person-centered car*" OR "person-centred car*" OR "person centered car*" OR "person centred car*" OR "patient centered car*" OR "patient centred car*" OR "patient-centered car*" OR "patient-centred car*" OR "client centered car*" OR "client centred car*" OR "tailored car*" OR "resident centered car*" OR "resident centered car*" OR "individualized car*" OR "individualised car*") AND (older* OR "older people*" OR elder* OR "elder people*" OR aged OR senior* OR resident* OR "old people*" OR "old person*") AND ("long-term car*" OR LTC OR "nursing home*" OR "24-hour treatment*" OR "24-hour car*" OR "enhanced treatment*" OR "enhanced car*" OR "long-term treatment*")

Appendix 2. Studies included in the updated literature review.

Authors, year, country	Design and JBI	Aim	Number of participants in last measurement point	Instrument(s)
McDermid et al., 2023, United Kingdom	A randomized controlled trial JBI = 9	to evaluate iWHELD program's impact on QoL, agitation, and psychotropic prescribing in nursing home residents with dementia during the COVID-19 pandemic including an evaluation of the impact on individuals who contracted COVID-19.	Residents in nursing homes: E: n=288 C: n=306	* DEMQOL-Proxy * Health-related quality of life EQ-5D-5L Proxy * Neuropsychiatric Inventory-Nursing Home Version (NPI-C) * Medication charts
Isaac et al., 2021, Australia	A quasi-experimental intervention study, without control group JBI = 7	to evaluate the outcomes of a person-centered, non-pharmacological dementia care model to reduce agitative behaviours of residents with dementia and parallel reduction in nurses' stress.	Residents: n = 77 Staff: n = 87	* Standardized Mini Mental State Examination (SMMSE) * Kimberley Indigenous Cognitive Assessment (KICA-Cog) * The Barthel Index of Activities of Daily Living (ADL) * Pain Assessment in Advanced Dementia (PAINAD) scale * Cornell Scale for Depression in Dementia (CSDD) * The Kimberley Indigenous Cognitive Assessment – Depression (KICA-Dep) * Cohen-Mansfield Agitation Inventory (CMAI) * Caregiver Stress Inventory (CSI)
Lood et al., 2020, Sweden, Norway and Australia	A multi-centre, non-equivalent controlled group before-after design JBI = 8	To evaluate the effects of a staff education programme about person-centred care and promotion of thriving on relatives' satisfaction with quality of care and their perceptions of the person-centredness of the environment. To outline factors of importance to explain the variance in relatives' satisfaction with quality of care.	Relatives in nursing homes: E: n = 79 C: n = 53 A: n = 132	* The Pyramid questionnaire (Quality of care) * The Person-centred Climate Questionnaire - Family version (PCQ-F)

Authors, year, country	Design and JBI	Aim	Number of participants in last measurement point	Instrument(s)
McDermid et.al., 2022, United Kingdom	Cluster randomized controlled trial JBI = 8	to evaluate a digital person-centered care training intervention from the WHELD program comparing digital E-WHELD intervention and digital E-WHELD intervention with virtual coaching.	Staff members in nursing homes. E-WHELD with virtual coaching n = 29 E-WHELD alone n = 16 Residents in nursing homes E-WHELD with virtual coaching n = 61 E-WHELD alone n = 69	* Dementia Care Mapping (DCM) * Approaches to Dementia Questionnaire (ADQ) * Knowledge in Dementia Scale
Parajuli et al., 2021, Australia	a quasi-experimental design without a control group JBI = 7	to evaluate the changes in prescription patterns of psychotropic medications in residents with dementia	Residents' medication charts in nursing homes n = 31 n = 31 one-to-one interview nurses n = 8 focus groups	* Medication charts 3 months pre- and post-intervention * 31 on-to-one semi-structured interventions of staff
Sjögren et al., 2022, Sweden, Norway and Australia	A multi-centre, non-equivalent controlled group before-after intervention. JBI = 8	To evaluate the effects of a person-centred and thriving-promoting intervention on nursing home residents´ experiences of thriving and person centredness of the environment, and to evaluate if the effects varied between female and male residents	Residents in nursing homes: E: n = 114 C: n= 91 A: n = 205	* Thriving of Older People Assessment Scale (TOPAS) * Person-centred Climate Questionnaire-Patient Version (PCQ-P) * Index of Independence in Activities of Daily Living (Katz PADL-index) * The Gottfries cognitive scale * The Neuropsychiatric Inventory-Nursing Home Version (NPI-NH)

Authors, year, country	Design and JBI	Aim	Number of participants in last measurement point	Instrument(s)
Surr et al., 2021, United Kingdom	An open-cohort cluster randomized controlled trial JBI = 9	to evaluate the clinical and cost-effectiveness of DCM alongside usual care (intervention), compared to usual care alone (control), for people living with dementia in care homes.	Residents in nursing homes: E: n = 388 C: n = 287	* Cohen-Mansfield agitation inventory CMAI * Neuropsychiatric Inventory - Nursing Home (NPI-NH) * DEMQoL-Proxy * Health-related quality of life EQ-5D-5L Proxy * Quality of Life in Late Stage Dementia (QUALID) * Dementia-specific quality of life QOL-AD * Quality of Interactions Schedule (QUIS) * Recorded medications * Sense of Competence in Dementia Care Staff (SCIDS) * General Health Questionnaire (12-item) (GHQ-12) * Cohen Mansfield Agitation Inventory – Observational * Pittsburgh Agitation Scale (PAS) * Cost per unit of improvement in CMAI and cost per QALY for residents * Cost of intervention delivery and implementation

Appendix 3. Measurements used in CE interventions of PCC.

THEME	AIM	INSTRUMENT	AUTHOR, YEAR
Person-centred care and caring environment	Person-centred care	Person-centered care assessment tool	(Bökberg et al., 2019; y. zhao et al., 2022)
	Person-centred care climate	Person-Centered Climate Questionnaire – Staff version (PCQ-S)	(Bökberg et al., 2019)
		Person-centred Climate Questionnaire-Patient Version (PCQ-P)	(Sjögren et al., 2022)
		The Person-centred Climate Questionnaire - Family version (PCQ-F)	(Lood et al., 2020)
		Person-Centered Environment and Care Assessment Tool	(Chenoweth et al., 2014)
Caring culture and environment	Culture change	Kansas Culture Change Instrument	(Cornelison et al., 2019)
	Physical environment	The Therapeutic Environment Screening Survey for Nursing Homes	(Chenoweth et al., 2009)
Quality	Quality of life	Health-related quality of life of people with dementia	(Ballard et al., 2018)
		Person with Dementia and Quality of life measurement	(Chenoweth et al., 2014)
		Quality of Life measurement	(Chenoweth et al., 2009)
		The Alzheimer Disease-related Quality of Life	(McGilton et al., 2017)
		Quality of Life in Alzheimer's Disease Scale	(Richter et al., 2019)
		Quality of Life in Late-Stage Dementia (QUALID)	(Surr et al., 2021)
		DEMQoL-Proxy	(Surr et al., 2021)
		Dementia-specific quality of life QOL-AD	(Surr et al., 2021)
		Health-related quality of life EQ-5D-5L Proxy	(Surr et al., 2021)
	Quality of care	Emotional Responses in Care	(Chenoweth et al., 2014)
		Care Effectiveness Scale	(Hoeffer B et al., 2006)
		The Pyramid questionnaire (quality of care)	(Lood et al., 2020)
	Thriving	Thriving of Older People Assessment Scale (TOPAS)	(Sjögren et al., 2022)
	Satisfaction	Resident Satisfaction Index	(Coleman & Medvene, 2013)
		Mutuality scale	(Coleman & Medvene, 2013)

Continue

Related to the older people's health	Medication	Psychotropic Education and Knowledge test	(Azermai et al., 2017)
		Medication charts or other recorded documentation of residents related to medication	(Azermai et al., 2017; Ballard et al., 2018; Chenoweth et al., 2009; Fossey et al., 2006; Parajuli et al., 2021; Richter et al., 2019; G. Roberts et al., 2015; Sloane et al., 2004, 2013; Surr et al., 2021; Wauters et al., 2019)
	Dementia and knowledge of it	Approaches to Dementia Questionnaire	(Boersma et al., 2019; McDermid et al., 2022; Y. Zhao et al., 2022)
		Dementia Care Mapping	(Fossey et al., 2006; Li et al., 2017; McDermid et al., 2022; G. Roberts et al., 2015; Yasuda & Sakakibara, 2017)
		Global Deterioration Scale of Primary Degenerative Dementia	(Chenoweth et al., 2014)
		Standardized Mini Mental State Examination	(Isaac et al., 2021; McGilton et al., 2017; Sloane et al., 2004; Sposito et al., 2017; Wauters et al., 2019; Yasuda & Sakakibara, 2017)
		Knowledge in Dementia Scale	(McDermid et al., 2022)
		Dementia Screening Scale	(Richter et al., 2019)
		Discomfort Scale for Dementia of an Alzheimer Type	(Sloane et al., 2004)
		Dementia Knowledge Assessment Scale (DKAS)	(Y. Zhao et al., 2022)
		Sense of Competence in Dementia Care Staff (SCIDS)	(Surr et al., 2021; Y. Zhao et al., 2022)
		The Global Deterioration Scale	(Sposito et al., 2017)
	Cognition	Cognition Scale	(Sloane et al., 2004)
		The Gottfries cognitive scale	(Sjögren et al., 2022)
		Kimberley Indigenous Cognitive Assessment	(Isaac et al., 2021)
	Mental health	Cornell Scale for Depression in Dementia	(Chenoweth et al., 2014; Isaac et al., 2021; McGilton et al., 2017)
	Physical health	Pain Assessment in Advanced Dementia	(Isaac et al., 2021)
		General Health Questionnaire	(Jeon et al., 2012; Surr et al., 2021)
		Cumulative Illness Rating Score for Geriatrics	(Li et al., 2017; Sloane et al., 2004)
	Oral care	Plaque Index for Long-Term Care	(Sloane et al., 2013)
		Gingival Index for Long-Term Care	(Sloane et al., 2013)
		Denture Plaque Index	(Sloane et al., 2013)
		Minimum Data Set (part of oral health)	(Sloane et al., 2013)

Continue

Relationship between older people and nurses	Communication and interaction	Ethogram for verbal communicative behaviors by framework of Kitwood	(Barbosa, Marques, et al., 2016)
		Quality of Interactions Schedule	(Chenoweth et al., 2014)
		Functional Linguistic Communication Inventory	(McGilton et al., 2017)
		Communication-Impairment Questionnaire	(McGilton et al., 2017)
		Interactional Comfort Survey	(McGilton et al., 2017)
		Quality of Interactions Schedule (QUIS)	(Surr et al., 2021)
	Behaviour	Agitation Inventory	(Ballard et al., 2018)
		The Neuropsychiatric Inventory	(Ballard et al., 2018; Chenoweth et al., 2009; Gillis et al., 2019; Sjögren et al., 2022; Surr et al., 2021; Y. Zhao et al., 2022)
		Video-recorded sessions coded by Global Behavioral Scale	(Barbosa et al., 2017; Coleman & Medvene, 2013)
		Video recorded material code by Person-Centered Behavior Inventory	(Coleman & Medvene, 2013)
		Quality of Caregivers' Behavior in dementia care	(Boersma et al., 2019)
		Cohen-Mansfield Agitation Inventory	(Chenoweth et al., 2009, 2014; Fossey et al., 2006; Gillis et al., 2019; Isaac et al., 2021; Richter et al., 2019; G. Roberts et al., 2015; Sloane et al., 2004; Surr et al., 2021, 2021)
		The Hassles During Bathing Scale	(Hoeffer B et al., 2006)
		Video-recoded sessions coded by The Caregiver Bathing Behavior Rating Scale	(Hoeffer B et al., 2006)
		Care Recipient Behavior Assessment	(Sloane et al., 2004)
		Pittsburgh Agitation Scale (PAS)	(Surr et al., 2021)
		Nursing Care Assessment Scale	(McGilton et al., 2017)
Related to the Older peoples' activity	Activities of daily living	Residents' activities of daily living	(Chenoweth et al., 2014; Sloane et al., 2004)
		Index of Independence in Activities of Daily Living	(Sjögren et al., 2022)
		The Barthel Index of Activities of Daily Living	(Isaac et al., 2021; Yasuda & Sakakibara, 2017)
		Katz index of ADL	(McGilton et al., 2017; Wauters et al., 2019)

Continue

Related to the nurses	Stress and burnout	Perceived Stress Scale	(Barbosa, Nolan, et al., 2016)
		Maslach Burnout Inventory	(Barbosa, Nolan, et al., 2016; Coleman & Medvene, 2013; Jeon et al., 2012)
		Caregiver Stress Inventory	(Isaac et al., 2021)
	Job satisfaction	Minnesota Satisfaction Questionnaire	(Barbosa, Nolan, et al., 2016)
		Job satisfaction (Leiden Quality of Work Questionnaire)	(Boersma et al., 2017)
		The Satisfaction Working with Residents with Dementia	(McGilton et al., 2017)
	Nurses attitude and change of behaviour	Quality of implementation of VCM score	(Boersma et al., 2019)

Appendix 4. Continuing education interventions and outcomes in updated review.

THEME	AIM	CONTENT OF INTERVENTION	PEDAGOGICAL METHODS	ASSESSMENTS	OUTCOMES AND EFFECTIVENESS IN LENS OF NURSES, OLDER PEOPLE AND NEXT OF KIN	SOURCE
MEDICATION	to evaluate the changes in prescription patterns of psychotropic medications in residents with dementia	The training focused on symptoms associated with Alzheimer's disease and related disorders, the theory and delivery of The Progressively Lowered Stress Threshold (PLST), person-centered dementia care and the use of the measurement instruments.	- The workshops 2 h up to 3 weeks. - On-the floor mentoring (60 minutes. - 2x 20-30 min individual music intervention over 8 weeks - last 4 weeks, group music intervention 45-50 min, 2 times per week	Medication charts data covering 3-months pre- and post-intervention. One-to-one semi-structured interviews 8 focus groups, conducted at 1-month and 3-months follow-up.	OC: There was a reduction of 22.4% in the use of at least any psychotropic medications, 19.6% reduction in antipsychotics and benzodiazepines and 6.5% reduction in antidepressants prescription medicines, when comparing residents. Not statistically significant. OP = 0	Parajuli et al., 2021
INTERACTION AND CARING CULTURE	to evaluate the outcomes of a person-centered, non-pharmacological dementia care model to reduce agitative behaviours of residents with dementia and parallel reduction in nurses' stress.	The training focused on symptoms associated with Alzheimer's disease and related disorders, the theory and delivery of The Progressively Lowered Stress Threshold (PLST), person-centered dementia care and the use of the measurement instruments	- The workshops 2 h up to 3 weeks. - On-the floor mentoring (60 minutes. - 2x 20-30 min individual music intervention over 8 weeks - last 4 weeks, group music intervention 45-50 min, 2 times per week	CMAI was administered consecutively for 5 days pre and post intervention. Nurses' stress evaluated used CSI at baseline and post-intervention.	OC: significant decline in aggressive, physically nonaggressive, verbally agitated behaviors. Reduction in staff stress. OP = + N = +	Isaac et al. 2021

	to evaluate a digital person-centered care training intervention from the WHELD program comparing digital E-WHELD intervention and digital E- E-WHELD intervention with virtual coaching.	- promoting tailored person-centred activities - promoting tailored interactions - antipsychotic medication review	- Five 25-minute interactive multimedia online modules. One module/week, five in eight weeks. Arm 1: coaching support fortnightly via virtual conferencing or telephone from the research therapist throughout the intervention period Arm 2: only the multimedia online modules	Outcome measures were collected with each participant pre- and postintervention	Staff receiving the digital eWHELD intervention with virtual coaching showed significant improvements in attitudes. Additionally, significant benefits were observed in the eWHELD intervention with the virtual coaching group compared to the digital eWHELD alone. The residents in the nursing facilities receiving the digital eWHELD intervention with virtual coaching had significantly better well-being and had significantly greater engagement in positive activities. N = + OP = +	McDermid et al. 2022
	To evaluate the effects of a person-centred and thriving-promoting intervention on nursing home residents´ experiences of thriving and person centredness of the	- The theoretical framework was operationalized within three dimensions (1) Doing a little extra, (2) Developing a caring environment, (3) Assessing and meeting highly prioritized psychosocial needs.	- Two-hour introduction lecture - Nine workshops - International seminar to share experiences and closing seminar - Reflective evaluation	Baseline (M_0), immediately after the intervention 14 months intervention (M_1) and 6 months follow-up (M_2)	P: The intervention had positive effects on residents' experiences of thriving The resulted in higher ratings of thriving and person-centredness of the environment for male residents when	Sjögren et al., 2022

	environment, and to evaluate if the effects varied between female and male residents	The staff then explored the three dimensions in depth by discussing their daily practice in relation to the concepts and relevant research evidence. Between the workshops, they also conducted a variety of activities related to the three dimensions.			compared to female residents' post-intervention. OP = +	
OLDER PEOPLES' QUALITY OF LIFE	to evaluate the clinical and cost-effectiveness of DCM alongside usual care (intervention), compared to usual care alone (control), for people living with dementia in care homes.	- DCM involves a five-phase cycle, including holding briefing session(s) for the staff team; observing up to five residents with dementia for up to six consecutive hours; undertaking data analysis; writing a report summarising the data and providing feedback of findings to the staff team; and action planning.	- four days of training for "Mappers"	Baseline, 6 months follow-up and 16 months follow-up	P: DCM was not found to be effective versus control on the primary or any secondary outcomes, nor was it cost-effective. OP: 0	Surr et al, 2021
	to evaluate iWHELD program's impact on QoL, agitation, and psychotropic prescribing in nursing home residents with dementia during the COVID-19 pandemic including an evaluation of the impact on individuals who contracted COVID-19.	Key topics: understanding Person-centred care, developing strengths-based care plans and tailored social activities, understanding unmet needs, and evidence-based practices for antipsychotic medication use.	- a 1-month orientation phase to assess learner needs and introduce the program. - 16 weeks program - iWHELD-champions in every nursing home - 45-minutes virtual coaching sessions per week between iWHELD-champions - Offline tasks - iWHELD digital hub support	Baseline and 16 weeks follow-up	P: iWHELD intervention had a significant benefit for residents' quality of life. S: no significant change in agitation and no difference in the use of psychotropic drugs. OP: +/-	McDermid et al. 2023

OLDER PEOPLE'S QUALITY OF CARE	To evaluate the effects of a staff education programme about person-centred care and promotion of thriving on relatives' satisfaction with quality of care and their perceptions of the person-centredness of the environment. To outline factors of importance to explain the variance in relatives' satisfaction with quality of care	- The theoretical framework was operationalized within three dimensions (1) Doing a little extra, (2) Developing a caring environment, (3) Assessing and meeting highly prioritized psychosocial needs. - The staff then explored the three dimensions in depth by discussing their daily practice in relation to the concepts and relevant research evidence. They also conducted a variety of activities related to the three dimensions between the workshops.	- Theoretical workshops and practice-based activities.	Baseline (M_0), immediately after the intervention 14 months intervention (M_1) and 6 months follow-up (M_2)	No statistically significant overall effects of the staff education programme on either of the outcomes stated above, a person-centred environment in terms of safety was identified as a factor of prominent importance for the relatives' satisfaction with the quality of care. NK = 0	Lood et al. 2020

(N) = Nurses; (OP) = Older People; (NK) = Next of Kin; + = positive effect; 0 = non effect

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