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## Review Article

## The Impact of Nursing Home Culture Change: An Integrative Review



Laura Deprez MSc<sup>a,\*</sup>, Thérèse Van Durme PhD<sup>b</sup>, Olivier Bruyère PhD<sup>c</sup>,  
Stéphane Adam PhD<sup>a</sup>

<sup>a</sup> Psychology of Aging Unit, Department of Psychology, University of Liège, Liège, Belgium

<sup>b</sup> Faculty of Public Health, Institute of Health and Society, Catholic University of Louvain, Brussels, Belgium

<sup>c</sup> Division of Public Health, Epidemiology and Health Economics, WHO Collaborating Center for Public Health Aspects of Musculo-Skeletal Health and Aging, University of Liège, Liege, Belgium

## A B S T R A C T

## Keywords:

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person-centered care

**Objectives:** The Nursing Home Culture Change (NHCC) movement promotes a person- and relationship-centered approach and a small-scale, homelike model for NHs. The present study aimed to integrate the most recent empirical findings regarding the impact of NHCC on resident, staff, family, and organizational outcomes.

**Design:** Integrative review.

**Setting and Participants:** Not applicable.

**Methods:** OVID MEDLINE, PsycINFO, Embase, and CINAHL databases were searched for quantitative or mixed studies published in English between 2018 and 2022 and examining the effect of NHCC on resident, staff, family, and/or organizational outcomes. A narrative and tabular synthesis of the results is provided.

**Results:** A total of 1687 references were identified. Following duplicate removal, title and abstract screening, and full-text screening, 75 studies were retained for synthesis and suggest a positive impact of NHCC on resident (eg, quality of life and neuropsychiatric function), staff (eg, job satisfaction and stress), family (eg, satisfaction and depressive symptoms), and organizational (eg, NH attractiveness and occupancy rate) outcomes.

**Conclusions and Implications:** NHCC shows promising results in all studied outcome categories. Future research should further investigate obstacles to NHCC implementation, conduct cost-benefit analyses supported by appropriate statistical tests, and define ways to improve NH staff education as well as NH policies and regulations to better support NHCC initiatives.

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In traditional nursing homes (NHs), operations and activities are largely determined by medical and institutional requirements,<sup>1</sup> leaving little room for residents to have a say in the organization of their daily life (eg, when to wake up and bathe). NH staff also lack decision-making power, as the hierarchical structure of these organizations fails to recognize their knowledge and ability to manage their own work.<sup>2</sup> Moreover, traditional NHs are often large buildings comprising long, empty corridors interspersed with identical doors and medical equipment such as diaper carts and patient lifts.<sup>1,3</sup> Thus, NHs have generally adopted an institutional, medicalized, and “hospital-like”

model that focuses heavily on hygiene, security, and quality of care and too little on quality of life (QoL).

Consequently, in the 1980s, US citizens formed a coalition to advocate for the importance of QoL in these establishments. A movement arose, calling for a radical transformation in NH culture. Several NH providers started implementing changes, such as creating smaller living units (“households”) and tailoring schedules to residents’ preferences. In 1997, a group of providers, consumer advocates, researchers, and regulators gathered, coined the term “Nursing Home Culture Change” (NHCC), and reflected on what principles the ideal NH should embody.<sup>4,5</sup>

As described by Duan et al and as illustrated in Figure 1,<sup>6</sup> the principles promoted by NHCC can be grouped into 3 major areas: care practices, work practices, and the environment. Regarding care practices, the movement advocates a person-centered approach that promotes resident self-determination, and a relationship-centered approach that fosters relationships and collaboration between all those involved (ie, not only residents and staff but also residents’

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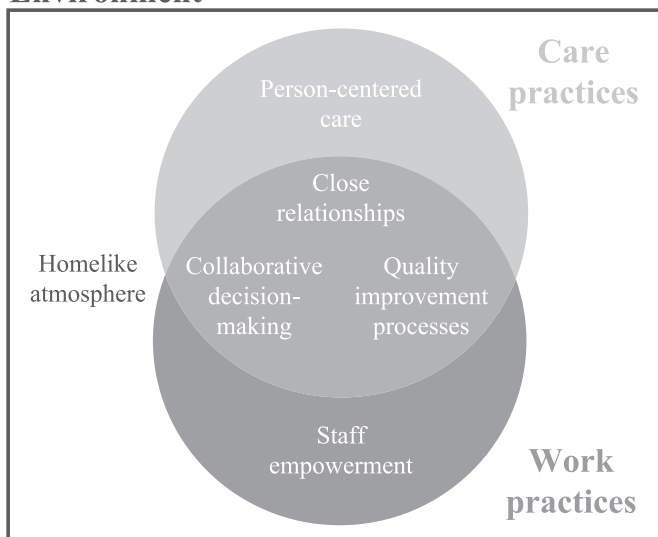
\* Address correspondence to Laura Deprez, MSc, Psychology of Aging Unit, Department of Psychology, University of Liege (ULiege), Place des Orateurs 1 (B33), 4000 Liege, Belgium.

E-mail address: [laura.deprez@uliege.be](mailto:laura.deprez@uliege.be) (L. Deprez).

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## Environment



**Fig. 1.** Illustration of the 6 Culture Change domains integrated into the 3 major areas of care practices, work practices and the environment.

relatives and the community). In terms of work practices, NHCC advocates staff empowerment, collaborative and nonhierarchical management, and interdisciplinary collaboration. Finally, NH environments should be homelike and foster residents' autonomy and independence. As illustrated in Figure 1, NHCC principles are also often categorized into 6 domains, each of which can fit into 1 or more of the 3 above-mentioned areas: (1) person-centered care (PCC), (2) close relationships, (3) staff empowerment, (4) collaborative decision making, (5) homelike atmosphere, and (6) quality improvement processes.<sup>4</sup>

Since the emergence of the NHCC movement, literature on the subject has increased and researchers have attempted to evaluate its effects. Various literature reviews have examined the impact of certain CC domains, such as PCC or homelike environment, and suggest promising results.<sup>7,8</sup> Three literature reviews examining the impact of global NHCC have been identified. The first one examined literature published up to 2010 addressing the effect of comprehensive CC models on NH residents' physical and psychosocial health.<sup>9</sup> The second one reviewed literature published between 2005 and 2012 investigating the impact of at least 1 CC domain on resident, family, quality of care and services, and staff and organizational outcomes.<sup>10</sup> The third review examined literature published between 1997 and 2019 and included studies conducted in the United States and investigating the impact of NHCC on residents' QoL.<sup>11</sup> Regarding resident outcomes, the conclusions of the 3 reviews were similar: NHCC appears to have a positive impact on resident QoL and psychosocial health, and effects are most consistent on autonomy, life satisfaction, and satisfaction with care. Shier et al's review revealed positive effects on staff, family, and organizational outcomes (eg, enhanced staff knowledge and turnover, improved family satisfaction, and increased occupancy rates) but also mixed and nonsignificant results.<sup>10</sup> All 3 reviews concluded that although findings regarding the impact of NHCC suggest a positive trend, the studies' methodologic shortcomings (eg, selection bias, small sample size, and nonrandomized study design) limit the strength of the evidence and more research is needed. Moreover, result synthesis is rendered difficult by the wide variation in the number and type of participants included, CC domain(s) addressed, and outcomes measured.

Because the first 2 reviews were conducted approximately 10 years ago and the third review is limited to studies conducted in the United States on residents' QoL, to our knowledge, no review has yet investigated the most recent evidence across multiple countries and outcome categories.<sup>9–11</sup> This research aimed to integrate results from the latest studies investigating the impact of NHCC on individuals who visit, live, or work in an NH and on the NH itself. The extensive variability in NHCC studies and the width of our research question are why an integrative review appeared more suitable than a systematic review.

## Methodology

This review followed Whittemore and Knaf's integrative review method comprising 5 stages: (1) problem identification, (2) literature search, (3) data evaluation, (4) data analysis, and (5) presentation.<sup>12</sup> Stage 1 is explained above; stages 2 to 5 are described in the following sections.

### Literature Search (Whittemore and Knaf's Stage 2)

OID MEDLINE, PsycINFO, CINAHL, and Embase databases were searched for studies published in English between January 2018 and December 2022. The following keywords were used for (1) the NH context: nursing home\*, home\* for the aged, residential aged care and (2) culture change practices: culture change, person-centered care and synonyms, empower\*, homeli\* or homely, Eden Alternative, Green House, Wellspring, Household Model, or Pioneer Network.

### Study Selection

Titles and abstracts were screened by 2 reviewers (L.D. and S.A.), and any area of disagreement was discussed until consensus was reached. Full texts of selected articles were reviewed by the first author (L.D.), and those whose eligibility raised doubts were discussed with the last author (S.A.). Inclusion criteria included (1) quantitative or mixed design; (2) NH setting; (3) implementation or observation of NHCC practices; (4) a sufficiently clear description of the study design, intervention, and analyses to assess eligibility for our review; and (5) results certified by statistical tests. Exclusion criteria included (1) lack of clarity in methodology or results and (2) undisclosed *P* values.

### Data Evaluation (Whittemore and Knaf's Stage 3)

Included studies were rated according to the Oxford Centre for Evidence-Based Medicine's Quality Rating Scheme for Studies and Other Evidence adapted by the *Journal of the American Medical Association*.<sup>13,14</sup> According to this rating, randomized controlled trials (RCTs) represent the highest level of evidence (Level I), followed by controlled trials without randomization and prospective comparative cohort trials (Level II), case-control studies and retrospective cohort studies (Level III), case series with or without intervention and cross-sectional studies (Level IV), and opinions of respected authorities and case reports (Level V).

### Data Extraction and Synthesis (Whittemore and Knaf's Stages 4 and 5)

Data were extracted by the first author (L.D.), and any area of doubt regarding data extraction, interpretation, or synthesis was discussed with the last author (S.A.). General characteristics and findings of selected studies were synthesized by outcome category, and the narrative and tabular syntheses are provided.

## Results

As shown in Figure 2, of the 1687 articles identified, 734 duplicates were removed. After screening the remaining 953 titles and abstracts, 125 were retained for full text screening. The interrater agreement was found to be 94% (Cohen  $\kappa$ : 0.72). In total, 75 studies were selected. The following information was extracted and synthesized in Tables 1–4: country, institutional setting, sample size, study design, CC domain, intervention, and findings.

As shown in Tables 1–4, study designs ranged from RCTs and multicenter controlled pre-post studies to longitudinal quasi-experimental studies and cross-sectional surveys. Among included studies, 16 were rated as Level I, 17 as Level II, 5 as Level III, 37 as Level IV, and none as Level V. Numerous studies were conducted in the United States (28), followed by Australia (14), Canada (8), Sweden (8), Norway (7), Germany (4), the Netherlands (4), United Kingdom (3), Belgium (2), Spain (2), China (1), India (1), South Korea (1), and Taiwan (1) (numbers sum up to more than 75 because some studies involved NHs from 2 or 3 countries). Institutional settings ranged from one unit (single-group time series design) to 2084 NHs (cross-sectional survey).<sup>15,16</sup> Sample sizes ranged from 11 residents from 1 NH (pre-post intervention study) to 15,953 residents from 220 NHs (cross-sectional survey).<sup>17,18</sup> The majority of articles addressed PCC (51), followed by staff empowerment (13), homelike atmosphere (11), close relationships (7), global CC (7), and collaborative decision making (5). No study targeted specifically quality improvement processes (numbers sum up to more than 75 because some studies addressed more than 1 CC domain). Findings are presented below by outcome category.

### Resident Outcomes

As shown in Table 1, among the 37 studies investigating resident outcomes, 35 showed positive results, 19 showed nonsignificant results, 2 showed negative results (numbers sum up to more than 37 because some studies show both positive, null, and/or negative results).

Multiple studies exposed significant improvements in residents' QoL,<sup>6,19,20,24,30,33,37,38,39,46,49,51</sup> well-being,<sup>41</sup> life satisfaction,<sup>51</sup> and will to live and overall hope.<sup>30</sup> An RCT investigating the effect of an intervention aimed at teaching staff to implement PCC showed improved neuropsychiatric function and reduced agitation in residents with dementia (RwDs).<sup>19</sup> Life-story interventions, in accordance with a person-and-relationship-centered approach, also resulted in decreased depression and improved neuropsychiatric function.<sup>17,21</sup>

Moreover, compared to traditional NHs, small-scale homelike NHs were associated with decreased anxiety,<sup>28</sup> as well as less withdrawn behavior, less time spent in negative mood, and more potential positive behaviors for RwDs.<sup>31</sup> Other studies suggest increased resident participation in end-of-life conversations, higher frequency of patients' preferences, hopes, and worries being documented, increased concordance between provided treatment and patient preferences<sup>44</sup>; improved resident perception of the quality of their relationship with staff<sup>37</sup>; improved food satisfaction and socialization during meals<sup>52</sup>; and better acceptance of new residence.<sup>51</sup>

Nonsignificant results included no significant differences in resident QoL,<sup>23,28,40,42,43</sup> satisfaction with care,<sup>21</sup> and mood (apart from anxiety),<sup>28</sup> in the prevalence of challenging<sup>23,42</sup> or agitated behaviors, in global deterioration, unmet needs, pain, mood, antipsychotic use, adverse events, or mortality.<sup>19,31,42,43</sup>

The negative findings consisted of decreased participation in activities of daily living and in social and relational activities such as talking to friends and receiving visitors.<sup>26,53</sup>

### Staff Outcomes

As shown in Table 2, among the 24 studies investigating staff outcomes, 24 showed positive results, 10 showed nonsignificant results, and 1 showed negative results (numbers sum up to more than 24 because some studies show both positive, null, and/or negative results).

An interesting RCT involving 180 carers and 84 RwDs investigated the effect of a PCC intervention in which carers from the intervention group (IG) received a 2-day training on how to provide individualized mini-interventions.<sup>55</sup> After the 6-week implementation phase, perceived time pressure decreased significantly in the intervention compared to the control group (CG). Moreover, the percentage of carers with greater job satisfaction increased more in the IG than in the CG, but this difference was not significant. Other studies, however, do show significant improvements in staff's job satisfaction and other psychosocial outcomes: thriving,<sup>59,63–65,67</sup> stress,<sup>27,35,54,62</sup> perceived job strain,<sup>46</sup> work-related burnout,<sup>23</sup> workload and physical demands,<sup>71</sup> self-determination,<sup>56</sup> perceived autonomy,<sup>71</sup> and psychological empowerment.<sup>61,65</sup> Significant improvements were also found in staff performance: in the way management and staff work together,<sup>21</sup> the quality of interactions between staff members,<sup>66</sup> perceived social support from coworkers,<sup>71</sup> levels of good care,<sup>60</sup> use of elderspeak,<sup>69</sup> knowledge of residents' life story,<sup>57</sup> staff attitudes toward dementia,<sup>59</sup> knowledge of communication in dementia care,<sup>70</sup>

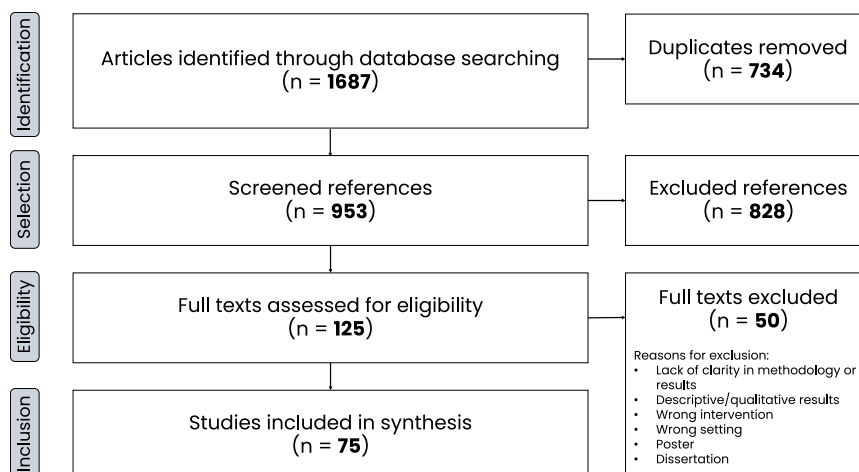


Fig. 2. PRISMA flow diagram of article screening and selection.

**Table 1**  
Resident Outcomes

Reference (Country)	Setting	N	Study design	Quality Rating	CC domain	Intervention/Examined Variable	Findings
Ballard et al, <sup>19</sup> 2018 (UK)	69NHs	553 residents	Cluster RCT	Level I	PCC	Examined the effect of the WHELD intervention (PCC training for care staff, promoting tailored person-centered activities and social interactions, developing a system for triggering appropriate review of antipsychotic medications) on resident QoL, agitation, neuropsychiatric symptoms, positive care interactions, global deterioration, unmet needs, pain, mood, change in antipsychotic use, adverse events, mortality	<ul style="list-style-type: none"> <li>↗ positive care interactions <math>P = .03</math></li> <li>↘ neuropsychiatric symptoms <math>P &lt; .001^*</math></li> <li>↗ QoL <math>P = .004^*</math></li> <li>↘ agitation <math>P = .008^*</math></li> <li>∅ on other outcomes (global deterioration, unmet needs, pain, mood, change in antipsychotic use, adverse events, mortality) <math>P &gt; .05^†</math></li> </ul>
Caspar et al, <sup>15</sup> 2021 (CA)	1 unit from 1 NH	12 residents	Single-group, time series design	Level II	PCC + collaborative decision making	Examined the effectiveness of a 6-mo stakeholder engagement practice change initiative aimed at increasing the provision of person-centered mealtimes. Multiple mealtime observations were completed by the study assessor with the Mealtime Scan, an observational tool that measures psychosocial and physical aspects of a dining environment that impact mealtime experience.	<ul style="list-style-type: none"> <li>↗ in all mealtime environment scales: <math>P = .001^*</math></li> <li>• social environment <math>P = .002^*</math></li> <li>• overall environment scale <math>P = .003^*</math></li> <li>• relationship and person-centered scale <math>P = .013^*</math></li> <li>• physical environment <math>P = .013^*</math></li> </ul>
Duan et al, <sup>20</sup> 2021 (US)	102 NHs	102 NHAs	Cross-sectional survey	Level IV	Global CC	Examined variations in NH characteristics and quality outcomes associated with their generated typology of CC implementation across Minnesota NHs. Three types of CC implementation were identified: high performers (most comprehensive adoption), average performers (moderate adoption), low performers (lowest scores in all CC domains).	Compared to both average and low performers, high performers had: $P$ between $<.05$ and $<.001^*$ <ul style="list-style-type: none"> <li>↗ QoL, dignity, meaningful activities, autonomy, environment. Compared to average performers only, high performers had: ↗ relationships, caregiving, and food enjoyment.</li> </ul>
Duan et al, <sup>6</sup> 2022 (US)	102 NHs	102NHAs	Cross-sectional survey	Level IV	Global CC	Examined (1) the domain-specific relationships of CC practices with resident QoL and family satisfaction and (2) the moderating effect of small-home or household models on these relationships	Small-home/household models had $P < .05^*$ <ul style="list-style-type: none"> <li>↗ overall resident QoL and 3 QoL domains (ie, environment, autonomy, caregiving)</li> </ul>
Ejaz et al, <sup>21</sup> 2022 (US)	16NHs	170 residents, 92 staff	Longitudinal pre-post study	Level II	PCC	Life story program, staff training on how to utilize the information from the residents' life story books and action plans, ideas to improve resident-staff interactions, and incorporate individual preferences into care planning.	<ul style="list-style-type: none"> <li>↘ cognitive impairment <math>P = .004^*</math></li> <li>↘ depression <math>P = .015^*</math></li> <li>∅ on satisfaction with care <math>P = .621^†</math></li> </ul>
Francis et al, <sup>17</sup> 2020 (UK)	1NH	11 residents with dementia	Pre-post intervention design	Level II	PCC	Examined the effect and feasibility of biographical films to reduce neuropsychiatric symptoms in people with moderate to severe dementia over a 32-wk period.	<ul style="list-style-type: none"> <li>↘ neuropsychiatric symptoms <math>P = .042^*</math></li> <li>∅ on QoL <math>P = .144^†</math></li> <li>∅ on agitation <math>P = .383^†</math></li> <li>∅ on challenging behaviors <math>P = .710^†</math></li> </ul>

Gnanamanickam et al, <sup>22</sup> 2019 (AU)	17NHs	540 residents	Cross-sectional study	Level IV	Homelike atmosphere	Compared consumer-rated quality of care among individuals living long term in homelike clustered domestic NHs vs standard models of residential care.	Living in a clustered domestic NH led to: ↗ overall quality of care ↗ access to outside and gardens ↗ flexibility of care	All $P < .001^*$
Halek et al, <sup>23</sup> 2020 (DE)	12NHs	348 residents+ 224 staff	Stepped-wedge cluster RCT	Level I	PCC	Examined the effect of 2 dementia-specific case conference models (to understand underlying causes of the resident's behavior and plan tailored interventions) on resident challenging behavior and QoL, and on staff outcomes.	∅ on overall prevalence of challenging behaviors ∅ on global QoL and medication ↘ in some behaviors (apathy, eating disturbances, hallucination and delusion)	$P > .05^†$ $P > .05^†$ All $P < .05^*$
Hall and Gilliland, <sup>24</sup> 2019 (US)	1NH	132 residents	Pre-post intervention design	Level II	Homelike atmosphere	Examined the impact of facility-wide dining CC from institutional-style "feeding" toward home-style "dining" using the Dining Satisfaction Survey (DSS) they created.	↗ in all 3 DSS domains (ie, food satisfaction, exercising choice, and socialization/communication)	All $P \leq .01^*$
Hartmann et al, <sup>25</sup> 2018 (US)	6CLCs	62 residents + 308 staff	Pre-post intervention design	Level II	Close relationships and PCC	Examined the effect of an intervention targeting staff behavior change, focusing on improving interactions between residents and staff and thereby ultimately aiming to improve resident engagement.	↗ staff communication with residents during provision of direct care ↘ negative staff interactions with residents.	$P < .002^*$ $P = .029^*$
Hermer et al, <sup>26</sup> 2018 (US)	349 NHs	349 NHs	Retrospective cohort study	Level III	PCC	Examined the effects of the Kansas' PEAK 2.0 Medicaid pay-for-performance program (training staff on adopting PCC through a series of well-defined stages and providing regular feedback about their progress) on facility-level, resident Nursing Home Compare health outcomes.	↘ depressive symptoms ↘ physical restraint use ∅ prevalence of pain ∅ antipsychotic prescribing ↘ ADL	$P < .001^*$ $P < .001^*$ $P = .96^†$ $P = .152^†$ $P < .001^†$
Isaac et al, <sup>27</sup> 2021 (AU)	5NHs	74 residents with dementia + 39 staff	Nonrandomized pre-post intervention study	Level II	PCC	Examined the outcomes of a person-centered, nonpharmacologic dementia care model (Harmony in the Bush) based on the Progressively Lowered Stress Threshold principles and person-centered music.	↘ BPSD (total CMAI declined from 3.05/shift to 1.35/shift after 4 wk)	$P = .015^*$
Kok et al, <sup>28</sup> 2018 (NL)	1NH	145 residents	Longitudinal non randomized	Level II	Homelike atmosphere and PCC	Examined whether small-scale homelike facilities are associated with better QoL than regular, larger-scale NHs. At baseline, all residents lived in 2 regular SCUs (20-30 residents per ward). After 2 mo, the IG moved to a small-scale, homelike SCU (7-8 residents per ward). The entire nursing staff of the IG received a 9-h training on PCC for residents with dementia.	↘ anxiety (residents who moved to small-scale units became less anxious than residents who stayed on regular care large-scale units) ∅ on other outcomes (QoL, mood, and psychiatric outcomes other than anxiety)	$P = .008^*$ $P > .05^†$
Kolanowski et al, <sup>29</sup> 2020 (US)	35NHs	325 residents	Secondary analysis of ongoing clinical trial data	Level IV	PCC, close relationships	Examined potentially modifiable factors associated with resident affect balance (staff interaction during caregiving, staff knowledge of PCC dementia care, supportive physical environment, number of person-centered policies). Secondary analysis of baseline data from first 2 cohorts of the trial.	↗ quality of staff interaction was associated with ↗ resident affect balance ∅ on other factors (environmental assessment, and person-centered policies)	$P = .01^*$ $P = \text{nm}^†$

(continued on next page)

Table 1 (continued)

Reference (Country)	Setting	N	Study design	Quality Rating	CC domain	Intervention/Examined Variable	Findings
Kubsch et al, <sup>30</sup> 2018 (US)	2NHs	50 residents (22 < Eden facility, 28 < other)	Comparative design	Level IV	Global CC (Eden Alternative)	Compared hope in residents at 2 privately owned, similar-size NHs (75-100 residents): 1 NH employed Eden Alternative philosophy; the other used the medical model.	Eden facility had: <ul style="list-style-type: none"> <li>• ↗ overall hope <math>P = .04^*</math></li> <li>• ↗ QoL <math>P = .003^*</math></li> <li>• ↗ choices <math>P = .016^*</math></li> <li>• ↗ will to live <math>P = .05^*</math></li> <li>• ↗ companionship <math>P = .05^*</math></li> </ul>
Lee et al, <sup>31</sup> 2021 (CA and KR)	4NHs	20 residents	Longitudinal observational study	Level II	Homelike atmosphere	Examined whether residents with dementia living in long-term care facilities with different physical environment qualities (institutional large-scale setting vs small-scale setting) had a difference in their QoL.	Small-scale setting had: <ul style="list-style-type: none"> <li>• ↘ withdrawn behavior <math>P &lt; .05^*</math></li> <li>• ↘ negative mood/affect <math>P &lt; .05^*</math></li> <li>• ∅ on agitation/distress <math>P = nm^†</math></li> <li>• ∅ on positive engagement <math>P = nm^†</math></li> </ul>
Lepore et al, <sup>32</sup> 2020 (US)	1585 NHs	1585NHs	Longitudinal retrospective study	Level III	PCC, staff empowerment, homelike atmosphere	Examined how increasing adoption of CC practices affected the prevalence of health, severe health, and QoL deficiencies.	↗ CC practices led to ↘ deficiencies (QoL deficiencies, health deficiencies, severe health deficiencies) $P < .05^*$
Lichtwarck et al, <sup>33</sup> 2018 (NO)	33NHs	229 residents	Single-blinded cluster RCT	Level I	PCC	Examined whether TIME (Targeted Interdisciplinary Model for Evaluation and Treatment of Neuropsychiatric Symptoms) can reduce agitation in NH patients with dementia.	<ul style="list-style-type: none"> <li>↘ agitation (NPI, at 8 and 12 wk) <math>P &lt; .05^*</math></li> <li>↘ agitation (CMAI, at 8 and 12 wk) <math>P &lt; .05^*</math></li> <li>↘ depression (at 12 wk) <math>P = .01^*</math></li> <li>↘ delusion (at 8 wk) <math>P = .02^*</math></li> <li>↘ disinhibition (at 12 wk) <math>P = .03^*</math></li> <li>↗ QoL (at 12 wk) <math>P = .04^*</math></li> <li>∅ on other single NPI items, NPI-subsyndromal psychosis score and affective symptoms <math>P &gt; .05^†</math></li> <li>∅ on psychotropic and analgesic use <math>P &gt; .05^†</math></li> </ul>
Liu et al, <sup>34</sup> 2022 (US)	9 NHs	36 staff+ 27 residents	Longitudinal retrospective study (secondary analysis of mealtime videos)	Level III	PCC	Videotaped mealtime observations were coded to examine (1) the role of staff person-centered and task-centered approaches and resident positive, neutral, and challenging behaviors on resident food intake, (2) moderating effects of staff approaches, food type, and length of dyadic mealtime interactions.	↗ number of staff person-centered nonverbal approaches/minute led to ↗ food intake/minute (this relationship was moderated by length of dyadic mealtime interactions) $P = .003^*$
Macfarlane et al, <sup>35</sup> 2021 (AU)	1996 NHs	5914BPSD referrals	2-y retrospective pre-post study	Level III	PCC	Examined neuropsychiatric outcomes associated with provision of psychosocial PCC interventions delivered by national multidisciplinary dementia-specific behavior support programs (Dementia Behavior Management Advisory Service [DBMAS]) and Severe Behavior Response Teams [SBRT]).	↘ total NPI for DBMAS and SBRT $P < .001^*$
Martinez et al, <sup>36</sup> 2021 (ES)	42 NHs	636 residents + 742 relatives+ 844 staff	Cross-sectional correlational study	Level IV	PCC	Developed 2 questionnaires to assess users' and relatives' opinions of PCC and examined the relationships between PCC and care quality and the users' perceived psychological well-being.	<ul style="list-style-type: none"> <li>↗ PCC level led to ↗ perceived care quality according to:  <ul style="list-style-type: none"> <li>• residents <math>P &lt; .001^*</math></li> <li>• relatives <math>P &lt; .001^*</math></li> <li>• staff <math>P &lt; .001^*</math></li> </ul> </li> <li>↗ PCC level led to ↗ residents' psychological well-being according to:  <ul style="list-style-type: none"> <li>• relatives <math>P &lt; .001^*</math></li> <li>• residents <math>P &lt; .001^*</math></li> </ul> </li> </ul>



McCabe et al, <sup>37</sup> 2020 (AU)	9 NHs	92 residents	RCT	Level I	PCC	Evaluated the 6-session Resident at the Centre of Care staff training program designed to equip staff to implement a consumer-directed care model among residents.	<ul style="list-style-type: none"> <li>↗ QoL (in the “training only” group)</li> <li>↘ QoL (in the “training plus support” group)</li> <li>↗ resident’s perceived quality of their relationship with staff (in the “training only” group)</li> <li>↘ resident’s perceived quality of their relationship with staff (in the “training plus support” group)</li> </ul>	<ul style="list-style-type: none"> <li><math>P &lt; .05^*</math></li> <li><math>P = .08^\dagger</math></li> <li><math>P &lt; .05^*</math></li> <li><math>P = .35^\dagger</math></li> </ul>
McCabe et al, <sup>38</sup> 2021 (AU)	33 NHs	604 residents	Cross-sectional observational study	Level IV	PCC/collaborative decision making	Examined the contribution of resident choice and the staff-resident relationship to promoting resident QoL.	<ul style="list-style-type: none"> <li>↗ resident perception of their relationship with staff led to ↗ QoL</li> <li>↗ resident choice led to ↗ QoL</li> <li>• Choice in socializing</li> <li>• Choice in care</li> <li>• Choice in food and leisure activities</li> </ul>	<ul style="list-style-type: none"> <li><math>P &lt; .001^*</math></li> <li><math>P &lt; .001^*</math></li> <li><math>P &lt; .001^*</math></li> <li><math>P &lt; .05^*</math></li> <li><math>P &gt; .05^\dagger</math></li> </ul>
McCabe et al, <sup>39</sup> 2022 (AU)	33 NHs	604 residents	Nonrandomized controlled trial	Level II	PCC	Examined the effectiveness of the Resident at the Centre of Care staff training program in 9 NH clusters <sup>8</sup> , each comprised of 1 NH receiving training only, 1 NH receiving training + support, and 1 control NH continuing with care as usual.	<ul style="list-style-type: none"> <li>↗ QoL for clusters 1, 3, 4, 7</li> <li>↘ QoL for clusters 2, 5, 6, 8, 9</li> </ul>	<ul style="list-style-type: none"> <li><math>P &lt; .001^*</math></li> <li><math>P &lt; .001^*</math></li> <li><math>P &lt; .001^*</math></li> <li><math>P &lt; .05^*</math></li> <li><math>P &gt; .05^\dagger</math></li> </ul>
McCabe et al, <sup>40</sup> 2022 (AU)	33 NHs	389 staff	Cluster RCT	Level I	PCC	Examined the impact of a training program to support delivery of consumer-directed care (training only vs training plus support vs control) on resident QoL.	<ul style="list-style-type: none"> <li>↘ QoL</li> </ul>	<ul style="list-style-type: none"> <li><math>P &gt; .05^\dagger</math></li> </ul>
McDermid et al, <sup>41</sup> 2022 (UK)	16 NHs	45 staff + 130 residents with dementia	Cluster RCT (2-arm clinical trial)	Level I	PCC	Compared the effect of the WHELD PCC home training program with virtual coaching and the digital training program alone, on PwD and staff outcomes.	<ul style="list-style-type: none"> <li>Compared to e-WHELD alone, e-WHELD + virtual coaching led to</li> <li>↗ resident well-being</li> <li>↗ engagement in positive activities</li> <li>↘ time spent in daytime sleep</li> <li>↘ on depressive symptoms, agitation, resistiveness to care, pain, and QoL</li> </ul>	<ul style="list-style-type: none"> <li><math>P = .007^*</math></li> <li><math>P = .02^*</math></li> <li><math>P = .07^\dagger</math></li> <li><math>P &gt; .05^\dagger</math></li> </ul>
Resnick et al, <sup>42</sup> 2021 (US)	55 NHs	553 residents	Cluster RCT	Level I	PCC	Examined the effect of an implementation strategy (the Evidence Integration Triangle for BPSD) for assisting staff in the use of evidence-based behavioral approaches for BPSD.	<ul style="list-style-type: none"> <li>↘ QoL</li> <li>↘ agitation</li> </ul>	<ul style="list-style-type: none"> <li><math>P = .365^\dagger</math></li> <li><math>P = .141^\dagger</math></li> </ul>
Richter et al, <sup>43</sup> 2019 (DE)	37 NHs	1153 residents	Multicenter, cluster RCT	Level I	PCC	Adapted a UK PCC intervention to German conditions and examined its effect (at 12 mo) on the proportion of residents with antipsychotic prescriptions, QoL, agitated behavior, falls, and physical restraints.	<ul style="list-style-type: none"> <li>↗ patient participation in end-of-life treatment conversations</li> <li>↗ documentation of patient preferences, hopes, and worries</li> <li>↗ concordance between provided treatment and patient preferences</li> <li>↗ next of kin participation in ACP with the patient</li> </ul>	<ul style="list-style-type: none"> <li><math>P &lt; .001^*</math></li> <li><math>P = .006^*</math></li> <li><math>P = .037^*</math></li> <li><math>P = .056^*</math></li> </ul>
Saevareid et al, <sup>44</sup> 2019 (NO)	8 NHs	151 residents	Cluster RCT	Level I	PCC/collaborative decision making	Examined the effect of an intervention aimed at improving patient participation in ACP. Targeting staff from IG wards, implementation strategies included a guideline for how to carry out systematic ACP, project teams, training, supervision, follow-up, project information and documentation template.	<ul style="list-style-type: none"> <li>↗ patient participation in end-of-life treatment conversations</li> <li>↗ documentation of patient preferences, hopes, and worries</li> <li>↗ concordance between provided treatment and patient preferences</li> <li>↗ next of kin participation in ACP with the patient</li> </ul>	<ul style="list-style-type: none"> <li><math>P &lt; .001^*</math></li> <li><math>P = .006^*</math></li> <li><math>P = .037^*</math></li> <li><math>P = .056^*</math></li> </ul>

(continued on next page)

Table 1 (continued)

Reference (Country)	Setting	N	Study design	Quality Rating	CC domain	Intervention/Examined Variable	Findings
Sjögren et al, <sup>45</sup> 2022 (AU, NO and SE)	6 NHs	268 residents	Multicenter, nonequivalent CG before-after trial	Level II	PCC	Examined the effects of a 14-mo person-centered and thriving-promoting intervention on residents' experiences of thriving [Thriving of Older People Assessment Scale (TOPAS)] and person-centeredness of the environment [Person-centered Climate Questionnaire-Patient Version (PCQ-P)].	↗ resident thriving. ↗ person-centeredness of the environment  $P = .003^*$ $P = .004^*$
Sköldunger et al, <sup>46</sup> 2020 (SE)	172 NHs	4831 residents+ 3605 staff	Cross-sectional survey	Level IV	PCC	Examined the association between PCC and resource use, resident QoL, and staff job strain.	↗ PCC led to ↗ resident QoL  $P = .03^*$
Slaughter et al, <sup>47</sup> 2020 (CA)	32 NHs	624 residents	Cross-sectional study (secondary analysis)	Level IV	Homelike atmosphere, PCC, close relationships	Examined how specific aspects of the mealtime environment are associated with residents' eating challenges and energy intake in general care units (GCUs) and dementia care units (DCUs).	In GCUs, ↗ functional and physical environment scores led to ↗ energy intake: social and person-centered aspects of the dining environment ↘ the effect of eating challenges on energy intake In DCUs, the environment had ∅ on the eating challenges-energy intake association  $P < .05$ (for all 4 effects)*  $P > .05^†$
Strom et al, <sup>48</sup> 2020 (IN)	6 NHs	23 staff	Cross-sectional study	Level IV	PCC	Examined the participation in everyday activities among older people in Indian NHs and the extent to which engagement in activities is associated with PCC. All care staff were invited to provide self-reported data on PCC using the Person-Centered Care Assessment Tool (P-CAT).	↗ PCC led to ↗ participation in • Play (group) activities (eg, activity program, physical activity) • Certain leisure activities (eg, listening to music, being outside) PCC led to ∅ • Basic ADL • Educational activities • Outings and cultural activities ↘ PCC led to ↗ participation in: • Instrumental ADL (eg, making coffee and setting table) • Social and relational activities (eg, talking to friends and receiving visitors)  $P < .05^*$ $P < .05^*$  $P > .05^†$ $P > .05^†$ $P > .05^†$  $P = .013^‡$ $P \leq .002^‡$
Wang et al, <sup>24</sup> 2018 (CN)	9 NHs	515 residents	Cross-sectional study	Level IV	PCC and close relationships	Examined how residents' social support and perceived empowerment are associated with their QoL controlling for confounding factors (eg, sociodemographic characteristics and facility types).	↗ social support led to ↗ QoL ↗ perceived empowerment led to ↗ QoL  $P < .001^*$ $P < .001^*$
Wijk et al, <sup>49</sup> 2018 (SE)	3 NHs (2 intervention + 1 control)	79 residents+ 20 staff	Controlled prospective study	Level II	PCC	Examined the feasibility and impact of a person-centered approach to incontinence care for residents with cognitive impairment. The following were evaluated: impact on assessment, care planning, QoL, and quality of care.	∅ on QoL ↗ quality of care (as measured by ↗ number of PCC actions for incontinence)  $P > .05^†$ $P = .019^*$
Wu et al, <sup>50</sup> 2018 (CA)	2 care units from 1 NH	64 residents+ 25 staff	Pre-post time series design	Level II	PCC, close relationships	Examined the effect of the CHOICE staff training program (aimed at making the dining experience more person- and relationship-centered) on mealtime experience.	↗ physical environment ↗ social environment ↗ overall quality of dining environment ∅ relation-centered care  $P < .01^*$ $P = .02^*$ $P = .02^*$  $P = .40^†$



Yoon, <sup>51</sup> 2018 (US) <sup>  </sup>	6 NHs	203 residents	Cross-sectional survey	Level IV	PCC	Examined, by surveying NH residents, whether person-centered NH environments directly influence life satisfaction, and indirectly influence life satisfaction through improved NH adjustment.	↗ person-centered climate (PCCI) led to ↗ life satisfaction (direct effect) ↗ PCCI led to ↗ NH adjustment and to ↗ life satisfaction (mediating effect) ↗ safety led to ↗ life satisfaction ↗ everydayness led to ↗ life satisfaction ↗ everydayness led to ↗ relationship development led to ↗ life satisfaction ↗ everydayness led to ↗ acceptance of new residence ↗ everydayness led to ↗ depressed mood	P < .001* P = .011* P = .003* P = .045* P = .006* P < .001* P = .04*
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ACP, advance care planning; ADL, activities of daily living; ADQ, Approaches to Dementia Questionnaire; BPSD, behavioral and psychological symptoms of dementia; CG, control group; CMAI, Cohen-Mansfield Agitation Inventory; CNA, certified nursing assistant; DCW, direct care worker; DON, director of nursing; HCA, health care aid; IG, intervention group; LTC, long-term care; MDS, Minimum Data Set; NA, not applicable; NH, nursing home; NHA, nursing home administrator; nm, not mentioned; NPI, Neuropsychiatric Inventory; PCC, person-centered care; PwD, person(s) with dementia; QoL, quality of life; RCC, resident-centered care; RN, registered nurse; RWD, resident(s) with dementia; SCU, special care unit; ∅, no significant effect.

Country codes: AU, Australia; BE, Belgium; CA, Canada; CN, China; DE, Germany; ES, Spain; IN, India; KR, South Korea; NL, the Netherlands; NO, Norway; SE, Sweden; TW, Taiwan; UK, United Kingdom; US, United States.

\*Significantly positive results.

†Nonsignificant results.

‡Significantly negative results.

§Originally, 11 clusters were included; however, there were 2 clusters for which no data were available for the 'training plus support' group. These clusters were therefore excluded from analyses, leaving 9 clusters in total.

|| Study conducted in Midwestern USA, published in South Korea.

perceived ability to provide PCC,<sup>56</sup> job productivity, and organizational commitment.<sup>58</sup>

Other studies found no significant effects for job satisfaction<sup>21,55</sup>; burnout symptoms, overall social support or social support from supervisors<sup>71</sup>; staff knowledge about residents and dementia<sup>41,57</sup>; collective pronoun substitutions, communication topics (task-oriented vs person-centered vs superficial), and emotional tone (person-centered vs controlling).<sup>69</sup>

The only negative findings came from a study evaluating the effects of a "person-centered and thriving-promoting intervention" on staff job satisfaction and stress of conscience and their perception of the person-centeredness of care and of the environment; the CG exhibited better outcomes than the IG, except for stress of conscience.<sup>68</sup>

### Family Outcomes

As shown in Table 3, among the 4 studies investigating family outcomes, all 4 showed both positive and nonsignificant results, and none showed negative results.

Studies show that higher CC implementation was associated with higher family satisfaction,<sup>6,20</sup> and a more person-centered environment was associated with significant improvements in relatives' perception of quality of care.<sup>72</sup> Moreover, an RCT showed a positive impact of an intervention encouraging families to participate in NH care plan meetings through web conferencing. From baseline to the 9-month follow-up, depressive symptoms increased in the CG and declined significantly in the IG. Other study outcomes (ie, anxiety, burden, QoL, satisfaction with NH care) followed a positive but nonsignificant trend.<sup>73</sup>

### Organizational Outcomes

As shown in Table 4, among the 23 articles investigating organizational outcomes, 17 showed positive results, 12 showed nonsignificant results, and 3 showed negative results (numbers sum up to more than 23 because some studies show both positive, null, and/or negative results).

A survey of 71 older adults revealed that compared with a brochure depicting a traditional NH, a brochure depicting a CC NH elicited a significantly greater desire to enter the establishment, and a feeling that they would be better cared for, feel more at home, and their habits and choices would be more respected. When asked to choose between the 2 brochures, 82% of the participants chose the CC NH.<sup>85</sup> Accordingly, Duan et al found NHs implementing small-home or household models were more likely to have higher occupancy rates.<sup>6</sup> Moreover, PCC interventions have been associated with reduced staff injury due to assault,<sup>84</sup> decreased psychotropic use,<sup>77,78,87,88</sup> improved Behavioral and Psychological Symptoms of Dementia (BPSD) among residents who had their antipsychotics deprescribed,<sup>77</sup> and enhancements in various NH quality indicators (health inspection star rating<sup>82</sup>; health deficiencies, and overall 5-star rating).<sup>74</sup> Higher CC implementation has also been associated with better physical restraint use and homelike environments with a lower risk of fall injuries.<sup>18,20</sup> Additionally, in 2020, rates of COVID infections, (re)admissions, and mortality were compared in Green House or small NHs and up to 5 of the nearest traditional NHs; in all comparisons, rates were lower for Green House or small NHs (eg, median mortality per 100 positive cases was 12.5 in NHs ≥50 beds, 10 in NHs <50 beds, and 0 in Green House or small NHs).<sup>89</sup> Finally, an environmental intervention involving soundscape assessment, raising staff's sound awareness, and reducing disturbing sounds (thus rendering the environment more homelike) improved the ratio of chaotic and calm soundscapes and increased satisfactory grades given by staff.<sup>81</sup>

Evidence is less clear regarding the relation between staff empowerment and retention. Berridge et al examined the relationship

**Table 2**  
Staff Outcomes

Reference (Country)	Setting	N	Study design	Quality Rating	CC Domain	Intervention/Examined Variable	Findings	
Backman et al., <sup>54</sup> 2021 (SE)	190 NHs	2985 staff (and their managers)	Cross-sectional survey	Level IV	PCC	Examined relationships between leadership, PCC, and stress of conscience as perceived by direct care staff, based on a cross-sectional national survey.	↗ PCC led to ↘ stress of conscience	$P < .001^*$
Berendonk et al., <sup>55</sup> 2019 (DE)	20 NHs	180 staff + 84 residents with dementia	Cluster RCT	Level I	PCC	Examined the feasibility of a nursing intervention (DEMIAN; training staff to provide emotion-focused mini-interventions for participating residents, with a life story work approach) to implement PCC in routine care and its effects on staff job satisfaction, motivation, and work strain.	Time pressure (task-related stressors) ↘ in the IG compared to the CG % of staff with positive job dissatisfaction (greater job satisfaction) ↗ in the IG. ∅ on other outcomes (job demands, task-related and personal resources, emotional exhaustion, intrinsic motivation, client aversion, reactive shielding)	$P = .026^*$ $P = .053^†$ $P = nm^†$
Caspar et al., <sup>56</sup> 2019 (CA)	4 NHs	131 HCAs	Cross-sectional study	Level IV	PCC, staff empowerment	Examined the relationship between supportive supervisory practices (SSP) and HCAs' self-determination on their perceived ability to provide PCC.	↗ HCA self-determination led to ↗ perceived ability to provide PCC ↗ perceived SSP led to ↗ perceived ability to provide PCC ↗ perceived SSP led to ↗ HCA self-determination	$P < .001^*$ $P < .001^*$ $P < .001^*$
Dennerstein et al., <sup>57</sup> 2018 (AU)	1 NH	40 staff	RCT	Level I	PCC (life-story work)	Examined the impact of written life-stories, compared to usual file notes, on care staff's knowledge and attitudes about residents [using the Knowledge of Residents Scale (KRS)].	↗ KRS item 4: "How well do you know the life history of this resident?" ∅ total KRS score ∅ on other individual KRS items	$P = .02^*$ $P = .67^†$ $P > .05^†$
Ejaz et al., <sup>21</sup> 2022 (US)	16 NHs	170 residents, + 92 staff	Longitudinal pre-post study	Level II	PCC (life-story work)	Life story program; staff training on how to utilize the information from the residents' life story books and action plans, ideas to improve resident-staff interactions and incorporate individual preferences into care planning.	↗ staff satisfaction with the way management and staff work together ↗ staff perception of the importance for staff to know residents' life stories ∅ overall job satisfaction ∅ other individual job satisfaction items	$P = .009^*$ $P = .033^*$ $P > .05^†$ $P > .05^†$
Halek et al., <sup>23</sup> 2020 (DE)	12 NHs	465 residents, + 473 staff	Stepped-wedge cluster RCT	Level I	PCC	Examined the effect of 2 dementia-specific case conference models (to understand underlying causes of the resident's behavior and plan tailored interventions) on resident outcomes and on staff stress, burnout (personal, work-related, client-related), and vocational action competence.	↘ work-related burnout ∅ on other outcomes (personal burnout, client-related burnout, work-related stress, vocational action competence)	$P = .032^*$ $P = nm^†$
Huang et al., <sup>58</sup> 2020 (TW)	16 NHs	366 staff	Cross-sectional survey	Level IV	PCC	Examined the effects of PCC on job productivity, job satisfaction, and organizational commitment among employees in NHs.	↗ overall PCC performance led to: • ↗ job satisfaction • ↗ organizational commitment • ↗ job productivity	$P < .01^*$ $P < .01^*$ $P < .01^*$
Inker et al., 2021 (US) <sup>59</sup>	9 NHs	130 staff	Pre-post intervention study	Level II	PCC	Examined the effect of a person-centered dementia care microlearning intervention (52 weekly microlearning lessons were made available 24/7 online, averaged 6 min with introduction, brief content, and summary, and a 2-question quiz to assess learning).	↗ job satisfaction ↗ scores on the Dementia Attitudes Scale	$P = .005^*$ $P = .014^*$
Isaac et al., 2021 (AU) <sup>27</sup>	5 NHs	74 residents with dementia, 39 staff	Nonrandomized pre-post intervention study	Level II	PCC	Examined the outcomes of a person-centered, nonpharmacologic dementia care model ("Harmony in the Bush") based on the Progressively Lowered Stress Threshold principles and person-centered music.	↘ staff stress in all subscales (aggressive behaviors, inappropriate behaviors, resident safety, and resource deficiency)	$P = .05^*$

Lopez et al, <sup>60</sup> 2021 (ES)	11 NHs	208 staff	Cross-sectional study	Level IV	Staff empowerment	Examined the relationship between NH professionals' personal and organizational factors and good care provided to institutionalized older people.	↗ management support led to ↗ good care	$P < .01^*$
Macfarlane et al, <sup>35</sup> 2021 (AU)	1996 NHs	5914 "BPSD referrals"	2-y retrospective pre-post study	Level III	PCC	Examined services and neuropsychiatric outcomes associated with the provision of psychosocial PCC interventions delivered by national multidisciplinary dementia-specific behavior support programs [Dementia Behavior Management Advisory Service (DBMAS) and Severe Behavior Response Teams (SBRT)].	From intake to discharge <sup>†</sup> : ↘ staff distress for DBMAS and SBRT	$P < .001^*$
McDermid et al, <sup>41</sup> 2022 (UK)	16 NHs	45 staff + 130 residents with dementia	Cluster RCT (2-arm clinical trial)	Level I	PCC	Compared the effect of the WHELD PCC home training program with virtual coaching and the digital training program alone, on PwD and staff outcomes.	Compared to e-WHELD alone, e-WHELD + virtual coaching led to: ↗ staff attitudes toward PwD ∅ staff knowledge about dementia	$P = .001^*$ $P = .59^†$
Perreira et al, <sup>61</sup> 2019 (CA)	LTC homes (n = unknown)	276 health support workers	Cross-sectional survey	Level IV	Staff empowerment	Examined the relationship between work environment, attitudes and outcomes for LTC health support workers.	↗ Organizational Support led to: • ↗ quality of work life • ↗ organization commitment • ↗ job satisfaction • ↗ perceptions of safety • ↗ work engagement • ↗ psychological empowerment • ↗ performance • ↗ intention to stay	$P < .001^*$ $P < .001^*$ $P < .001^*$ $P < .001^*$ $P < .001^*$ $P < .001^*$ $P < .001^*$ $P < .05^*$
Rodriguez-Monforte et al, <sup>62</sup> 2021 (CA)	5 NHs	191 NA and 81 nurses	Cross-sectional study	Level IV	Staff empowerment	Examined the association between stress secondary to residents' responsive behaviors (SSRRB) and job satisfaction of nurses and NAs, and whether supervisory support, work effectiveness, and work empowerment moderate this relationship.	↗ supervisory support led to ↗ job satisfaction ↗ work effectiveness led to ↗ job satisfaction ↗ work empowerment led to ↗ job satisfaction ↗ supervisory support led to ↘ SSRRB ↗ work effectiveness led to ↘ SSRRB ↗ work empowerment led to ↘ SSRRB	$P < .001^*$ $P < .001^*$ $P < .001^*$ $P < .05^*$ $P < .05^*$ $P < .05^*$
Roen et al, <sup>63</sup> 2018 (NO)	45 NHs (175 NH units)	1161 staff	Cross-sectional study	Level IV	PCC	Examined the association between PCC and organizational, staff, and unit characteristics in NHs.	↗ P-CAT scores led to ↗ job satisfaction, ↘ quantitative demands, ↗ empowering leadership, ↗ innovative climate, ↗ perception of group work P-CAT scores led to ∅ on decision demands, learning demands, perception of mastery, fair leadership, role clarity, role conflict	$P < .001^*$ $P > .05^†$
Rutten et al, <sup>64</sup> 2021 (NL)	49 NHs	552 staff	Cross-sectional study	Level IV	PCC	Examined the relationship between work environment characteristics (transformational leadership, teamwork, unity in philosophy of care), job characteristics (work conditions, satisfaction, social support, task variation and opportunities, autonomy and organizational commitment) and staff-reported level of PCC for PwD in NHs.	↗ transformational leadership style led to ↗ staff-reported PCC ↘ level of social support from the leader led to ↗ staff-reported PCC ↗ unity in philosophy of care, ↗ work satisfaction, ↗ task variation and opportunities, ↗ experienced teamwork led to ↗ staff-reported PCC	$P \leq .001^*$ $P \leq .05^*$ $P \leq .05^*$
Silén et al, <sup>65</sup> 2019 (SE)	12 NHs	212 staff	Cross-sectional (correlational) study	Level IV	Staff empowerment, PCC	Examined the relationship between structural empowerment and psychological empowerment, as mediated by NH staff members' self-ratings of working in a person-centered manner, the person-centered climate (PCCI) and thriving.	↗ psychological empowerment led to ↗ thriving at work ↗ PCCI led to ↗ thriving at work ↗ PCC led to ↗ thriving at work ↗ structural empowerment led to ↗ psychological empowerment, ↗ PCC, ↗ PCCI and ↗ thriving	$P < .01^*$ $P < .01^*$ $P < .01^*$ $P < .01^*$

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Table 2 (continued)

Reference (Country)	Setting	N	Study design	Quality Rating	CC Domain	Intervention/Examined Variable	Findings
Sköldunger et al, <sup>46</sup> 2020 (SE)	172 NHs	4831 residents, + 3605 staff	Cross-sectional survey	Level IV	PCC	Examined the association between PCC and resource use, resident QoL, and staff job strain.	↗ PCC led to ↘ perceived job strain. $P < .001^*$
Sullivan et al, <sup>66</sup> 2019 (US)	20 VA CLCs	723 staff	Cross-sectional survey	Level IV	Staff empowerment, PCC	Examined the relationships between collaborative capacity and supportive organizational context, supervisory support, and PCC in NHs.	↗ supportive organizational context led to ↗ interaction quality and ↗ collaboration. ↗ PCC led to ↗ interaction quality and ↗ collaboration. $P < .001^*$
Vassbo et al, <sup>67</sup> 2019 (AU, NO, and SE)	6 NHs	341 staff	Cross-sectional survey (secondary analysis)	Level IV	PCC, staff empowerment	Examined the associations between job satisfaction and perceived person-centeredness among staff in NHs.	↗ organizational and environmental support, ↗ a climate of everydayness, ↗ a climate of community led to ↗ job satisfaction. $P < .001^*$
Vassbo et al, <sup>68</sup> 2020 (AU, NO, and SE)	6 NHs	341 staff	Multicenter, nonequivalent CG before-after trial	Level II	PCC	Examined the effects of a person-centered and thriving-promoting intervention in NHs on staff job satisfaction, stress of conscience and the person-centeredness of care and of the environment.	Climate of safety: ∅ $P = .174^†$ ↘ stress of conscience in IG compared to CG $P = .003^*$ ↘ job satisfaction in IG and ↗ CG $P < .001^§$ ↗ person-centeredness of the environment in both groups but weaker in IG than in CG $P = .003^§$ ↗ person-centeredness of care in both groups but weaker in IG than in CG $P = .006^§$
Williams et al, <sup>69</sup> 2018 (US)	11 NHs	39 NHAs	Secondary analysis of RCT data	Level I	PCC	Secondary analysis of video recordings of the CNA caregiving process with residents during morning care [collected as part of an RCT evaluating the Changing Talk (CHAT) intervention]; examined changes in staff person-centered communication using behavioral, psycholinguistic, and emotional tone coding of elderspeak communication and content analysis of communication topics.	↘ % time CNAs used elderspeak: $P = .001^*$ • Postintervention $P = .002^*$ • Follow-up $P = .001^*$ ↘ diminutives per 100 utterances: $P = .001^*$ • Postintervention $P = .11^†$ • ∅ Follow-up $P > .05^†$ ∅ collective pronoun substitutions $P > .05^†$ ∅ communication topics $P > .05^†$ ∅ emotional tone $P > .05^†$
Williams et al, <sup>70</sup> 2021 (US)	7 NHs	141 direct care staff	Cluster RCT	Level I	Close relationships	Examined an online version of a successful classroom-based communication-training program that reduced staff elderspeak and resident behavioral symptoms. NHs were provided with the web-based training program that staff individually accessed. Primary outcomes were pre- vs post-training knowledge scores and communication ratings of a video-recorded interaction.	↗ knowledge of communication in dementia care $P < .001^*$ ↗ ability to recognize: $P < .001^*$ • Effective communication $P < .001^*$ • Appropriate communication $P < .001^*$ • Person-centered communication $P < .001^*$ • Elderspeak communication $P < .001^*$
Zwakhalen et al, <sup>71</sup> 2018 (NL)	28 small-scale units + 21 regular wards. <sup>  </sup>	305 staff	Longitudinal, quasi-experimental study	Level II	Homelike atmosphere	Examined the effect of working in small-scale living dementia care facilities on staff burnout symptoms and job characteristics (job autonomy, social support, physical demands, and workload).	↘ physical demands $P = .001^*$ ↗ job autonomy $P = .005^*$ ↘ workload $P = .005^*$ ↗ social support by coworkers $P = .012^*$ ∅ overall social support $P = .401^†$ ∅ burnout symptoms $P = .458^†$ ∅ social support by supervisors $P = .652^†$

ACP, advance care planning; ADL, activities of daily living; ADQ, Approaches to Dementia Questionnaire; BPSD, behavioral and psychological symptoms of dementia; CG, control group; CNA, certified nursing assistant; DCW, direct care worker; DON, director of nursing; HCA, health care aid; IG, intervention group; LTC, long-term care; MDS, Minimum Data Set; NA, not applicable; NH, nursing home; NHA, nursing home administrator; nm, not mentioned; PCC, person-centered care; PwD, person(s) with dementia; QoL, quality of life; RCC, resident-centered care; RN, registered nurse; Rwd, resident(s) with dementia; SCU, special care unit; ∅, no significant effect. Country codes: AU, Australia; BE, Belgium; CA, Canada; CN, China; DE, Germany; ES, Spain; IN, India; KR, South Korea; NL, the Netherlands; NO, Norway; SE, Sweden; TW, Taiwan; UK, United Kingdom; US, United States.

\*Significantly positive results.

†Nonsignificant results.

‡Average case length: 57.2 ± 26.3 days.

§Significantly negative results.

||28 houses in small-scale living facilities, 21 regular NH wards.

**Table 3**  
Family Outcomes

Reference (Country)	Setting	N	Study Design	Quality Rating	CC Domain	Intervention/Examined Variable	Findings
Duan et al, <sup>20</sup> 2021 (US)	102 NHs	102 NHAs	Cross-sectional survey	Level IV	Global CC	Examined variations in NH characteristics and quality outcomes associated with CC implementation typology (low, average, or high performers) across Minnesota NHs.	High performers had ↗ family satisfaction in environment and food ∅ on satisfaction summary score, satisfaction with care, satisfaction with staff <i>P</i> < .05* <i>P</i> = nm <sup>†</sup>
Duan et al, <sup>6</sup> 2022 (US)	102 NHs	102 NHAs	Cross-sectional survey	Level IV	Global CC	Examined (1) the domain-specific relationships of CC practices with resident QoL and family satisfaction and (2) the moderating effect of small-home or household models on these relationships.	Small-home/household models had ↗ scores on family satisfaction ∅ on staff satisfaction domain (Resident- and family-centered) end-of-life care led to ↗ family satisfaction <i>P</i> < .05* <i>P</i> = nm <sup>†</sup> <i>P</i> < .05*
Lood et al, <sup>72</sup> 2019 (AU, NO and SE)	6 NHs	178 relatives	Cross-sectional survey	Level IV	PCC	Examined the extent to which a more person-centered climate (PCCI) could explain the variation in relatives' perception of quality of care (RPQC) in 3 countries.	PCCI of safety led to ↗ RPQC PCCI of hospitality led to ↗ RPQC PCCI of everydayness led to ∅ <i>P</i> < .001* <i>P</i> < .01* <i>P</i> = .25 <sup>†</sup>
Oliver et al, <sup>73</sup> 2021 (US)	1 NH	40 relatives	RCT	Level I	Collaborative decision making	Examined the effect of the Families Involved in NH Decision-Making intervention (which used web conferencing to facilitate family participation in care plan meetings) on relatives' depression, anxiety, burden, QoL, satisfaction with NH care (compared with usual care).	↘ depressive symptoms in IG (vs ↗ depressive symptoms in CG) ∅ on other outcomes (anxiety, burden, QoL, satisfaction with NH care) <i>P</i> = .03* <i>P</i> = nm <sup>†</sup>

CG, control group; IG, intervention group; NH, nursing home; NHA, nursing home administrator; nm, not mentioned; PCC, person-centered care; QoL, quality of life; ∅, no significant effect.

Country codes: AU, Australia; NO, Norway; SE, Sweden; US, United States.

\*Significantly positive results.

<sup>†</sup>Nonsignificant results.

**Table 4**  
Organizational Outcomes

Reference (Country)	Setting	N	Study Design	Quality Rating	CC Domain	Intervention/Examined Variable	Findings
Amirkhanyan et al, <sup>74</sup> 2019 (US)	617 NHs	617 NHAs	Cross-sectional survey	Level IV	Collaborative decision making	Examined the relationship between organizational performance (health deficiencies and overall 5-star rating) and client participation in organizational decision making (frequency of NHA's interactions with residents and families and extent to which NHA takes residents' and families' feedback in consideration when revising policies).	NHA's use of residents' and families' feedback led to: \ number of health deficiencies* $P < .05^{\ddagger}$ / facility's overall 5-star rating <sup>†</sup> $P < .05^{\ddagger}$ Frequency of NHA's interactions with residents and families had $\emptyset$ $P = nm^{\S}$
Berridge et al, <sup>16</sup> 2018 (US)	2084 NHs	2084 NHAs	Cross-sectional survey	Level IV	Staff empowerment	Examined whether staff empowerment practices common to NHCC are associated with CNA retention (assessed via 1 question).	Compared with low empowerment NHs, NHs with medium and high empowerment scores had 44% and 64% greater likelihood of having higher CNA retention. $P = .001^{\ddagger}$ (medium empowerment) $P < .001^{\ddagger}$ (high empowerment)
Berridge et al, <sup>75</sup> 2020 (US)	1386NHs	1386NHAs	Cross-sectional survey		Staff empowerment	Examined the relationship between NA retention and a measure capturing NH leadership and staff empowerment using nationally representative survey data.	/ leadership and staff empowerment (composite score) led to / NA retention $P \leq .01^{\ddagger}$
Chisholm et al, <sup>76</sup> 2018 (US)	81 NHs	81 DONs	Cross-sectional survey	Level IV	Global CC	Examined the relationship between high CC adoption and NH characteristics	High CC adoption was nonsignificantly ( $\emptyset$ ) associated with higher occupancy rates. $P = .08^{\S}$
Cossette et al, <sup>77</sup> 2020 (CA)	24 NHs	464 residents	Prospective, longitudinal study	Level II	PCC	Examined the effect of RCC, nonpharmacologic interventions for management of BPSD, systematic medication reviews for all residents with antipsychotic prescriptions, and antipsychotic deprescribing in inappropriate indications.	\ in benzodiazepine prescriptions $P = .01^{\ddagger}$ \ agitation among residents who had their antipsychotics deprescribed $P < .01^{\ddagger}$
Duan et al, <sup>20</sup> 2021 (US)	102 NHs	102 NHAs	Cross-sectional survey	Level IV	Global CC	Examined variations in NH characteristics and quality outcomes associated with their generated typology of CC implementation (low vs average vs high performers).	High performers had better outcomes than average performers in use of physical restraints and skin care but a poorer outcome than low performers in accidental falls $P < .001^{\ddagger}$ $P < .05^{\ddagger}$ $P < .05^{\parallel}$
Duan et al, <sup>6</sup> 2022 (US)	102 NHs	102 NHAs	Cross-sectional survey	Level IV	Global CC	Examined (1) the domain-specific relationships of CC practices with resident QoL and family satisfaction; and (2) the moderating effect of small-home or household models on these relationships.	Small-home/household models had / occupancy rates ( $\mu = 0.91$ ) than NHs not implementing small-home/household models ( $\mu = 0.81$ ). $P < .05^{\ddagger}$
Harrison et al, <sup>78</sup> 2018 (AU)	17 NHs	541 residents	Cross-sectional survey	Level IV	Homelike atmosphere	Examined the association between medication use and QoL and whether there was a difference between psychotropic medication use in a homelike vs a more standard model of care.	Residents in homelike facilities were less likely to be prescribed psychotropic medications. / number of psychotropic medications associated with \ QoL according to: EQ-5D-5 L scores $P = .03^{\ddagger}$ DEMQOL-Proxy-Utility scores $P = .04^{\ddagger}$ $P < .05^{\ddagger}$
Kennedy et al, <sup>79</sup> 2020 (US)	536 NHs	536 NHs	Cross-sectional survey	Level IV	Staff empowerment	Examined facility-level factors associated with CNA retention and turnover using data from various surveys and reports.	/ CNA empowerment led to \ turnover $P < .05^{\ddagger}$ / CNA empowerment led to / retention but not significant ( $\emptyset$ ) $P > .05^{\S}$
Kennedy et al, <sup>80</sup> 2022 (US)	719 NHs	719 NHs	Cross-sectional survey	Level IV	Staff empowerment	Examined the relationship between high wages and empowerment practices on CNA retention using data from various surveys and reports.	On their own, high wage and high empowerment had $\emptyset$ . $P = .06^{\S}$ $P = .10^{\S}$ ... but the interaction of high wages and high empowerment was positively associated with CNA retention. $P < .0001^{\ddagger}$



Kosters et al, <sup>81</sup> 2022 (NL)	4 NHs	88 staff	Stepped-wedge cluster RCT	Level I	Homelike atmosphere	Examined the effect of the MoSART + intervention that involved assessing the soundscape, raising staff's sound awareness, staff discussions on how to improve the soundscapes via microinterventions and implementation of the microinterventions.	<ul style="list-style-type: none"> <li>↗ calm soundscapes (61%-69%)</li> <li>↘ chaotic soundscapes (15%-9%)</li> <li>↗ satisfactory grades (≥6) given by staff (85%-91%)</li> <li>∅ lively soundscapes (15%-13%)</li> <li>∅ boring soundscapes (stayed at 9%)</li> </ul>	<ul style="list-style-type: none"> <li><math>P &lt; .01^{\ddagger}</math></li> <li><math>P &lt; .01^{\ddagger}</math></li> <li><math>P &lt; .01^{\ddagger}</math></li> <li><math>P = .79^{\S}</math></li> <li>—<sup>§</sup></li> </ul>
Kunkel et al, <sup>82</sup> 2023 (US)	Year 2015: 799 NHs Year 2017: 501 NHs	1300 NH-year observations	Secondary analysis of data from repeated cross-sections	Level IV	PCC	Examined if the Preferences for Everyday Living Inventory (PELI) implementation is a predictor of NH quality, as defined by the deficiency star rating.	Compared with NHs with partial PELI implementation, NHs with complete PELI implementation ↗ the probability of having a 4- or 5- star deficiency rating by 6%.	$P = .039^{\ddagger}$
Lima et al, <sup>83</sup> 2022 (US)	1584 NHs	1584 NHAs	Cross-sectional survey	Level IV	Global CC	Used large resident-level cohorts (MDS assessment data) to determine whether increases in CC adoption in the domains of environment, staff empowerment, and RCC are associated with improved resident quality outcomes.	Self-reported increases in NHCC practice led to ∅ improvement of resident-level quality	$P > .05^{\ddagger}$
Mohr et al, <sup>84</sup> 2022 (US)	62 CLCs	62 CLCs	Pre-post intervention study	Level II	PCC	Examined whether a resident-centered, behavioral intervention for managing distress behaviors in dementia reduced reported workplace disruptive behaviors and staff injury rate due to assault.	<ul style="list-style-type: none"> <li>↘ staff injury rate due to assault</li> <li>∅ on other outcomes (physical, verbal, any workplace incident rate, therapeutic containment rate, and resident-to-resident workplace incident rate)</li> </ul>	<ul style="list-style-type: none"> <li><math>P = .04^{\ddagger}</math></li> <li><math>P &gt; .05^{\ddagger}</math></li> </ul>
Muller et al, <sup>85</sup> 2022 (BE)	NA	71 older adults (65+)	Cross-sectional survey	Level IV	Global CC	Examined what matters most to older adults when choosing an NH; presented them with 2 brochures (one describing a traditional NH, the other describing a CC NH) and asked them how they felt about each brochure, and to choose between the 2 NHs presented in the brochures.	Compared with the traditional brochure, after reading the CC brochure: participants had a ↗ desire to enter the NH, felt their past habits and choices would be better respected, that they would be better cared for, freer to live the life they want, and feel more at home	$P$ between $<.05^{\ddagger}$ and $<.001^{\ddagger}$
Parajuli et al, <sup>86</sup> 2021 (AU)	3 NHs	31 medication charts	Retrospective analysis of pre-post intervention study	Level III	PCC	This substudy of a larger noncontrolled, nonrandomized pre-post study (of the "Harmony in the Bush" person-centered dementia care model) evaluated the changes in prescription patterns of psychotropic medications in RwDs.	<ul style="list-style-type: none"> <li>∅ on the feeling that staff would do more things for them</li> <li>∅ on prescription of antimental and psychotropic medications</li> </ul>	<ul style="list-style-type: none"> <li><math>P &gt; .05^{\ddagger}</math></li> <li><math>P &gt; .05^{\ddagger}</math></li> </ul>
Resnick et al, <sup>42</sup> 2021 (US)	55 NHs	553 residents	Cluster RCT	Level I	PCC	Examined the effect of an implementation strategy, the Evidence Integration Triangle for BPSD, for assisting staff in the use of evidence-based behavioral approaches for BPSD.	<ul style="list-style-type: none"> <li>∅ on policies and environments supporting person-centered approaches to BPSD or inclusion of person-centered approaches in care plans</li> <li>∅ on prescription of psychotropic medications or opioids</li> </ul>	<ul style="list-style-type: none"> <li><math>P &gt; .05^{\ddagger}</math></li> <li><math>P &gt; .05^{\ddagger}</math></li> </ul>
Richter et al, <sup>43</sup> 2019 (DE)	37 NHs	1153 residents	Multicenter, cluster RCT	Level I	PCC	Adapted a UK PCC intervention to German conditions and examined its effect (at 12 mo) on the proportion of residents with antipsychotic prescriptions, QoL, agitated behavior, falls, and physical restraints.	<ul style="list-style-type: none"> <li>↗ of anticonvulsants</li> <li>∅ on antipsychotic prevalence in the IG vs ↘ in the CG</li> <li>∅ on physical restraints</li> <li>∅ on falls</li> </ul>	<ul style="list-style-type: none"> <li><math>P = .01^{\parallel}</math></li> <li><math>P = .033^{\parallel}</math></li> <li><math>P = .480^{\ddagger}</math></li> <li><math>P = .897^{\ddagger}</math></li> </ul>
Shaw et al, <sup>87</sup> 2018 (US)	10 NHs	10 NHs	Secondary analysis of cluster RCT data	Level I	Close relationships (communication)	Post hoc analysis of the impact of an educational program (CHAT) to enhance communication in NH dementia care on resident antipsychotic medication use.	↘ in antipsychotic use in CHAT NHs	$P = .03^{\ddagger}$

(continued on next page)

Table 4 (continued)

Reference (Country)	Setting	N	Study Design	Quality Rating	CC Domain	Intervention/Examined Variable	Findings
Sköldunger et al, <sup>46</sup> 2020 (SE)	172 NHs	4831 residents, 3605 staff	Cross-sectional survey	Level IV	PCC	Examined the association between PCC and resource use, resident QoL, and staff job strain.	↗ of PCC led to ↘ on resource use $P = .129^{\dagger}$
Wauters et al, <sup>88</sup> 2019 (BE)	5 NHs	677 residents	Cross-sectional cohort study	Level IV	PCC	Examined whether a PCC intervention could be successfully implemented in 5 NHs and decrease prevalence of psychotropic drug users.	↘ in psychotropic drug user prevalence $P < .001^{\ddagger}$
Zimmerman et al, <sup>89</sup> 2021 (US)	311 NHs	311 NHs	Cross-sectional cohort study	Level IV	Homelike atmosphere	Examined rates of COVID-19 infections, COVID-19 (re)admissions, and COVID-19 mortality in Green House/small NHs compared with rates in other (traditional) NHs between January 20, 2020, and July 31, 2020.	↘ of all COVID outcomes in Green House/small NHs compared to traditional NHs that had <50 beds and $\geq 50$ beds. $P < .025^{\ddagger}$
Zimmermann et al, <sup>18</sup> 2019 (DE)	220 NHs	15,953 residents	Secondary analysis of cross-sectional data	Level IV	Homelike atmosphere	Examined risk factors for fall injuries among NH residents, with a specific focus on the influence of organizational structure within facilities and their environment.	↘ risk of fall injuries (16.7% lower) among cognitively impaired residents in facilities with homelike units $P = .033^{\ddagger}$

ACP, advance care planning; ADL, activities of daily living; ADQ, Approaches to Dementia Questionnaire; BPSD, behavioral and psychological symptoms of dementia; CG, control group; CNA, certified nursing assistant; DCW, direct care worker; DON, director of nursing; HCA, health care aid; IG, intervention group; LTC, long-term care; NA, not applicable; NH, nursing home; NHA, nursing home administrator; nm, not mentioned; MDS, Minimum Data Set; PCC, person-centered care; PwD, person(s) with dementia; QoL, quality of life; RCC, resident-centered care; RN, registered nurse; RWD, resident(s) with dementia; SCU, special care unit.

Country codes: AU, Australia; BE, Belgium; CA, Canada; CN, China; DE, Germany; ES, Spain; IN, India; KR, South Korea; NL, the Netherlands; NO, Norway; SE, Sweden; TW, Taiwan; UK, United Kingdom; US, United States.

\*The total number of health deficiencies reflects the number of regulatory violations found during a single inspection cycle (usually spanning from 9 to 15 months).

<sup>†</sup>Measure of service quality; the rating incorporates (1) health inspection results, (2) staffing hours per resident day, and (3) quality ratings reflecting patients' clinical data. The overall rating is assigned stars ranging from 1 to 5, with 5 representing the best service quality.

<sup>‡</sup>Significantly positive results.

<sup>§</sup>Nonsignificant results.

<sup>||</sup>Significantly negative results.

between empowerment practices and certified nursing assistant (CNA) retention and showed that higher staff empowerment was associated with higher CNA retention.<sup>16,75</sup> Conversely, Kennedy et al found that CNA empowerment was significantly and negatively associated with CNA turnover but not with CNA retention.<sup>79</sup> Later, they found that the interaction of high wages and high empowerment was significantly associated with higher CNA retention.<sup>80</sup> Future studies should aim to clarify these results.

Nonsignificant results consisted of a nonsignificant association between CC adoption and occupancy rates<sup>76</sup>; no significant changes in the proportion of lively and boring soundscapes<sup>81</sup>; a nonsignificant association between increased PCC and increased resource use (ie, staff time for caregiving), which the authors interpreted as meaning that performing care in a more person-centered manner does not require more care hours or resources<sup>46</sup>; a nonsignificant reduction in the use of psychotropic medications and no change in the prescription of antedementia medications after implementation of a person-centered dementia care model<sup>86</sup>; a nonsignificant reduction in falls and physical restraints following a PCC intervention<sup>43</sup>; no significant association between a resident-centered staff training intervention and rates of incidents or containment<sup>84</sup>; and nonsignificant associations between CC implementation and quality indicators derived from Minimum Data Set data.<sup>83</sup> Finally, an intervention aimed at assisting staff in the use of person-centered behavioral approaches to BPSD resulted in a nonsignificant increase in policies and environments supporting person-centered approaches to BPSD, and no change in the inclusion of person-centered approaches in care plans.<sup>42</sup>

Negative results consisted of a significantly positive association between CC implementation and rates of accidental falls<sup>20</sup>; an increase in anticonvulsant use in the IG (behavioral approach to BPSD), compared to a decrease in the CG<sup>42</sup>; and maintained prevalence of antipsychotic drugs in the PCC IG compared to decreased prevalence in the CG.<sup>43</sup>

## Discussion

This research aimed to review the latest studies, published between 2018 and 2022, investigating the impact of NHCC on NH resident, staff, family, and organizational outcomes. The decision to limit our search to a 5-year publication period was guided by a desire to be topical. Our goal was to capture NHCC's current impact on the NH sector and provide recommendations relevant for the present and the future. Moreover, our aim was to be exhaustive not in terms of years of publication but in terms of outcomes and countries considered.

A total of 75 studies were included. Many of these were conducted in the United States (n = 28); however, findings reveal that CC has now expanded to other parts of North America (Canada: n = 8) and other continents such as Europe (n = 30), Oceania (n = 14), and Asia (n = 4). As in previous reviews,<sup>9-11</sup> NHCC studies included in this article vary greatly in terms of sample sizes, study designs, CC domains, interventions, and outcomes.

The most studied CC domain is PCC. Although the 6 domains are interrelated and some elements of one domain may be present in studies categorized as addressing another, overall, certain domains seem to have been less studied than others. Fewer studies targeted specifically close relationships, collaborative decision making, and certain aspects of homelike atmosphere (eg, the impact of homelike NH environments on future users and their relatives); future research should aim to fill these gaps. The "continuous quality improvement processes" domain is different in that it represents a *modus operandi* and a philosophy to be adopted when implementing the other domains and to *continue to improve* in each of them.

Resident outcomes were the most studied (37), followed by staff (24) and organizational (23) outcomes. Far fewer studies investigated

family outcomes (4). Future research should further explore the impact of NHCC on family outcomes such as their experience of their loved one's institutionalization and the frequency and duration of their visits to the NH (eg, in relation to the homeliness—or lack thereof—of the establishment).

Our review suggests a majority of positive results (80) and some nonsignificant (45) and negative (6) results. The analysis of resident outcomes underscores the positive effects of CC principles on residents' QoL. Findings include decreased depression and anxiety, heightened engagement in end-of-life conversations, enhanced social interactions, and improved neuropsychiatric function. Studies investigating staff outcomes also indicate a majority of positive outcomes, including improved job satisfaction, stress levels, communication skills, and job autonomy. Organizational outcomes reflect the broader systemic impacts of CC on NH operations and service delivery. Positive outcomes encompass improved occupancy rates, reduced staff turnover, lower risks of adverse events such as infections, and enhanced quality indicators across various domains. Divergent results regarding the relationship between staff empowerment and retention underscore the need for further research to elucidate the interplay of contextual factors influencing staff retention.

Although costs are often highlighted as a major barrier to CC,<sup>90,91</sup> studies suggest CC practices are not necessarily associated with more costs and can actually be associated with financial gains. For instance, Sköldunger et al showed that a higher PCC level was not significantly associated with higher resource use and could be provided within existing budgets.<sup>46</sup> Other studies investigating the effects of PCC interventions revealed that compared with control NHs, intervention NHs benefited from decreased health care costs (eg, reduced medication costs and reduced costs for general practitioners and practice nurses).<sup>19,92</sup> Finally, Elliot compared occupancy rates and revenue in CC NHs vs traditional NHs and found that, over the 4-year study period and compared with the CG, CC NHs increased their occupancy by 3% and their revenue by more than \$11 per bed per day.<sup>93</sup> Hence, whether CC implementation is associated with additional costs and, if it is, whether those costs are compensated by long-term financial gains warrant further investigation. We hypothesize that interventions may lead to short-term costs (eg, training and/or environmental transformation costs) that will ultimately be outweighed by financial gains obtained through the increased occupancy and decreased health care costs that can result from NHCC practices.<sup>19,93</sup> Cost-benefit analyses should be more systematically included in future studies.

Despite the arguments in favor of NHCC, according to a 2016-2017 US survey,<sup>94</sup> only 16% of US NH administrators reported that CC completely altered the way they care for residents in all areas of their NH. Thus, even in the country where the movement originated 40 years ago, true NHCC implementation remains low. Could this be related to NH staff education programs and NH policies and regulations?

## NH Staff Education

NH staff (all workers involved in the NH; from care and entertainment staff to housekeeping, kitchen, administrative, and management staff) education programs include very little content on how to support older persons' QoL and autonomy. For instance, a Canadian study found that,<sup>95</sup> on average, health sciences and psychosocial sciences education programs contain only 5% of mandatory education hours on older adult care. Moreover, course materials mainly focus on ageing-related pathologies and what is lost with age, rather than on what is preserved and how to preserve it. Numerous studies identified in this review evaluate the impact of training programs aimed at teaching workers to operate in a different way than that in which they

were trained initially. Instead, could education programs be adapted from the start? For instance, programs should emphasize person- and relationship-centered care that fosters older persons' self-determination, rather than task-centered approaches that commonly involve doing and deciding for the residents.

Promising initiatives such as the Teaching Nursing Home (TNH) emerged in the 1960s in the United States and later developed in Australia, the Netherlands, and Norway with the primary goal of linking research, clinical care, and education. Evaluation of the TNH model in these countries suggests enhanced learning conditions, more students taking up aged care postgraduate positions, improved staff competencies, enhanced quality of care, and heightened staff enthusiasm to continue working in the establishments involved in the program.<sup>96</sup> These TNH programs should be further developed in collaboration with NHCC experts, such that students could be better trained and directly in line with NHCC principles.

### NH Regulations and Policies

NH regulations are also often considered a significant barrier to NHCC,<sup>90</sup> as they tend to foster the institutionalization and medicalization of these establishments. For instance, in most of Wallonia (the southern, French-speaking region of Belgium), the amount of social security subsidies allocated to NHs depends almost exclusively on the level of independence of the NH's residents. In other words, in a given NH, if residents become more independent (eg, according to the Katz Index of Independence in Activities of Daily Living), that NH's funding will be cut, possibly leading to financial strain and personnel reduction. Conversely, if their residents' level of independence decreases, their funding will increase. Although the relationship between resident independence and staff workload cannot be denied, this financing system may not only highlight resident dependency but also, in a way, encourage it. At the very least, it fails to encourage resident autonomy and QoL. In contrast, in the German-speaking Community of Wallonia, 15% of an NH's funding is earmarked for the NH to work on improving resident QoL (i.e, a concrete project must be submitted and developed).

### Strengths and Limitations

Several strengths of this study can be noted. First, we performed a comprehensive literature review by searching relevant databases with a methodical search strategy. Second, Title and Abstract screening was conducted independently by 2 reviewers (D.L. and A.S.) and any area of disagreement was discussed until consensus was reached. Third, the study included a large sample size, enhancing the robustness and generalizability of findings. Fourth, our detailed outcome analysis offers a comprehensive understanding of the effects of CC interventions across different stakeholders. Finally, we conclude with recommendations for researchers, managers, and policy makers that can guide future research and policy initiatives.

Certain limitations may also be highlighted. First, CC represents a set of principles rather than a prescriptive model and CC implementation is a continuous, nuanced process rather than a finite, dichotomous characteristic. Furthermore, the description of intervention content lacks precision in some studies. Consequently, assessing whether the intervention is truly consistent with CC can be difficult, and the extent to which the intervention is implemented is sometimes unclear. For instance, numerous studies evaluate the impact of a staff training program, but it is often hard to gauge whether the principles taught are actually applied by staff and to what extent. Considering NHCC as a set of principles, we attempted to include only studies in which the intervention or examined variable seemed largely consistent with those principles. Second, the quality of included studies varies, potentially impacting the reliability and

validity of findings. We recognize that although 44% of included studies are of Level I or II (ie, study designs generally considered of higher quality), 56% are of Level III or IV (ie, designs commonly regarded as providing lower-quality evidence). However, both groups of studies indicate the same positive trends and we believe that less well-considered designs can yield important results that may not be attainable with better-esteemed designs such as RCTs (eg, large-scale, cross-sectional survey studies investigating the relationship between CC implementation and various variables such as occupancy rate and family satisfaction). Third, as our review relies on published literature, it is susceptible to publication bias,<sup>97,98</sup> potentially excluding unpublished studies with null or negative findings and skewing the overall results toward positive outcomes. Despite these limitations, the study provides valuable insights into the effects of NHCC interventions.

### Conclusions and Implications

Although the latest research on NHCC suggests positive effects of the movement on the NH sector, its true implementation remains low. Future research should identify obstacles to NHCC implementation. As costs are often anticipated to represent a major barrier, future studies should incorporate cost-benefit analyses to determine whether CC practices really cost more—in both the short and long term. Furthermore, NH regulations and policies should be reviewed to better support NHCC practices and efforts should be put into identifying education gaps and ways to refine education programs in accordance with NHCC. Finally, by leveraging diverse expertise and resources, collaborative partnerships between NHs, researchers, policy makers, and other stakeholders should help cocreate sustainable CC initiatives.

### Disclosure

The authors declare no conflict of interest.

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