UNIVERSITY OF TURKU

This is a self-archived – parallel published version of an original article. This version may differ from the original in pagination and typographic details. When using please cite the original.

Validation of the Finnish Person-Centered care Climate Questionnaire-Patient and testing the relationship with individualized care

Running head: Finnish validation of the PCQP

Authors:
Minna STOLT, PhD, Docent, University Lecturer, FEANS, Department of Nursing Science, University of Turku, Finland and Researcher, Turku University Hospital, Turku, Finland, minna.stolt@utu.fi
ORCID: 0000-0002-1845-9800

Janika KOSKENVUORI, MNSc, PhDc, Department of Nursing Science, University of Turku, Finland, and Assistant Head Nurse, HUSLAB, Helsinki University Hospital, Helsinki, janika.j.koskenvuori@utu.fi

David EDVARDSSON, PhD, Professor, School of Nursing and Midwifery, La Trobe University, Australia, and Department of Nursing, Umeå University, Sweden.
D.Edvardsson@latrobe.edu.au

Jouko KATAJISTO, MSocSci, Lecturer, Statistician, Department of Mathematics and Statistics, University of Turku, Finland, jouko.katajisto@utu.fi

Riitta SUHONEN, Professor, PhD, RN, FEANS, Department of Nursing Science, University of Turku, Finland and Director of Nursing, Turku University Hospital and City of Turku, Welfare Division Turku, Finland, riitta.suhonen@utu.fi
ORCID: 0000-0002-4315-5550

Corresponding author:
Minna Stolt, Docent, PhD, University Lecturer
Address: Department of Nursing Science, 20014 University of Turku, Finland
Email: minna.stolt@utu.fi
Telephone: +358469237973

Abstract

Aims: The aim of the study was two-fold: 1) to test the psychometric properties of the *Person-Centered care Climate Questionnaire-Patient- Finnish version* (PCQ-P-Fin), and 2) to examine the associations between older patients' perceptions of the PCC climate and their perceptions of individuality in care delivered within acute care settings for older people.

Design: An exploratory, correlational, cross-sectional survey design.

Methods: The study was conducted within acute care settings for older people with heart failure (n=111, response rate 54%). Data were collected with self-completed questionnaires, the Person-Centered care Climate Questionnaire-Patient version (PCQ-P-Fin) and the Individualized Care Scale-Patient (ICS-Patient-B), between 6/2016–5/2017. Data were analyzed using descriptive statistics, Pearson's correlation coefficients, exploratory factor analysis and a Rasch analysis.

Results: The PCQ-P-Fin showed satisfactory structural, construct and concurrent validity and high reliability. The ICS-B-Patient and the PCQ-P-Fin correlated strongly positive suggesting an association between the perceptions of individuality in care and the care climate.

Conclusion: The PCQ-P-Fin is a useful, reliable and valid tool. Characteristics of the care environment, especially the climate and the extent to which this is perceived to be person-centered may be used to enhance perceptions of individualized care.

SUMMARY STATEMENT OF IMPLICATIONS FOR PRACTICE

What does this research add to existing knowledge in gerontology?

- Evidence of the associations between older patients' perceptions of the person-centered care climate and individuality in care delivered within acute care settings for older people is lacking.

- The levels of the perceived individuality and person-centered care climate were high.

- The PCQ-P-Fin is a useful tool, with tested structural, construct and concurrent validity and high reliability.

What are the implications of this new knowledge for nursing care with older people?

- The implications for clinical practice include the recognition of care climate and care environment issues in developing nursing care for this and other vulnerable patient groups.

- Care environment characteristics, especially the climate of person-centeredness may be used to enhance perceptions of individuality in care.

How could the findings be used to influence policy or practice or research or education?

- The PCQ-P-Fin showed good psychometric properties and so may be useful in care settings for older people.

- An improvement of the PCC climate may help in the provision of individualized nursing care.

INTRODUCTION

Person-centered care (PCC) is a central issue in international (Alzheimer's Association, 2018; WHO, 2019) and national (e.g. MSAH, 2017) guidelines. The term person-centered care originates from the work from Carl Rogers (Rogers, 1951) and has been a defining standard of care practice for a number of years (Brownie & Nancarrow, 2013). The main thrust of PCC is to treat the patients as unique individuals based on their life experiences (Redman, 2004) and use this to support their personal choice and autonomy in care delivery. PCC places the person cared for in the center and considers their point of view in the care-related decision-making process (Ponte et al., 2003). Residential care facilities for older people and acute care hospitals are using and increasingly adopting the PCC paradigm which is gradually replacing traditional institutional models of care in which patients are passive care receivers (Tay et al., 2017). Furthermore, the investigation of PCC includes the assessment of climate in which the care is delivered giving the rationale for investigation of patients' perceptions of PCC including the climate and perceptions of individuality on care delivered.

This change in care practice has led to a growing research interest in PCC (Kogan, Wilber, & Mosqueda, 2016). This research has focused on investigating PCC and its successful translation into practice, for example, in the fields of: long-term care services (Chenoweth et al., 2014); dementia care (Clissett, Porock, Harwood, & Gladman, 2013); hospital to home transitional care (Jack et al., 2009); and palliative and hospice care (Lavoie, Blondeau, & Martineu, 2013). However, there is limited exploration of PCC in the acute care of older people (Rushton & Edvardsson, 2017).

Background

PCC has been described as enabling and facilitating positive care outcomes on several levels (Brownie & Nancarrow, 2013). Person-centered interventions in older people care settings are associated with staff's satisfaction and their capacity to provide individualized care, to assist with improving the psychological status of patients and reducing levels of agitation in people with dementia (Brownie & Nancarrow, 2013). The use of PCC in care delivery has also demonstrated the potential to improve preventive care for older adults with chronic diseases (Liang et al., 2017). In this study, older people refers to individuals older than 65 years of age (Johnson, Bengtson, Coleman & Kirkwood, 2005).

Individualized care as perceived by older patients is associated with many positive outcomes such as quality of life, adherence to care regimen and independence (Robinson, Callister, Berry, & Dearing, 2008; Suhonen, Välimäki, Katajisto, & Leino-Kilpi, 2007a). Individualized care was considered a form of PCC delivery before the concept of PCC gained momentum in the nursing/caring literature (e.g. Lauver, Gross, Ruff, & Wells, 2004). Individualized care has been defined from studies based on patients' views on how their individuality is supported through specific nursing activities and how they experience individuality in their own care (Suhonen, Leino-Kilpi, & Välimäki, 2005). Individualized nursing care uses the perceptions of the client or patient about the care, to increase the uniqueness of the care provided (Charalambous, Chappell, Katajisto, & Suhonen, 2012; Suhonen, Leino-Kilpi, & Välimäki, 2005; Suhonen, Välimäki, & Katajisto, 2000). This definition has therefore, two aspects: the perception of how nurses support patient individuality by their activities and how nurses' activities are perceived by those in their care.

The concepts of person-centered care and individualized nursing care have often been used as synonyms in the literature (e.g. Lauver et al., 2004; O'Rourke, Chappell, & Caspar, 2009; Radwin & Alster, 2002). Researchers have concluded that the terms can be situated along a continuum based on

the specificity of the recognition and activity. For example, Lauver et al. (2004) concluded that the

levels of specificity and complexity of individualized care interventions are much higher than are those

for other kinds of "patient-centered interventions" (p. S33). However, both person-centered and

individualized care share a holistic view of the person, in the context of patient care, even if the

philosophical underpinning is slightly different.

This holistic approach is enshrined within the concept of person-centered care and demonstrated clearly

in the context of multi-disciplinary dementia care and in facilities where people receiving care are in

danger of losing their identity due to the severe illness and the care interactions (McEvoy & Duffy,

2008) that arise from this. Such contexts have highlighted the social dimension of care, the relationship

between patient and professional and the extent to which this can bestow or reduce personhood

(Kitwood, 1997). Kitwood's ideas on the prevention of de-humanization in dementia care sparked a

great deal of research attention into PCC (Kitwood, 1997). In this research, PCC includes individuals'

"life experiences" as valuable perspectives on which care is based. These PCC perspectives augment

the medical perspectives or 'truths' (often referred to as the medical model of disease, treatment and

care in the sociological literature (Kitwood, 1997). This augmentation adds a level of "subjectivity" to

nursing care and can be expanded to include the person's experience of illness, their normal daily

activities, life roles and their social network. Together, these "truths" and "subjectivity" improve

decision-making about health, care and services for individuals (e.g. Edvardsson, Fetherstonhaugh,

Nay, & Gibson, 2010; McCormack & McCance, 2006).

Research evidence suggests that the transition of PCC and individualized care from theory into care

activity is far from complete (Groene et al., 2009; Suhonen, Stolt & Papastavrou, 2019). A considerable

amount of empirical evidence about the difficulties and shortcomings in the provision of individualized

and person-centered care, especially for older patients, is available (e.g. Caspar, O'Rourke, & Gutman, 2009; Caspar, Cooke, O'Rourke, & MacDonald, 2013; Sawamura, Nakashima, & Nakanishi, 2013) and in acute care settings (Rodrígues-Martín, Stolt, Katajisto, & Suhonen, 2016; Suhonen, Tsangari, Leino-Kilpi, Papastavrou, & Gustafsson, 2013a). These difficulties and shortcomings have been expressed in various, and some incongruous ways. On the one hand, nurses report not using individualized care in their day-to-day practice (Caspar & Rourke, 2008; Caspar et al., 2009; Suhonen et al., 2019), while on the other hand, they feel that they support patient individuality quite well (Suhonen, Stolt, Puro, & Leino-Kilpi, 2011). Concurrently, patients have perceived that the care they received has been individualized to a small extent (Suhonen et al., 2012; Suhonen et al., 2018a). In these circumstances it is not surprising that patients' and professionals' perceptions of individualized nursing care have been found to differ (Suhonen et al., 2012), nurses' assessment being higher compared to patients.

There is some evidence that the provision of both PCC and individualized care is associated with the care environment (McCormack & McCance, 2010; Sawamura et al., 2013; Suhonen et al., 2019) and care culture (Brownie & Nancarrow, 2013; Rahman & Schnelle, 2008; Rushton & Edvardsson, 2017). Despite this, recognition of the importance of environmental aspects in supporting older individuals with poor health and the understanding that the care environment is a nursing meta-paradigmatic concept (Kim, 2010), the care environment associated with PCC and individualized care seems to be an under-used resource. This under-use might explain the variations in the perceptions of patients and professionals about the extent to which care is adapted to the individual (Nordin, McKee, Wijk, & Elf, 2016; Suhonen, Stolt, Gustafsson, Katajisto, & Charalambous, 2014).

THE STUDY

Aims

The aim of the study was two-fold: 1) to test the psychometric properties of the *Person-Centered care Climate Questionnaire-Patient- Finnish version* (PCQ-P-Fin), and 2) to examine the associations between older patients' perceptions of the PCC climate and their perceptions of individuality in care delivered within acute care settings for older people.

Design

An exploratory, correlational, retrospective, cross-sectional survey design was used. This study was part of the InCareS (Individuality of care, services and environment to support self-management and independent living of older people) project (University of Turku, 2019).

The following hypothesis guided the study:

- The higher the level of perceptions of person-centeredness in the care climate the higher the level of perceptions of individuality perceived by older patients in acute care settings.

Sample

Data were collected from older people with heart failure (n=111, response rate 54%) in 20 in-patient units at four different levels of acute care according to the progressive patient care: one university hospital (4 units, the highest, tertiary care level); one central hospital (4, the second, tertiary care level); one regional hospital (1, secondary care level); and two city hospitals (11, local, primary level) which provide acute care across the age groups. The sample size was calculated for the larger study. For comparison of the responses from four levels hospitals, a sample size 312 participants (NQuery Advisor; change or difference of ±0.5 between the means in the items of the ICS, power 0.90, alpha 0.01). The hospitals were included in using cluster sampling of 2 hospital districts, and smaller hospitals linked to university or central hospitals situating in the same city area. Data were collected

using self-completed questionnaires between June 2016 and May 2017. Participants were included in the study if they were: 1) older people aged 65 years or older; 2) admitted to acute hospital due to heart failure (ICD codes I50.0 Heart failure, I50.1 Left ventricular failure, unspecified, I50.9 Heart failure, unspecified); 3) being cared for in an in-patient unit/ward and shortly (during 24 hours) to be discharged home or to a home-like facility; 4) able to answer the questionnaire independently or with the help of their next of kin.

Data collection

Data were collected using two instruments, the Person-Centered Care Climate Questionnaire-Patient version (PCQ-P-Fin) and the second part of the Individualized Care Scale-Patient (ICS-Patient-B) (Suhonen et al., 2005; 2010). In addition, participants' socio-demographic variables were collected.

Both instruments, the Person-Centered Care Climate Questionnaire-Patient version (PCQ-P, Edvardsson et al., 2008; Edvardsson, Koch, & Nay, 2009; Yoon, Roberts, Grau, & Edvardsson, 2015) and the second part of the Individualized Care Scale-Patient (ICS-Patient-B, Suhonen et al., 2005; 2010; 2013b; Stolt & Koskenvuori, 2019), have been previously validated. In this study, the PCQ-P was translated in Finnish and validated first time in Finland.

The *Person-Centered care Climate Questionnaire-Patient version* (PCQ-P), originally developed in Sweden (Edvardsson, Sandman, & Rasmussen, 2008), measures the extent to which patients perceive their care environments as person-centered. The PCQ-P is intended to be used by adults receiving somatic care in sub-acute and acute hospital settings and consists of 17 items in three dimensions. These dimensions are: climate of safety (10 items), climate of everydayness (4 items) and climate of hospitality (3 items). High scores for climate of safety are achieved when staff are perceived to be

available, approachable and competent, they talk using understandable lay language and respond quickly. In addition, the climate of safety recognizes a clean and well-organized physical environment. High scores for the climate of the everydayness dimension are achieved when patients' experience a 'de-institutionalized' environment containing familiar, home-like features. The climate of hospitality dimension refers "to the reception and entertainment of people in the environment that conveys both feelings of being welcome and receiving the best treatment and care" (Edvardsson et al., 2008, p. 304) High scores are achieved when people perceive they are welcome and receiving the best care and treatment. The response format for all three dimensions uses a seven-point Likert scale (from 1 = No, I disagree completely to 7 = Yes, I agree completely). Higher scores indicate a climate that is more person-centered (Edvardsson et al., 2008).

In earlier study, the internal consistency, for the total PCQ-P, measured using Cronbach's alpha coefficient (0.93), was satisfactory (Edvardsson et al., 2008). The content validity, based on the relevant literature and expert panel evaluation was also satisfactory. The construct validity, supporting a three-factor solution (orthogonal rotation), has been demonstrated using different factor analyses (Edvardsson et al., 2008). The original Swedish version of the PCQ-P was later translated into English and validated using an Australian hospital patient sample, where Cronbach's alpha coefficient 0.90 and the intra-class correlation coefficient 0.70 for test-retest reliability, confirmed appropriate psychometric properties (Edvardsson et al., 2009). The PCQ-P has been evaluated further by its psychometrics in long-term care settings in the USA using a sample of older residents. This study demonstrated that the PCQ-P was a valid and reliable instrument for assessing both hospital and other care climates (Yoon et al., 2015).

In this current study, the PCQ-P was translated to Finnish (PCQ-P-Fin) using standard forward-back translation procedures (Sousa & Rojjanasrirat, 2011). The official translator (T1) translated the instrument from the source language (English) into the target language (Finnish) independently of two other researchers (R1, R2) who completed the same work. After checking the three versions and reaching consensus, the instrument was back-translated by another official translator (T2). The original and back-translated versions were carefully analyzed by the same two researchers (R1, R2) who helped in the original translation. The original translator (T1) was also consulted to make sure that the source and target instruments were equivalent. The research team together with the original developer assessed the content, semantic and conceptual equivalence of the PCQ-P-Fin. In addition, the PCQ-P-Fin was compared with the Swedish version due to similar health care systems and Nordic culture in both Finland and Sweden. Finally, the back-translated version was reviewed and approved by the original developer of the PCQ-P.

The Individualized Care Scale (ICS-Patient version; Suhonen et al., 2005; 2010), originally developed in Finland, measures patients' views about individualized care in two dimensions (ICS-Patient-A and B). The ICS-Patient-A seeks patients' views on how their individuality is supported and facilitated through specific nursing interventions during their hospital stay. The ICS-Patient-B explores the extent to which patients perceive their care as individualized to them. In this study, only the ICS-Patient-B was used because it has similar assessment schema as PCQ-P providing patients' perception of individualized care. ICS-Patient-B consists of 17 items in three sub-scales examining different aspects of the care. These aspects are: the patient's clinical situation (ClinB, seven items), the patient's personal life situation (PersB, four items) and the patient's decisional control over their care (DecB, six items). The response format uses a 5-point Likert-type scale (1 = fully disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, 5 = fully agree). Sum-variables can be computed for each sub-

scale, and higher scores report that the patient perceives the care they received is more individualized to them.

The ICS-Patient has been tested for its reliability and validity using various methods at a national and international level. Cronbach's alpha coefficients, measuring the internal consistency and reliability over the ICS-Patient-B, have ranged from 0.90 to 0.95 (Suhonen et al., 2010; 2013b). The content validity of the ICS-Patient is supported by a comprehensive literature review published during the development phase (Suhonen et al., 2005) and demonstrated in different expert analyses (Acaroglu, Suhonen, Sendir, M., & Kaya, 2011; Amaral, Ferreira, & Suhonen, 2014; Rasooli, Zamanzadeh, Rahmani, & Shahbazpoor, 2013; Suhonen et al., 2005). The construct validity of the scale and the three-factor solution has been established using a series of factor analyses (Acaroglu et al., 2011; Amaral et al., 2014; Suhonen et al., 2005; 2010) and structural equation modeling (Suhonen et al., 2007a). The ICS has proven good criteria (Suhonen et al., 2007a), good cross-cultural validity (Suhonen et al., 2013b) and the convergent validity of scale has been demonstrated by comparing it to two additional scales measuring individualized nursing care (Suhonen, Schidt, & Radwin, 2007b). The ICS-Patient has been adapted and validated for Canadian (Petroz, Kennedy, Webster, & Nowak, 2011), Chinese (Yi et al., 2017), German (Köberich, Suhonen, Feuchtinger, & Farin, 2015), Greek (Suhonen et al., 2010), Italian (Rovetta, Giordano, & Manara, 2012), Portuguese (Amaral et al., 2014) Swedish (Suhonen et al., 2010), Turkish (Acaroglu et al., 2011), UK (Suhonen et al., 2010) and the USA (Suhonen et al., 2010) populations.

After gaining permission for data collection in each of the hospitals from the chief administrators, researchers informed the directors of nursing and medicine and then the leaders of the units, about the study and the protocols. The named contact research nurse in each unit approached potential

participants according to the inclusion criteria for participants. This happened after the decision of discharge had been done by the physicians in their daily rounds in the units, and after this the participants were requested their willingness to participate. Those patients who did volunteer received the questionnaire and a sealable envelope to return the completed questionnaire.

Data analysis

Data were analyzed statistically using the IBM SPSS Statistics for Windows, Version 24.0 (IBM Corp. Released 2016. Armonk, NY: IBM Corp). Firstly, descriptive statistics (minimum, maximum, means and standard deviations) were computed for the study variables. Sum-variables were calculated based on the theoretical constructs and included totals scales, the ICS-B-Patient Total (with three sub-scales Clinical situation, Personal life situation and Decision control) and the PCQ-P-Fin total (with three sub-scales Safety, Everydayness, Hospitality) (see Table 1). The psychometric properties were analyzed using classical and modern test theory. Cronbach's alpha coefficients and item-to-total correlations (criteria $r > 0.30$, Streiner, Norman & Cairney, 2014) were calculated to determine the internal consistency of the scales. An exploratory factor analysis (EFA) with Maximum Likelihood extraction procedure was performed with the oblique rotation Promax (where the factors are permitted to be correlated with one another, and Kaiser's Normalization, Pattern matrix was used) for the PCQ-P-Fin to assess the construct validity. The Kaiser-Meyer-Olkin measure of sampling adequacy test (0-1, sufficiency of the sample size, with the high index the EFA can work efficiently) and Bartlett's test of sphericity (p-value<0.05; considers whether variables are related and therefore suitable for structure detection) were used for analyzing the suitability for data reduction.

A Rasch analysis was conducted with Winstep's Rasch analysis software (3.92.0) using the partial credit model. Internal scale validity was assessed looking for unidimensionality where a minimum of

50% of variance explained by the measures, was considered the test criterion (Linacre, 2011). Category structure was evaluated by calculating the number of responses in each response option. The goal was to have equally distributed responses in each option. Item functioning was analyzed in terms of item misfit. Mean square (MnSq) values between 0.6 and 1.4 were considered acceptable with z-values less than 2.0 (Smith, Schumacker, & Bush, 1998). Person misfit was evaluated by calculating the percentage of persons with MnSq values higher than 1.4 or lower than 0.6. Using this system, a tolerance of 5% misfit is acceptable (Kottorp, 2003). The person separation index refers to sensitivity and describes the number of groups into which the participants can be divided. The recommended value is at least 1.5 indicating that the participants can be divided into at least to two groups. Item separation indicates the ability of the test to define a distinct hierarchy of items along the measured variable (Bond & Fox, 2015 p. 70). Higher values mean better separation (Wright & Stone, 1999). A Wright Item Map was used to visually inspect the item and person distribution along a continuum where the easiest items are located at the bottom of the continuum and the most difficult ones in upper part of the continuum (Wright & Masters, 1982).

Finally, Pearson's correlation coefficients were calculated for the total scales to demonstrate possible associations between the person-centered care climate (PCC) and individualized care.

Ethical considerations

The study was approved by the Ethics Committee of the University (6/2016, 15.2.2016). Permissions to collect the data were obtained from the chief administrators of the hospitals according to their standard procedures. The decision to participate in the study was voluntary and this voluntariness, the study and protocols were initially explained orally while recruiting the participants and again in writing in the introductory letter included in the questionnaire. Return of the completed questionnaire was considered

as informed consent. No data identifying the respondents were collected and the research adhered to the principles of research ethics (Allea, 2017). The permission to translate and use the PCQ-P in Finnish context was obtained from the original developer (20th May 2015). The COSMIN Study Design checklist for Patient-reported outcome measurement instruments (COSMIN 2019) was used to guide the reporting.

RESULTS

Participants

The mean age of the participants was 78.8 (SD 8.1) years; a slight majority were female (57%). The educational level of the participants was basic elementary school (68%), second level vocational education (24%) and higher-level academic education (8%). Most of the participants had an emergency admission to hospital (86%) and most had previous experiences of hospital care (98%). The participants had diagnosed heart failure as follows: less than 1 year (23%), 1-3 years (21%) and more than 3 years (56%). The New York Heart Association (NYHA) classification of the symptoms was as follows: NYHA level I (7%), level II (27%), level III (49%), and level IV (17%).

Psychometric properties of the PCQ-P-Fin

The internal consistency of the PCQ-P-Fin was highly satisfactory (Cronbach's alpha was 0.95 for the total scale and 0.94 for Safety, 0.89 for Everydayness and 0.86 for Hospitality (Table 1). At the item level, the item-to-total correlations were all acceptable, ranging from 0.445 to 0.857 (Table 2). The PCQ-P-Fin correlated well with *The Individualized Care Scale* (ICS-B-Patient version, Pearson r=0.774) supporting concurrent validity. The exploratory factor analysis (EFA, Promax, KMO 0.902, Bartlett's test of sphericity p<0.001) supported the scale structure (the percentage of explained variance was 75%). (Table 2). Although the EFA suggested three factors (eigenvalues > 1, and variance >5%)

were present the items did not clearly load exactly on the theoretical constructs based on the Pattern matrix.

Insert table 1 here

Insert table 2 here

The Rasch analysis supported the unidimensionality of the PCQ-P-Fin (Table 3). The first dimension explained 64.5% of the variance. The category structure of the PCQ-P-Fin was slightly skewed towards positive responses where response options 0, 1 and 2 were used in 13% of responses whereas response options 3, 4 and 5 were used in 88% of responses 13%, 25%, 50% respectively. Person misfit was evident, as in total, 44% of persons mis-fitted; 22 persons (19%) had an infit MnSq of more than 1.4 and 27 persons (24%) had a MnSq below 0.6. In the item fit, only two items had evidence of mis-fitting: item 16 had a high item misfit (MnSq 1.83) and item 4 was below 0.6 (MnSq 0.51). All other items fitted the predetermined criteria of item infit 0.6-1.4. The person separation index was 2.79 indicating that the respondents could be separated into 3 different groups. The item separation was high (5.72) indicating that the measure can separate items into more than 6 distinct groups. The item map demonstrated that all the items were located at the lower part of the continuum. However, the participants were located along the whole continuum with the majority being in the upper part. It was evident that all the participants were able to respond well to the items.

Insert Table 3 here.

Perceptions of individuality in the care and the person-centered care climate

In total, the respondents evaluated the care climate as partly person-centered (Mean 4.02, SD 0.92). Table 4). At the sub-scale level, the highest level of person-centered care was in the climate of safety

(Mean 4.37, SD 0.81) followed by the climate of hospitality (Mean 3.63, SD 1.31) and then the climate of everydayness (Mean 3.41, SD 1.30).

The respondents perceived the level of individuality in the care they received was high (Mean 4.32, SD 0.61). The highest level was perceived in the Clinical situation (Mean 4.34, SD 0.62), followed by the Decisional control over care (Mean 4.32, SD 0.71). The lowest level of individuality was perceived in the Personal life situation domain (Mean 4.22, SD 0.78) which is still a very good level of individualized care (Table 4).

Insert Table 4 here.

Associations between patients' perceptions of person-centered care climate and perceptions of individuality in care

The correlation analysis revealed a strong and positive correlation between perceptions of the person-centered care climate and individuality in the care delivered (Table 1). This correlation occurred between the total scales, the ICS-B-Patient and the PCQ-P-Fin (Pearson's r 0.77, p<0.01). Correlations were similarly strong between the total ICS-B-Patient and all three PCQ-P-Fin sub-scales safety (r=0.776), everydayness (r=0.669), and hospitality (r=0.631).

DISCUSSION

This two-fold study provided a validated PCC climate scale (PCQ-P-Fin) for use in the Finnish context adding new information to both the person-centered and individualized research literature and confirmed the connection between the environment/climate and patients' perceptions of individuality in care. Prior to this study, the PCQ-P had proven psychometric properties and judged as valid measure

for the phenomenon; reliability (internal consistency, equivalence) and validity (construct validity, internal scale validity). The psychometric properties PCQ-P-Fin validated in this study proved to be satisfactory and the results, being similar to the results of studies, using the original instrument, provide evidence for version equivalence. However, the factor structure was not clear. A three factor solution was supported by the eigenvalues and variance explained, but the items loaded differently from the original. Further evidence was demonstrated when no comments were received from the participants when asked about the clarity of the items in the PCQ-P-Fin. Cronbach's alpha coefficients showed satisfactory internal homogeneity for the total scale and its three sub-scales, and the values were similar to those using the original instrument corresponding with earlier results (Edvardsson et al., 2008; 2009; Yoon et al., 2015) and so again demonstrating equivalence. The item-to-total correlations were calculated within the sum-variables (Table 3) and were high ranging from 0.445-0.857, much above the suggested minimum criteria.

The variance explained by the EFA was high (75%, compared to original 66.3%, Edvardsson et al. 2008). Although a three-factor solution was suggested, the items did not fit well into their intended position within the scales. The pattern matrix showed a clearer pattern of item assignments; however those assignments were not in line with the original work (Edvardsson et al., 2008). It seems that the items did not combine to produce the variables of safety, everydayness, or hospitality in this sample. This may be explained with the nature of the EFA as statistical technique. The EFA assumes that any indicator may be associated with any factor and tries therefore identifying latent constructs underlying measured variables (Fabrigar, Wegener, MacCallum & Strahan, 1999). The scale may be unidimensional, which was further investigated with Rasch model. It is possible that the environment or climate as perceived by the older adult influences the scoring on each of the items and the person-centered climate could differ between institutions.

On one hand, the EFA has been critiqued by clustering most items for the "strongest group". On the other hand a theoretically established instrument shares the content in each sub-scale and thus, the generated items load strongly with each other (Osborne, 2015). As classical theory testing largely focuses on the structures of instruments (Alagumalai & Curtis, 2005), an item response theory, using Rasch analysis, was used simultaneously, to provide some more information about the items and their fit. PCPQ-P-Fin provided evidence of unidimensionality. Both person and item separation were high indicating the high sensitivity of the scale. Overall, the Rasch analysis supported the results of PCA. Two items were misfitting (item 16: MnSq 1.83; item 4 MnSq 0.51). Values over 1.4 reflect a number of unexpected responses (Smith et al., 1998). An item with a low MnSq value produces only little, but relevant, information (Bond & Fox, 2015 p. 271). When inspecting the wording and semantic nature of the items, redundancy in wording was not evident. In future, instead of excluding these two items, it is important to analyze how these items fit in the Rasch model in different samples.

The care climate in Finnish acute care hospitals was partly person-centered (mean total 4.02, SD 0.92). The evaluation is lower compared to Irish long-term care (mean total 5.39, SD 0.520; Kelly, Reidy, Denieffe, & Madden, 2019). The level of person-centeredness was the highest in climate of safety. The level is higher than evaluations of person-centeredness in the Chinese nursing homes (Yang et al., 2019), but lower compared to Norwegian long-term care facilities (Bergland, Hofoss, Kirkevold, Vassbø, & Edvardsson, 2015).

The correlation analysis revealed an association, a strong positive correlation, between patients' perceptions of individuality in care and their perceptions of the person-centered care (PCC) climate. This finding is important as in demonstrating the importance and interconnectedness of person-

centeredness and perceptions of individuality, it suggests that an improvement of the PCC climate may help in the provision of individualized nursing care. In turn this would enable older people's further independence and self-management (Nordin, McKee, Wijk, & Elf, 2017; Suhonen, Karppinen, Rodrigues-Martín, & Stolt, 2018b). Additionally, the association makes it possible to use the climate of person-centeredness a contributor for perceptions of individuality in the care and that person-centeredness can potentiate such perceptions. However, the nature of this association warrant further studies. The care environment, and the care climate as part of it, is recognized as an underused resource in nursing (Nordin et al., 2016; Suhonen et al., 2014). These results support the use of the care environment to help improve individualized care and they also support individualized care in health care policies and strategies.

Strengths and limitations

This study used a sample of older people in acute care settings which is important as in studies conducted in acute hospitals, older people are often excluded based on the vulnerability of their cognitive function (Suhonen, Stolt, & Leino-Kilpi, 2013c). This study used self-assessments and may, therefore, have been subject to bias as older people in an acute situation may have been too ill or tired to respond. Data were collected from patients just prior (max 24 hours) to their discharge. This, and the extensive time needed for recruiting participants, especially older vulnerable patients, may have had an impact on the initial take-up interest and response rate. Because the recruitment of potential participants was demanding and time-consuming, the data collection time was lengthened. Not all older individuals were discharged straight home but primary health center. Older people with severe conditions have usually excluded due to the challenges. This study aimed to investigate perceptions of care and care climate of those patients who frequently need care and services in the hectic environment

(OECD 2017). Older people diagnosed with heart failure form a relatively large group of patients in acute care settings (Krumholz, Normand, & Wang, 2014) with varying degrees of heart failure.

The response rate in this study was low. This is a weakness of the study and should be considered while interpreting the results. A minimum sample size of 150 cases, or 5 to 10 cases per variable (here for 17 items of the PCQ-P, 85-170), is recommended for this type of study (Gray, Grove, & Sutherland, 2017). However, sampling adequacy, in the EFA was confirmed using the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy which suggested a lower sample size of 111 participants was satisfactory. An alternative way of data collection, using structured interviews, may have provided a larger sample size. However, the use of the instrument would have been different which may have had some impact on the responses. Due to narrow sampling and respondents representing only one specific diagnosis, further validation should be done with larger sample size of hospital patients with different diagnosis.

Although the sample size was small, the data collected are important and useful for subject understanding, the evaluation of the correlation between the two scales and for analyzing the preliminary psychometrics of the newly adapted PCQ-P-Fin. Even though the small sample size should be considered, the results indicate that PCQ-P-Fin is useful, reliable and valid tool. The PCQ-P was translated following the internationally agreed and much used protocol in clinical research (Sousa & Rojjanasrirat, 2011). Combining classical and modern test theory approaches provided depth to the analysis and confirmed the methodological quality of this study.

Further studies are needed and invited to test the PCQ-P-Fin and the other versions, in different care settings to demonstrate the stability of the measures. Moreover, cross-cultural comparisons between

individualized care and person-centered care might produce some interesting data. Further studies are also needed to analyze the association of the person-centered climate in enhancing patient's perceptions of individuality in the care provided.

CONCLUSION

The PCQ-P-Fin is a useful, reliable and valid tool, but should be further validated in larger sample and settings. The ICS-B-Patient and the PCQ-P-Fin correlated strongly positive suggesting an association between the perceptions of individuality in care and the care climate. This is novel finding about the association of patients', perceptions of individuality in their care and the provision of a person-centered care climate. Care environment characteristics, especially the climate of person-centeredness may be used to enhance perceptions of individuality in care. This study also contributes to the previous evidence by supporting the reliability and validity of the PCQ-P when measuring the perceptions about person-centered care of older people in acute care settings.

Availability of data

The data used in the current study are available from the corresponding author on reasonable request.

References

Acaroglu, R., Suhonen, R., Sendir, M., & Kaya, H. (2011). Reliability and validity of Turkish version of the Individualised Care Scale. *Journal of Clinical Nursing,* 20, 136–145. doi: 10.1111/j.1365-2702.2010.03468.x

Alagumalai, S., & Curtis, D. D. (2005). Classical Test Theory. In: Alagumalai, S., Curtis, D.D., & Hungi, N. (eds) Applied Rasch Measurement: A Book of Exemplars. Education in the Asia-Pacific Region: Issues, Concerns and Prospects, vol 4. Dordrecht: Springer.

Allea. (2019, February 21). The European Code of Conduct for Research Integrity. Retrieved from https://www.allea.org/wp-content/uploads/2017/05/ALLEA-European-Code-of-Conduct-for-Research-Integrity-2017.pdf

Alzheimer's Association. (2019, February 21). Alzheimer's Association Dementia Care Practice Recommendations. Retrieved from https://www.alz.org/media/Documents/alzheimers-dementia-care-practice-recommendations.pdf

Amaral, A., Ferreira, P., & Suhonen, R. (2014). Translation and Validation of the Individualized Care Scale. *International Journal of Caring Sciences*, 7, 90–101.

Bergland, Å., Hofoss, D., Kirkevold, M., Vassbø, T., & Edvardsson, D. (2015). Person-centred ward climate as experienced by mentally lucid residents in long-term care facilities. *Journal of Clinical Nursing*, 24, 406–414. https://doi.org/10.1111/jocn.12614

Bond, T. G., & Fox, C. M. (2015). *Applying the Rasch Model. Fundamental Measurement in the human sciences*. 3rd ed. New York, NY: Routledge.

Brownie, S., & Nancarrow, S. (2013). Effects of person-centered care on residents and staff in aged-care facilities: a systematic review. *Clinical Interventions on Aging,* 8, 1-10. doi: 10.2147/CIA.S38589.

Caspar, S., & O'Rourke, N. (2008). The influence of care provider access to structural empowerment on individualized care in long-term-care facilities. *The Journals of Gerontology. Series B, Psychological sciences and Social sciences*, 63, S255-S265.

Caspar, S., O'Rourke, N., & Gutman, G. M. (2009). The differential influence of culture change models on long-term care staff empowerment and provision of individualized care. *Canadian Journal on Aging,* 28, 165–175. doi: 10.1017/S0714980809090138.

Caspar, S., Cooke, H. A., O'Rourke, N., & MacDonald, S. W. (2013). Influence of individual and contextual characteristics on the provision of individualized care in long-term care facilities. *Gerontologist,* 53, 790–800. doi: 10.1093/geront/gns165.

Charalambous, A., Chappell, N. L., Katajisto, J., & Suhonen, R. (2012). The Conceptualization and Measurement of Individualized Care. *Geriatric Nursing,* 33, 17-27. doi: 10.1016/j.gerinurse.2011.10.001.

Chenoweth, L., Forbes, I., Fleming, R., King M. T., Stein-Parbury, J., Luscombe, G., … (2014). PerCen: A cluster randomized controlled trial of person-centered residential care and environment for

people with dementia. *International Psychogeriatrics*, 26, 1147–1160. doi: 10.1017/S1041610214000398.

Clissett, P., Porock, D., Harwood, R. H., & Gladman, J. R. (2013). The challenges of achieving person-centered care in acute hospitals: A qualitative study of people with dementia and their families. *International Journal of Nursing Studies*, 50, 1495–1503. doi: 10.1016/j.ijnurstu.2013.03.001.

COSMIN. (2020, 20th May). COSMIN Study Design checklist. Retreived from https://www.cosmin.nl/tools/checklists-assessing-methodological-study-qualities/

Edvardsson, D., Sandman, P. O., & Rasmussen, B. (2008). Swedish language person-centred climate questionnaire patient version: Construction and psychometric evaluation. *Journal of Advanced Nursing,* 63, 302–309. doi: 10.1111/j.1365-2648.2008.04709.x.

Edvardsson, D., Koch, S., & Nay, R. (2009). Psychometric evaluation of the English Language Person-Centered Climate Questionnaire-Patient version. *Western Journal of Nursing Research,* 31, 235–244. doi: 10.1177/0193945908326064.

Edvardsson, D., Fetherstonhaugh, D., Nay, R., & Gibson, S. (2010). Development and initial testing of the Person-centered Care Assessment Tool (P-CAT). *International Psychogeriatrics*, 22, 101–108. doi: 10.1017/S1041610209990688.

Gray, J. R., Grove, S. K., & Sutherland, S. (2017). *Burns and Grove's The Practice of Nursing Research*. 8th ed. St. Louis, Missouri: Elsevier.

Groene, O., Lombarts, M. J., Klazinga, N., Alonso, J., Thompson, A., & Sunol, R. (2009). Is patient-centredness in European hospitals related to existing quality improvement strategies? Analysis of a cross-sectional survey (MARQuIS study). *Quality & Safety in Health Care,* Suppl 1, i44-50. doi: 10.1136/qshc.2008.029397.

Johnson, M. L., Bengtson, V. L., Coleman, P. G., Kirkwood, T. B. (2005) The Cambridge Handbook of Age and Ageing. New York: Cambridge University Press.

Jack, B. W., Chetty, V. K., Anthony, D., Greenwald, J. L., Sanchez, G. M., Johnson, A. E. … (2009). A reengineered hospital discharge program to decrease rehospitalization: A randomized trial. *Annals of Internal Medicine,* 150, 178–187.

Kelly, F., Reidy, M., Denieffe, S., & Madden, C. (2019). Older adults' views on their person-centred care needs in a long-term care setting in Ireland. *British Journal of Nursing*, 28, 552–557. https://doi.org/10.12968/bjon.2019.28.9.552

Kim, H. S. (2010). *The nature of theoretical thinking in nursing.* 3rd ed. New York, NY: Springer Publishing Company.

Kitwood, T. (1997). *Dementia reconsidered: The person comes first*. Buckingham, UK: Open University Press.

Kogan, A., Wilber, K., & Mosqueda, L. (2016). Person-centerd care for older adults with chronic conditions and functional impairment: A systematic literature review. *Journal of the American Geriatrics Society,* 64, e1-e7. doi: 10.1111/jgs.13873.

Kottorp, A. (2003). *Occupation-based evaluation and intervention. Validity of the assessment of motor and process skills when used with persons with mental retardation*. Doctoral dissertation. Umeå, Sweden: Umeå University.

Krumholz, H. M., Normand, S. L., & Wang, Y. (2014). Trends in hospitalizations and outcomes for acute cardiovascular disease and stroke, 1999–2011. *Circulation*, 130, 966–975. doi: 10.1161/CIRCULATIONAHA.113.007787.

Köberich, S., Suhonen, R., Feuchtinger, J., & Farin, E. (2015). The German version of the Individualized Care Scale - assessing validity and reliability. *Patient Prefer Adherence,* 23, 483–494. doi: 10.2147/PPA.S77486.

Lauver, D. R., Gross, J., Ruff, C., & Wells, T. J. (2004). Patient-centered interventions. Implications for incontinence. *Nursing Research*, 53, S30–S35.

Lavoie, M., Blondeau, D., & Martineau, I. (2013). The integration of a person-centered approach in palliative care. *Palliative & Supportive Care*, 11, 453-464. doi: 10.1017/S1478951512000855.

Liang, H., Zhu, J., Kong, X., Beydoun, M. A., Wenzel, J. A., & Shi, L. (2017). The Patient-Centered Care and Receipt of Preventive Services Among Older Adults With Chronic Diseases: A Nationwide Cross-sectional Study. *Inquiry,* 54:46958017724003. doi: 10.1177/0046958017724003.

Linacre, J. M. (2011). *A user's guide to Winstep. Ministep Rasch model computer programs*. Program Manual 3.73.0.

McCormack, B., & McCance, T. V. (2006). Development of a framework for person-centred nursing. *Journal of Advanced Nursing*, 56, 472–479.

McEvoy, L., & Duffy, A. (2008). Holistic practice-a concept analysis. *Nurse Education in Practice,* 8, 412-419.

MSAH. (2019, February 21). Laatusuositus hyvän ikääntymisen turvaamiseksi ja palvelujen parantamiseksi 2017-2019. STM julkaisuja 2017: 6. Retrieved from http://urn.fi/URN:ISBN:978-952-00-3960-8

Nordin, S., McKee, K., & Wijk, H., & Elf, M. (2016). Exploring Environmental Variation in Residential Care Facilities for Older People. *HERD*, 10, 49–65. doi: 10.1177/1937586716648703.

Nordin, S., McKee, K., Wijk, H., & Elf, M. (2017). The association between the physical environment and the well-being of older people in residential care facilities: A multilevel analysis. *Journal of Advanced Nursing,* 73, 2942-2952. doi: 10.1111/jan.13358.

OECD. (2019, February 21). *Health at a Glance 2017: OECD Indicators*, OECD Publishing, Paris. Retrieved from http://dx.doi.org/10.1787/health_glance-2017-en

O'Rourke, N., Chappell, N. L., & Caspar, S. (2009). Measurement and analysis of individualized care inventory responses comparing long-term care nurses and care aides. *Gerontologist,* 49, 839–846. doi: 10.1093/geront/gnp053.

Osborne, J. W. (2015). What is rotating in Exploratory Factor Analysis? *Practical Assessment, Research and Evaluation,* 20, 2-7. http://pareonline.net/getvn.asp?v=20&n=2

Petroz, U., Kennedy, D., Webster, F., & Nowak, A. (2011). Patients' perceptions of individualized care: evaluating psychometric properties and results of the individualized care scale. *Canadian Journal of Nursing Research,* 43, 80–100.

Ponte, P. R., Conlin, G., Conway, J. B., Grant, S., Mederos, C., Nies, J., … (2003). Making patient-centered care come alive: achieving full integration of the patient's perspective. *Journal of Nursing Administration,* 33(2): 82-90.

Rasooli, A., Zamanzadeh, V., Rahmani, A., & Shahbazpoor, M. (2013). Patients' point of view about nurses' support of individualized nursing care in training hospitals affiliated with Tabriz university of medical sciences. *Journal of Caring Sciences,* 2, 203–209. doi: 10.5681/jcs.2013.025.

Radwin, L. E., & Alster, K. (2002). Individualised nursing care: an empirically generated definition. *International Nursing Review*, 49, 54–63.

Rahman, A., & Schnelle, J. (2008). The nursing home culture-change movement: Recent past, present, and future directions for research. *Gerontologist,* 48, 142–148.

Redman, R. W. (2004). Patient-centered care: an unattainable ideal? *Research and Theory for Nursing Practice,* 18, 11-14.

Robinson, J. H., Callister, L. C., Berry, J. A., & Dearing, K. A. (2008). Patient-centered care and adherence: definitions and applications to improve outcomes. *Journal of the American Academy of Nurse Practitioners*, 20, 600-607. doi: 10.1111/j.1745-7599.2008.00360.x.

Rodríguez-Martín, B., Stolt, M., Katajisto, J., & Suhonen, R. (2016). Nurses' characteristics and organisational factors associated with their assessments of individualised care in care institutions for older people. *Scandinavian Journal of Caring Sciences*, 30, 250–259. doi: 10.1111/scs.12235.

Rogers, C. R. (1951). *Client-centred therapy: It's current practice, implications and theory*. Boston, MA: Houghton Mifflin.

Rovetta, F., Giordano, A., & Manara, D. F. (2012). The measurement of individualized care: translation and validation semantics of Individualized Care Scale. *Professioni infermieristiche,* 65, 39–45.

Rushton, C., & Edvardsson, D. (2017). Reconciling conceptualizations of ethical conduct and person-centred care of older people with cognitive impairment in acute care settings. *Nursing Philosophy*, 19(2). doi: 10.1111/nup.12190.

Sawamura, K., Nakashima, T., & Nakanishi, M. (2013). Provision of individualized care and built environment of nursing homes in Japan. *Archives of Gerontology and Geriatrics*, 56, 416–424. doi: 10.1016/j.archger.2012.11.009.

Smith, R. M., Schumacker, R. E., & Bush, M. J. (1998). Using item mean squares to evaluate fit to the Rasch model. *Journal of Outcome Measure,* 2, 66-78.

Sousa, V. D., & Rojjanasrirat, W. (2011). Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: a clear and user-friendly guideline. *Journal of Evaluation in Clinical Practice,* 17, 268-274. doi: 10.1111/j.1365-2753.2010.01434.x.

Stolt, M., & Koskenvuori, J. (2019). The validity and reliability of the Individualised Care Scale. In: Suhonen, R., Stolt, M., & Papastavrou, E. (eds) Individualized Care: Theory, Measurement, Research and Practice. Cham: Springer.

Streiner, D. L., Norman, G. R., & Cairney, J. (2014). *Health Measurement Scales. A practical guide to their development and use*. 5th ed. Oxford, OX: Oxford University Press.

Suhonen, R., Välimäki, M., & Katajisto, J. (2000). Developing and testing an instrument for the measurement of individual care. *Journal of Advanced Nursing,* 32, 1253-1263.

Suhonen, R., Leino-Kilpi, H., & Välimäki, M. (2005). Development and psychometric properties of the Individualised Care Scale. *Journal of Evaluation in Clinical Practice,* 11, 7–20.

Suhonen, R., Välimäki, M., Katajisto, J., & Leino-Kilpi, H. (2007a). Provision of individualised care improves hospital patient outcomes: an explanatory model using LISREL. *International Journal of Nursing Studies,* 44, 197–207.

Suhonen, R., Schmidt, L. A., & Radwin, L. (2007b). Measuring individualized nursing care: assessment of reliability and validity of three scales. *Journal of Advanced Nursing,* 59, 77-85.

Suhonen, R., Berg, A., Idvall, E., Kalafati, M., Katajisto, J., Land, L., … (2010). Adapting the Individualised Care Scale for cross-cultural comparison: an international study. *Scandinavian Journal of Caring Sciences,* 24, 392–403. doi: 10.1111/j.1471-6712.2009.00712.x.

Suhonen, R., Stolt, M., & Papastavrou, E. (2019). Individualized Care: Theory, Measurement, Research and Practice. Cham: Springer.

Suhonen, R., Stolt, M., Puro, M, & Leino-Kilpi, H. (2011). Individuality in older people's care - challenges for the development of nursing and nursing management. *Journal of Nursing Management,* 19, 883-896. doi: 10.1111/j.1365-2834.2011.01243.x.

Suhonen, R., Efstathiou, G., Tsangari, H., Jarosova, D., Leino-Kilpi, H., Patiraki, E., … (2012). Patients' and nurses' perceptions of individualised care: an international comparative study. *Journal of Clinical Nursing*, 21, 1155–1167. doi: 10.1111/j.1365-2702.2011.03833.x.

Suhonen, R., Tsangari, H., Leino-Kilpi, H., Papastavrou, E., & Gustafsson, M. (2013a). Individualised care - comparison of patients' and nurses' assessments. *Hoitotiede* 25(2): 80–91. [in Finnish]

Suhonen, R., Schmidt, L., Katajisto, J., Berg, A., Idvall, E., Kalafati, M., … (2013b). Cross-cultural validity of the Individualised Care Scale – a Rasch model analysis. *Journal of Clinical Nursing,* 22, 648–660. doi: 10.1111/j.1365-2702.2012.04238.x.

Suhonen, R., Stolt, M., & Leino-Kilpi, H. (2013c). Older people in long-term care settings as research informants: ethical challenges. *Nursing Ethics,* 20, 551-567. doi: 10.1177/0969733012463722.

Suhonen, R., Stolt, M., Gustafsson, M-L., Katajisto, J., & Charalambous, A. (2014). The associations among the ethical climate, the professional practice environment and individualized care in care settings for older people. *Journal of Advanced Nursing*, 70, 1356–1368. doi: 10.1111/jan.12297.

Suhonen, R., Charalambous, A., Berg, A., Katajisto, J., Lemonidou, C., Patiraki, E., … (2018a). Hospitalized cancer patients' perceptions of individualized nursing care in four European countries. *European Journal of Cancer Care,* 27, e12525. doi: 10.11.1111/ecc.12525.

Suhonen, R., Karppinen, T., Martin, B. R., & Stolt, M. (2018b). Nurse managers' perceptions of care environment supporting older people's ability to function in nursing homes. *Journal of Nursing Management,* doi: 10.1111/jonm.12695.

Tay, F. H. E., Thompson, C. L., Nieh, C. M., Nieh, C. C., Koh, H. M., Tan, J. J. C., Yap, P. L. K. (2017). Person-centered care for older people with dementia in the acute hospital. *Alzheimer's & Dementia,* 4, 19-27. doi: 10.1016/j.trci.2017.11.003.

University of Turku. (2019, February 21). InCareS. Retreived from: https://sites.utu.fi/nursingscienceresearchprogrammes/olderindividuals/incares/

WHO. (2019, February 21). WHO global strategy on people-centred and integrated health services. Retrieved from: http://www.who.int/servicedeliverysafety/areas/people-centred-care/global-strategy/en/

Wright, B. D., & Masters, G. N. (1982). *Rating scale analysis*. Chicago, IL: MESA Press.

Wright, B., & Stone, M. (1999). *Measurement essentials*. 2nd ed. Wilmongton, Delaware: Wide Range Inc.

Yang, Y., Li, H., Xiao, L. D., Zhang, W., Xia, M., & Feng, H. (2019). Resident and staff perspectives of person-centered climate in nursing homes: a cross-sectional study. *BMC Geriatrics*, 19, 292. https://doi.org/10.1186/s12877-019-1313-x

Yi, K. G., Ding, S. Q., Zhong, Z., Xie, J. F., Qin, C. X., & Zheng, F. (2017). Translation, revision and assessment of reliability and validity of the Individualized Care Scale· Patient Version. *Chinese Journal of Nursing,* 52, 373–376.

Yoon, J. Y., Roberts, T., Grau, B., & Edvardsson, D. (2015). Person-centered Climate Questionnaire-

Patient in English: A psychometric evaluation study in long-term care settings. *Archives of*

Gerontology and Geriatrics, 61, 81–87. doi: 10.1016/j.archger.2015.03.010.

Table 1. Pearson's correlations between the study variables.

Variables	1	2	3	4	5	6	7	8
1 ICS-B-Patient Total	(0.91)†							
2 ClinB		(0.84)						
3 PersB			(0.76)					
4 DecB				(0.79)				
5 PCQ-P-Fin Total	0.774**	0.643**	0.647**	0.764**	(0.95)			
6 Safety	0.776**	0.661**	0.606**	0.781**	0.933**	(0.94)		
7 Everydayness	0.669**	0.554**	0.608**	0.623**	0.913**	0.747**	(0.89)	
8 Hospitality	0.631**	0.481**	0.592**	0.620**	0.870**	0.678**	0.815**	(0.86)

† Figures in the diagonal are Cronbach's alpha values.
** Correlation is significant at the 0.01 level (2-tailed).

Table 2. Component loadings, the total variance explained for the final rotated three-component solution

Item number and abbreviated name	Item to total	Communalities	Factor 1 †	Factor 2 †	Factor 3 †
1. A place where staff are knowledgeable	0.679	0.792	-0.120	-0.007	1.014
2. A place where I receive the best possible care	0.688	0.715	0.136	-0.124	0.852
3. A place where I feel safe	0.608	0.637	0.070	0.376	0.273
4. A place where I feel welcome	0.857	0.870	0.128	0.612	0.282
5. A place where it is easy to talk to staff	0.736	0.829	0.030	1.000	-0.161
6. A place where staff take notice of what I say	0.811	0.851	0.055	0.690	0.230
7. A place where staff come quickly when I need them	0.704	0.672	0.159	0.134	0.558
8. A place where staff talk to me so that I can understand	0.710	0.789	0.148	0.893	-0.221
9. A place that is neat and clean	0.445	0.579	-0.381	0.694	0.249
10. A place where staff seem to have time for patients.	0.786	0.682	0.377	0.266	0.250
11. A place that has something nice to look at (e.g. views, artwork etc)	0.712	0.746	0.812	0.041	-0.096
12. A place that feels homely	0.764	0.791	0.666	0.140	0.027
13. A place where it is possible to get unpleasant thoughts out of your head.	0.838	0.798	0.755	0.008	0.184
14. A place where people talk about everyday life and not just illness	0.750	0.762	0.558	0.383	-0.092
15. A place where staff make extra efforts for my comfort	0.812	0.776	0.658	0.065	0.198
16. A place where I can make choices (e.g. what to wear, eat etc.)	0.636	0.707	1.110	-0.334	-0.073
17. A place where I can get that "little bit extra"	0.808	0.785	0.714	0.108	0.074
Eigen value			10.02	1.66	1.08
% of explanation			58.92	9.76	6.32
Total variance explained			58.92	68.68	74.99

† Exploratory factor analysis (EFA) with Maximum Likelihood extraction procedure with the oblique rotation Promax, and Kaiser's Normalization, Pattern matrix

Table 3. Item difficulty and item fit statistics for each item

Item number and abbreviated name	Difficulty	Error	MnSq	Z-value
16. A place where I can make choices (e.g. what to wear, eat etc.)	0.89	0.11	1.83	4.2
9. A place that is neat and clean	-1.76	0.21	1.39	1.5
7. A place where staff come quickly when I need them	-0.01	0.13	1.23	1.3
11. A place that has something nice to look at (e.g. views, artwork etc)	1.30	0.11	1.24	1.5
3. A place where I feel safe	-0.96	0.17	1.26	1.3
8. A place where staff talk to me so that I can understand	-0.75	0.16	1.17	0.9
14. A place where people talk about everyday life and not just illness	0.62	0.12	1.16	1.0
12. A place that feels homely	1.21	0.11	1.05	0.3
17. A place where I can get that "little bit extra"	0.73	0.12	0.79	-1.3
2. A place where I receive the best possible care	-0.41	0.14	1.01	0.1
1. A place where staff are knowledgeable	-0.96	0.17	0.97	-0.1
5. A place where it is easy to talk to staff	-0.80	0.16	0.97	-0.1
13. A place where it is possible to get unpleasant thoughts out of your head	0.97	0.11	0.72	-1.9
10. A place where staff seem to have time for patients	0.26	0.12	0.89	-0.6
15. A place where staff make extra efforts for my comfort	0.61	0.12	0.80	-1.2
6. A place where staff take notice of what I say	-0.44	0.14	0.65	-2.2
4. A place where I feel welcome	-0.49	0.15	0.51	-3.1

Table 4. Descriptive statistics of the study variables.

	N	Min	Max	Mean	SD
PCQ-P-Fin Total	109	0.76	5.00	4.02	0.92
Safety	107	0.70	5.00	4.37	0.81
Everydayness	108	0.00	5.00	3.41	1.30
Hospitality	105	0.00	5.00	3.64	1.31
ICS-B-Patient Total	106	2.53	5.00	4.32	0.62
ClinB	105	2.00	5.00	4.34	0.62
PersB	103	1.25	5.00	4.23	0.78
DecB	105	2.00	5.00	4.33	0.71