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Effects of person-centered care approaches to dementia care on staff: a systematic review

Ana Barbosa (corresponding author)

MSc. PhD researcher. *Department of Health Sciences, University of Aveiro, Campus Universitário de Santiago, Agra do Crasto - edifício 30, Aveiro, Portugal.*

E-mail: anabarbosa@ua.pt. Tel: +351 234 370 213. Fax: +351 234 401 597

Liliana X. Sousa

PhD. Auxiliary Professor. *Department of Health Sciences, University of Aveiro, Aveiro, Portugal.*

E-mail: lilianax@ua.pt

Mike Nolan

PhD. Professor. *Department of Community, Ageing, Rehabilitation, Education and Research (CARER), School of Nursing and Midwifery, University of Sheffield, Northern General Hospital, Sheffield, United Kingdom.*

E-mail: m.r.nolan@sheffield.ac.uk

Daniela Figueiredo

PhD. Senior lecturer. *School of Health Sciences, University of Aveiro, Aveiro, Portugal.*

E-mail: daniela.figueiredo@ua.pt

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Abstract

Person-centered care (PCC) has been the subject of several intervention studies, reporting positive effects on people with dementia. However, its impact on staff's outcomes remains unclear. The purpose of this systematic review was to assess the impact of PCC approaches on stress, burnout and job satisfaction of staff caring for people with dementia in care homes. The databases PubMed, Web of Knowledge, Scopus and EBSCO and reference lists from relevant publications, were searched between December 2012 and March 2013. The review was limited to experimental and quasi-experimental studies, published in English and involving direct care workers (DCWs). Seven studies were included, addressing different PCC approaches: dementia care mapping (n=1); stimulation-oriented approaches (n=2); emotion-oriented approaches (n=2) and behavioral-oriented approaches (n=2). Five studies reported benefits on DCWs, suggesting a tendency towards the effectiveness of PCC on staff. However, methodological weaknesses and heterogeneity among studies make it difficult to draw firm conclusions.

Keywords: care homes; dementia; direct care workers; person-centered care; systematic review.

Introduction

Dementia affects nearly 35.6 million of people worldwide and this number is projected to rise as the population ages¹. Behavioral and psychological symptoms of dementia (BPSD), such as agitation and wandering, emerge in a significant number of cases, with almost 90% of people with dementia developing at least one BPSD². These symptoms are often distressing for informal caregivers and greatly increase the likelihood of care recipients' admission to care homes³. Also, BPSD are one of the main causes of stress, burnout and job dissatisfaction amongst direct care workers (DCWs), who provide the bulk of care to people with dementia in care homes^{4,5}.

Between one-half and two-thirds of care home residents have some form of dementia and these numbers will escalate rapidly in coming years⁶⁻⁸. The increasing prevalence of dementia has challenged care homes to recognize the need to go beyond the medical and supervisory care that has traditionally provided the rationale for their existence and in recent years, growing attention has been paid to the concept of Person-Centred Care (PCC) as a key approach to creating a more positive psychosocial environment for residents with dementia⁹. The term PCC had its origins in the work of Carl Rogers and client-centred therapy¹⁰. His approach was an evolution from the medical model of the practitioner as an expert figure, to one that validates the individual with the illness and recognizes their strengths and needs¹⁰. Rogers advocated a change to the traditional therapeutic relationships, with more emphasis on the person and less on the care task¹¹.

Later, it was Tom Kitwood who encouraged PCC approach in dementia care. Kitwood (1997) argued that BPSD were not just the result of changes in the brain, but a consequence of a complex interaction between neuropathology and the person's psychosocial environment. Within this conceptualization, many of the difficulties people with dementia experience are not just a consequence of the disease itself but are the result of threats to one's personhood, brought about by negative interactions with others. Kitwood (1997) termed this 'malignant social psychology'. Examples of a 'malignant social psychology' include infantilization, disempowerment or objectification and are often seen as a product of the DCW's limited skills

in communicating adequately with the person with dementia^{12,13}. Thus, Kitwood (1997) emphasizes the relational nature of PCC and the need to value carers, i.e., the provision of PCC is not possible unless carers themselves: have communication skills; their own emotional strains are recognized; and they experience feelings of being respected and valued.

His framework provided an important theoretical rationale for the development of different forms of approaches to dementia care¹⁴, such as: behavior oriented approaches (e.g., simplify tasks and provide one-step instructions); emotion oriented approaches (e.g., reminiscence and validation therapy); cognition oriented approaches (e.g., reality orientation); and stimulation oriented approaches (e.g., recreational therapies and multisensory stimulation) (Table 1).

Providing DCWs with education and training to deliver PCC approaches have typically been used as the means to improve quality of care for people with dementia. Studies have showed positive effects of PCC on different outcomes among residents, including: a decrease in the use of chemical restraints¹⁵; less resident agitation and aggression¹⁶; fewer falls¹⁷; and an increase in residents' participation during care routines¹⁸. Considering the relational nature of PCC, one might assume that this approach has benefits not only for the care receiver, but also for the DCWs. However, the relationship between PCC and DCWs' outcomes, including stress, burnout and job satisfaction remains understudied. The increasing demand for more and higher quality services highlights the need to address the psychological pressure experienced by care staff, as this can also affect the process of caring for people with dementia¹³. Stress, burnout and job dissatisfaction among DCWs have been recognized in a number of studies as the most important threats to the care provision, as well as to the well-being of the worker and the resident^{5,19,20}.

A recent systematic literature review conducted by van Pol-Grevelink et al.²¹ concluded that there are limited indications that PCC has a positive effect on DCWs' job satisfaction. Despite its valuable contribution to the current state of knowledge in this field, this review was not specifically focused on DCWs providing care for residents with dementia, but targeted to all care home residents, and it only included studies conducted in Dutch nursing homes.

Furthermore, the authors overextended the construct of job satisfaction by considering the job stress and burnout as components of the former. Such conceptualization seems to disregard the significance and independence of each one of these variables.

In order to overcome these limitations, the aim of the present systematic review was to assess the impact of PCC approaches on stress, burnout and job satisfaction among DCWs providing care for residents with dementia in care homes, in order to add to knowledge about the impact of PCC on DCWs and to determine if specific interventions are of benefit.

(Insert Table 1)

2. Methods

2.1. Eligibility criteria

2.1.1. Types of studies

Since the present review is one of the first attempts to study the association between PCC approaches and outcomes for staff, and it is anticipated that the effects of interventions are unlikely to be studied only in randomized trials, both randomized and non-randomized studies were considered. Concerning the latter, the following designs were eligible: controlled before-after studies; uncontrolled before-and-after studies and post-test studies. Studies had to be written in English and published in a scholarly peer-reviewed journal. Non-experimental studies (e.g., observational studies), reviews, letters, notes, case reports or qualitative studies were not considered.

2.1.2. Types of participants

Studies were eligible if they included mainly DCWs providing care to people with dementia in care homes (i.e., homes for the aged, assisted living facilities or nursing homes) as participants. A number of designations for DCWs were included: Nursing Assistant/Aid; Personal Care Attendant, Attendant Care Worker, Personal Assistant or Frontline Staff. Given

the lack of research in this area, Certified Nursing Assistants/Aids were also considered eligible in order to obtain a large number of studies.

2.1.3. Types of interventions

The interventions of interest consisted of interventions in dementia care distinguished by APA (2007) as reflecting a person-centered philosophy of care in which an understanding of the individual is emphasized: behavior-oriented approaches; emotion-oriented approaches; cognition-oriented approaches and stimulation-oriented approaches. Dementia Care Mapping (DCM) utilizes systematic observations to evaluate the quality of care and well-being of people with dementia in formal care settings²². As it can be used to help staff understand the experience of people of dementia and change practices, it was also considered in this review.

All these approaches should be explicitly focused on PCC, in which an enhancement of residents' interaction, independence, autonomy and relationship with staff are emphasized. Interventions were assigned to only one category even if more than one would have been appropriate in some cases. When this happened, two authors (AB and DF) met to reach an agreement.

2.1.4. Types of outcomes

Broad variables that are considered important threats to the care provision and that may offer an initial picture of the impact of PCC on staff wellbeing were selected. Therefore, the primary outcomes that were considered for review were DCWs' stress, burnout and job satisfaction. Studies were not required to address all these outcomes to be eligible for inclusion. Stress has been defined as a physiological and psychological response experienced when the demands of a situation tax or exceed a person's resources and some type of harm or loss is anticipated²³. Long-term exposure to stress may result in: burnout, a state of emotional exhaustion (feelings of being emotionally overextended and exhausted); depersonalization (cynicism or callous attitude towards others); and lack of personal accomplishment (negative

assessment of one's competence and work achievements)²⁴. Job satisfaction reflects how people feel about the different dimensions of their jobs²⁵.

2.2. Search strategy

The electronic databases PubMed (1973-2013), Web of Knowledge (1975-2013), Academic Search Complete - EBSCO (1987-2013) and Scopus (1987-2013) were searched between December 2012 and March 2013. The following strategy created for PubMed was adopted for each one of the other databases:

Dementia [MESH] AND residential facilities [MESH] AND (behavior therapy OR emotion-oriented OR validation therapy OR reminiscence OR simulated presence OR cognitive-oriented OR reality orientation OR skills training OR stimulation-oriented OR multi-sensory stimulation OR aromatherapy OR sensory stimulation OR snoezelen OR recreational therapy OR art therapy OR activity therapy OR person cent OR patient cent* OR client cent* OR relationship cent* OR dementia care mapping)*

The bibliography of all potential relevant papers was also used to identify additional articles.

2.3. Selection of studies

Search results obtained from the databases were combined using the software Endnote version X5 and duplicate records were removed. Afterwards, the titles and abstracts of the identified references were screened for relevance by the first author (AB), considering the established eligibility criteria. The full text of the potentially relevant papers was obtained and screened to determine its inclusion in the review. If information about the study was lacking or unclear, the corresponding authors were contacted to request further details. The final decision about the studies to be included was confirmed by the last author (DF).

2.4. Data extraction and quality assessment

The following details of the included studies were extracted and summarized by the first author (AB): authors and year of publication, country, study design, type and description of the intervention, sample, outcomes and main results. A second researcher (DF) independently checked the data extraction for accuracy and detail. Disagreements were resolved by consensus between the two authors. Each study was independently reviewed for methodological quality by two authors (AB and DF), using the assessment tool recommended by Cochrane²⁶. The following criteria were considered: selection bias (method of randomization, allocation concealment), performance bias (blinding of participants, personnel and outcome assessors), attrition bias (incomplete outcome data), and reporting bias (selective outcome reporting). The decision whether the criteria were fulfilled (“yes”) or not (“no”) was based on the information provided in the article, and if this information was inadequate, the decision was labeled “unknown” (“?”).

2.5. Data synthesis

Given the variability among studies regarding study design, interventions and measuring outcomes, instead of a meta-analysis qualitative analysis was employed to synthesize the findings. This relies primarily on the use of text to summarize and explain the findings of multiple studies²⁷.

3. Results

3.1. Overview of results

A total of 678 references were initially identified. Based on their titles and abstracts, a total of 16 references were acknowledged as potentially eligible, while 662 were excluded. Non-experimental studies, interventions implemented in settings other than care homes and studies not focused on dementia were identified as the main reasons for exclusion. The full papers of the 16 potentially relevant studies were obtained. After a complete reading, nine references were excluded from the review²⁸⁻³⁶. Reasons for exclusion included: participants or outcomes were not in accordance with those established in the inclusion criteria^{29,31,34-36}; study design did

not meet defined criteria^{32,33}; or there was dearth of information about the intervention^{28,30}. A total of seven studies met the inclusion criteria (Figure 1).

(Insert Figure 1)

3.2. Characteristics of included studies

The seven included studies addressed different PCC approaches, including: dementia care mapping (DCM)³⁷; stimulation-oriented approaches, such as recreational therapy (storytelling) or multisensory stimulation (*snoezelen*)³⁸; emotion-oriented^{39,40} and behavioral-oriented approaches^{37,41,42}.

Three studies originated from the Netherlands³⁸⁻⁴⁰, two from the United States^{41,43}, one from Canada⁴² and one from Australia³⁷. The number of participants ranged from 26 to 300 (Table 2).

None of the seven studies met all the quality criteria (Table 3). Four out seven studies were randomized controlled trials (RCTs)^{37,39,40,43}. Care homes were selected as the units of randomization, yet information about the method for the allocation concealment was unclear. It was not possible to blind residents due to the nature of the interventions; however, an effort to blind outcome assessors was made in Wells et al. (2000). Most studies (n = 5) lacked follow up assessments. For those which had^{37,40}, time-periods varied from four months³⁷ to one year⁴⁰. Only Schrichnemaekers et al. (2003) stated that they used intention-to-treat analysis. In the remaining studies data were collected only from the 'completers'. For the studies of Passalacqua & Harwood (2012) and Fritsch et al. (2009) selective reporting was apparent as one or more outcomes were not reported. There was a risk of other bias in van Weert et al. (2005) as the dropouts during the study were replaced by new staff members. Therefore, the treatment duration periods were unequal for subjects in the original group and the replacement group, which does not allow intention-to-treat analysis.

(Insert Table 2)

(Insert Table 3)

3.3.2. Outcome measures

Five out of 7 studies assessed burnout^{37,38,40,41,43}, four studies measured staff's stress^{37-39,42}, and 3 measured job satisfaction^{38,40,43}. The Maslach Burnout Inventory (MBI) was the instrument used across all studies to measure burnout. The Maastricht Work Satisfaction Scale for Healthcare (MAS-GZ) was selected in two studies to assess job satisfaction^{38,40}. In one study, this outcome was assessed using an adaptation of the scale of Montgomery⁴³. The General Health Questionnaire (GHQ) was used in three studies to assess levels of stress³⁷⁻³⁹. There was little consistency in the use of the outcome measures. Finnema et al. (2005) used the full-version of GHQ (28 items), while Jeon et al. (2012) and van Weert et al. (2005) administered the short version of the scale (12 items). van Weert et al. (2005) selected four of the seven subscales of MAS (satisfaction with quality of care, opportunities for self-actualization, contact with colleagues and contact with residents) while Schrijnemaekers et al. (2003) selected five subscales (satisfaction with the head of the ward, quality of care, opportunities for self-actualization/growth, contact with colleagues and residents). Of the three subscales of MBI "emotional exhaustion," "depersonalization" and "personal accomplishment," van Weert et al. (2005) excluded the depersonalization subscale from the analysis (Table 2).

3.4. Effects of PCC approaches on DCWs' outcomes

3.4.1. Stimulation-oriented interventions

Two different studies fell into this group. Van Weert et al. (2005), through a quasi-experimental pre post-test design, investigated the effectiveness of integrated *snoezelen* on work-related outcomes of staff in nursing homes. The intervention consisted of a four day in-house training programme, three follow-up meetings and two general meetings to support the implementation of *snoezelen* in daily care. Data collected at baseline and after 18 months indicated that the implementation of *snoezelen* was significantly associated with a reduction of stress (*intervention group*: before intervention (t0) Mean (M)=1.46, Standard Deviation

(SD)=0.4; after intervention (t1) M=0.77, SD=0.4; *control group*: t0 M=1.24, SD=0.4; t1 M=1.93, SD=0.4), job dissatisfaction (*intervention group*: t0 M=53.36, SD=0.97; t1 M=56.41, SD=1.6; *control group*: t0 M=54.33, SD=1.6; t1 M=52.87, SD=1.6) and emotional exhaustion on staff (*intervention group*: t0 M=10.75, SD=0.8; t1 M=8.31, SD=0.9; *control group*: t0 M=10.35, SD=0.8; t1 M=10.77, SD=0.9).

Fritsch et al. (2009) evaluated the impact of a group storytelling approach on people with dementia and care assistants. A post-test only study with a group control was conducted. Staff (n=192) received 10-week on-site training on how to implement storytelling. Outcomes were assessed two weeks after the intervention. No effects on staff's burnout or job satisfaction among either the intervention or control group were observed (Table 2).

3.4.2. *Emotion-oriented interventions*

Two studies fell into this group. Finnema et al. (2005) used a pre post- test control group design to examine the effect of integrated emotion-oriented care (an approach that applies validation in combination with other interventions such as reminiscence and sensory stimulation) on both nursing home residents with dementia and staff. Staff in the intervention group received training and supervision in emotion-oriented care, over nine months. The following courses were offered: i) basic training on emotion-oriented care for all staff members involved in care; ii) advanced course "emotion-oriented care worker" for five staff members; iii) a training course "adviser emotion-oriented care" for one staff member. Data were gathered at baseline and after seven months. Findings indicated a significant decrease in stress in those who perceived improvements in their emotion-oriented care competences (*intervention group*: t0 M=15.14, SD=7.9; t1 M=14.77, SD=6.8; *control group*: t0 M=16.92, SD=12.2; t1 M=19.25, SD=9.8).

Also, Schrijnemaekers et al. (2003) studied the effect of emotion-oriented care on staff through a pre-post randomized controlled trial. The eight facilities at the experimental group received: i) clinical lessons to all employees; ii) six-day training programme for 8 workers in each facility; iii) 3 supervision meetings (half-a-day each) held over four months after training.

Data were gathered at baseline, three, six and 12 months follow-up. Based on a sample of 300 care assistants, the authors observed significantly positive effects in favor of the intervention groups on burnout (subscale of ‘personal accomplishment’) and some aspects of staff’s job satisfaction (‘opportunities for self-actualization’ – *intervention group*: t0 M=7.3, SD=2.3; *control group*: t0 M=8.0, SD=1.8). Though, findings were not consistent over time (Table 2).

3.4.3. Behavioral-oriented approaches

Two different studies fell into this group. Passalacqua & Harwood (2012) assessed the effects of a communication skills training for 26 DCWs through a quasi-experimental pre- and post-intervention without control group. The intervention was offered in four 1-hour workshops over a period of 4 weeks, with each workshop devoted to one of the four elements of Brooker’s (2004) VIPS model (**V**aluing people and those who care for them; treating people as **I**ndividuals; looking at the world from the **P**erspective of the person with dementia; create a positive **S**ocial environment) and to communication skills training. Findings suggested a significant reduction in one aspect of burnout – depersonalization (t0 M=1.71, SD=1.36; t1 M=1.16, SD=0.43).

Wells et al. (2000) implemented a behavioral approach consisting of training staff through five educational sessions to use an abilities focused morning care routine with residents. Specifically, staff were taught to give residents verbal prompts before carrying out care tasks and to help them to carry out care tasks as independently as possible. Data were gathered at baseline and at three and six months post-intervention. Findings suggested an absence of impact on staff’s stress levels (Table 2).

3.4.4. Dementia- care mapping

Jeon et al. (2012) through a RCT conducted in 15 aged-care facilities assessed the efficacy of DCM and PCC on staff stress and burnout. The DCM intervention consisted of training for 45 staff members (42.2% nurse assistants) on DCM and skills to implement PCC based care practices. The intervention required intensive six to eight hours of systematic

observations of individual residents and their interactions with staff. Burnout and stress were assessed at three moments: prior to the intervention, immediately post intervention and at four months' follow-up. Significant decreases for emotional exhaustion, a subscale of MBI, were only obtained at post intervention among staff of DCM group (*DCM*: t0 M=17.3, SD=1.7; t1 M=14.8, SD=1.8; *PCC*: t0 M=14.3, SD=1.5; t1 M=16.0, SD=1.7; *control* t0 M=12.4, SD=2.3; t1 M=14.5, SD=2.5). This outcome also declined significantly with time only in the DCM group (*DCM* $F [2.82] = 5.49$, $p = 0.006$; *PCC* $F [2.102] = 0.28$, $p=0.76$; *control* $F [2.40] = 0.96$, $p=0.39$). MBI personal accomplishment rose significantly over time for all groups, but differences were not found between them. Although not significant, results for the measures of depersonalization tended to drop from baseline to follow-up only for intervention groups. For all groups there was a significant time effect for stress, which increased at post-intervention but declined at follow-up. Yet, time effect did not differ between clusters. Findings need to be interpreted with caution given that the values are not specific for DCWs but rather to the whole group of staff (Table 2).

4. Discussion

This study aimed to explore the impact of PCC approaches to dementia care on DCWs' stress, burnout or job satisfaction.

A total of seven studies were included which assessed a range of PCC approaches: emotion-oriented approaches (n=2); stimulation-oriented approaches (n=2); behavioral-oriented approaches (n=2); and DCM (n=1). Differences in the type of design, outcomes, number of participants and duration of intervention hindered study comparisons and generalizations. Moreover, a range of methodological weaknesses make it difficult to provide any conclusive indication of the effectiveness of these approaches.

Nonetheless, findings point to a potentially important benefit of such approaches for staff, as most studies (n=5) reported significant positive changes in the outcome domains. Each of the two RCTs that assessed emotion-oriented approaches were successful in reducing DCWs' stress³⁹, burnout and job dissatisfaction⁴⁰. However, emotion-oriented approaches comprise multiple components (e.g., validation and reminiscence), making it difficult to understand which

one was the most effective. An additional RCT found that DCM positively affected DCWs' stress and burnout³⁷. A non-randomized controlled study based on multisensory stimulation³⁸ showed immediate significant positive impacts on the three outcomes of interest. Lastly, one out two behavioral-oriented approaches that adopted a non-randomized design reduced DCWs' burnout⁴¹. The remaining two studies reported no effects on staff's psychological outcomes^{42,43}. As a group, these studies provide valuable insights about the different types of PCC approaches that impact on DCWs. In line with previous literature, PCC can offer a better preparation for the challenging task of providing dementia care, enabling DCWs to respond to residents' BPSD more effectively and with less personal impact on themselves. Such approaches are also more likely to reflect the type of care that DCWs would wish to provide, that is care that is focused on the residents and on their needs, habits, interests and wishes^{44,45}.

As identified in previous reviews⁴⁶, this one demonstrates that studies in this area still lack sufficient rigor, in particular the use of RCTs with adequate randomization procedures. However, conducting RCTs to assess psychosocial interventions represents a challenge especially with respect to the blinding of participants. On the other hand more could be done to blind outcomes assessors, something that was only noted in one of the included studies⁴². Better quality reporting of the method of allocation would also be a methodological advance.

Moreover, the long-term effects of the interventions were only assessed in two studies^{37,40} and in the future follow-up data are required to demonstrate the extent to which the effects of interventions are maintained. This is particularly important given that several previous studies have indicated that positive outcomes are not maintained over extended periods of time⁴⁷.

A third weakness concerns the possible existence of bias in samples. Only one study reported intention-to-treat analysis⁴⁰, highlighting the necessity for future studies to undertake a "complete cases" analysis.

Fourthly, there was a great variability in the outcome measures used, further compromising comparability. Except for burnout, which was universally assessed with the MBI, stress and job satisfaction were measured using different tools. And even when the same tool was used, its application was inconstant across studies (i.e., studies selected different subscales

or items). Future research should use more uniform instruments so that outcomes can be assessed for comparability.

Finally, despite all approaches being focused on PCC, they have a different emphasis. For example, while some studies were focused on training staff to promote residents' independence⁴², others were more focused on enhancing staff-resident communication³⁸. This demonstrates the complexity of the term PCC and indicates that there is still a lack of conceptual clarity as to its meaning. In order to be able to compare the benefits of these different approaches, there is a need for further exploration of the concept and features of PCC.

4.1. Strengths and limitations

A few limitations have to be considered within this review. Potential reporting bias may exist, as only studies published in scholarly peer-reviewed journals and in English language were included. There may have been other studies describing suitable interventions that were not included. As well, the number of included studies could have been superior if other psychological variables were considered, namely self-efficacy or confidence. Moreover, the small number of studies and their methodological limitations reduces the inferences that can be legitimately drawn. Finally, post-only studies were eligible to be included in the review despite its recognized weaknesses.

Despite the limitations, this is the first review to date that focuses specifically on interventions addressing staff caring for people with dementia. This work is instructive and makes available important insights for the future development of this research area.

5. Conclusions

Based on the available evidence and considering the methodological weaknesses and heterogeneity of studies, it is not possible to draw firm conclusions about the efficacy of PCC approaches for DCWs. Yet, a tendency towards their effectiveness was apparent.

This review highlights the need for more well-design research and higher quality reporting of study methodology. Specifically, reporting should include the method of

randomization and treatment allocation concealment, information about blinding of participants or outcome assessors and an intention-to-treat analysis should be performed. Future studies should use standardized outcome measures so that precise comparisons may be made, and consider follow-up assessments in order to determine any lasting effects. In order to compare the benefits of the different approaches, further exploration of the features of PCC are required.

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Table 1. Approaches based on PCC ¹⁴

| Approaches | General description |
|--|---|
| Behavioral-oriented approaches | Manage disabilities and problem behaviors using principles of learning (e.g., scheduled toileting). |
| Emotion-oriented approaches | <ul style="list-style-type: none"> <li data-bbox="730 490 1343 575">• Stimulate memory and mood in the context of the resident’s life history. <li data-bbox="730 593 1343 678">• Restore self-worth and reduce stress by validating emotional ties to the past. <li data-bbox="730 696 1343 824">• Alleviate problem behaviors by playing an audio or videotape to a person with dementia that has been personalized by his or her caregiver. |
| Cognition-oriented approaches | <ul style="list-style-type: none"> <li data-bbox="730 898 1343 1032">• Manage disorientation and confusion through regular stimulation and repetition of basic orientation (e.g., calendars, clocks). <li data-bbox="730 1050 1343 1128">• Restore specific cognitive deficits through structured activities. |
| Stimulation-oriented approaches | <ul style="list-style-type: none"> <li data-bbox="730 1207 1343 1391">• Stimulate the senses using lighting effects, color, sounds, music or scents in order to obtain maximum pleasure from the activity in which people are involved. <li data-bbox="730 1408 1343 1547">• Provide meaningful stimulation and improve social interaction through dancing, drawing, painting, etc. <li data-bbox="730 1565 1343 1749">• Engage in pleasant activities such as crafts or games as a way of facilitating the individual’s need for communication, self-esteem, sense of identity and productivity. <li data-bbox="730 1767 1343 1852">• Use of natural oils to enhance psychological and physical well-being. <li data-bbox="730 1870 1343 1944">• Engage in sport activities to improve psychomotor function and social interaction. |

Table 2. Characteristics of selected studies

| Source | Methods | Approach | Participants | Outcomes | Results |
|-----------------------|--|-----------------------|---|---|--|
| Finnema et al. (2005) | <u>Design:</u> RCT <u>Measurement:</u> one month before and seven months after the intervention. | Emotion-oriented | <u>Sample:</u> 99 nursing assistants (46 intervention group; 53 control group) <u>Setting:</u> 16 psychogeriatric wards in 14 nursing homes <u>Country:</u> Netherlands | <u>Stress:</u> GHQ-28 | Positive significant differences in favor of the intervention group for stress ($p < 0.05$). |
| Fritsch et al. (2009) | <u>Design:</u> Post-only study with a group control <u>Measurement:</u> two weeks after the intervention. | Stimulation-oriented | <u>Sample:</u> 192, including 67% of nursing assistants <u>Setting:</u> 20 nursing homes <u>Country:</u> United States | <u>Burnout:</u> MBI <u>Job satisfaction:</u> 5 indicators adapted from Montgomery (1993) | No significant differences were observed for job satisfaction and burnout. |
| Jeon et al (2012) | <u>Design:</u> RCT <u>Measurement:</u> before, after and 4 months after the intervention. | Dementia Care Mapping | <u>Sample:</u> 124 (43,5% nursing assistants) <u>Setting:</u> 15 residential aged care sites <u>Country:</u> Australia | <u>Burnout:</u> MBI <u>Stress:</u> GHQ-12 | Significant decreases in emotional exhaustion (MBI) ($p < 0.05$). No significant decrease in depersonalization (MBI) in both intervention groups. Significant time effect for stress, which increased at post-intervention, but declined at follow-up. |

| Source | Methods | Approach | Participants | Outcomes | Results |
|-------------------------------|--|--------------------|--|--|--|
| Passalacqua & Harwood (2012) | <p><u>Design:</u> Quasi-experimental, pre and post without control group</p> <p><u>Duration:</u> 14 weeks</p> <p><u>Measurement:</u> four weeks before and six weeks after the intervention.</p> | Behaviour-oriented | <p><u>Sample:</u> 26 DCWs</p> <p><u>Setting:</u> 1 home for the aged</p> <p><u>Country:</u> United States</p> | <p><u>Burnout:</u> MBI (emotional exhaustion and depersonalization subscales)</p> | Positive significant differences for depersonalization ($p < 0.05$). |
| Schrijnemaekers et al. (2003) | <p><u>Study:</u> Randomized controlled trial</p> <p><u>Duration:</u> 16 months</p> <p><u>Measurement:</u> pre, three, six and 12 months post intervention.</p> | Emotion-oriented | <p><u>Sample:</u> 300 caregivers (155 intervention group; 145 control group)</p> <p><u>Setting:</u> 16 homes for the aged</p> <p><u>Country:</u> Netherlands</p> | <p><u>Job satisfaction:</u> 5 of 7 subscales of Maastricht Work Satisfaction Scale for Healthcare (MAS)</p> <p><u>Burnout:</u> MBI</p> | <p>Short-term differences in favour of the intervention group. Differences were statistically significant for two subscales of job satisfaction - "opportunities for self-actualization" and "contact with residents" - and one subscale of burnout - "personal accomplishment" ($p < 0.05$).</p> <p>Findings were not consistent over time.</p> |

| Source | Methods | Approach | Participants | Outcomes | Results |
|-------------------------|--|----------------------|--|--|---|
| van Weert et al. (2005) | <p><u>Design:</u> Quasi-experimental, pre- and post-test control group</p> <p><u>Duration:</u> 19 months</p> <p><u>Measurement:</u> before and 18 months post intervention.</p> | Stimulation-oriented | <p><u>Sample:</u> 127 certified nursing assistants (64 intervention group; 63 control group)</p> <p><u>Setting:</u> 6 nursing homes</p> <p><u>Country:</u> Netherlands</p> | <p><u>Job satisfaction:</u> 4 of 7 subscales of MAS</p> <p><u>Stress-</u> GHQ-12</p> <p><u>Burnout</u> - MBI</p> | <p><u>Job satisfaction:</u> positive significant differences in favour of the intervention group for satisfaction with quality of care (p<0.001), contact with residents (p<0.01) and total satisfaction (p<0.01).</p> <p><u>Stress:</u> positive significant differences in favour of the intervention group (p<0.05).</p> <p><u>Burnout:</u> positive significant differences in favour of the intervention group for emotional exhaustion (p<0.05).</p> |
| Wells et al. (2002) | <p><u>Design:</u> Quasi-intervention, repeated measures design.</p> <p><u>Duration:</u> 12 months</p> <p><u>Measurement:</u> baseline, three and six months post intervention.</p> | Behaviour-oriented | <p><u>Sample:</u> 44 nursing staff (16 – 7 care assistants -on the intervention group and 28 – 13 care assistants - on the control groups)</p> <p><u>Setting:</u> 4 nursing home units</p> <p><u>Country:</u> Canada</p> | <p><u>Stress:</u> Hassless subscale of the Nurses Hassless and Uplifts Scale (41-item)</p> | No effect on staff level of stress. |

Table 3. Methodological quality of the included studies based on Higgins & Green (2011)

| | Randomization? | Allocation concealment? | Blinding of participants and personnel | Blinding of outcome assessors? | Incomplete outcome data addressed? | Free of selective reporting? | Free of other bias? |
|-------------------------------|----------------|-------------------------|--|--------------------------------|------------------------------------|------------------------------|---------------------|
| Fritsch et al. (2009) | + | ? | ? | ? | - | + | - |
| Finnema et al. (2005) | + | ? | - | - | - | + | + |
| Jeon et al. (2012) | + | ? | - | ? | - | + | + |
| Passalacqua & Harwood (2012) | - | - | ? | ? | - | - | + |
| van Weert et al. (2005) | - | - | - | - | - | + | - |
| Schrijnemaekers et al. (2003) | + | ? | - | - | + | + | + |
| Wells et al. (2000) | - | - | ? | + | - | + | + |

+ yes (low risk of bias); - no (high risk of bias); ? unclear