

## RESEARCH ARTICLE

# Effects of a person-centred and thriving-promoting intervention on nursing home residents' experiences of thriving and person-centredness of the environment

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## Abstract

**Aim:** 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.

**Design:** A multi-centre, non-equivalent controlled group before-after intervention design.

**Methods:** Six nursing homes in Australia, Norway and Sweden were allocated to either intervention or control group. The intervention comprised a staff educational programme. A survey using proxy-ratings by staff was administered before (T0), immediately after (T1) and six months after (T2) the intervention. The sample varied between 205 and 292 residents. Linear regression models were used to explore effects.

**Results:** Statistically significant effects were found on experiences of thriving and person-centredness of the environment. These effects were significant for male residents but not for female residents. The results emphasize the importance of individually tailored social and recreational activities.

## KEYWORDS

intervention, nursing, nursing home residents, nursing homes, person-centred care, person-centredness, person-centredness of the environment, thriving

Trial registration: The trial was registered at ClinicalTrials.gov March 19, 2016, identifier NCT02714452.

We declare adherence to the TREND checklist in this study paper.

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## 1 | INTRODUCTION

One important goal for nursing-home (NH) care worldwide is that residents receive quality care and are given opportunities to live a good and meaningful life despite multimorbidity, frailty and functional dependency. However, many NH residents experience that they do not have the possibilities to live the life they want to live according to their potential (Hughes & Moore, 2012), and that they have few opportunities to participate in activities that give meaning to their life (Edvardsson et al., 2014). It thus seems important to increase the knowledge about factors of importance for NH residents to experience a good and meaningful life, and how NH staff can assist residents in achieving this. Therefore, this article reports the effects of a person-centred and thriving promoting staff intervention in nursing homes.

### 1.1 | Background

Thriving is an emerging concept in long-term care, referring to a subjective experience of well-being in relation to the place in which a person lives (Bergland & Kirkevold, 2006; Bergland et al., 2014). NH residents who thrive have settled into the new environment and experience their life as being as good as possible given their current situation and in that current place of residence (Bergland et al., 2015). Baxter et al. (2021) further describe thriving as 'a holistic concept denoting lived experiences of situated contentment' (page 2686). According to Haight et al. (2002) thriving is a result of an optimal interaction between the person and the human and non-human environment and can be perceived as an individual person-environment fit. Bergland and Kirkevold (2006) identified the residents' attitude towards living in the nursing home and the quality of care and caregivers as the core aspects of thriving. In a more recent study by Baxter et al. (2019) NH residents defined thriving as a balance between both their sense of independence and need for support, and between having opportunities to be alone and enjoying other people's company. In a meta-ethnography summarizing previous studies on thriving, Baxter et al. (2021) concluded that both personal and social aspects together with environmental aspects could be described as 'a recipe for thriving'. More specifically, contributors to thriving included relationships with staff, family, peer residents and participation in activities experienced as meaningful by the resident (Baxter et al., 2021).

In Baxter et al. (2019), thriving was also described in relation to the institutional environment of a NH, as an effort to maintain a positive outlook and feeling a sense of home. Physical and psychosocial dimensions of the environment have also been described in relation to the concept of caring environment or person-centredness of the environment. Experiences of caring environments can emerge from an optimal interaction between aesthetic, positive stimuli in the physical environment, people's doing and being in the environment, and their experiences of the place where care is provided

(Edvardsson, 2008; Edvardsson et al., 2017). Encompassing a climate of safety, everydayness and hospitality, a caring environment represents an integration of person-centredness of the environment and care to form a general perception of the psychosocial 'climate' of a setting (Edvardsson, 2008; Edvardsson et al., 2009; Rasmussen & Edvardsson, 2007), and according to a recent study, relatives of NH residents seem to associate a more person-centred care environment with high quality care (Lood et al., 2019). Baxter (2021) argues that the NH environment can be perceived as an intervention and a resource to thriving. Consequently, interventions aiming at thriving among NH residents would benefit from including both the individual needs and preferences and the psychosocial and physical environment. Baxter et al. (2021) assert that little is known about how to best support thriving at individual, staff and organizational levels.

In recent years, long-term care has undergone a culture change, from focusing on performing tasks towards a more humanistic care approach involving person-centredness and person-centred care (PCC) (Edvardsson et al., 2008; Koren, 2010; Li & Porock, 2014). Prioritizing interactions and relationships between care staff and the person in need of care, PCC postulates shared decision-making and involves seeing the situation from the perspective of the person in need of care. This means that individual needs and preferences are discussed in relation to professional goals and outcomes, making sure that well-being and quality of life are defined by the individual person but safeguarded by both parties (Crandall et al., 2007; Edvardsson, Winblad, et al., 2008). As thriving among NH residents results from an individual person-environment fit, a PCC approach with emphasis on meeting individual needs and preferences, and on tailoring daily care and activities to the individual resident seems relevant to influence positively on residents' thriving.

There seems to be a great variation in PCC interventions in long-term care for NH residents. These variations include content and focus, length of the intervention and if the intervention targets residents directly or if the intervention is an educational programme aiming at making staff more person-centred in their care (Brownie & Nancarrow, 2013; Li & Porock, 2014). These large variations make it difficult to compare interventions and their effects. Effects of PCC interventions in long-term care have been evaluated from both resident and staff perspectives and with different out-come measures. Various PCC models have been found to influence positively on residents' quality of life (Brownie & Nancarrow, 2013; Kim & Park, 2017; Li & Porock, 2014) and well-being (Brownie & Nancarrow, 2013). Also, PCC interventions have been found to reduce agitation, neuropsychiatric symptoms and depression among persons with dementia and thereby contribute to a better life for them (Brownie & Nancarrow, 2013; Kim & Park, 2017; Li & Porock, 2014). However, adverse outcomes such as higher rate of falls have been found (Brownie & Nancarrow, 2013) and no reduction in agitation (Chenoweth et al., 2019). In summary, it seems that the existing knowledge

concerning effects of person-centredness on residents is uncertain, as findings are inconsistent and evidence is inconclusive (Li & Porock, 2014).

Baxter et al. (2021) argue that thriving among nursing home residents is 'composed' of individual attributes, relationships with others, the lived environment and societal structure. The 'dose' of each 'ingredient' is individual and how an individual resident can attain thriving varies. This indicates the importance of knowing each resident's preferences, life-story and previous life-experiences well, and includes this knowledge in the daily care. Residents life-stories and past experiences can influence how they experience life in NHs and men and women have different life-stories and life experiences (Doran et al., 2019; Fosslund & Thorsen, 2010). NHs have been described as a 'women's world' (Grøndahl et al., 2017), as the majority of staff (Backman et al., 2016; Björk et al., 2016; OECD, 2018), and residents (Auer et al., 2018; Björk et al., 2016) are women. According to Moss and Moss (2007), activities offered in these environments are neither usually based on men's previous experiences nor are they adapted to their preferences and wishes. Focus may also be on groups rather than individuals. It has also been shown that male residents participate in fewer social activities in NHs than female residents (Lood et al., 2017). This may indicate a need to explore how thriving can be experienced differently among male and female NH residents.

Together, this may indicate that it is more difficult for men to participate in activities that accord with their preferences and wishes and to experience well-being and thriving in NH environments. However, although there may be reasons to assume that a 'female dominance' might have an impact on the everyday life and well-being of male residents in NHs, there are few studies to validate or invalidate this hypothesis. There are some indications that older men might benefit from male-specific environments and social groups and meaningful activities in line with their preferences and interests (Culph et al., 2015; Grøndahl et al., 2017), but to our knowledge, no intervention study has investigated differences in the effects of person-centred interventions on men and women in NHs.

In summary, even if previous research indicates that interventions aimed at making life in NHs better for residents, would benefit from having a person-centred approach (Brownie & Nancarrow, 2013; Edvardsson et al., 2017; Li & Porock, 2014), further evidence is needed. As described above, person-centredness has the potential to positively influence the quality of NH care, but further research is needed to add to the evidence of the effects of person-centredness on residents' thriving and experience of their environment. To the best of our knowledge, there are no previous studies that have evaluated the effects of a person-centred and thriving-promoting intervention on residents' experiences of thriving and person-centredness of the environment. Therefore, the aim of this study was to evaluate the effects of a person-centred and thriving-promoting intervention in NHs on residents' experiences of thriving (primary endpoint) and person-centredness of the environment (secondary endpoint), and to evaluate if the effects varied between female and male residents.

## 2 | METHODS

### 2.1 | Design

A multi-centre, non-equivalent controlled group before-after design was used to evaluate the effects of the intervention (Edvardsson et al., 2017).

### 2.2 | Settings and participants

The study was based on collaboration between researchers in Australia, Norway and Sweden, who used their networks to recruit a total of six NHs. In each country, the NHs were allocated to an intervention or control group, based on a convenience strategy. The first NH that agreed to participate was allocated to intervention and the next was allocated to control in each country. The inclusion criteria were: (1) managers expressing a need for improvements with regards to person-centred care (2) managers expressing a willingness to participate and facilitate the study, (3) the NHs having at least 50 resident beds and (4) at least 50 staff members. All NHs were publicly funded, and the number of beds ranged from 50 to 127. In Norway, the NHs were located in an urban area, while those in Australia and Sweden were located in rural areas. All included NHs fit to the definition of nursing homes by Sanford et al. (2015): Providing 24 hr of full assistance with activities of daily living, and other support from staff. All residents had their own personal clothing and furniture, and most had private rooms with an own bathroom. Individual and group activities were organized at the NHs, and all residents had access to outside environments/gardens.

Residents were eligible for inclusion if they had lived in their current NH more than one month at the time of data collection. Ongoing inclusion was applied, which means that residents who moved into the NHs during the intervention were eligible for inclusion.

The calculation of sample size and power was based on a two-sided significance level of 0.05 and a desired power of 0.85. Calculations for the primary resident endpoint was based on the Thriving of Older People Assessment Scale (TOPAS) mean values of 154 and SD 22 (Patomella et al., 2016), indicating that a sample of 300 residents (150 from each group, intervention or control) would be sufficient to detect pre-post intervention differences of 6.2 (medium effect size 0.3).

### 2.3 | Intervention

The intervention comprised a 14-month educational programme for NH staff, from May 2016 until August 2017. It was based on an interactive step-wise pedagogical framework, which included knowledge translation, knowledge generation and knowledge dissemination (Edvardsson et al., 2017). The intervention started with a two-hour introduction lecture which introduced the study, the theoretical framework for the intervention (person-centredness,

person-centredness of care, the caring environment and thriving) and the research-based evidence underpinning it. The intervention itself included nine workshops, an international dissemination seminar in which the three countries shared experiences and a closing seminar. Staff also participated in reflective evaluation activities between the workshops. The intervention was led by researchers in each country (KS, QL, ÅB, TV).

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 researchers introduced each dimension, presenting relevant philosophical and theoretical concepts and relevant research to participating staff. 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. For dimension one, staff were asked to write down episodes when they had done something 'a little extra' for residents, relatives and colleagues, and these texts were discussed in subsequent workshops. In dimension two, developing a caring environment, staff made observations of their physical environment, focusing on the extent to which this contained positive diversions and possibilities to experience social community or solitude. They also conducted interviews with residents and relatives concerning their experiences of the environment and how physical aspects could be further developed to be experienced as more caring and welcoming. Each NH received financial support to enrich the environment. Staff and managers decided how the financial support should be used, based on the observations and interviews with residents and relatives. In dimension three, staff conducted person-centred dialogues with residents and/or relatives who were asked questions such as: Tell me something about yourself/your family member that it is important for us to know in order to be able to help you/your family member to live as good life as possible in the NH; What have made you/him/her thrive earlier in life; Is there anything else we should know in order to help you/your family member to be able to be as comfortable as possible here? Based on the dialogues, staff could identify the resident's most important psychosocial needs and priorities, and recommend and suggest how these needs could be met. Prioritised activities were then planned, carried out and evaluated together with the resident. On average, care staff participated in five seminars and 40% participated in six or more seminars. Individual activities: Doing a little extra for a resident, family member and/or a colleague were performed by 50% of the staff, and a total of 44 person-centred dialogues were conducted.

All staff at the intervention NHs were invited to participate in the educational programme and staff who started their employment during the intervention phase were invited to participate in the educational programme. New staff members were given a short introduction by researchers, co-workers and managers. The idea was that each participating NH were expected to include new staff members in the practice change.

## 2.4 | Control nursing homes

Staff at the three control NHs received a two-hour introduction lecture on the theoretical framework, main concepts and research-based evidence of the intervention. The lecture was given after baseline data were collected. Thereafter, staff in the control NHs continued their work without further involvement on the part of the research team, apart from subsequent data collections.

## 2.5 | Data collection

Data were collected using a survey comprising demographic variables and instruments for measuring the residents' independence in activities of daily living, cognitive capacity, prevalence of neuropsychiatric symptoms, and instruments measuring the primary and secondary study endpoints. Proxy-assessments were conducted due to the expectedly large group of residents with cognitive impairment in NHs (Björk et al., 2016; Onder et al., 2012; Stange et al., 2013). Staff were instructed that the staff member who knew each resident best would be conducting the assessments. To increase the validity of the proxy-assessment, staff were encouraged to strive to do the assessments from a proxy-patient perspective meaning that they were instructed to answer the questions 'as the patient would' (Pickard & Knight, 2005).

### 2.5.1 | Instruments

Thriving was assessed using the Thriving of Older People Assessment Scale (TOPAS). TOPAS has been shown to be a reliable proxy instrument (Bergland, Kirkevold, et al., 2015; Bergland et al., 2014).

Person-centredness of the environment was assessed using the Person-centred Climate Questionnaire-Patient Version (PCQ-P) (Edvardsson et al., 2008, 2009).

Independence in activities of daily living (ADL) was assessed using a modified version of the Katz Index of Independence in Activities of Daily Living (Katz PADL-index)(Katz et al., 1963).

Cognitive capacity was measured using the Gottfries cognitive scale (Gottfries et al., 1969; Lövheim et al., 2019).

The prevalence of neuropsychiatric symptoms was assessed using the Neuropsychiatric Inventory-Nursing Home Version (NPI-NH) (Cummings et al., 1994). For further information about the instruments, please see Table 1.

### 2.5.2 | Translation

Thriving of Older People Assessment Scale and PCQ-P were available in English, Norwegian and Swedish. The Katz PADL-index and the Gottfries cognitive scale were available in English and Swedish, and were translated into Norwegian using a forward- and backward translation procedure by professional qualified translators

TABLE 1 Instruments in the study

Instrument	Number of Items	Sub-scales/items	Scoring	Total score ranges
Thriving of Older People Assessment Scale (TOPAS) Primary outcome	32	Resident' attitudes towards being in long-term care Quality of care and caregivers Resident engagement and peer relationships, Keeping in touch with people and places Quality of the physical environment	A six-point Likert-type scale	32-192 Higher scores indicates higher levels of thriving
Person-centred Climate Questionnaire-Patient Version (PCQ-P) Secondary outcome	17	Safety, Everydayness Hospitality	A six-point Likert-type scale	17-102 Higher scores indicates a more person-centred environment
Katz Index of Independence in Activities of Daily Living (Katz PADL-index)	6	Bathing Dressing Transferring Toileting Eating Continence	Dichotomous 0 dependent 1 independent	0-6 Higher scores indicates independence in more activities
Gottfries cognitive scale	27	Cognitive items	Dichotomous 0 no 1 yes	0-27 Higher scores indicates greater cognitive capacity, <24 indicate cognitive impairment
Neuropsychiatric Inventory-Nursing Home Version (NPI-NH)	12	Delusions hallucinations Agitation/aggression Depression/dysphoria Anxiety elation/euphoria Apathy Disinhibition, Irritability/lability Aberrant motor Behaviours Night-time behaviours Eating behaviours	Dichotomous 0 not occurring at all 1 occurring once a week to several times per day	0-12 Higher scores indicating a higher prevalence of neuropsychiatric symptoms

(Maneesriwongul & Dixon, 2004). The final versions were also assessed by the multilingual research group (in English, Norwegian and Swedish).

Data were collected before the intervention started (T0, March–April 2016), immediately after the intervention (T1, September–October 2017) and six months after the intervention was completed (T2, March–April 2018). The response rates varied between data collections and allocation (67%–96%), please see Figure 1. A number of surveys were excluded because of missing items at T0 ( $n = 17$ ), T1 ( $n = 38$ ) and T2 ( $n = 34$ ). A large fire in the region where the Australian control NH was situated resulted in all the residents being evacuated. We decided to exclude a total of 29 surveys from that control site at T2 as they had been completed after the fire which was likely to have affect the residents` negatively.

## 2.6 | Data analyses

Sample characteristics were explored using descriptive statistics. Missing data were imputed with the mean for the individual at the level of approximately 10% missing item (Shrive et al., 2006), which resulted in imputation on 9% missing items for TOPAS, 12% for PCQ-P, 11% for Gottfries cognitive scale 8% for NPI-NH, and 17% for KATZ-PADL. Participants with higher levels of missing items were excluded from the analyses.

Differences between intervention and control groups were tested with  $\chi^2$  tests for categorical variables, and independent sample  $t$  test or Mann–Whitney U test for continuous variables. Linear regression model was used to test for effects of the intervention on primary and secondary endpoints. Data collection, allocation and the interaction term data collection\*allocation were used as

independent variables. Resident age, sex, length of stay, cognitive capacity, independence in ADL, neuropsychiatric symptoms and study site were considered as potential confounders and were also included in the linear regression models.

The outcome variables TOPAS and PCQ, were reasonable normally distributed according to Skewness (TOPAS  $-0.6$ ,  $-0.8$ ,  $-0.7$ ; PCQ  $-0.7$ ,  $-0.8$ ,  $-0.7$ ).

## 2.7 | Validity and reliability/Rigour

All instruments have been tested for validity and reliability in relation to the study population and context (Bergland et al., 2015; Bergland, Kirkevold, et al., 2015; Sandman et al., 1988; Selbaek et al., 2008). In this study, the Cronbach`s alpha at T0, T1 and T2 was 0.96, 0.96, 0.96 for TOPAS, and 0.95, 0.94, 0.97 for PCQ-P.

## 3 | RESULTS

### 3.1 | Sample characteristics

Sample characteristics at data collections T0, T1 and T2 are presented in Table 2. The mean ages of residents were 85.9 ( $\pm 7.2$ ), 85.7 ( $\pm 8.9$ ) and 86.7 ( $\pm 8.4$ ), respectively. A total of 74%, 71%, 72%, respectively were female. There were some statistically significant differences between the intervention and control groups about neuropsychiatric symptoms when sample characteristics at T0, T1 and T2 were compared. Residents in the intervention group had higher levels of neuropsychiatric symptoms compared to residents in the control group at T0 and T1 ( $p < .01$ ,  $p < .001$ ). No other significant differences were found.

### 3.2 | Effect on residents` thriving

In the intervention group, there was an increase in Thriving scores (TOPAS) between T0 and T1 (*mean difference* 4.2), and between T1 and T2 (*mean difference* 0.5), indicating that residents experienced higher levels of thriving after the intervention compared to baseline. In the control group, there was an increase in TOPAS scores between T0 and T1 (*mean difference* 0.7), but a decrease between T1 and T2 (*mean difference*  $-7.0$ ). See Table 3.

In the linear regression model (Table 3), controlling for age, time living in the NH, sex, site (country), NPI-symptoms, independence in ADL and cognitive capacity, it was shown that the interaction between data collection and allocation significantly contributed to TOPAS scores between T0 and T2 (*mean change* 11.0,  $p = .003$ , *Partial Eta Squared* 0.012). This indicates that there was a statistically significant effect from the intervention on the residents` levels of thriving.

In the linear regression model of effect on subgroups for sex it was shown that there was a statistically significant effect on TOPAS

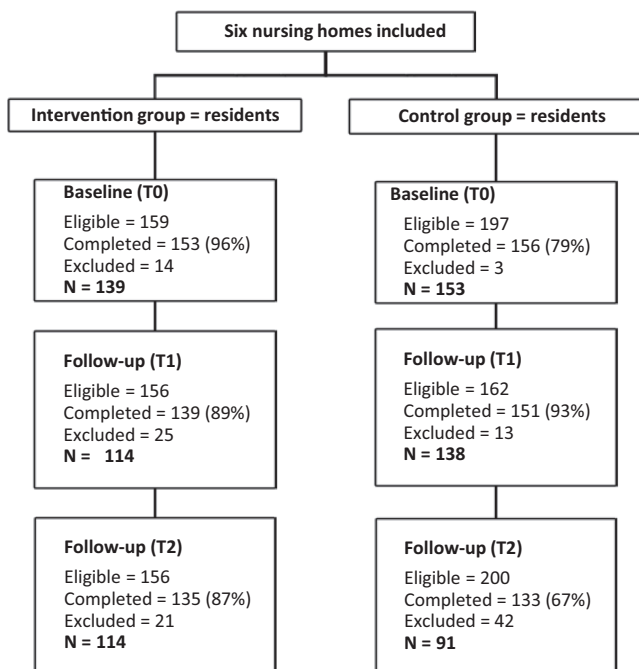


FIGURE 1 Flow chart data collection

TABLE 2 Sample characteristics, at T0, T1 and T2

	The whole sample Mean(SD) Freq. (%)	Intervention Mean(SD) Freq. (%)	Control Mean(SD) Freq. (%)	p-Value
T0	(n = 292)	(n = 139)	(n = 153)	
Age in years	85.9 (±7.2)	85.6 (±7.9)	86.2 (±7.6)	.53 <sup>a</sup>
Lived in this facility (years)	3.1 (±3.2)	2.9 (±3.2)	3.2 (±3.2)	.41 <sup>a</sup>
Gender				
Women	214 (74%)	103 (74.1%)	111 (72.5%)	.87 <sup>b</sup>
Men	78 (26%)	36 (25.9%)	42 (27.5%)	
NPI (Neuropsychiatric symptoms)	2.6 (±2.5)	3.0 (±2.5) 3.0 (median)	2.2 (±2.4) 1.0 (median)	<.01 <sup>c</sup>
Any NPI symptoms	221 (75.7%)	115 (82.7%)	106 (69.3%)	.01 <sup>b</sup>
PADL capacity	2.6 (±2.2)	2.8 (±0.2) 2.0 (median)	2.4 (±0.2) 2.0 (median)	.25 <sup>c</sup>
PADL dependent	244 (83.6%)	112 (80.6%)	132 (86.3%)	.21 <sup>b</sup>
Cognitive capacity	16.6 (±8.8)	17.0 (±8.5)	16.2 (±9.0)	.44 <sup>a</sup>
Cognitive impairment	196 (67.1%)	94 (67.6%)	102 (66.7%)	.96 <sup>b</sup>
T1	(n = 252)	(n = 114)	(n = 138)	
Age in years	85.7 (±8.9)	86.0(±8.2)	85.5 (±9.4)	.62 <sup>a</sup>
Lived in this facility (years)	3.1 (±3.0)	3.1 (±2.6)	3.2 (±3.3)	.98 <sup>a</sup>
Gender				
Women	180 (71.4%)	86 (75.4%)	94 (±68.1%)	.25 <sup>b</sup>
Men	72 (28.6%)	28 (24.6%)	44 (±31.9%)	
NPI (Neuropsychiatric symptoms)	2.5 (±2.4)	3.1 (±2.6) 3.0 (median)	2.0 (±2.3) 1.0 (median)	<.001 <sup>c</sup>
Any NPI symptoms	185 (73.4%)	93 (81.6%)	92 (66.7%)	.01 <sup>b</sup>
PADL capacity	2.6 (±2.1)	2.6 (±2.2) 2.0 (median)	2.6 (±2.1) 2.0 (median)	1.0 <sup>c</sup>
PADL dependent	214 (84.9%)	94 (82.5%)	120 (87%)	.41 <sup>b</sup>
Cognitive capacity	17.9 (±8.6)	16.9 (±8.9)	18.7 (±8.5)	.10 <sup>a</sup>
Cognitive impairment	150 (59.5%)	74 (64.9%)	76 (55.1%)	.15 <sup>b</sup>
T2	(n = 205)	(n = 114)	(n = 91)	
Age in years	86.7 (±8.4)	86.7 (±8.7)	86.7 (±8.0)	.99 <sup>a</sup>
Lived in this facility (years)	3.1 (±2.7)	3.1 (±2.6)	3.1 (±2.8)	.98 <sup>a</sup>
Gender				
Women	148 (72.2%)	87 (76.3%)	61 (67%)	.19 <sup>b</sup>
Men	57 (27.8%)	27 (23.7%)	30 (33%)	
NPI (Neuropsychiatric symptoms)	2.2 (±2.4)	2.4 (±2.4) 2.0 (median)	2.0 (±2.4) 1.0 (median)	.24 <sup>c</sup>
Any NPI symptoms	140 (68.3%)	80 (67.2%)	67 (67.7%)	.94 <sup>b</sup>
PADL capacity	2.6 (±2.2)	2.6 (±2.4) 2.0 (median)	2.5 (±2.2) 2.0 (median)	.86 <sup>c</sup>
PADL dependent	166 (81%)	92 (80.7%)	74 (81.3%)	1.0 <sup>b</sup>
Cognitive capacity	16.9(±8.9)	17.1 (±8.9)	16.8 (±8.6)	.82 <sup>a</sup>
Cognitive impairment	128 (62.4%)	68 (59.6%)	60 (65.9%)	.44 <sup>b</sup>

<sup>a</sup>Independent sample t test.<sup>b</sup>χ<sup>2</sup>.<sup>c</sup>Mann-Whitney U-test.

**TABLE 3** Baseline and follow-up data for residents related to primary and secondary outcomes after controlling for sites (Australian, Norwegian and Swedish), age, gender, length of residence at facility, Neuropsychiatric symptoms, Cognitive capacity and ADL capacity

Measures	Intervention group (n) Marginal Mean (SE)			Control group (n) Marginal Mean (SE)			Change between groups from T0 to T1	Change between groups from T0 to T2
	T0	T1	T2	T0	T1	T2		
Thriving (score) <sup>a</sup>	(139) 146.3 (1.8)	(114) 150.5 (2.0)	(112) 151.0 (2.0)	(153) 155.9 (1.7)	(136) 156.6 (1.8)	(91) 149.6 (2.2)	$p = .33$ mean change=3.5 (SE* = 3.5)	$p = .003$ mean change=11.0 (SE* = 3.8) partial eta <sup>2</sup> = 0.012
Person-centred climate (score) <sup>b</sup>	(139) 80.3 (1.0)	(114) 84.6 (1.1)	(114) 84.9 (1.1)	(153) 83.6 (0.9)	(138) 85.6 (1.0)	(91) 82.3 (1.2)	$p = .23$ mean change 2.3 (SE* = 1.9)	$p = .004$ mean change 5.8 (SE* = 2.0) partial eta <sup>2</sup> = 0.011

Note: \*Standard Error.

<sup>a</sup>High scores indicate high degree of Thriving.

<sup>b</sup>High scores indicate high degree of person-centred climate.

for male residents between T0 and T2 (mean change 24.6,  $p = .001$ , Partial Eta Squared 0.06), not found for female residents (mean change 5.6,  $p = .20$ ). See Table 4. This indicates that the intervention was more beneficial for the male residents' thriving than the females'.

### 3.3 | Effect on person-centredness of the environment

In the intervention group, there was an increase in Person-centred climate (PCQ-P) scores between T0 and T1 (mean difference 4.3), and between T1 and T2 (mean difference 0.3). For the control group, there was an increase in PCQ-P scores between T0 and T1 (mean difference 2.0), and a decrease between T1 and T2 (mean difference - 3.3). See Table 3.

The linear regression model showed that there was a statistically significant positive effect (interaction between data collection and allocation) on the levels of PCQ-P between T0 and T2 (mean change 5.8,  $p = .004$ , Partial Eta Squared 0.011). This indicated that there was a significant effect from the intervention on the levels of person-centredness of the environment. See Table 3.

For subgroups, the linear regression model showed that there was a statistically significant effect on PCQ-P between T0 and T2 (mean change 10.1,  $p = .002$ , Partial Eta Squared 0.05) for male residents, not found for female residents (mean change 4.2,  $p = .10$ ), indicating that the intervention had a greater effect on the male residents' perceptions of person-centredness of the environment than on the females'. See table 4.

## 4 | DISCUSSION

The main findings from this study were that the intervention had positive effects on residents' experiences of thriving (primary endpoint) and person-centredness of the environment (secondary endpoint), as measured by proxy-ratings. Taking the limitations of proxy-ratings into account, these results support those of previous studies showing that person-centred interventions may result in positive changes and be beneficial for people living in NHs (Brownie & Nancarrow, 2013; Li & Porock, 2014).

The length of the intervention and use of reinforcing factors in the educational programme may have contributed to the results (Caspar et al., 2016). The 14-months duration may have been a contributing factor to the positive results. The person-centred and thriving-promoting philosophy was perceived as involving a process of practice changes that needed time for implementation. According to Li and Porock (2014) many person-centred interventions are of long duration in order to support positive outcomes. In their meta-analysis, Kim and Park (2017) found effects on quality of life among residents with dementia in long-term but not short-term interventions. This may indicate that the length of the intervention in this study was beneficial. On the other hand, a long intervention period allows for other issues or uncontrolled changes to influence the



TABLE 4 Baseline and follow-up data for male and female residents related to primary and secondary outcomes after controlling for sites (Australian, Norwegian and Swedish), age, length of residence at facility, Neuropsychiatric symptoms, Cognitive capacity and ADL capacity

Measures	Intervention group (n) Mean (SE)		Control group (n) Mean (SE)		Change between groups from T0 to T1 Change between groups from T0 to T2	
	T0	T1	T0	T1		
<b>Thriving (score)<sup>a</sup></b>						
Men	(35) 145.1 (3.5)	(28) 146.4 (3.9)	(26) 160 (4.0)	(44) 158.8 (3.2)	(30) 148.8 (3.9)	$p = .9$ mean change = -1.0 (SE* = 6.7) partial $\eta^2 = 0.000$
Women	(102) 147.3 (2.0)	(86) 152.1 (2.2)	(86) 148.5 (2.2)	(92) 156.4 (2.1)	(61) 150.8 (2.7)	$p = .2$ mean change = -3.6 (SE* = 4.4) partial $\eta^2 = 0.003$
<b>Person-centred climate (score)<sup>b</sup></b>						
Men	(36) 80.5 (1.6)	(28) 82.3 (1.8)	(27) 89.2 (1.8)	(44) 86.1 (1.5)	(30) 82.4 (1.8)	$p = .9$ mean change = 0.4 (SE* = 3.1) Partial $\eta^2 = 0.000$
Women	(103) 80.4 (1.2)	(86) 85.3 (1.3)	(87) 83.5 (1.2)	(94) 85.6 (1.2)	(61) 82.5 (1.5)	$p = .095$ mean change = -4.2 (SE* = 2.5) Partial $\eta^2 = 0.005$

Note: \*Standard Error.

<sup>a</sup>High scores indicate high degree of thriving.

<sup>b</sup>High scores indicate high degree of person-centred climate.

findings (Li & Porock, 2014), and they might be difficult to implement in NHs. According to Caspar et al. (2016), interventions in long-term care settings should include elements that enable staff to change skills and practice, reinforcing and strengthening the implementation of the new skills and practices and the motivation to continue their use. The fact that the intervention included factors such as supervision, hands-on practice and team meetings (work-shops) may have contributed to the positive effects.

It has been suggested that an organizational culture of stability could promote implementation of care models such as PCC in hospitals (Alharbi et al., 2012). It seems reasonable to suggest that NH cultures are more stable than hospital environments due to being of lesser acuity and having a more consistent occupancy. In light of Alharbi et al.'s (2012) findings, this may have promoted the implementation of the intervention. However, this needs to be studied further.

The subgroup analyses showed statistically significant effects for male residents but not for female residents regarding both primary and secondary endpoints. These findings indicate that male residents might have benefited more from the intervention than female residents. Previous studies have indicated that male residents in NHs participate in fewer social activities compared to female residents (Lood et al., 2017). This may be because many activities offered in NHs can be perceived as gender coded and 'female activities' less adapted to male residents. It may be reasonable to interpret that the person-centred approach of the intervention may have been a contributing factor to the differences in effects between female and male residents. Once asked what they wanted to participate in, the male residents may have felt that their opportunities to participate in activities increased. The intervention also involved staff doing 'a little extra' for the residents, something which may have been experienced as more positive by male residents if the commonly offered 'group activities' are gender coded to favour femininity. Further studies to confirm or reject these interpretations would be valuable.

Finally, the effects of a person-centred and thriving-promoting staff intervention were explored by using outcome measures and endpoint measures developed from the study's theoretical framework (Edvardsson et al., 2017). As these endpoints have not been used before in studies of effects, further studies are needed to provide evidence for how to promote thriving and well-being in NHs.

## 4.1 | Limitations

An important limitation in this study is the use of proxy-ratings to appraise the thriving and person-centeredness of the environment of residents who were unable to provide self-report data. The validity of proxy-ratings of subjective phenomena such as well-being and quality of life has been questioned as discrepancies between the ratings by persons and their proxies have been found, and as proxy ratings have been described to be frequently lower compared to the person's self-rating (Römhild et al., 2018). A main argument for using proxy-assessment is the possibility to include persons

with cognitive impairment, for example persons with dementia, in research and practise change studies. It may well be the only way research can avoid systematically excluding residents based on their cognitive function. In this study, the proportion of residents with cognitive impairment ranged between 60% and 67% across the different data collection time points, and thus the assumptions underlying proxy-ratings were supported, as extensive cognitive impairment would have inhibited self-report and thus participation in the study. To generate the best possible data, the proxy-ratings were conducted by the staff members who was deemed to know each particular resident best, and also that this staff member was experienced in conducting assessments of residents and their situation. Staff members who carried out these assessment had known the residents on average about three years (mean 2.7 years  $\pm$  4.3), and we thus believe that they were highly skilled in performing valid and reliable assessments. The TOPAS instrument has been found to be a valid proxy instrument as demonstrated by good inter-rater reliability between resident ratings and staff ratings (Bergland et al., 2014). Inter-rater reliability between staff and residents ratings has not yet been evaluated for the PCQ-P. It could also be discussed whether the results could have been influenced by the fact that the majority of proxy-ratings were conducted by female staff in the three data collections (92%–93%). To our knowledge there is no evidence in the literature suggesting that when the proxy rater has the same gender as the person being rated, this would influence the agreement of ratings. It would be valuable to conduct more systematic examination of this methodological issue, in terms of if and how gender may affect the agreement of ratings.

Another limitation and a possible risk of bias is that the educational programme targeted staff, and staff members did conduct the proxy-ratings (Caspar et al., 2016). The staff members knew that the aim of the study was to increase residents' experiences of thriving and person-centredness of the environment, and we do not know if this could have influenced their assessments. Use of an independent person to conduct the proxy-ratings was, however, deemed unrealistic as they would not have had the necessary knowledge about the residents and how they might have experienced their situation. Therefore, staff members were chosen as they had the most extensive current experience of the residents and their situation in the nursing home.

## 5 | CONCLUSION

The main findings of this study were the identification of statistically significant positive effects of an intervention on residents' experiences of thriving and person-centeredness of the environment. The intervention resulted in higher ratings of thriving and person-centredness of the environment for male residents, when compared to female residents post intervention. This indicates that person-centred interventions may influence different groups differently, and there may be a need for gender-aware activities and assessments of residents. If activities and assessments in NH settings

tend to be femininely gender coded, particular attention and consideration may be needed for male residents.

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## CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

## AUTHOR CONTRIBUTIONS

DE, POS, MK, ML, KS, ÅB, QL and TV made substantial contributions to the conception and design of the study and acquisition of data. KS and ÅB were responsible for drafting the manuscript, all authors contributed to the analysis and interpretation of the data, and critical revision of the manuscript regarding intellectual content. All authors approved the version submitted for publication.

## ETHICAL APPROVAL

The study was approved by the La Trobe University Human Ethics Committee (Dnr. 16-002), the Regional Ethical Review Board in Umeå (Dnr. 2015-407-31) and the Norwegian Social Science Data Services (Dnr. 46,548). In Australia and Norway, written informed consent to participate in the data collections was collected from residents and/or relatives. In Sweden, no formal written consent was required from the residents as per instructions from the human research ethics board. All residents and relatives received verbal and written information about the study and that they could actively decide not to be part of the data collection.

## DATA AVAILABILITY STATEMENT

The data of this study cannot be publicly shared due to ethical consideration and protection of the participants' confidentiality.

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