

## Scholarly Review

# Are Interventions for Formal Caregivers Effective for Improving Dementia Care? A Systematic Review of Systematic Reviews

Justine S. Sefcik, PhD, RN,<sup>1,\*</sup> Marie Boltz, PhD, GNP-BC, FGSA, FAAN,<sup>2</sup> Maria Dellapina, MS,<sup>1</sup> and Laura N. Gitlin, PhD, FGSA, FAAN<sup>1</sup>

<sup>1</sup>College of Nursing and Health Professions, Drexel University, Philadelphia, Pennsylvania, USA. <sup>2</sup>College of Nursing, Pennsylvania State University, University Park, Pennsylvania, USA.

\*Address correspondence to: Justine S. Sefcik, PhD, RN, College of Nursing and Health Professions, Drexel University, 1601 Cherry St., Room 377, Philadelphia, PA 19102, USA. E-mail: [jss398@drexel.edu](mailto:jss398@drexel.edu)

Received: November 4, 2021; Editorial Decision Date: January 22, 2022

**Decision Editor:** Karen D. Lincoln, PhD, MSW, MA, FGSA

## Abstract

**Background and Objectives:** Several systematic reviews exist that examine the efficacy of educational interventions in randomized controlled trials (RCTs) designed to improve formal caregivers' knowledge and skills and/or the outcomes of persons living with dementia. The aim of this article is to summarize existing systematic reviews to assess the effectiveness of educational interventions tested in RCTs and directed at formal caregivers.

**Research Design and Methods:** Smith et al.'s methodology guided this systematic review of systematic reviews. We used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines and the A Measurement Tool to Assess systematic Reviews 2 (AMSTAR 2) for quality appraisals. Reviews were included if they contained interventions with an RCT design that focused on changing staff behavior and/or practice toward persons living with dementia, in any setting and for any health care discipline.

**Results:** We identified six systematic reviews, one rated as high-quality on the AMSTAR 2. Most interventions were directed at nursing staff, in long-term care facilities, focused on agitation, and were atheoretical. There is insufficient evidence to guide implementation of currently tested interventions; however, training in communication skills, person-centered care, and dementia-care mapping with supervision show promise for improving agitation.

**Discussion and Implications:** There's a critical need for additional research with well-designed RCTs, and clear reporting of protocols and findings to inform the field on how best to train and support the workforce. Although there is no conclusive evidence on what interventions are most effective, it could be argued that providing training using interventions with modest evidence of impact is better than no training at all until the evidence base is strengthened.

**Translational Significance:** This article provides a synthesis of six systematic reviews that examined the efficacy of dementia care educational interventions in randomized controlled trials designed to improve staff knowledge and skills and/or outcomes of persons living with dementia. We found that there is inadequate evidence to guide wide implementation of any interventions; however, there is some promise in implementing training on communications skills, person-centered care, and dementia-care mapping. Our review underscores the critical need for additional research with well-designed, well-funded randomized controlled trials for broad implementation of interventions that prepare and support the dementia care workforce in all settings.

**Keywords:** Dementia workforce, Nonpharmacological interventions, Training

There are more than six million people with dementia living in the United States (U.S.; [Alzheimer's Association, 2021](#)). People living with dementia represent a racially and ethnically diverse population with varying levels of cognitive loss, impaired communication, and behavioral manifestation of distress, who receive care in a wide variety of settings. The complexity of their needs demands a dementia-competent workforce, with formal caregivers (including nurses, nursing assistants, physicians, social workers, and rehabilitation therapists) who possess the knowledge, skills, and empathic attitudes associated with person-centered care ([Surr et al., 2020](#)).

While it is known that there are more than 11 million U.S. informal (unpaid family and friend) caregivers, the number of formal dementia caregivers is difficult to discern. The group with the most accessible workforce statistics is direct care workers ([PHI, 2021](#)). There are more than 4.6 million direct care workers (personal care aides, home health aides, and nursing assistants) who provide the most hands-on care to persons living with dementia. These interactions that include assistance with basic and instrumental activities of daily living, as well as those of professional caregivers, are considered to have a profound influence upon the care experience and quality of life of individuals living with dementia ([Gilster et al., 2018](#); [PHI, 2021](#)). Formal dementia caregivers of all disciplines are called upon to utilize best practice, nonpharmacological approaches that emphasize person-centered care, including promotion of function ([Bennett et al., 2019](#)), support of well-being ([Gaugler et al., 2019](#)), and alternatives to psychoactive medication ([Bessey & Walaszek, 2019](#); [Gerlach & Kales, 2018](#); [Kales et al., 2015](#)).

The uptake and dissemination of evidence-based, person-centered interventions have been slow to take hold at the national level ([Fossey et al., 2019](#); [Lee et al., 2013](#)). This persistent evidence–practice gap is attributed in part to a well-recognized lack of adequate workforce training in dementia care ([Burke & Orlowski, 2015](#); Institute of Medicine Committee on the Future Health Care Workforce for Older, 2008; [Warshaw & Bragg, 2014](#)). Thus, staff training and other staff development strategies that support efficacy in using nonpharmacological practices and that address the unique characteristics of dementia in all settings are critical. Without an immediate commitment to preparing the dementia care workforce, formal caregivers will be unprepared to meet individual needs of persons living with dementia and address ever-changing and complex needs associated with the progression of the disease, thus resulting in many persons living with dementia receiving inadequate care ([Warshaw & Bragg, 2014](#)).

One of the most prevalent conceptual frameworks underpinning training interventions is person-centered care

([Edvardsson et al., 2008](#)) conceptualized by [Rogers \(1961\)](#) and advanced by Kitwood in persons living with dementia ([McCormack & McCance, 2006](#)). Kitwood emphasized the relational nature of person-centered care and the need to value direct care workers and other carers. Valuing is concretized by providing formal dementia caregivers with communication techniques, disease education, and skills training to meet the unique needs of individuals with dementia, while recognizing the emotional and other demands that workers experience ([Kitwood, 1997](#)). Considering the relational nature of person-centered care, one might assume that efforts to improve dementia knowledge and skills have benefits not only for the recipient of such care but also for the formal caregivers ([Terkelsen et al., 2020](#)). Thus, there is a need to identify interventions that improve the capacity of formal caregivers who provide care to persons living with dementia, while considering both outcomes in staff and persons living with dementia.

Recent reports have identified a national research priority for interventional research focused on optimizing the effectiveness of formal dementia caregivers, including attention to translation of research into practice in diverse populations and care settings ([Weiss et al., 2020](#); [World Health Organization, 2017](#)). However, there is less clarity on what are the most effective and feasible interventions that could be broadly implemented now as we wait for an uptick in interventional research and dissemination of findings. For example, a recent National Academies of Science, Engineering, and Medicine Decadal study included a scoping review of reviews ( $n = 6$ ) and evaluated individual trials ( $n = 29$ ) of interventions designed to support formal caregiver efficacy in dementia care across settings ([Gitlin et al., 2020](#)). Interventions were designed to improve outcomes in persons living with dementia (quality of life, behaviors, well-being, and use of potentially inappropriate medication) and staff (burnout, job dissatisfaction, communication skills, competency, and knowledge). The authors of the review concluded that there was insufficient evidence and methodological challenges of existing studies such that no specific formal caregiver interventions were recommended for widespread dissemination and implementation.

In addition to the Decadal study, there are several systematic reviews that examine the efficacy of educational interventions in randomized controlled trials (RCTs) designed to improve staff knowledge and skills and/or the outcomes of persons living with dementia ([Birkenhäger-Gillesse et al., 2018](#); [Elliott et al., 2012](#); [Jutkowitz et al., 2016](#); [Kong et al., 2009](#); [Livingston et al., 2014](#); [Seitz et al., 2012](#)). To the best of our knowledge, no one has previously examined, synthesized, and reported on the findings from these systematic reviews to inform administrators,

practitioners, researchers, staff educators, and policy makers on the most effective and feasible educational interventions for formal dementia caregivers. Therefore, the aim of this article is to summarize existing systematic reviews through a systematic review of systematic reviews to assess the effectiveness of educational interventions tested in RCTs and directed at formal caregivers, to advance their impact upon care delivery and outcomes within themselves and/or persons living with dementia. The objective is to identify those interventions whose strength of evidence suggests readiness for broad implementation and dissemination to bolster the dementia capability of formal caregivers.

## Research Design and Methods

This systematic review of systematic reviews was guided by the methodology published by [Smith et al. \(2011\)](#) and based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines ([Moher et al., 2009](#)). The purpose of a systematic review of systematic reviews is to identify and appraise published reviews on the topic of interest, describe their quality, provide a summary of findings, discuss strengths of the individual conclusions, and compare their conclusions, with the result of presenting the best evidence ([Smith et al., 2011](#)). A benefit of this type of review is that it permits the examination of different interventions and different outcomes related to the phenomenon of interest ([Smith et al., 2011](#)).

### Search Strategy

Our search strategy and terms were developed in consultation with a university research librarian. Following the meeting with the librarian, we had a list of search terms to be run in both PubMed and non-PubMed databases. Search terms were: (“systematic review” OR “meta-analysis”) AND (“dementia” OR “frontotemporal dementia” OR “vascular dementia” OR “Lewy body dementia” OR “dementia with lewy bodies” OR “mixed dementia” OR “Alzheimer’s” OR “Alzheimer’s disease” OR “Alzheimer disease” OR “Alzheimer’s disease related dementia”) AND (“formal caregivers” OR “paid caregivers” OR “caregiver training” OR “staff” OR “personnel” OR “nurse” OR “nursing assistant” OR “health personnel” OR “health personnel”) AND (“training” OR “skills” OR “intervention” OR “education” OR “workforce preparation” OR “staff competence” OR “improvement” OR “implementation”); [Supplementary Material 1](#)). The search was conducted on August 3, 2020 for all available literature up to that date in five databases: PubMed, Web of Science, CINAHL, PsycInfo, and Embase.

### Eligibility Criteria

#### Inclusion criteria

Systematic reviews were included if they contained interventions with a RCT design that focused on changing

staff behavior and/or practice toward dementia care, in any setting and for any health care discipline. We included systematic reviews that conducted meta-analyses as well as those that did not. Reviews that reported on interventions directed at both formal caregivers and persons living with dementia were included if information on interventions specific to formal caregivers could be extracted.

#### Exclusion criteria

Reviews were excluded if they were in a language other than English, included studies using designs other than RCTs, focused solely on family caregivers or interventions delivered only to persons with dementia (no intervention delivered to formal caregivers), included individual studies, and were other types of reviews (e.g., scoping review).

### Review Process

Publication citations identified through database searches were downloaded into Endnote and then uploaded into Covidence, an online systematic review management software ([Veritas Health Innovation, 2014](#)). First, duplicate articles were removed. Then, independently the team members (J. S. Sefcik, M. Boltz, and M. Dellapina) screened titles and abstracts within Covidence based on the team’s established inclusion and exclusion criteria. Each title and abstract were screened by two team members who were blinded to each other’s decision. At the end of the screening round, the software revealed agreements and disagreements. All disagreements for inclusion or exclusion and agreements about potential inclusion were moved to round two where the same team members independently screened the full text of publications. Again, each article was screened by two team members, and they were blinded to each other’s decisions. At the end of the round, the three team members met to discuss and reconcile remaining disagreements revealed within the software and agreed on the final selection of publications.

### Quality Appraisal Tool

We used A Measurement Tool to Assess systematic Reviews 2 (AMSTAR 2) to assess the quality of the systematic reviews and meta-analyses ([Shea et al., 2017](#)). This instrument is composed of 16 items to rate the overall confidence in the results of the published review. For 13 items, the reviewers answered the question with either a response of yes, partial yes, no, or no meta-analysis conducted. Three of the questions focused on meta-analyses had the following response options: yes, no, or no meta-analysis conducted. Possible overall rating scores of the systematic reviews are high, moderate, low, and critically low.

Additionally, [Shea et al. \(2017\)](#) have distinguished that seven of the questions are critical domains, meaning that if criteria are not met for each of the seven individual items, the overall quality appraisal of the review is reduced.

Critical domains address registration of the protocol, adequacy of the literature search, justification for excluding individual studies, risk of bias from individual studies, appropriateness of meta-analytical methods, consideration of risk of bias when interpreting the results of the review, and assessment of presence and likely impact of publication bias (Shea et al., 2017). The full list of questions and display of critical domains can be found in [Supplemental Material 2](#). Two team members (J. S. Sefcik and M. Boltz) rated each review with the AMSTAR 2 independently and then met to compare coding, resolve discrepancies, and come to a consensus on ratings.

## Data Extraction and Synthesis

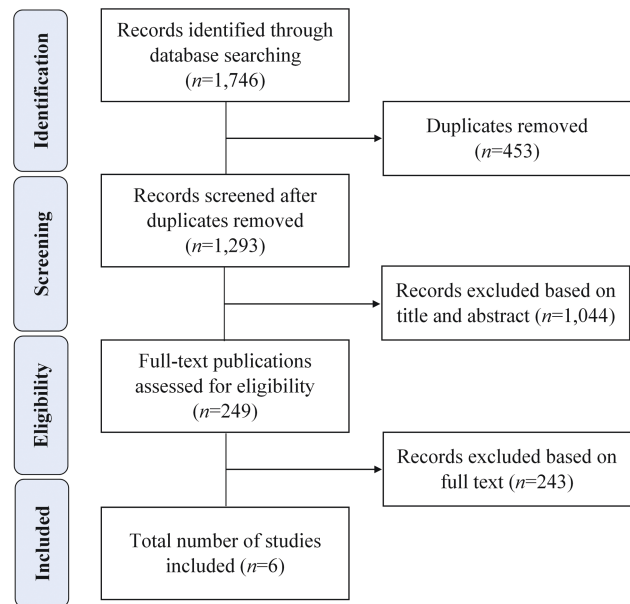
As a team, we developed a data extraction template. Descriptive data included in the extraction were citation information, review objectives, databases searched, number of studies included, aggregate sample size, intervention type and descriptors, study outcomes, and major conclusions. This information was extracted independently by two team members (J. S. Sefcik and M. Dellapina). Some systematic reviews included both educational interventions in formal caregivers as well as clinical interventions delivered by research staff and/or formal caregivers. In these cases, we only extracted the data pertinent to the RCTs that focused on educational interventions targeting formal dementia caregivers and which reported outcomes for this group and/or persons living with dementia. We examined and summarized the descriptive information from the systematic reviews. Then we synthesized formal caregiver interventions based on categories identified within the reviews. No statistical tests or meta-analyses were completed.

## Results

### Literature Search

A total of 1,293 nonduplicate publications were initially identified through database searches. We identified 249 potentially relevant publications after applying inclusion and exclusion criteria. Many systematic reviews identified in our initial search included nonrandomized clinical trials and were excluded. This resulted in a total of six systematic reviews that were included in our final analysis. [Figure 1](#) displays the PRISMA flow chart (Moher et al., 2009).

Among the systematic reviews, only one solely focused on interventions directed at formal caregivers (Elliott et al., 2012), whereas the other five also included other nonpharmacological clinical interventions directed at persons living with dementia (e.g., sensory and psychosocial) or family members (Birkenhäger-Gillesse et al., 2018; Elliott et al., 2012; Kong et al., 2009; Livingston et al., 2014; Seitz et al., 2012). We only investigated and extracted data relevant to interventions targeting formal dementia caregivers.



**Figure 1.** Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram.

### Description of the Reviews

The six identified systematic reviews were published between 2009 and 2018 ([Table 1](#)). The total number of RCT studies included in the systematic reviews ranged from six to 40. The publication by Elliott et al. (2012) reviewed five RCTs with an intervention directed at formal dementia caregivers with a sixth focused on caregivers in general, and the systematic review by Jutkowitz et al. (2016) represents 18 RCTs focused on formal dementia caregiver interventions. The total number of RCTs focused only on formal dementia caregiver interventions within the other four systematic reviews ranged from two to 14.

Of note, the systematic reviews used a variety of quality assessment tools to evaluate the individual RCTs ([Table 1](#)). The Cochrane Collaboration risk of bias tool was used twice (Birkenhäger-Gillesse et al., 2018; Seitz et al., 2012) and each of the other four reviews had a different approach. Elliott et al. (2012) used the Consolidated Standards of Reporting Trials. Jutkowitz et al. (2016) assessed risk of bias of eligible studies using criteria based on Agency for Healthcare Research and Quality (AHRQ) guidance and evaluated strength of evidence on five domains: study limitations, directness, consistency, precision, and reporting bias. Kong et al. (2009) evaluated allocation concealment using Cochrane criteria and assessed withdrawals and dropouts by level of descriptive information provided (no description, described but need more information, and clearly described). Livingston et al. (2014) used the Centre for Evidence-Based Medicine RCT evaluation criteria.

### Methodological Quality of Systematic Reviews

Our ratings of the systematic reviews using the AMSTAR 2 were as follows: one systematic review was rated as

**Table 1. Description and Characteristics of Included Studies**

Study	Systematic review objective	Quality assessment tool and notes	N <sup>a</sup>	Targeted caregivers	Setting	Conclusions from systematic review	AMSTAR 2
<b>Birkenhäger-Gillesse et al. (2018)</b>	To provide an update of the currently available literature reporting on the effects of multidisciplinary psychosocial interventions on neuropsychiatric symptoms and subsequently on psychotropic drug prescription rates	Cochrane Collaboration Risk of Bias Tool	11/10 (>3,000)	Physicians Prescribing psychiatrist Nursing home staff including nurses and nursing assistants	Nursing homes and residential care	Involvement of the physician in the intervention is indispensable for obtaining and maintaining a reduction in the use of antipsychotic drugs; the majority of the studies showed no effect of interventions on prescriptions of psychotropic drugs	Critically low
<b>Elliot et al. (2012)</b>	To review systematically all studies published in the past 21 years testing the effectiveness of dementia training interventions for health care workers	Consolidated Standards of Reporting Trials (CONSORT)	6/5 (>2,000)	Nurses Nursing assistants	All studies took place in residential care setting	All interventions were multicomponent; mixed results across interventions with no consistent findings; outcomes varied across workers, the organization, and consumers; little detail about intervention design and implementation; little detail provided about the skill level of workers and their stage of career; all studies had underlying methodological problems	Moderate
<b>Jutkowitz et al. (2016)</b>	To evaluate the evidence for the efficacy of different types of nonpharmacological care-delivery interventions (staff training in providing care, various care-delivery models, changes to the environment) to reduce and manage agitation and aggression in nursing home and assisted living facility residents with dementia	Assessed RoB using criteria based on AHRQ guidance; excluded high RoB papers and evaluated SoE on five domains: study limitations, directness, consistency, precision, and reporting bias	19/18 (>4,000)	Facility caregiving staff including prescribers	Nursing homes and assisted living	SoE was generally insufficient to draw conclusions on the efficacy of nonpharmacological care-delivery interventions to reduce agitation or aggression	Low
<b>Kong et al. (2009)</b>	To review systematically the literature regarding the effectiveness of nonpharmacological interventions for agitation in older adults	Allocation concealment was assessed using Cochrane criteria and withdrawals and dropouts were assessed for level of description	14/2 (>100)	Not specified	Setting not specified	There were no significant differences in agitation between treatment groups and control groups	Critically low
<b>Livingston et al. (2014)</b>	To review systematically the evidence for nonpharmacological interventions for agitation in people with dementia, both immediately and longer-term	Centre for Evidence-Based Medicine (CEBM) RCT evaluation.	33/6 (>1,000)	Nursing home staff including nurses and nursing assistants	Care homes/day center/nursing homes/not specified	Training paid care-home staff in communication skills, person-centered care or dementia-care mapping with supervision—effective for symptomatic and severe agitation immediately and up to 6 months	High

Table 1. Continued

Study	Systematic review objective	Quality assessment tool and notes	N <sup>a</sup>	Targeted caregivers	Setting	Conclusions from systematic review	AMSTAR 2
Seitz et al. (2012)	To review systematically the evidence for nonpharmacological interventions for neuropsychiatric symptoms in long-term care, and to assess both the quality of studies and the feasibility of interventions	Cochrane Collaboration Risk of Bias Tool	40/12 (>1,000)	Long-term care staff including nurses	Long-term care	Minority of the studies reported a statistically significant difference between nonpharmacological intervention and control conditions on at least one neuropsychiatric outcome measure. Many studies had methodological limitations that placed them at potential RoB All studies received low or medium feasibility scores for specialized staff and time commitment to participate in the training program or implementation	Low

Notes: AMSTAR 2 = A MeaSurement Tool to Assess systematic Reviews 2; RCT = randomized controlled trial; RoB = risk of bias; SoE = strength of evidence.

<sup>a</sup>Total number of included studies/number of studies focused on formal caregiver interventions (number of participants in formal dementia caregiver intervention studies).

high-quality (Livingston et al., 2014), one moderate (Elliott et al., 2012), two rated as low (Jutkowitz et al., 2016; Seitz et al., 2012), and two as critically low (Birkenhäger-Gillesse et al., 2018; Kong et al., 2009; Supplementary Material 2). Three of the reviews did not provide a list of excluded studies (Birkenhäger-Gillesse et al., 2018; Kong et al., 2009; Seitz et al., 2012), which is considered one of the critical domains of the AMSTAR 2 (Shea et al., 2017). Additionally, three did not carry out an adequate investigation of publication bias (a critical domain) and discuss its likely impact on the results of the review (Birkenhäger-Gillesse et al., 2018; Jutkowitz et al., 2016; Kong et al., 2009). Three articles did not conduct a meta-analysis with their systematic review; therefore, this item on the AMSTAR 2 was inapplicable to those publications (Elliott et al., 2012; Livingston et al., 2014; Seitz et al., 2012). The one review that was rated high-quality met all AMSTAR 2 criteria except one, which was that the authors did not report sources of funding for the studies (noncritical domain on AMSTAR 2; Livingston et al., 2014).

## Characteristics of Reviews

### Sample

Sample sizes among formal caregivers in RCT interventions varied from greater than 100 to over 4,000 participants (Table 1). Reporting of demographic information about participants such as gender, race/ethnicity, and length of time in position was not a focus of the systematic reviews. Only the review by Seitz et al. (2012) provided a report of gender in individual trials within the article's Supplementary Material.

As for types of caregivers in the sample, Elliot et al. (2012) described that the workers in dementia care ranged from nursing assistants and personal carers to registered nurses. In the review by Birkenhäger-Gillesse et al. (2018), studies targeted several disciplines including nursing (nurses and nursing assistants), physicians, and prescribing psychiatrists. In three reviews, unspecified terms such as reference to nursing home staff (Jutkowitz et al., 2016), long-term care staff (Seitz et al., 2012), and care-home staff or paid caregivers (Livingston et al., 2014) make it impossible to discern specific roles and disciplines involved. Additionally, the review by Kong et al. (2009) did not specify who the targeted formal caregivers were (Kong et al., 2009).

### Settings

Four of the systematic reviews included RCTs that took place in residential care/long-term care facilities (Birkenhäger-Gillesse et al., 2018; Elliott et al., 2012; Jutkowitz et al., 2016; Seitz et al., 2012; Table 1). The review by Livingston et al. (2014) included RCTs that mainly took place in care homes/nursing homes and with one RCT in care homes, one in a day center, and two

without location specified (Livingston et al., 2014). The review by Kong et al. (2009) did not specify the setting at all. The review by Setiz et al. (2012) specified in the inclusion criteria that the setting focused on was long-term care. Jutkowitz et al. (2016) concentrated on nursing homes and assisted living.

## Outcomes

While all six publications reviewed interventions for formal caregivers working with persons living with dementia, they varied by types of interventions and reported outcomes. Two reviews focused on interventions for formal caregivers to mitigate agitation among persons living with dementia and solely reported on the outcome of agitation level changes with no mention of formal caregiver outcomes (Kong et al., 2009; Livingston et al., 2014). Kong et al. (2009) aimed to review the literature regarding the effectiveness of nonpharmacological interventions for agitation in older adults living with dementia, finding only two of 14 studies focused on formal caregiver training, with agitation of persons living with dementia reported as the outcome measure. The article by Livingston et al. (2014) aimed to review the evidence for nonpharmacological interventions for agitation in persons living with dementia, both immediately and longer term. The authors identified six of the 33 RCTs focused on formal dementia caregiver training and the review focused on change in agitation levels of persons living with dementia as the outcome of the interventions. A third review, by Jutkowitz et al. (2016), focused on agitation and aggression as the outcome measures and assessed 18 RCTs aimed at formal dementia caregivers. The objective of this review was to evaluate the efficacy of nonpharmacological care-delivery interventions (staff training in providing care, various care-delivery models, and changes to the environment) to reduce and manage agitation and aggression in nursing homes and assisted living residents living with dementia.

More broadly, Seitz et al. (2012) were interested in the outcome of formal caregiver interventions on neuropsychiatric symptoms of dementia. The authors' objective was to review the evidence for nonpharmacological interventions for neuropsychiatric symptoms in long-term care and to assess the feasibility of the interventions. In this review, 11 of 40 RCTs focused on staff training and education as well as one additional intervention that included a comprehensive assessment with educational rounds and case management (Seitz et al., 2012).

In contrast, the aim of the review by Birkenhäger-Gillesse et al. (2018) was to assess the effect of multidisciplinary psychosocial interventions in nursing homes on the psychotropic drug prescription rate. Ten of 11 individual RCTs reviewed focused on health care worker interventions, such as education around prescribing. The outcome of focus in this article was on medication use (e.g., change in psychotropic use) and there was no mention of formal caregiver outcomes.

Lastly, the Elliot et al. (2012) review was unique from the others as it aimed to assess the current level of evidence on how dementia care worker training initiatives affect organizational capacity, through factors such as retention and service delivery. This review focused on synthesizing findings from six RCTs to examine intervention outcomes on the worker, organization, and consumer in residential care settings.

## Theoretical Frameworks

None of the six systematic reviews described a theoretical framework guiding the review. Regarding theoretical frameworks or models used within the individual RCTs, there was an overall lack of reporting on this in the systematic reviews. Kong et al. (2009) reported that they identified no theoretical models presented in the two intervention study publications focused on formal caregivers (Teri et al., 2005; Wells et al., 2000). Additionally, Elliot et al. (2012) stated that out of five RCTs focused on formal dementia caregivers, the trials by Finnema et al. (2005) and Zimmerman et al. (2010) were the only ones that were theory-led, but no information is conveyed regarding which theories guided the work. The other four reviews did not provide information on theoretical frameworks or models.

## Educational Interventions Categorizations

We found inconsistencies in how the authors of the systematic reviews categorized intervention types. For example, Seitz et al. (2012) used a broad category, nursing and staff training approaches, to encompass all training programs reviewed, including an RCT on dementia-care mapping and person-centered care, which were reported as individual intervention categories by other authors (Jutkowitz et al., 2016; Livingston et al., 2014). In the systematic review by Jutkowitz et al. (2016), the authors described conceptual challenges with grouping training interventions and created a category named "unique comparisons" for some of the interventions reviewed. A full description of 15 intervention categories that the individual systematic review authors prescribed is given in Table 2.

## Educational Foci

Due to the inconsistencies of categorizations of interventions by the systematic review authors, we examined each intervention as reported in the original RCT publication and developed our own categorization of interventions by educational foci. We identified five categories that are expanded on further below: communication techniques; general dementia education; nonpharmacological, behavioral interventions; person-centered care; and strengths-based care.

### Communication techniques

Three educational interventions focused on communication techniques for working with persons living with dementia (Clare et al., 2013; Magai, 2002; McCallion & Toseland, 1999).

**Table 2.** A Full Description of 15 Intervention Categories

Intervention type per systematic review	Number of studies <sup>a</sup>	Reported quality assessment score	Intervention outcomes
<b>Birkenhäger-Gillesse et al. (2018)</b>			
Educational program	3	1 low to moderate quality 2 strong quality	Education programs were not more effective than care as usual
In reach services/consultation approach	1	Strong quality	No significant difference
Intervention aimed at culture change/ ongoing training/coaching	6	2 low to moderate quality 4 strong quality	Longer-lasting interventions involving a change of culture or process change were superior to care as usual
<b>Elliot et al. (2012)</b>			
Training interventions with staff support (e.g., supervision and a mentor or nurse advocate)—all with group education component	2	Scores of 20.5 and 11 out of 26 possible points	Worker: Both interventions produced positive medium-level effect with general stress and knowledge (nonlasting); no effects for work stress, burnout, or job satisfaction Organization: One had lasting effects for retention (no effect size); nonlasting effects for care quality and staff education quality (no effect sizes), and use of physical and chemical restraints (small effect sizes) Consumer: Nonlasting effects for self-care for nursing home residents with dementia; improved depression and aggressive behaviors in persons living with dementia
Training interventions without staff support—group education	3	Scores of 9, 11, and 13 out of 26 possible points	Worker: improvement in general knowledge (lasting) and pain (nonlasting); lasting effects on general communication related to care workers' and supervisors' education on communication, pain, and leadership; nonlasting effects for nurse communication with family members and carers of persons living with dementia r/t education on dementia, communication, and conflict resolution; lasting effect on burnout improvement; nonlasting worsened work stress; no effect for mood or care provision satisfaction Organization: Improvements in programs offered to families (long-lasting); improvements in supervisor support and work with other staff (nonlasting); no effects on retention Consumer: Improved behaviorally, improved communication
<b>Jutkowitz et al. (2016)</b>			
Dementia-care mapping	3	RoB: 1 low, 2 moderate SoE: low	Insufficient evidence to draw conclusions on general behavior or antipsychotic and other psychotropic use
Person-centered care	3	RoB: 1 low, 2 moderate SoE: low	Insufficient evidence to draw conclusions on general behavior or antipsychotic and other psychotropic use
Protocols to reduce use of antipsychotic and other psychotropic medications, agitation, and aggression	3	RoB: 1 low to moderate; 2 moderate SoE: insufficient	Insufficient evidence to show whether these interventions had any effect on antipsychotic and other psychotropic drug use or on agitation and aggression
Emotion-oriented care	2	RoB: 1 low, 1 moderate SoE: insufficient	No effect on agitation
Unique comparisons (authors could not conceptually group training interventions)	10	RoB: 1 low, 3 low to moderate, 6 moderate SoE: insufficient	No effects on agitation or aggression



Table 2. Continued

Intervention type per systematic review	Number of studies <sup>a</sup>	Reported quality assessment score	Intervention outcomes
<a href="#">Kong et al. (2009)</a> Caregiver training	2	Allocation concealment—both unclear Withdrawals—both clearly described	One intervention had a significant difference in agitation at 6-month follow-up compared to usual morning care, otherwise no significant differences
<a href="#">Livingston et al. (2014)</a> Person-centered care training and communication skills (with supervision during training and implementation)	4	1 high-quality 3 lower-quality	Improved agitation in all studies during intervention and on follow-up for 3 out of 4
Person-centered care and communication skills (without supervision)	2	Lower-quality RCTs	Ineffective
Dementia-care mapping	1	High-quality	Severe agitation decreased during intervention and at 4 months
<a href="#">Seitz et al. (2012)</a> Staff training in neuropsychiatric symptoms	11	None were rated as being low RoB	Only three of the studies found that the intervention was superior to control group; 1 intervention with nurse training found physically nonaggressive behavior declined from baseline to 3 months and verbal aggression decreased at 3 and 6 months; 1 involving dementia-care mapping and person-centered compared to usual care improved scores on the Cohen-Mansfield Agitation Inventory at 8 months (4 months follow-up); 1 intervention with staff training was statistically significant compared to usual care One study found that symptoms worsened in the education sessions group
Comprehensive assessment (including educational rounds and case management)	1	Rated as being low RoB	Found the intervention compared to standard care had a statistically significant difference

Notes: RCT = randomized controlled trial; RoB = risk of bias; r/t = related to; SoE = strength of evidence.

<sup>a</sup>Number of studies focused on formal caregiver interventions, which may not equal the number of intervention types as some studies tested more than one intervention.

### General dementia care

Six interventions delivered training in general dementia care, which included multiple modules covering topics such as description of dementia, person-centered care, behavioral management, and communication techniques ([Fossey et al., 2006](#); [Kuske et al., 2009](#); [Robison et al., 2007](#); [Rosen et al., 2002](#); [Teri et al., 2005](#); [Zimmerman et al., 2010](#)).

### Nonpharmacological, behavioral interventions

Fourteen interventions fell under the category of nonpharmacological, behavioral interventions. Thirteen interventions focused on training formal dementia caregivers on behavioral management techniques specific to persons living with dementia ([Avorn et al., 1992](#); [Burgio et al., 2002](#); [Deudon et al., 2009](#); [Kovach et al., 2006](#); [Pieper et al., 2016](#); [Proctor et al., 1999](#); [Rapp et al., 2013](#); [Rovner et al., 1996](#); [Teri et al., 2000](#); [Testad et al., 2005, 2010, 2016](#); [Zwijzen et al., 2014](#)). An additional intervention evaluated the use of

referrals to a multidisciplinary psychogeriatric team that included psychiatrists, psychologists, social workers, and community nurses to develop a management plan aligning the needs of the person living with dementia residing in residential care facilities ([Kotynia-English et al., 2005](#)).

### Person-centered care

Seven interventions were aimed at person-centered care training, which focuses on eliciting individual needs, values, and preferences for comfort. Three interventions focused on delivering person-centered care education ([Chenoweth et al., 2009](#); [Rokstad et al., 2013](#); [Sloane et al., 2004](#)). Three implemented dementia-care mapping training ([Chenoweth et al., 2009](#); [Rokstad et al., 2013](#); [van de Ven et al., 2013](#)). This type of training has been described as a tool and method of implementing person-centered care which includes detailed observations and scoring of persons living

with dementia well-being. This information is used to help plan, implement, and assess person-centered care through feedback sessions to improve care (Chenoweth et al., 2009; Rokstad et al., 2013). An additional intervention involved the implementation of an Advanced Illness Care Team, which used a holistic approach that addressed medical issues, meaningful activities, psychological problems, and behavioral concerns (Chapman & Toseland, 2007).

### Strengths-based care

Five RCTs incorporated education on strengths-based care approaches. Two focused on emotion-oriented care that involves training staff to assist persons living with dementia in coping with the cognitive, emotional, and social consequences of the disease through accepting disorientation (validation), approaches involved in sensory stimulation and reminiscence, and care planning (Finnema et al., 2005; Schrijnemaekers et al., 2002). One training was on abilities-focused care, which includes educational sessions on assisting a person living with dementia to use his or her abilities (Wells et al., 2000). Another was on function-focused care, which uses person-centered care principles to increase physical activity and function (Galik et al., 2014). Additionally, one educational intervention focused on implementing meaningful activities (Wenborn et al., 2013).

### Educational Approaches

The educational approaches taken for delivering the interventions were of three types: didactic, coaching/consulting/supervising, and a combination of the two. The most popular approach was a combination of didactic and coaching/consulting/supervising components ( $n = 18$ ; Burgio et al., 2002; Chenoweth et al., 2009; Clare et al., 2013; Deudon et al., 2009; Finnema et al., 2005; Galik et al., 2014; McCallion et al., 1999; Pieper et al., 2016; Proctor et al., 1999; Rokstad et al., 2013; Schrijnemaekers et al., 2002; Sloane et al., 2004; Teri et al., 2005; Testad et al., 2005, 2010, 2016; van de Ven et al., 2013; Wenborn et al., 2013). Of note, Chenoweth et al. (2009) and Rokstad et al. (2013) tested two separate interventions in their RCT using a mixed educational approach for both.

The second most common training approach was a didactic one. Eleven interventions used a didactic approach to training (e.g., classroom lectures, small group activities, and distribution of learning materials; Avorn et al., 1992; Finnema et al., 2005; Kovach et al., 2006; Kuske et al., 2009; Magai et al., 2002; Rapp et al., 2013; Robison et al., 2007; Teri et al., 2000; Wells et al., 2000; Zimmerman et al., 2010; Zwijsen et al., 2014). The least common intervention approach was coaching/consulting/supervising without a didactic component ( $n = 4$ ; Chapman & Toseland, 2007; Fossey et al., 2006; Kotynia-English et al., 2005; Rovner et al., 1996).

### Overall Conclusions of Systematic Reviews

Overall, there is insufficient evidence within the systematic reviews to guide implementation of currently tested interventions within RCTs for formal dementia caregivers. Two systematic reviews did, however, find some positive results, although only one systematic review was rated as high-quality (Livingston et al., 2014). The review by Livingston et al. (2014) found that training paid care-home staff in communication skills, person-centered care, or dementia-care mapping with supervision was effective for symptomatic and severe agitation immediately and up to 6 months later. The review by Birkenhäger-Gillesse et al. (2018) found some promising results with education interventions aimed at prescribing physicians for obtaining and maintaining a reduction in the use of antipsychotic medications for persons with dementia. However, the critically low-quality rating on the AMSTAR 2 of this systematic review should be taken into consideration when judging this result.

In contrast, Jutkowitz et al. (2016) found that there was insufficient evidence to draw conclusions from studies of dementia-care mapping. This was a consistent finding among all nonpharmacological care-delivery interventions they evaluated to reduce agitation or aggression among persons living with dementia in nursing homes and assisted living. Kong et al. (2009) also focused on agitation as an outcome measure, finding no significant differences among persons living with dementia between the groups receiving caregiving training and control groups.

Elliot et al. (2012) concluded that there were mixed results across the interventions with no consistent findings among varied outcomes. They additionally stated that there was little detail about intervention design and implementation and there were underlying methodological problems with all six RCTs they reviewed. Likewise, Seitz et al. (2012) determined that many of the studies they examined had methodological issues. Most of the studies did not report a statistically significant difference between the intervention focused on formal caregivers and the control condition on at least one neuropsychiatric outcome measure.

### Discussion and Implications

The aim of this systematic review of systematic reviews was to summarize existing reviews of the literature that assessed the effectiveness of interventions directed at formal caregivers of people living with dementia tested in RCTs to improve care delivery and outcomes. Among six systematic reviews, the aims and outcomes of interest varied, and minimal details about the individual interventions were shared. Five out of six of the systematic review authors have concluded that there is insufficient evidence to draw conclusions on formal dementia caregiver interventions, and many of the articles reviewed had methodological problems. Our major finding is that there is inadequate evidence within the systematic reviews

to guide wide implementation of any of the formal dementia caregiver interventions that have previously been tested. The findings of our review highlight the critical need for additional research with well-designed RCTs and clear reporting of protocols and results to inform the field on how best to train and support the workforce to improve outcomes for persons living with dementia. Our findings align with recommendations from the National Research Summit on Dementia Care: Building Evidence for Services and Supports for the need to identify necessary content of training programs and curricula for a dementia-capable workforce (Weiss et al., 2020). From our review, we could not determine what content and curricula are essential for effective educational interventions aimed at developing and supporting formal dementia caregivers.

One review did identify three promising interventions. The only systematic review that we rated as high-quality with the AMSTAR 2 found that training in communication skills, person-centered care, and dementia-care mapping programs with supervision was effective for reducing agitation in persons with dementia (Livingston et al., 2014). Conversely, Jutkowitz et al. (2016) reported insufficient evidence of positive behavioral outcomes and decreased psychotropic medication utilization in their review of person-centered care and dementia-care mapping training studies; however, their review was rated as low-quality on the AMSTAR 2. Thus, their review cannot be considered a conclusive rebuttal of the review by Livingston et al. (2014). Of note, both authors reviewed an RCT on person-centered care and dementia-care mapping by Chenoweth et al. (2009) and the other studies they included in their review differed.

Taken as a whole, understanding what interventions are most beneficial to implement is complex due to different programs being evaluated, varied outcomes considered, and a mix of methodological quality both with individual RCT publications and of the systematic reviews. Even though we do not have conclusive evidence on what formal dementia caregiver interventions are most effective for outcomes within both the formal dementia caregivers and persons living with dementia, it could be argued that providing training using interventions with modest evidence of impact is better than no training at all until the evidence base is strengthened.

Looking closer at person-centered care interventions as an example, a previous in-depth corroboration of our review found that current interventions varied with the different existing person-centered care models, and the authors determined that the evidence is not conclusive (Fazio et al., 2018). Recommendations were provided for more research to understand what elements are required and how to effectively measure person-centered care (Fazio et al., 2018). Despite this, Fazio et al. (2018) still recommend incorporating person-centered care into practice and provide guidance on how to support persons living with dementia with individualized choice and dignity through

six strategies: (a) know the person living with dementia; (b) recognize and accept the person's reality; (c) identify and support ongoing opportunities for meaningful engagement; (d) build and nurture authentic, care relationships; (e) create and maintain a supportive community for individuals, families, and staff; and (f) evaluate care practices regularly and make appropriate changes (Fazio et al., 2018). Due to the limited information about the person-centered care interventions included in the six systematic reviews, and within the individual RCT publications, it is unclear to us if the programs incorporated all these components in the trainings. From our perception, these are all foundational principles for providing proper care and could be widely shared during education and training programs among interdisciplinary team members. We have not, however, learned from this review the critical elements that make a person-centered care intervention successful and acknowledge that more research is needed in this area.

In terms of outcomes of interests within the systematic reviews, agitation was explored most frequently. This aligns with most evidence on dementia care focusing on negative outcomes, rather than on positive outcomes for persons living with dementia (Gaugler et al., 2019; Kolanowski et al., 2018). The 2017 National Dementia Care Research Summit identified the pressing need for more precise and valid measures of outcomes, including those that are meaningful to persons living with dementia such as well-being and quality of life (Kolanowski et al., 2018). The use of measures focused on well-being, resilience, self-efficacy, affect/balance (ratio of positive to negative affect as a measure of well-being), and mastery for example, rather than on outcomes of behavioral and psychological symptoms of dementia (e.g., agitation) and memory and functional impairments, change the viewpoint from a deficit perspective to a strength perspective and may capture the experience of persons living with dementia more holistically (Gaugler et al., 2019; Kolanowski et al., 2020). The use of positive measures is also more likely to support active engagement of stakeholders in developing, implementing, and evaluating validated interventions "that matter" to them (Fulmer et al., 2018). Additionally, cost and cost-effectiveness are other salient outcomes, necessary to support the uptake and sustainability of interventions that support workforce effectiveness in dementia care (Weiss et al., 2020).

Furthermore, the reviews primarily focused on the effect that interventions had to help formal caregivers manage outcomes of persons living with dementia (e.g., agitation) and less so on formal caregiver outcomes. The systematic review by Elliot et al. demonstrated an exemplar effort of examining worker outcomes, such as well-being and resilience in addition to organization and consumer (i.e., persons living with dementia) outcomes. They did, however, find that only three of six RCTs focused on worker outcomes with inconsistent results. Examining workers' outcomes in future research is essential to ensure that interventions are meeting individuals' needs to improve the quality of work

life of formal caregivers, enhance relationship with persons living with dementia, and build a workforce that is effective and stable.

Regarding the sample, most RCTs focused on nurses and nursing assistants. This is logical as nursing staff have the most consistent and direct interaction with persons living with dementia. However, other disciplines should not be overlooked when developing formal caregiving interventions for dementia care as all health care workers in various departments including dietary, housekeeping, social work, clergy, therapy, administration, and others interact with persons living with dementia and could benefit from training and education in dementia care. One RCT reviewed by both Birkenhäger-Gillesse et al. (2018) and Jutkowitz et al. (2016) consisted of a care program with a multidisciplinary approach (Zwijnsen et al., 2014). The intervention was described to be an assessment form and treatment plan that was designed and discussed among the dementia care staff, psychologist, and physician. Beyond this RCT, more training programs need to be developed and tested among interdisciplinary teams.

Additionally, the reviews did not consider demographic information of the study participants. Therefore, we cannot understand any of the interventions reviewed in terms of context to race, ethnicity, gender, and years of service. Furthermore, the predominant setting of the RCTs was residential/long-term care. This highlights the gap in evaluating training programs in other settings such as home care, primary care, adult day care, and acute care, where interdisciplinary team members provide care to persons living with dementia.

Nonpharmacological, behavioral interventions were found to be the most frequently delivered educational content to formal dementia caregivers. This aligns with the systematic reviews having the most frequent interest in agitation as the outcome of interest. From our review, we are unable to determine if having a focused educational course and training on nonpharmacological, behavioral interventions is superior, inferior, or equally effective to a broader training on general dementia care which includes content on behavioral management and alternatives to psychotropic medications, as these were not tested against each other in a randomized control trial. This is an area for further research.

Additionally, in our review, we found that the most frequently used approach for interventions was a combination of didactic training with a coaching/consulting/supervising component. This finding is different from a systematic review done by Surr et al. (2017) who aimed to identify the factors associated with effective dementia education and training for health and social care staff across service settings. They reported that 79% of the 152 studies they reviewed involved a small or large group face-to-face didactic delivery, with only 4% ( $n = 6$ ) of them having a mentorship/supervision element. Surr et al. (2017) also found that few studies compared the efficacy of different training methods against each other, which limits our understanding

of optimal training methods. The one systematic review that we rated as high-quality (Livingston et al., 2014) suggests that a multifaceted approach to strengthening staff competence in dementia care is one that includes learner engagement, in the form of observation and feedback, is more effective than didactic training alone. We recommend that future research should also evaluate what is the most effective delivery of formal dementia caregiver education.

In terms of the methodological quality of the systematic reviews evaluated by the AMSTAR 2, four out of the six publications were rated as low or critically low. While the original AMSTAR was published in 2007, the AMSTAR 2 was not revised and published until 2017 (Shea et al., 2007, 2017). All but one systematic review (Birkenhäger-Gillesse et al., 2018) was published before the revised AMSTAR 2 was available. The authors not having access to the guidelines that we used to rate the reviews could partially explain the low-quality scores. Additionally, other systematic reviews of systematic reviews using the AMSTAR 2 have found most systematic review publications to not be of high quality (He et al., 2019; Marcolino et al., 2018; Young et al., 2020). Although the AMSTAR 2 has been recommended as one of the preferred tools for evaluating a systematic review of systematic reviews, the frequency of low-quality ratings given to peer-reviewed publications is concerning and perhaps a signal that the tool needs additional refinement. A study comparing the AMSTAR 2 with a tool to assess risk of bias in systematic reviews found that reliability was slightly higher with the AMSTAR 2, although there are problematic items in terms of interrater reliability (Pieper et al., 2019). The authors concluded that both tools could benefit from further improvement as some of the questions are prone to subjective biases and opinions of reviewers (Pieper et al., 2019).

Nevertheless, the findings of our review should be considered with the lens that most of the articles we reviewed were of low quality per the AMSTAR 2. Furthermore, the RCTs included within the reviews were often rated by the original systematic review authors as being low-to-moderate-quality, with a minority being high-quality. This further highlights the need for high-quality RCTs to test interventions for formal caregivers and to identify high-quality programs to be implemented for preparing the dementia caregiving workforce.

Of note, none of the six systematic reviews appeared to be theory-driven. Only one systematic review found that two RCTs were theory-driven but did not reveal any further information in the review article (e.g., name of theory, author of theory; Elliot et al., 2012). The lack of focus on theory contributing to intervention design and informing outcome measurement is notable. The role of theory in intervention development and evaluation is important as it guides understanding of the phenomenon, which illuminates determinants or factors that cause the problem and aids in identifying specific intervention strategies that are likely to address determinants to improve the problem

(Fleury & Sidani, 2018; Gitlin & Czaja, 2015). A theory-based approach can provide insight into the mechanisms of change and contribute to determining why an intervention was successful, or not, and aid in translating research findings into practice (Fleury & Sidani, 2018). We recommend that future systematic reviews highlight information about theories and how they informed design and evaluation for individual trials, to increase confidence that scientifically sound interventions were assessed.

Limitations for our review include that we might have missed an eligible systematic review for inclusion despite our rigorous review process and consultation with a librarian on the search strategy. We excluded all systematic reviews that included at least one non-RCT based on our inclusion/exclusion criteria and therefore have not reviewed all available evidence on interventions for formal caregivers of persons living with dementia. We were unable to complete a meta-analysis due to the heterogeneity of the outcomes measured with the individual systematic reviews. Despite these limitations, the strength of this work is that we have synthesized the current systematic review literature examining RCTs involving formal dementia caregiver interventions.

In conclusion, our systematic review of systematic reviews did not find sufficient evidence to guide implementation and widescale dissemination of any of the formal dementia caregiver interventions tested. However, our review provides guidance for future research, including underscoring the critical need for additional research with well-designed, well-funded RCTs of interventions that prepare and support the workforce to improve meaningful outcomes for the persons living with dementia and health care systems that serve them. A recent article by Weiss et al. (2020) provides detailed information on critical dementia workforce gaps and research recommendations for investigators interested in the education and training of a dementia-capable workforce. The authors purpose that their document could help interested researchers make stronger arguments to potential funders for workforce development research. Financial support for research is one needed step toward a prepared workforce that provides high-quality care to persons living with dementia.

## Supplementary Material

Supplementary data are available at *Innovation in Aging* online.

## Funding

This work was supported in part by the National Institute on Aging (NIA) of the National Institutes of Health under Award Number U54AG063546, which funds NIA Imbedded Pragmatic Alzheimer's Disease and AD-Related Dementias Clinical Trials Collaboratory (NIA IMPACT Collaboratory). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. J. S. Sefcik was also funded in part by the National Institute of Nursing Research of the National Institutes of Health [NR018673].

## Conflict of Interest

None declared.

## Acknowledgments

We would like to thank Danielle Katsez and Amita Panicker (Research Assistants) for their editorial and administrative support in preparing this article.

## References

- Alzheimer's Association. (2021). *Facts and figures*. <https://www.alz.org/alzheimers-dementia/facts-figures>
- Avorn, J., Soumerai, S. B., Everitt, D. E., Ross-Degnan, D., Beers, M. H., Sherman, D., Salem-Schatz, S. R., & Fields, D. (1992). A randomized trial of a program to reduce the use of psychoactive drugs in nursing homes. *New England Journal of Medicine*, 327(3), 168–173. doi:10.1056/NEJM199207163270306
- Bennett, S., Laver, K., Voigt-Radloff, S., Letts, L., Clemson, L., Graff, M., Wiseman, J., & Gitlin, L. (2019). Occupational therapy for people with dementia and their family carers provided at home: A systematic review and meta-analysis. *BMJ Open*, 9(11), e026308. doi:10.1136/bmjopen-2018-026308
- Bessey, L. J., & Walaszek, A. (2019). Management of behavioral and psychological symptoms of dementia. *Current Psychiatry Reports*, 21(8), 66. doi:10.1007/s11920-019-1049-5
- Birkenhäger-Gillesse, E. G., Kollen, B. J., Achterberg, W. P., Boersma, F., Jongman, L., & Zuidema, S. U. (2018). Effects of psychosocial interventions for behavioral and psychological symptoms in dementia on the prescription of psychotropic drugs: A systematic review and meta-analyses. *Journal of the American Medical Directors Association*, 19(3), 276.e1–276.e9. doi:10.1016/j.jamda.2017.12.100
- Burgio, L. D., Stevens, A., Burgio, K. L., Roth, D. L., Paul, P., & Gerstle, J. (2002). Teaching and maintaining behavior management skills in the nursing home. *Gerontologist*, 42(4), 487–496. doi:10.1093/geront/42.4.487
- Burke, G., & Orłowski, G. (2015). Training to serve people with dementia: Is our health care system ready? Paper 2: A review of dementia training standards across health care settings. *Justice in Aging Issue Brief*. <http://justiceinaging.org/wp-content/uploads/2015/08/Training-to-serve-people-with-dementia-Alz2FINAL.pdf>
- Chapman, D. G., & Toseland, R. W. (2007). Effectiveness of advanced illness care teams for nursing home residents with dementia. *Social Work*, 52(4), 321–329. doi:10.1093/sw/52.4.321
- Chenoweth, L., King, M. T., Jeon, Y. H., Brodaty, H., Stein-Parbury, J., Norman, R., Haas, M., & Luscombe, G. (2009). Caring for Aged Dementia Care Resident Study (CADRES) of person-centred care, dementia-care mapping, and usual care in dementia: A cluster-randomised trial. *Lancet. Neurology*, 8(4), 317–325. doi:10.1016/S1474-4422(09)70045-6
- Clare, L., Whitaker, R., Woods, R. T., Quinn, C., Jelley, H., Hoare, Z., Woods, J., Downs, M., & Wilson, B. A. (2013). AwareCare: A pilot randomized controlled trial of an awareness-based staff training intervention to improve quality of life for residents with severe dementia in long-term care settings. *International Psychogeriatrics*, 25(1), 128–139. doi:10.1017/S1041610212001226

- Deudon, A., Maubourguet, N., Gervais, X., Leone, E., Brocker, P., Carcaillon, L., Riff, S., Lavallart, B., & Robert, P. H. (2009). Non-pharmacological management of behavioural symptoms in nursing homes. *International Journal of Geriatric Psychiatry*, 24(12), 1386–1395. doi:10.1002/gps.2275
- Edvardsson, D., Winblad, B., & Sandman, P. O. (2008). Person-centred care of people with severe Alzheimer's disease: Current status and ways forward. *Lancet. Neurology*, 7(4), 362–367. doi:10.1016/S1474-4422(08)70063-2
- Elliott, K. E., Scott, J. L., Stirling, C., Martin, A. J., & Robinson, A. (2012). Building capacity and resilience in the dementia care workforce: A systematic review of interventions targeting worker and organizational outcomes. *International Psychogeriatrics*, 24(6), 882–894. doi:10.1017/S1041610211002651
- Fazio, S., Pace, D., Flinner, J., & Kallmyer, B. (2018). The fundamentals of person-centered care for individuals with dementia. *Gerontologist*, 58(Suppl. 1), S10–S19. doi:10.1093/geront/gnx122
- Finnema, E., Dröes, R. M., Ettema, T., Ooms, M., Adèr, H., Ribbe, M., & van Tilburg, W. (2005). The effect of integrated emotion-oriented care versus usual care on elderly persons with dementia in the nursing home and on nursing assistants: A randomized clinical trial. *International Journal of Geriatric Psychiatry*, 20(4), 330–343. doi:10.1002/gps.1286
- Fleury, J., & Sidani, S. (2018). Using theory to guide intervention research. In B. M. Melnyk & D. Morrison-Beedy (Eds.), *Intervention research: Designing, conducting, analyzing, and funding* (2nd ed., pp. 55–78). Springer Publishing Company.
- Fossey, J., Ballard, C., Juszczak, E., James, I., Alder, N., Jacoby, R., & Howard, R. (2006). Effect of enhanced psychosocial care on antipsychotic use in nursing home residents with severe dementia: Cluster randomised trial. *BMJ (Clinical Research Ed.)*, 332(7544), 756–761. doi:10.1136/bmj.38782.575868.7C
- Fossey, J., Garrod, L., Tolbol Froiland, C., Ballard, C., Lawrence, V., & Testad, I. (2019). What influences the sustainability of an effective psychosocial intervention for people with dementia living in care homes? A 9 to 12-month follow-up of the perceptions of staff in care homes involved in the WHELD randomised controlled trial. *International Journal of Geriatric Psychiatry*, 34(5), 674–682. doi:10.1002/gps.5066
- Fulmer, T., Mate, K. S., & Berman, A. (2018). The age-friendly health system imperative. *Journal of the American Geriatrics Society*, 66(1), 22–24. doi:10.1111/jgs.15076
- Galik, E., Resnick, B., Hammersla, M., & Brightwater, J. (2014). Optimizing function and physical activity among nursing home residents with dementia: Testing the impact of function-focused care. *Gerontologist*, 54(6), 930–943. doi:10.1093/geront/gnt108
- Gaugler, J. E., Bain, L. J., Mitchell, L., Finlay, J., Fazio, S., & Jutkowitz, E.; Alzheimer's Association Psychosocial Measurement Workgroup. (2019). Reconsidering frameworks of Alzheimer's dementia when assessing psychosocial outcomes. *Alzheimer's & Dementia (New York, N. Y.)*, 5, 388–397. doi:10.1016/j.trci.2019.02.008
- Gerlach, L. B., & Kales, H. C. (2018). Managing behavioral and psychological symptoms of dementia. *Psychiatric Clinics of North America*, 41(1), 127–139. doi:10.1016/j.psc.2017.10.010
- Gilster, S. D., Boltz, M., & Dalessandro, J. L. (2018). Long-term care workforce issues: Practice principles for quality dementia care. *Gerontologist*, 58(Suppl. 1), S103–S113. doi:10.1093/geront/gnx174
- Gitlin, L., & Czaja, S. (2015). *Behavioral intervention research: Designing, evaluating, and implementing*. Springer Publishing Company.
- Gitlin, L. N., Jutkowitz, E., & Gaugler, J. E. (2020). Dementia caregiver intervention research now and into the future: Review and recommendations. *Commissioned Paper for the National Academies of Science, Engineering and Medicine NIA Decadal Study*. [https://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse\\_198208.pdf](https://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_198208.pdf).
- He, W., Li, M., Zuo, L., Wang, M., Jiang, L., Shan, H., Han, X., Yang, K., & Han, X. (2019). Acupuncture for treatment of insomnia: An overview of systematic reviews. *Complementary Therapies in Medicine*, 42, 407–416. doi:10.1016/j.ctim.2018.12.020
- Institute of Medicine Committee on the Future Health Care Workforce for Older Americans. (2008). *Retooling for an aging America: Building the health care workforce*. National Academies Press.
- Jutkowitz, E., Brasure, M., Fuchs, E., Shippee, T., Kane, R. A., Fink, H. A., Butler, M., Sylvanus, T., & Kane, R. L. (2016). Care-delivery interventions to manage agitation and aggression in dementia nursing home and assisted living residents: A systematic review and meta-analysis. *Journal of the American Geriatrics Society*, 64(3), 477–488. doi:10.1111/jgs.13936
- Kales, H. C., Gitlin, L. N., & Lyketsos, C. G. (2015). Assessment and management of behavioral and psychological symptoms of dementia. *BMJ (Clinical Research Ed.)*, 350, h369. doi:10.1136/bmj.h369
- Kitwood, T. (1997). *Dementia reconsidered: The person comes first*. Open University Press.
- Kolanowski, A., Behrens, L., Lehman, E., Oravec, Z., Resnick, B., Boltz, M., Van Haitsma, K., Galik, E., Ellis, J., & Eshraghi, K. (2020). Living well with dementia: Factors associated with nursing home residents' affect balance. *Research in Gerontological Nursing*, 13(1), 21–30. doi:10.3928/19404921-20190823-01
- Kolanowski, A., Fortinsky, R. H., Calkins, M., Devanand, D. P., Gould, E., Heller, T., Hodgson, N. A., Kales, H. C., Kaye, J., Lyketsos, C., Resnick, B., Schicker, M., & Zimmerman, S. (2018). Advancing research on care needs and supportive approaches for persons with dementia: Recommendations and rationale. *Journal of the American Medical Directors Association*, 19(12), 1047–1053. doi:10.1016/j.jamda.2018.07.005
- Kong, E. H., Evans, L. K., & Guevara, J. P. (2009). Nonpharmacological intervention for agitation in dementia: A systematic review and meta-analysis. *Aging and Mental Health*, 13(4), 512–520. doi:10.1080/13607860902774394
- Kotynia-English, R., McGowan, H., & Almeida, O. P. (2005). A randomized trial of early psychiatric intervention in residential care: Impact on health outcomes. *International Psychogeriatrics*, 17(3), 475–485. doi:10.1017/s1041610205001572
- Kovach, C. R., Logan, B. R., Noonan, P. E., Schlidt, A. M., Smerz, J., Simpson, M., & Wells, T. (2006). Effects of the Serial Trial Intervention on discomfort and behavior of nursing home residents with dementia. *American Journal of Alzheimer's Disease and Other Dementias*, 21(3), 147–155. doi:10.1177/1533317506288949

- Kuske, B., Luck, T., Hanns, S., Matschinger, H., Angermeyer, M. C., Behrens, J., & Riedel-Heller, S. G. (2009). Training in dementia care: A cluster-randomized controlled trial of a training program for nursing home staff in Germany. *International Psychogeriatrics*, 21(2), 295–308. doi:10.1017/S1041610208008387
- Lee, L., Weston, W. W., & Hillier, L. M. (2013). Developing memory clinics in primary care: An evidence-based interprofessional program of continuing professional development. *Journal of Continuing Education in the Health Professions*, 33(1), 24–32. doi:10.1002/chp.21163
- Livingston, G., Kelly, L., Lewis-Holmes, E., Baio, G., Morris, S., Patel, N., Omar, R. Z., Katona, C., & Cooper, C. (2014). Non-pharmacological interventions for agitation in dementia: Systematic review of randomised controlled trials. *British Journal of Psychiatry: The Journal of Mental Science*, 205(6), 436–442. doi:10.1192/bjp.bp.113.141119
- Magai, C., Cohen, C. I., & Gomberg, D. (2002). Impact of training dementia caregivers in sensitivity to nonverbal emotion signals. *International Psychogeriatrics*, 14(1), 25–38. doi:10.1017/S1041610202008256
- Marcolino, M. S., Oliveira, J. A. Q., D'Agostino, M., Ribeiro, A. L., Alkmim, M. B. M., & Novillo-Ortiz, D. (2018). The impact of mHealth interventions: Systematic review of systematic reviews. *JMIR Mhealth and Uhealth*, 6(1), e23. doi:10.2196/mhealth.8873
- McCallion, P., Toseland, R. W., Lacey, D., & Banks, S. (1999). Educating nursing assistants to communicate more effectively with nursing home residents with dementia. *Gerontologist*, 39(5), 546–558. doi:10.1093/geront/39.5.546
- McCormack, B., & McCance, T. V. (2006). Development of a framework for person-centred nursing. *Journal of Advanced Nursing*, 56(5), 472–479. doi:10.1111/j.1365-2648.2006.04042.x
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G.; PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *BMJ (Clinical Research Ed.)*, 339, b2535. doi:10.1136/bmj.b2535
- PHI. (2021). *Caring for the future: The power and potential of America's direct care workforce*. <http://phinational.org/resource/caring-for-the-future-the-power-and-potential-of-americas-direct-care-workforce/>
- Pieper, M. J., Francke, A. L., van der Steen, J. T., Scherder, E. J., Twisk, J. W., Kovach, C. R., & Achterberg, W. P. (2016). Effects of a stepwise multidisciplinary intervention for challenging behavior in advanced dementia: A cluster randomized controlled trial. *Journal of the American Geriatrics Society*, 64(2), 261–269. doi:10.1111/jgs.13868
- Pieper, D., Puljak, L., González-Lorenzo, M., & Minozzi, S. (2019). Minor differences were found between AMSTAR 2 and ROBIS in the assessment of systematic reviews including both randomized and nonrandomized studies. *Journal of Clinical Epidemiology*, 108, 26–33. doi:10.1016/j.jclinepi.2018.12.004
- Proctor, R., Burns, A., Powell, H. S., Tarrier, N., Faragher, B., Richardson, G., Davies, L., & South, B. (1999). Behavioural management in nursing and residential homes: A randomised controlled trial. *Lancet (London, England)*, 354(9172), 26–29. doi:10.1016/S0140-6736(98)08237-3
- Rapp, M. A., Mell, T., Majic, T., Treusch, Y., Nordheim, J., Niemann-Mirmehdi, M., Gutzmann, H., & Heinz, A. (2013). Agitation in nursing home residents with dementia (VIDEANT trial): Effects of a cluster-randomized, controlled, guideline implementation trial. *Journal of the American Medical Directors Association*, 14(9), 690–695. doi:10.1016/j.jamda.2013.05.017
- Robison, J., Curry, L., Gruman, C., Porter, M., Henderson, C. R. Jr, & Pillemer, K. (2007). Partners in caregiving in a special care environment: Cooperative communication between staff and families on dementia units. *Gerontologist*, 47(4), 504–515. doi:10.1093/geront/47.4.504
- Rogers, C. (1961). *On becoming a person*. Houghton Mifflin.
- Rokstad, A. M. M., Røsvik, J., Kirkevold, Ø., Selbaek, G., Benth, J. S., & Engedal, K. (2013). 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*, 36(5–6), 340–353. doi:10.1159/000354366
- Rosen, J., Mulsant, B. H., Kollar, M., Kastango, K. B., Mazumdar, S., & Fox, D. (2002). Mental health training for nursing home staff using computer-based interactive video: A 6-month randomized trial. *Journal of the American Medical Directors Association*, 3(5), 291–296. doi:10.1097/01.JAM.0000027201.90817.21
- Rovner, B. W., Steele, C. D., Shmueli, Y., & Folstein, M. F. (1996). A randomized trial of dementia care in nursing homes. *Journal of the American Geriatrics Society*, 44(1), 7–13. doi:10.1111/j.1532-5415.1996.tb05631.x
- Schrijnemaekers, V., van Rossum, E., Candel, M., Frederiks, C., Derix, M., Sielhorst, H., & van den Brandt, P. (2002). Effects of emotion-oriented care on elderly people with cognitive impairment and behavioral problems. *International Journal of Geriatric Psychiatry*, 17(10), 926–937. doi:10.1002/gps.681
- Seitz, D. P., Brisbin, S., Herrmann, N., Rapoport, M. J., Wilson, K., Gill, S. S., Rines, J., Le Clair, K., & Conn, D. (2012). Efficacy and feasibility of nonpharmacological interventions for neuropsychiatric symptoms of dementia in long term care: A systematic review. *Journal of the American Medical Directors Association*, 13(6), 503–506.e2. doi:10.1016/j.jamda.2011.12.059
- Shea, B. J., Grimshaw, J. M., Wells, G. A., Boers, M., Andersson, N., Hamel, C., Porter, A. C., Tugwell, P., Moher, D., & Bouter, L. M. (2007). Development of AMSTAR: A measurement tool to assess the methodological quality of systematic reviews. *BMC Medical Research Methodology*, 7, 10. doi:10.1186/1471-2288-7-10
- Shea, B. J., Reeves, B. C., Wells, G., Thuku, M., Hamel, C., Moran, J., Moher, D., Tugwell, P., Welch, V., Kristjansson, E., & Henry, D. A. (2017). AMSTAR 2: A critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. *BMJ*, 358, 1–9. doi:10.1136/bmj.j4008
- Sloane, P. D., Hoeffer, B., Mitchell, C. M., McKenzie, D. A., Barrick, A. L., Rader, J., Stewart, B. J., Talerico, K. A., Rasin, J. H., Zink, R. C., & Koch, G. G. (2004). Effect of person-centered showering and the towel bath on bathing-associated aggression, agitation, and discomfort in nursing home residents with dementia: A randomized, controlled trial. *Journal of the American Geriatrics Society*, 52(11), 1795–1804. doi:10.1111/j.1532-5415.2004.52501.x
- Smith, V., Devane, D., Begley, C. M., & Clarke, M. (2011). Methodology in conducting a systematic review of systematic reviews of healthcare interventions. *BMC Medical Research Methodology*, 11(1), 15. doi:10.1186/1471-2288-11-15
- Surr, C. A., Gates, C., Irving, D., Oyebode, J., Smith, S. J., Parveen, S., Drury, M., & Dennison, A. (2017). Effective dementia education

- and training for the health and social care workforce: A systematic review of the literature. *Review of Educational Research*, 87(5), 966–1002. doi:10.3102/0034654317723305
- Surr, C. A., Parveen, S., Smith, S. J., Drury, M., Sass, C., Burden, S., & Oyeboode, J. (2020). The barriers and facilitators to implementing dementia education and training in health and social care services: A mixed-methods study. *BMC Health Services Research*, 20(1), 512. doi:10.1186/s12913-020-05382-4
- Teri, L., Huda, P., Gibbons, L., Young, H., & van Leynseele, J. (2005). STAR: A dementia-specific training program for staff in assisted living residences. *Gerontologist*, 45(5), 686–693. doi:10.1093/geront/45.5.686
- Teri, L., Logsdon, R. G., Peskind, E., Raskind, M., Weiner, M. F., Tractenberg, R. E., Foster, N. L., Schneider, L. S., Sano, M., Whitehouse, P., Tariot, P., Mellow, A. M., Auchus, A. P., Grundman, M., Thomas, R. G., Schafer, K., & Thal, L. J.; Alzheimer's Disease Cooperative Study. (2000). Treatment of agitation in AD: A randomized, placebo-controlled clinical trial. *Neurology*, 55(9), 1271–1278. doi:10.1212/wnl.55.9.1271
- Terkelsen, A. S., Petersen, J. V., & Kristensen, H. K. (2020). Mapping empirical experiences of Tom Kitwood's framework of person-centred care for persons with dementia in institutional settings. A scoping review. *Scandinavian Journal of Caring Sciences*, 34(1), 6–22. doi:10.1111/scs.12709
- Testad, I., Aasland, A. M., & Aarsland, D. (2005). The effect of staff training on the use of restraint in dementia: A single-blind randomised controlled trial. *International Journal of Geriatric Psychiatry*, 20(6), 587–590. doi:10.1002/gps.1329
- Testad, I., Ballard, C., Brønnick, K., & Aarsland, D. (2010). The effect of staff training on agitation and use of restraint in nursing home residents with dementia: A single-blind, randomized controlled trial. *Journal of Clinical Psychiatry*, 71(1), 80–86. doi:10.4088/JCP.09m05486oli
- Testad, I., Mekki, T. E., Førland, O., Øye, C., Tveit, E. M., Jacobsen, F., & Kirkevold, Ø. (2016). 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*, 31(1), 24–32. doi:10.1002/gps.4285
- van de Ven, G., Draskovic, I., Adang, E. M., Donders, R., Zuidema, S. U., Koopmans, R. T., & Vernooij-Dassen, M. J. (2013). Effects of dementia-care mapping on residents and staff of care homes: A pragmatic cluster-randomised controlled trial. *PLoS One*, 8(7), e67325. doi:10.1371/journal.pone.0067325
- Veritas Health Innovation. (2014). *Covidence [software]*. <http://www.covidence.org>
- Warshaw, G. A., & Bragg, E. J. (2014). Preparing the health care workforce to care for adults with Alzheimer's disease and related dementias. *Health Affairs (Project Hope)*, 33(4), 633–641. doi:10.1377/hlthaff.2013.1232
- Weiss, J., Tumosa, N., Perweiler, E., Forcica, M. A., Miles, T., Blackwell, E., Tebb, S., Bailey, D., Trudeau, S. A., & Worstell, M. (2020). Critical workforce gaps in dementia education and training. *Journal of the American Geriatrics Society*, 68(3), 625–629. doi:10.1111/jgs.16341
- Wells, D. L., Dawson, P., Sidani, S., Craig, D., & Pringle, D. (2000). Effects of an abilities-focused program of morning care on residents who have dementia and on caregivers. *Journal of the American Geriatrics Society*, 48(4), 442–449. doi:10.1111/j.1532-5415.2000.tb04704.x
- Wenborn, J., Challis, D., Head, J., Miranda-Castillo, C., Popham, C., Thakur, R., Illes, J., & Orrell, M. (2013). Providing activity for people with dementia in care homes: A cluster randomised controlled trial. *International Journal of Geriatric Psychiatry*, 28(12), 1296–1304. doi:10.1002/gps.3960
- World Health Organization. (2017). *Global action plan on the public health response to dementia 2017–2025*. <https://www.alzint.org/u/WorldAlzheimerReport2015.pdf>
- Young, H. M., Bell, J. F., Whitney, R. L., Ridberg, R. A., Reed, S. C., & Vitaliano, P. P. (2020). Social determinants of health: Underreported heterogeneity in systematic reviews of caregiver interventions. *Gerontologist*, 60(Suppl. 1), S14–S28. doi:10.1093/geront/gnz148
- Zimmerman, S., Mitchell, C. M., Reed, D., Preisser, J. S., Fletcher, S., Beeber, A. S., Reed, P. S., Gould, E., Hughes, S., McConnell, E. S., Corazzini, K. N., Lekan, D., & Sloane, P. D. (2010). Outcomes of a dementia care training program for staff in nursing homes and residential care/assisted living settings. *Alzheimer's Care Today*, 11(2), 83–99. doi:10.1097/ACQ.0b013e3181dc1aad
- Zwijnen, S. A., Smalbrugge, M., Eefsting, J. A., Twisk, J. W. R., Gerritsen, D. L., Pot, A. M., & Hertogh, C. M. P. M. (2014). Coming to grips with challenging behavior: A cluster randomized controlled trial on the effects of a multidisciplinary care program for challenging behavior in dementia. *Journal of the American Medical Directors Association*, 15(7), 531.e1–531.e10. doi:10.1016/j.jamda.2014.04.007