

## **The impact of a training intervention on nursing care for people with dementia in long-term care: A quasi-experimental study**

### **Abstract**

Various dementia training interventions have been developed for nursing staff, but there is inconclusive evidence on their effectiveness and which elements are key to positive outcomes. The aim of this study was to **evaluate how nurses assess the prevalence of challenging behavior of people with dementia, nursing staff members' responses to challenging behavior, and nurses' competence, before the training and three and 12 months after the training. The main content of the training intervention was advancing person-centered care and its development.** Data were collected through a survey of nursing staff (n=127) at two Finnish nursing homes across three distinct time points. **The TREND statement was used to enhance the quality and transparency of the research.** The prevalence of challenging behavior in the experimental group significantly decreased one year after training, while no change was observed in the control group. No change in nursing staff members' responses to challenging behavior was observed in either group over the study period. Nurses in the experimental group demonstrated significant improvements in self-assessed competence both three months and one year after the training intervention. Hence, regular nursing staff training can decrease the prevalence of challenging behavior among older people with dementia and enhance nurses' competence in nursing. The support of supervisors plays a significant role in these changes.

**Keywords:** **behavioral and psychological symptoms in dementia, competence, continuous education, nursing staff, challenging behavior**

## INTRODUCTION

It has been estimated that approximately 50 million people worldwide have dementia, with 10 million people developing dementia every year.<sup>1</sup> By 2050, the number of people with dementia in Europe is predicted to double<sup>2</sup>; as such, the number of people living with dementia in Finland is forecast to increase as the population ages<sup>1,3</sup>. This is because the prevalence of dementia rapidly increases with age<sup>4</sup>. In Finland, about one-third of older residents in nursing homes have dementia<sup>3</sup>.

Neuropsychiatric symptoms are common in dementia<sup>5,6</sup>, and demonstrate nearly universal incidence across all stages and types of dementia<sup>7</sup>. These symptoms, such as agitation, depression, apathy, repetitive questioning, psychosis, aggression, sleep problems, and wandering<sup>8</sup>, are referred to as behavioral changes, or BPSD (behavioral and psychological symptoms in dementia). These symptoms can also be categorized under the umbrella term 'challenging behavior'<sup>9</sup>. In nursing homes, more than 80% of older people with dementia experience at least one of the behaviors mentioned above<sup>10,11</sup>. In this study, the term challenging behavior will be used to describe these neuropsychiatric symptoms. A generally accepted definition for challenging behavior is "an expression of distress in an individual with dementia or others in the environment, such as staff, arising from physical or psychological unmet need in the person with dementia."<sup>12</sup>

According to Evripidou et al.<sup>13</sup>, nursing staff lack the knowledge, communication skills, management strategies, and attitudes required to provide care that is favorable towards older people with dementia. Even though various training interventions have been developed, there is no general consensus on the key elements that sufficiently prepare nursing home staff for dementia care.<sup>14</sup> The adequate training of nursing staff continues to be an international issue of concern for the provision of high-quality dementia care.<sup>15</sup> For example, the World Health Organization<sup>16</sup> (WHO) highlights training as a crucial element of the 2017–2025 Global Action Plan for the public health response to

dementia. The WHO<sup>1</sup> listed detecting and addressing challenging behavior as a primary goal, while Spector et al.<sup>17</sup> feel that the health care sector must work to minimize organizational barriers in the care of people with dementia. Both of these objectives require specific competencies, which can only be developed through training interventions that focus on nurses' knowledge of, and practical experience with, challenging behavior among older patients.<sup>18</sup>

Previous research<sup>19-23</sup> that has applied the Cohen-Mansfield Agitation Inventory (CMAI) to the nursing home environment has found that neuropsychiatric symptoms, aggression, and challenging behavior all decrease after a staff training intervention. In contrast, it has also been reported<sup>24-27</sup> that staff training interventions have no effect on the prevalence of challenging behavior. Psychosocial interventions, such as music therapy and cognitive behavioral therapy, have proven to be effective at reducing symptoms of depression or anxiety among older people with dementia.<sup>28</sup> According to previous studies<sup>19,20</sup>, instructional, practical, and group-based training approaches that support the interaction skills of nursing staff, e.g., by focusing on person-centered thinking, **including consistent recognition and maintenance of the person's autonomy**<sup>29</sup>, can alleviate challenging behavior in dementia care.

However, Moniz-Cook et al.<sup>30</sup> previously stated that there is only weak evidence regarding which standard psychosocial approaches are the most effective at decreasing challenging behavior. They note that most studies on this topic have lacked the methodological rigor required to provide strong empirical evidence of the effectiveness of interventions. Differences in the duration, content, implementation, and measurable variables of previously described training interventions makes it difficult to reliably assess which components of training interventions are effective (Author et al., 2020). Hence, little is currently known about the most effective approaches for designing, delivering and implementing dementia training.<sup>31</sup> This study aims to fill the existing knowledge gaps **by evaluating how nurses assess the prevalence of challenging behavior of people with**

dementia, nursing staff members' responses to challenging behavior, and nurses' competence before the training and three and 12 months after the training.

### Research questions

1. How nurses assess the prevalence of challenging behavior of people with dementia after three and 12 months the provision of nursing staff training?
2. Are there any discernible changes in nursing staff members' self-assessed responses to challenging behavior and self-assessed competence in caring for older people with dementia three and 12 months after the provision of training?

### Methods

The present study applied a one-year follow-up quasi-experimental design in which one nursing home in Eastern Finland served as an experimental group and another nursing home in the same region served as a control group. Both nursing homes were specialized in dementia care. Nursing home staff in the experimental group (n=66) received a face-to-face training intervention while nursing home staff in the control group (n=61) carried out their work without any additional training. Data were collected from registered nurses and licensed practical nurses with vocational training (n=127) using a structured questionnaire. More specifically, a paper questionnaire was used to collect data at the baseline time point, as well as three and 12 months after the completion of the training. The research was conducted between May 2018 – November 2019. The TREND statement<sup>32</sup> was used to enhance the quality and transparency of the research.

The questionnaire (Appendix B) designed for this study was based on a literature review of the subject and previous studies.<sup>33,34</sup> The content validity of the questionnaire<sup>35</sup> was evaluated by a panel of four senior experts with experience in education as well as gerontological nursing and dementia care. The questionnaire demonstrated a content validity index score of 1, which is indicative of satisfactory content validity. A majority of the items (85%) were adapted from prior

questionnaires<sup>33,34</sup> that have been proven to be valid. The questionnaire contained 20 questions, distributed as follows: background information (7 items); prevalence of challenging behavior (1 item) and forms of challenging behavior (1 item); responses to challenging behavior (1 item); competence (3 items); suitability of facilities (1 item); physical limitations (1 item); leadership (1 item); the impact of challenging behavior on coping at work (1 item); and general nursing issues (3 items).

### **Training intervention**

The training intervention (Table 1) designed for this study by the first author is based on a previous literature review (Author et al., 2020). **Nursing staff were asked about their training needs before the training; thus, they contributed to the content of the provided training. Nurses' training needs were mainly related to concrete examples of policies in challenging situations, common work community practices and interaction skills.**

Nursing staff in the experimental group participated in a 14-hour training intervention organized over seven separate days between August to November 2018. Each training session included different content **and they build on each other.** The overall aim of the training intervention was to have nursing staff consider their own values as well as how the values of the work community affect the care provided to older people with dementia. The training was delivered by the first author, and the training sessions were delivered in the afternoon (from 1 pm to 3 pm) in the nursing home – a time when as many staff members as possible were able to participate. Each training session included a 15-20-minute introduction to the topic, after which the educator presented activating and interactive ways of working. For example, the participants discussed certain issues together and performed tasks in small groups. The joint discussions and tasks were used to identify new operating models and competencies that are in line with the principle of individuality in caring for people with dementia. The nursing home supervisors also participated in each training session.

--- Insert Table 1 about here ---

### **Data analysis**

Descriptive statistics were used to analyze the data; all of the statistical analyses were performed in IBM SPSS Statistics for Windows (ver. 27; IBM Corporation, Armonk, NY). A two-way ANOVA was first performed to determine the statistical significance of the main effects (group, time) and interactions (group x time). If the two-way ANOVA revealed significant main effects or interactions, a pairwise comparison between the groups and measurement time points was conducted. The threshold for statistical significance was set at  $p\text{-value} < 0.05$ .

### **Ethical considerations**

The study followed the principles of the Declaration of Helsinki<sup>36</sup> and Finnish National Board on Research Integrity TENK guidelines.<sup>37</sup> The local ethical committee provided approval for the study (104/2016). Furthermore, written informed consent was obtained from each of the study participants. The participants were made aware of the fact that participation in the study was voluntary and that they had a right to withdraw from the study at any point. The questionnaire was answered anonymously.

## **RESULTS**

The staff were given up to three weeks to complete and return the questionnaires, with response rates of 83% (n=106), 74% (n=94), and 73% (n=93) for the questionnaires handed out at the baseline time point, three months after training, and one year after training, respectively.

### **Demographic characteristics of the respondents**

At the baseline time point, the two groups did not significantly differ in age ( $p=0.717$ ), work experience at the unit ( $p=0.355$ ), work experience in dementia care ( $p=0.799$ ), education ( $p=0.687$ ),

type of job contract ( $p=0.140$ ), or workplace ( $p=0.108$ ). The two groups significantly differed in gender ( $p=0.044$ ) at the baseline time point (Table 2). The two nursing homes provide care to 178 people over the age of 65, and a majority of these people have dementia.

--- Insert Table 2 about here ---

### **Nurses' assessment of the prevalence of challenging behavior**

At the baseline time point (Table 3), **two nursing homes** did not significantly differ in terms of the prevalence of **residents'** challenging behavior. However, assessments by the nursing staff showed that the prevalence of challenging behavior decreased significantly ( $p=0.005$ ) three months after the training had finished. More specifically, half ( $n=43$ , 51%) of the experimental group respondents reported that challenging behavior occurred daily, while the other half ( $n=43$ , 49%) reported that it occurred weekly. No change in **residents'** challenging behavior from the baseline time point to the three-month follow-up time point was observed in the control group ( $p=0.317$ ), with four-fifths ( $n=51$ , 80.4%) of the respondents reported that challenging behavior occurs daily at both time points; 19.6% reported weekly prevalence.

--- Insert Table 3 about here ---

In the experimental group, the statistically significant decrease in **residents'** challenging behavior was also observed one year after the training had finished ( $p=0.011$ ), although the prevalence of challenging behavior had slightly increased from what was reported three months after the training had finished. No change in the prevalence of **residents'** challenging behavior was observed in the control group ( $p=0.872$ ) one year after the training had finished.

Respondents also assessed how challenging behavior impacted their coping at work. For example, three months after the training had finished, nursing staff in the experimental group reported a statistically significant decrease ( $p=0.034$ ) in coping at work, i.e., challenging behavior affected

coping at work less than it did at the baseline time point. No change in coping at work was reported by staff in the control group ( $p=0.262$ ). However, no significant differences in coping at work were observed for either group (experimental and control) between the baseline time point and one year after training ( $p=0.132$ ,  $p=0.107$ ).

### **Nurses' responses to challenging behavior**

No changes in nursing staff members' responses to challenging behavior were discerned in either group across the studied time points (Table 4). Both before the training and one year after the training, nursing staff members were present during challenging situations and asked the affected older people what was wrong. Nursing staff in both the experimental and control groups were judged to have managed the situations well.

--- Insert table 4 about here ---

### **Self-assessed competence among nursing staff**

Respondents rated their current competence in dementia care on a scale of 1 to 10, with 1 signifying the lowest level of competence and 10 signifying the highest level of competence. In general, the nursing staff members' self-assessed competence in caring for older people with dementia significantly improved ( $p = 0.013$ ) in both groups during the study period. Based on measurements three months after the training had finished, no factor was found to significantly affect the participating nurses' competence ( $p=0.548$ ); moreover, no significant between-group differences were observed (Table 5). The respondents also assessed the current competence in their work unit on a scale of 1 to 10 at each of the measurement points. At the baseline time point, a statistically significant ( $p=0.019$ ) difference was observed between groups, with the control group reporting significantly higher competence at their work unit than the experimental group ( $p=0.049$ ). In the experimental group, the respondents' assessments of competence in their work unit significantly



improved three months ( $p=0.024$ ) and one year after the training intervention ( $p=0.023$ ) relative to the baseline time point. No changes were observed in the control group.

--- Insert Table 5 about here ---

Respondents were also asked about their competence in utilizing a person's life history when providing care. In the experimental group, nurses' self-assessed competence in utilizing a person's life history when caring for people with dementia significantly improved three months ( $p=0.001$ ) and one year after the training intervention ( $p=0.005$ ). No changes in this specific competence were observed in the control group.

The respondents also assessed how leadership influences the implementation of person-centered dementia care. A statistically significant ( $p=0.004$ ) change was observed in the experimental group, i.e., respondents estimated that the leadership in their unit was more supportive of person-centered dementia care three months after the training intervention than at the start of the study. Furthermore, a statistically significant ( $p=0.049$ ) change in leadership was also observed between the three months and one year after training time points, with respondents feeling that leadership had become less conducive to person-centered dementia care and returning to the levels that had been observed at the baseline time point. A statistically significant ( $p=0.049$ ) positive change in leadership was also observed in the control group, but only observed one year after the training intervention had finished.

## **DISCUSSION**

This study evaluated how nurses assess the prevalence of challenging behavior of people with dementia, nursing staff members' responses to challenging behavior, and nurses' competence, before the training and three and 12 months after the training. The planning and practical implementation of the training considered several factors that had previously been identified as conducive to dementia education by Surr et al.<sup>15</sup>, namely, tailored to staff needs, face-to-face

delivery, use of group-based activities and discussion, combining theory and knowledge, longer than one hour in duration, and delivered by an experienced facilitator. Nursing staff were asked about their training needs before the training; thus, they contributed to the content of the provided training. Smythe et al.<sup>38</sup> previously concluded that training should involve all of the staff members because it is an opportunity to demonstrate the value of the staff. Therefore, the studied training intervention was carried out in a nursing home where it was possible to involve the maximum amount of nursing staff and their supervisors in the training. **The training was attended by nurses currently on duty who were fairly the same at each training session. However, there was some turnover in participants. There may have been turnover also among the residents of the nursing home during the study period, which may have undermined the reliability of the presented results.**

Only non-pharmacological methods were discussed during the training, as these techniques are currently recommended for managing the challenging behavior of people with dementia.<sup>39</sup>

However, psychotropic drugs are frequently used in long-term care facilities and are associated with the severity of neuropsychiatric symptoms<sup>40</sup>; this may have undermined the reliability of the presented results.

The results of this study demonstrate that providing nursing staff with education **that advances person-centered caring** for older people with dementia can reduce **the prevalence of residents' challenging behavior at a nursing home**, which corroborates previous findings.<sup>41,42</sup> However, according to Surr et al.<sup>31</sup>, the findings related to the impact of a training program on resident outcomes, i.e., behavior, are inconsistent due to methodological weaknesses in study designs and the lack of extensive follow-up periods in prior research. The results of this study demonstrated that a training program must be regular and continuous to have a significant, and sustained, impact on the daily routines of nurses. Clifford & Doody<sup>43</sup> also indicated that nursing staff working with older people with dementia should frequently engage in reflective practices, continuous education, and decision-making.

In this study, neither the experimental nor the control group showed a significant change in nursing staff members' responses to challenging behavior over the studied time period. This may be explained by nursing staff already using empathic responses in challenging situations, i.e., the nurse is present and asks the person what is wrong, prior to the training. Based on these results, nurses in both the experimental and control groups were competent at employing an empathic response when caring for older people with dementia at the baseline time point. Watson & Hatcher<sup>44</sup> recommend nuanced education for the assessment and management of dementia to better address the unmet needs of older people with dementia, improve staff communication and attitudes, and develop collaboration among frontline staff. Furthermore, Gerolimatos et al.<sup>45</sup> suggest that a successful training should involve staff members of varying professions in workshop development, assessment, and maintenance. In the present study, supervisors and nursing staff participated in each training session.

The results of this study indicate that the provision of relevant training can improve self-assessed competence among nursing staff working in dementia care. **The challenge for further research is to combine the observation of the activities of nursing staff and the behavior of residents.** In the present study, self-assessed competence at utilizing the life history of older people with dementia during care improved among nurses in the experimental group both three months and one year after the completion of training, while no changes in this specific competence were observed in the control group. A prior systematic review identified knowledge as the outcome with the most significant improvement following training<sup>17</sup>. Moreover, Rokstad et al.<sup>46</sup> provided further evidence that a multicomponent training program can positively impact the development of person-centered care. The results of this study showed that a training program did not influence nursing staff members' responses to challenging behavior, a finding which may be explained by nurses at both nursing homes already demonstrating appropriate responses prior to training.

Challenging behavior can increase nurses' experience of stress and affect their ability to work.<sup>47</sup>

The results of this study have provided empirical evidence that a training intervention can improve coping at work related to challenging behavior among older people with dementia. However, the effect noticed three months after the intervention was no longer discernible one year after the training. This supports previous claims that training should be regular and continuous if a sustained positive impact on nursing practices is desired. For example, Zwijsen et al.<sup>48</sup> stated that nursing staff require support in the management of behavioral problems, especially aggression and apathy.

It is difficult to identify which factors of the applied training led to the observed reduction in challenging behavior among older people with dementia, as challenging behavior is a complex phenomenon that is the product of a person's biological, psychological and social factors.<sup>49</sup>

Furthermore, the prevalence of challenging behavior can be dependent on nurses' understanding of the situation and their experience of what is challenging behavior. However, it is clear that adequately training the nursing staff working in dementia care is relevant to the provision of high-quality, person-centered care on the international level and that further research on the subject is warranted.<sup>31</sup>

## Limitations

This study shows how training interventions for nurses working with older adults with dementia can affect the occurrence of challenging behavior at nursing homes, along with nurses' self-assessed competence in caring for older people with dementia. The analyzed data were gathered through a questionnaire that had been validated by an expert panel, while the TREND statement<sup>32</sup> was used to enhance the quality and transparency of the research (see Appendix A). The study had some limitations; notably, the data was collected almost three years ago, sample size was rather small and the questionnaire was developed specifically for this study. This decision was made because no prior questionnaire was available for the study topic (combined questions concerning nursing staff

members' views of their competence as well as the competence of their work community). Although the questionnaire demonstrated strong content validity, construct validity was not assessed; this could have restricted the validity of the questionnaire.<sup>50,51</sup> The potential for self-reporting bias should also be considered when interpreting the presented results. To improve the validity of the study, the researchers made sure to select two nursing homes of the same type and size for the study. Although both nursing homes are managed by the same entity, these two nursing homes may still differ in terms of individual practices, which could have affected the research findings. Thus, the presented findings should be generalized with caution. **In this study, there may have been some response bias since the author delivered the training, and evaluated it. It is possible that respondents choose to respond positively to please the educator. However,** the use of an experienced educator, in terms of nursing education, work experience, and pedagogical competence, increased the reliability of the training intervention. In addition, it should be noted that the intervention was designed in a way that promoted active participation by the nursing staff.

## **Conclusion**

The prevalence of challenging behavior among older people with dementia can be reduced by offering nurses further training at regular intervals. Nurses can only be expected to develop and maintain their competence in providing person-centered care to older people with dementia through continuous education if they receive support from managers and supervisors.

## **Acknowledgement**

The authors wish to sincerely thank the nursing staff who participated in this study. We would like to acknowledge Sees-Editing Ltd (<http://www.seesediting.co.uk>) service for improving the language and helping us to communicate our finding to readers of Nordic Journal of Nursing Research.

## Funding

This work was supported by the University of Oulu Scholarship Fund.

## Declaration of Conflicting Interests

The authors declare that there is no conflict of interest.

1. World Health Organization. Dementia. Geneva: World Health Organization, 2021.
2. Alzheimer Europe. Dementia in Europe. *The Alzheimer Europe Magazine*, 2020.
3. Finnish Institute for Health and Welfare. The prevalence of memory disorders. Helsinki: Finnish Institute for Health and Welfare, 2022 (In Finnish).
4. The Organisation for Economic Co-operation and Development (OECD). Dementia prevalence. 2017, pp. 204–205.
5. Torrisi M, de Cola MC, Marra A, et al. Neuropsychiatric symptoms in dementia may predict caregiver burden: a Sicilian exploratory study. *Psychogeriatrics* 2017; 17: 103–107.
6. Selbæk G, Engedal K, Bergh S. The Prevalence and Course of Neuropsychiatric Symptoms in Nursing Home Patients With Dementia: A Systematic Review. *J Am Med Dir Assoc* 2013; 14: 161–169.
7. Watt JA, Goodarzi Z, Veroniki AA, et al. Safety of pharmacologic interventions for neuropsychiatric symptoms in dementia: a systematic review and network meta-analysis. *BMC Geriatrics* 2020; 20: 212.
8. Kales HC, Gitlin LN, Lyketsos CG. Assessment and management of behavioral and psychological symptoms of dementia. *BMJ* 2015; 350: h369–h369.
9. Halek M, Reuther S, Müller-Widmer R, et al. Dealing with the behaviour of residents with dementia that challenges: A stepped-wedge cluster randomized trial of two types of dementia-specific case conferences in nursing homes (FallDem). *International Journal of Nursing Studies* 2020; 104: 103435.
10. Bessey LJ, Walaszek A. Management of Behavioral and Psychological Symptoms of Dementia. *Current Psychiatry Reports* 2019; 21: 66.
11. Zwijsen SA, Kabboord A, Eefsting JA, et al. Nurses in distress? An explorative study into the relation between distress and individual neuropsychiatric symptoms of people with dementia in nursing homes. *International Journal of Geriatric Psychiatry* 2014; 29: 384–391.
12. Moniz-Cook E, Ian AJ. Behaviour that challenges in dementia care: An update of psychological approaches for home and care home settings. *Psychology of Older People: The FPOP Bulletin* 2017; 140: 43–49.

13. Evripidou M, Charalambous A, Middleton N, et al. Nurses' knowledge and attitudes about dementia care: Systematic literature review. *Perspectives in Psychiatric Care* 2019; 55: 48–60.
14. Zhao Y, Liu L, Chan HY. Dementia care education interventions on healthcare providers' outcomes in the nursing home setting: A systematic review. *Research in Nursing & Health* 2021; 44: 891–905.
15. Surr CA, Gates C, Irving D, et al. Effective Dementia Education and Training for the Health and Social Care Workforce: A Systematic Review of the Literature. *Review of Educational Research* 2017; 87: 966–1002.
16. World Health Organization. Global action plan on the public health response to dementia 2017-2025.
17. Spector A, Revolva C, Orrell M. The impact of staff training on staff outcomes in dementia care: a systematic review. *International Journal of Geriatric Psychiatry* 2016; 31: 1172–1187.
18. Hsieh P-L, Chen C-M. Long term care nursing competence and related factors among Taiwanese nurses: A national survey for those who completed the LTC training course. *Geriatric Nursing* 2017; 38: 192–198.
19. Chenoweth L, King MT, Jeon Y-H, et al. Caring for Aged Dementia Care Resident Study (CADRES) of person-centred care, dementia-care mapping, and usual care in dementia: a cluster-randomised trial. *The Lancet Neurology* 2009; 8: 317–325.
20. Deudon A, Maubourguet N, Gervais X, et al. Non-pharmacological management of behavioural symptoms in nursing homes. *International Journal of Geriatric Psychiatry* 2009; 24: 1386–1395.
21. Testad I, Ballard C, Brønne K, et al. The Effect of Staff Training on Agitation and Use of Restraint in Nursing Home Residents With Dementia. *The Journal of Clinical Psychiatry* 2010; 71: 80–86.
22. Rapp MA, Mell T, Majic T, et al. Agitation in Nursing Home Residents With Dementia (VIDEANT Trial): Effects of a Cluster-Randomized, Controlled, Guideline Implementation Trial. *J Am Med Dir Assoc* 2013; 14: 690–695.
23. Testad I, Mekki TE, Fjørland O, et al. Modeling and evaluating evidence-based continuing education program in nursing home dementia care (MEDCED)-training of care home staff to reduce use of restraint in care home residents with dementia. A cluster randomized controlled trial. *International Journal of Geriatric Psychiatry* 2016; 31: 24–32.
24. Fossey J, Ballard C, Juszcak E, et al. Effect of enhanced psychosocial care on antipsychotic use in nursing home residents with severe dementia: cluster randomised trial. *BMJ* 2006; 332: 756–761.
25. Rokstad AMM, Røsvik J, Kirkevold Ø, et al. The Effect of Person-Centred Dementia Care to Prevent Agitation and Other Neuropsychiatric Symptoms and Enhance Quality of Life in Nursing Home Patients: A 10-Month Randomized Controlled Trial. *Dementia and Geriatric Cognitive Disorders* 2013; 36: 340–353.
26. Wenborn J, Challis D, Head J, et al. Providing activity for people with dementia in care homes: a cluster randomised controlled trial. *International Journal of Geriatric Psychiatry* 2013; 28: 1296–1304.

27. Ballard C, Corbett A, Orrell M, et al. Impact of person-centred care training and person-centred activities on quality of life, agitation, and antipsychotic use in people with dementia living in nursing homes: A cluster-randomised controlled trial. *PLOS Medicine* 2018; 15: e1002500.
28. Noone D, Stott J, Aguirre E, et al. Meta-analysis of psychosocial interventions for people with dementia and anxiety or depression. *Aging & Mental Health* 2019; 23: 1282–1291.
29. American Geriatrics Society Expert Panel on Person-Centered Care. Person-Centered Care: A Definition and Essential Elements. *J Am Geriatr Soc* 2016; 64: 15–18.
30. Moniz-Cook E, Hart C, Woods B, et al. Challenge Demcare: management of challenging behaviour in dementia at home and in care homes – development, evaluation and implementation of an online individualised intervention for care homes; and a cohort study of specialist community mental health care for families. *Programme Grants for Applied Research* 2017; 5: 1–290.
31. Surr CA, Sass C, Drury M, et al. A collective case study of the features of impactful dementia training for care home staff. *BMC Geriatrics* 2019; 19: 175.
32. des Jarlais DC, Lyles C, Crepaz N. Improving the Reporting Quality of Nonrandomized Evaluations of Behavioral and Public Health Interventions: The TREND Statement. *American Journal of Public Health* 2004; 94: 361–366.
33. Hynninen N, Saarnio R, Isola A. The care of older people with dementia in surgical wards from the point of view of the nursing staff and physicians. *Journal of Clinical Nursing* 2015; 24: 192–201.
34. Saarnio R, Isola A, Laukkala H. The use of physical restraint in institutional care of older people in Finland: nurses' individual, communal and alternative modes of action. *Journal of Clinical Nursing* 2009; 18: 132–140.
35. Pittman J, Bakas T. Measurement and Instrument Design. *Journal of Wound, Ostomy & Continence Nursing* 2010; 37: 603–607.
36. World Medical Association (WMA). World Medical Association Declaration of Helsinki. *JAMA* 2013; 310: 2191.
37. Finnish National Board on Research Integrity TENK guidelines 2019. The ethical principles of research with human participants and ethical review in the human sciences in Finland, [https://tenk.fi/sites/default/files/2021-01/Ethical\\_review\\_in\\_human\\_sciences\\_2020.pdf](https://tenk.fi/sites/default/files/2021-01/Ethical_review_in_human_sciences_2020.pdf) (2019, accessed May 8, 2022).
38. Smythe A, Jenkins C, Galant-Miecznikowska M, et al. A qualitative study investigating training requirements of nurses working with people with dementia in nursing homes. *Nurse Education Today* 2017; 50: 119–123.
39. Meyer C, O'Keefe F. Non-pharmacological interventions for people with dementia: A review of reviews. *Dementia* 2020; 19: 1927–1954.
40. Helvik A-S, Šaltytė Benth J, Wu B, et al. Persistent use of psychotropic drugs in nursing home residents in Norway. *BMC Geriatrics* 2017; 17: 52.



41. Seitz DP, Brisbin S, Herrmann N, et al. Efficacy and Feasibility of Nonpharmacological Interventions for Neuropsychiatric Symptoms of Dementia in Long Term Care: A Systematic Review. *J Am Med Dir Assoc* 2012; 13: 503-506.e2.
42. Spector A, Orrell M, Goyder J. A systematic review of staff training interventions to reduce the behavioural and psychological symptoms of dementia. *Ageing Research Reviews* 2013; 12: 354–364.
43. Clifford C, Doody O. Exploring nursing staff views of responsive behaviours of people with dementia in long-stay facilities. *Journal of Psychiatric and Mental Health Nursing* 2018; 25: 26–36.
44. Watson K, Hatcher D. Factors influencing management of agitation in aged care facilities: A qualitative study of staff perceptions. *Journal of Clinical Nursing* 2021; 30: 136–144.
45. Gerolimatos LA, Page KS, Balestracci P, et al. Interdisciplinary development and implementation of a dementia skills training program in a VA community living center: a pilot study. *Geriatric Nursing* 2018; 39: 400–406.
46. Rokstad AMM, Døble BS, Engedal K, et al. The impact of the Dementia ABC educational programme on competence in person-centred dementia care and job satisfaction of care staff. *International Journal of Older People Nursing* 2017; 12: e12139.
47. Schmidt SG, Dichter MN, Palm R, et al. Distress experienced by nurses in response to the challenging behaviour of residents - evidence from German nursing homes. *Journal of Clinical Nursing* 2012; 21: 3134–3142.
48. Zwijsen SA, Smalbrugge M, Eefsting JA, et al. Coming to Grips With Challenging Behavior: A Cluster Randomized Controlled Trial on the Effects of a Multidisciplinary Care Program for Challenging Behavior in Dementia. *J Am Med Dir Assoc* 2014; 15: 531.e1-531.e10.
49. Moniz-Cook E, Woods R, Gardiner E, et al. The Challenging Behaviour Scale (CBS): Development of a scale for staff caring for older people in residential and nursing homes. *British Journal of Clinical Psychology* 2001; 40: 309–322.
50. Bannigan K, Watson R. Reliability and validity in a nutshell. *Journal of Clinical Nursing* 2009; 18: 3237–3243.
51. Polit DF, Beck CT, Owen S v. Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing & Health* 2007; 30: 459–467.