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**Title:** Psychosocial interventions for community dwelling people following diagnosis of mild to moderate dementia. Findings of a systematic scoping review.

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Psychosocial interventions, mild to moderate dementia, post-diagnostic support.

## **Abstract**

National policies and evidence reviews recommend psychosocial interventions (PIs) as an essential support, particularly in the period following dementia diagnosis. However, the availability and uptake of these interventions is comparatively low. One of the reasons for this is that clinicians lack information about what might be provided and the potential benefits of different interventions. This paper identifies and describes psychosocial interventions for community dwelling people following diagnosis of mild to moderate dementia and presents the available evidence to inform practice decisions. A systematic scoping review was employed to map the evidence relating to PIs for this group. This identified 63 relevant studies, testing 69 interventions, which could be grouped into six categories; 20 cognition-oriented interventions; 11 behaviour-oriented; 11 stimulation-oriented; 13 emotion-oriented, 5 social-oriented and 9 multi-modal. There were three targets for outcome measurement of these PIs; the person with dementia, the family carer and the person-carer dyad. Over 154 outcome measures were identified in the studies with outcomes measured across 11 main domains. The lack of a classification framework for PIs means it is difficult to create a meaningful synthesis of the breadth of relevant evidence to guide clinical practice. Possible dimensions of a classification framework are proposed to begin to address this gap.

## **Introduction**

With any effective medication for dementia deemed to be ‘a long way off’ (1), psychosocial interventions are one of the few treatments that clinicians can offer following diagnosis. Psychosocial interventions (PIs) can be defined as physical, cognitive or social activities that may maintain or improve ‘functioning, interpersonal relationships and well-being in people with dementia’ (2). PIs do not involve the use of medication although they can be used in conjunction with medication (3). The policy-led drive for earlier treatment of dementia following diagnosis, exemplified in the Global Action Plan on Dementia (4) and US National Plan to Address Alzheimer’s Disease (5) underlines the importance of post-diagnostic interventions.

A systematic review of research into the experiences of people with dementia in the post-diagnostic period identified that psychosocial care pathways and interventions can help people to live successfully (6) and the value of early interventions for the well-being of people with dementia and their relatives has been demonstrated (7).

However, the use of PIs remains low. While 99% of memory services in England provide pharmacological treatments (acetylcholinesterase inhibitors or memantine) to eligible patients following diagnosis, provision of psychosocial interventions is limited (8). The only mention of psychosocial provision in the Alzheimer’s Association Dementia Care Practice Recommendations (9) is in relation to the management of behavioural and psychiatric symptoms of dementia. The poor availability of PIs in Ireland is recognised in the priority actions being implemented as part of the National Dementia Strategy (10). This low use of PIs may be due to the lack of intervention development (11), particularly for people in the early stages of dementia, combined with a low evidence base for existing interventions. Until relatively recently studies tended to focus on people at the later stages of dementia in residential settings,

resulting in relatively sparse information on the needs of people with dementia at earlier stages of the disease, a noted gap in the evidence (12).

However, a more fundamental gap is the lack of clarity regarding what constitutes a PI? The term 'psychosocial interventions' is used to describe a variety of programmes, events and activities, for people with dementia, carers and various combinations of both, seeking to produce a wide range of different outcomes using a variety of modes of delivery. There is a lack of a conceptual clarity across the field and a distinct lack of a theoretical framework for the study of psychosocial prescribing (2).

To begin to address these gaps, this review sought to address the question; what is the nature of the evidence for the use of psychosocial interventions that might be feasibly delivered through health services, for community dwelling people with mild to moderate dementia? The evidence is mapped across several features of PIs which are relevant to clinical decision making, such as mode of delivery, intervention target, and potential outcomes. The findings are used to inform a classification framework for PIs which will enable the research and practice communities to progress the development of effective theory-based interventions and facilitate the production of broad, evidence-informed guidance to encourage wider use.

## **Methods**

A systematic scoping review was employed in this study (13) to identify and select studies of psychosocial interventions that have been subjected to research, extract data and organise results. A scoping review is particularly useful when the body of literature is complex or heterogeneous and 'not amenable to a more precise systematic review of the evidence' (14). A scoping review differs from a systematic review in a number of key respects. The scoping review aims to map a body of literature in a specific area in order to identify gaps in the knowledge base or clarify key concepts. This mapping of the evidence does not usually take the quality of evidence into account and is instead focused on providing an overview.

Although systematic reviews of specific psychosocial interventions have been conducted, to our knowledge there have been no scoping reviews mapping the evidence for psychosocial interventions focusing on a particular stage of dementia.

### *Search strategy & study selection*

The search was limited to studies published in the English language from 1990 onwards as studies published earlier than this were considered to lack relevance to current service provision, due to previous poor rates of early diagnosis.

Searches were conducted on NHS Evidence (Medline, PsycINFO, CINAHL), Web of Science, Scopus and Cochrane databases using the terms: (dement\* OR Alzheimer\*) AND (mild\* OR early OR newly OR initial OR "home-based" OR "home based" OR "home-dwelling" OR "home dwelling") AND (therap\* OR course?ling OR training OR intervention\* OR education\* OR rehabilitation OR reminiscence OR psycho\*) NOT (severe OR "long term" OR "long-term" OR institution\* OR "nursing home\*" OR "nursing-home\*" OR "care home\*" OR "care-home\*" OR hospital\*) NOT (drug\* OR medic\* OR pharmacologic\*).

Database searches were complemented by following up results from existing reviews and the reference lists of key papers and relevant book chapters.

Additional search terms such as ‘therapies’ (e.g. art therapy) and names of specific interventions were not used within this review.

#### *Inclusion criteria*

- Primary research and evidence reviews
- Interventions designed for people with a confirmed diagnosis of mild/moderate dementia,
- Interventions designed for the person alone or with a nominated informal carer
- Only involved people living in the community in their own homes
- Published in English and from 2000 onwards

#### *Exclusion criteria*

- Did not involve people with a diagnosis of mild/moderate dementia
- Interventions designed primarily for people with other health conditions who also have cognitive loss
- Involved people living in residential care, or other institutional settings
- Interventions for family carers only
- Interventions for staff
- Case study reports, study protocols, conference abstracts and non-research publications

There were difficulties with applying these criteria as there was a lack of clarity in some cases regarding the stage of dementia of participants or the setting through which the intervention was delivered. Where there were such difficulties decisions

were agreed by reviewers using other evidence contained within the papers. For example, whether people were living in the community had to be inferred for some studies where location was not stated, using factors such as outpatient attendance and lifestyle activities.

Significant variation was found in the definitions of 'mild' and 'moderate' stages of dementia. While most papers reported results from application of the Mini Mental State Examination (MMSE) or other validated assessment tool, the evidence search demonstrated that there is no consensus regarding which assessment instruments should be used to assess dementia stage and for some studies there were no details provided of the cognitive state of participants, in which case the studies were excluded.

#### *Data extraction*

All search results were transferred into bibliographic packages, and duplicates deleted. Titles and abstracts were independently screened for inclusion by two researchers. Additional papers resulting from subsequent searches were screened by one researcher with a second researcher then checking 10% of these.

Disagreements between data extractors were resolved through discussion and reference back to the search criteria until consensus was reached.



## Results

The search strategy identified 2,275 abstracts, which were screened by two reviewers for relevance. This resulted in 420 papers. Of these, 264 duplicates were identified and excluded. Full texts of 156 papers were accessed and read with reference to the review inclusion/ exclusion criteria. This resulted in 43 relevant studies. A further 20 relevant studies were identified from other sources such as study reference lists giving a total of 63 relevant studies. Figure 1 summarises the data extraction process.

Figure 1 about here: **Figure 1: Flow chart describing data extraction**

Three of these (15-17) were randomised controlled trials (RCTs) of more than one intervention, delivered separately to different groups of patients. We judged these to be a test of each of these interventions and so they are reported individually under the relevant headings (giving a total of 69 intervention studies reported in the tables). Analysis of the search yield identified evidence for a variety of interventions that might be delivered to community dwelling people with mild to moderate dementia. Table 1 describes these interventions and categorises them according to the four broad groups of psychosocial treatments for dementia described in the American Psychiatric Association (APA) practice guidelines (18), with the addition of two groups. The allocation of specific interventions to these categories was a challenge as several could potentially be included under more than one heading.

Table 1 about here: **Table 1: Description of interventions identified in this review categorised by approach (adapted from APA 1997)**

Cognition-oriented approaches were the most frequently reported with a total of 20 studies or 30% of the total, followed by emotion-oriented approaches at 20%.

Table 2 presents the identified studies, classified by mode of delivery and target group. The mode was typically an individual or group session delivered or facilitated by a trained therapist or instructor. The intervention target was solely the person with dementia in 38 studies, solely the dyad in 21 studies with the remainder involving carers in joint, separate or parts of sessions. Carers were involved as supervisor or facilitator of the intervention in eight studies.

Table 2 about here: **Table 2: Identified interventions, mode of delivery and target groups.**

Table 3 presents the outcome domains that were measured in all 63 studies and those which reported significant effects. A total of 154 outcome measures were used, reflecting the diversity in thinking regarding what might be the benefits of PIs. Cognitive functioning was most frequently measured as an outcome, followed by psychiatric symptoms such as depression and anxiety. For family carers, the most frequently assessed outcome was caregiver burden or distress. Only a small number of studies reported any significant effects on these outcomes, for example, 46% of studies which measured ADLs or physical functioning reported a significant effect and 40% of studies which measured cognitive functioning reported an effect.

Table 3 about here: **Table 3: Main outcome domains measured and studies reporting significant effects**

A number of designs were employed in the 63 studies; 36 were RCTs, 14 before-after design with no control group, 7 controlled before-after and 6 qualitative.

## **Discussion**

This review has identified a growing body of evidence for psychosocial interventions for community dwelling people with mild to moderate dementia with 63 studies identified, reporting on the effectiveness of 69 interventions which can be classified into six categories. The heterogeneity of the interventions studied and approaches taken towards evidence generation is broad. At least three possible target groups of beneficiaries can be identified; the person, the carer and the dyad in a variety of combinations; there several modes of intervention delivery (individual, group or a combination of these); four broad types of study design (56% were RCTs) and 154 outcome measures were applied, covering a large number of domains. Most studies relate to interventions aimed at improving cognitive functioning (n=20), followed by emotion oriented approaches (n=13) such as psychotherapy. Given that the quality of the evidence has not been assessed as part of this study it is difficult to provide a wide ranging comment on the state of the literature. Through working with this literature it is evident that the gaps are concerned with the lack of a classification framework for such interventions (which is demonstrated by the confusing range of terms used to describe the same or similar interventions) and the need for methodologies beyond RCTs if we are determine effectiveness in real world settings.

Information about interventions, the potential choice of mode of delivery and target group can be used by the clinician to identify what might be most appropriate for a given patient. However, the lack of a classification framework for PIs makes it difficult to synthesise evidence in the area and to produce practical and evidence-informed guidance for clinicians who prescribe PIs, a finding echoed in a recent review of dementia caregiver interventions (80). In a review of CT and CRT (81), the differences between these two psychosocial interventions were described using several dimensions such as the context, focus and goals of the intervention itself, the format and the proposed mechanism of action. The APA categorisation of PIs is also

a useful reference for clinicians (18), but it was developed at a time when PIs for people with dementia were in their infancy. Moreover, evidence was generated almost exclusively from use in residential settings and for people with severe dementia. This context influenced how these four categories were described and what interventions they included. Consequently, the categories do not fully reflect the new generation of PIs; which means that some of our listings under the APA headings are somewhat arbitrary. For example, the category ‘stimulation-oriented approaches’ may not adequately reflect physical exercise interventions, which are a more recent area of study. It is not clear where educational interventions might fit or how best to categorise multi-modal interventions. Therefore, based on the findings of this review, a number of possible dimensions for recalibrating the classification of psychosocial interventions are proposed and outlined in Table 4.

Table 4 about here: **Table 4: Possible dimensions for a classification framework for psychosocial interventions**

The recently published *Key questions on care interventions for people with dementia and their caregivers* (82) notes the urgent need for a summary of available evidence in this area and poses wide ranging questions. This review contributes to the knowledge base for a subset of the population (i.e. community dwelling people with mild to moderate dementia) and a subset of interventions (i.e. PIs). However, the long list of varied interventions in the *Key Questions* (82) points to the need for more consistent description and classification of interventions. Greater clarity on what exactly a PI aims to achieve and for whom, is necessary to ensure the most appropriate methods and measures are chosen to generate research evidence. We may need to approach creation of evidence for psychosocial interventions in a different way to that required for pharmacological treatments. It has been argued that the RCT may not be the most appropriate study design for psychosocial interventions

(83), particularly given the importance of the delivery context (84); and the lack of outcome measures which are sufficiently sensitive and specific (2). RCTs have failed to capture, admittedly hard to measure benefits, such as hope, connection to a service and option demand – the value of knowing support will be there when it is needed and it is now appreciated that an embedded qualitative component is essential to capture individual meaningful gains and to explain mechanisms of effect (85). Alternative study designs such as realist evaluation, which seeks to understand complexity and service delivery context, may be more appropriate (86). Pragmatic trials also offer a robust method for testing interventions in real-world contexts and work is progressing to create a framework for supporting pragmatic trials of psychosocial interventions (87).

We know that people with dementia want to be offered psychosocial treatment and support from the point of diagnosis (88) and that they also want interventions to meet their specific and individualised needs. More effort needs to be made to respond to what this patient group express that they both need and want after diagnosis. Ideally, patients should be more involved in the design of interventions to ensure relevance and feasibility. Public and patient involvement may yield significant benefits in terms of better designed studies and more relevant data and results (89).

Given the lack of curative treatments, psychosocial interventions are an important treatment and support option that can be offered now for people with dementia and family carers. The availability of such interventions may also affect the willingness of clinicians to diagnose dementia in the first place, as they now have something to offer following diagnosis (90). This may help alleviate the ‘therapeutic nihilism’ in relation to dementia (91) by making available relevant interventions which can provide a range of benefits to people with dementia and their carers. Classifying

potential psychosocial interventions correctly may help to encourage psychosocial prescribing that is both meaningful and beneficial to the recipient.

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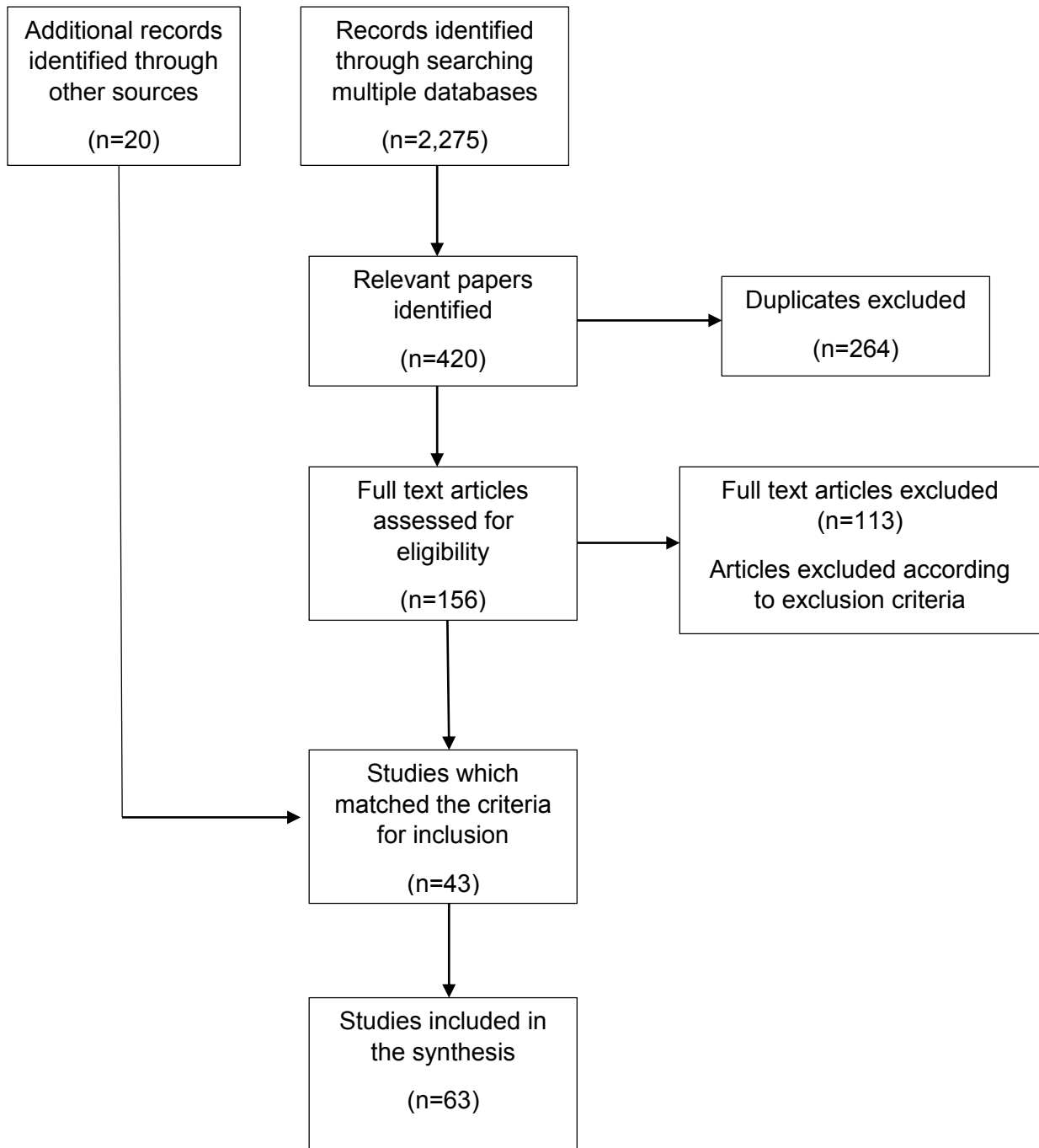
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**Figure 1: Flow chart describing data extraction**



**Table 1: Description of interventions identified in this review categorised by approach (adapted from APA 1997)**

<b>Approach or orientation</b>	<b>Types of psychosocial interventions (N=69 from 63 studies)</b>
<b>Cognition-oriented approaches</b>  <b>n= 20</b>	Cognitive Rehabilitation Therapy is tailored to the person and is delivered in their own home. A trained therapist works with the person with dementia and their carer to set personal goals; to plan how to meet these goals; and supports them in doing so.
	Cognitive Training or 'brain training' involves guided practice of a set of structured tasks, to train cognitive processes and abilities.
	Cognitive stimulation Therapy is typically delivered through group sessions, facilitated by a trained instructor/therapist over several weeks. Social interaction, engagement and stimulation are emphasised.
<b>Emotion-oriented approaches</b>  <b>n=13</b>	Cognitive behaviour therapy
	Brief psychotherapy includes a range of therapeutic approaches, delivered by trained therapists, to individuals or groups.
	Reminiscence Therapy involves the discussion of past activities, events and experiences with another person or group of people, usually with the aid of visual and/or auditory materials.
<b>Behavior-oriented approaches</b>	Self-management programs include the provision of information and support to individuals or groups to encourage the development of self-efficacy.

<b>n=11</b>	Skills-maintenance programmes are mostly delivered by occupational therapists in the person's home, usually involving the family carer in some way.
<b>Stimulation-oriented approaches</b>	Physical activity and exercise programmes specifically developed for people with dementia which may or not may involve family carers.
<b>n=11</b>	Arts, music and recreation, usually in groups, facilitated by a therapist or trained instructor.
<b>Social-oriented approaches</b>	Usually facilitated informal gatherings, support groups offer peer support (either carer to carer or person to person).
<b>n=5</b>	
<b>Multi-modal approaches</b>	A combination of two or more interventions such as support group, counselling, cognition-oriented approach, exercise and others.
<b>n=9</b>	

**Table 4: Possible dimensions for a classification framework for psychosocial interventions**

Dimension	Examples of attributes for each dimension
General focus or approach	A high level description of the main area which the intervention address e.g. cognition, physical functioning, emotional wellbeing etc.
Purpose/ anticipated benefits	Improvements in specified areas of functioning, ability and/or wellbeing. Specification of outcomes.
Target beneficiary	Person with dementia only; family carer only; dyad only; other combination of person and carer; etc.
Stage of dementia	For example, early/mild
Setting for delivery	For example, home, day centre, community setting
Mode of delivery	Individual or group; type of therapist/instructor; technology facilitated (computer or phone).
Mechanism of action	Identification of possible mechanisms of action. For example, the repetition of tasks in CT may support maintenance of brain function.



**Table 2: Identified interventions, mode of delivery and target groups.**

<b>Cognition oriented approaches (n= 20)</b>			
<b>Cognitive rehabilitation therapy (CRT) n= 8</b>			
<b>Author(s)</b>	<b>Year</b>	<b>Mode of delivery</b>	<b>Target group Person/Carer/Dyad</b>
Amieva et al. (15)	2016	Individual dyad sessions	Dyad
Cipriani et al. (19)	2006	Individual computer-based program	Person
Clare et al. (20)	2010	Group	Person Carer joined end of sessions
Kim (Seyun) (21)	2015	Individual and group sessions	Person
Kurz et al. (22)	2012	Individual sessions with instructor	Person Information to carer to reinforce training
Loewenstein (23) et al.		Individual sessions with instructor	Person
Talassi et al.(24)	2007	Individual program; sessions with computer and sessions with therapist	Person

Thivierge et al. (25)	2015	Individual sessions with instructor.	Person Information to carer to reinforce training
<b>Cognitive training (CT) n= 7</b>			
Amieva et al. (15)	2016	Group	Joint and separate sessions for person and carer
Huntley et al. (26)	2016	Individual computer-based program	Person
Kanaanet al. (27)	2014	Individual sessions with instructor	Person
Lee et al. (28)	2013	Two interventions: individual with computer and individual with therapist	Person
Moore et al. (29)	2001	Group for dyads	Dyad
Neely et al. (30)		Two interventions: individual and caregiver with instructor and individual with instructor	Person alone and person with caregiver
Tsantali et al. (17)	2017	Individual sessions with instructor.	Person
<b>Cognitive Stimulation Therapy (CST) n= 5</b>			
Milders et al. (31)	2013	Caregiver-led sessions at home	Dyad Caregiver trained in program

Olazaran et al.(32)	2004	Group	Person
Orgeta et al. (33)	2015	Caregiver-led sessions at home	Dyad Caregiver trained in program
Quayhagen et al (34)	2000	Individual dyad	Dyad
Tsantali et al (17)	2017	Individual sessions with instructor.	Person
<b>Behaviour-oriented approaches (n=11)</b>			
<b>Health promotion/Self-management interventions n=5</b>			
Fitzsimmons & Buettner (35)	2003	Group	Person
Laakkonen et al. (36)	2016	Group	Person and carer in separate groups
Quinn et al. (37)	2015	Group	Person Carers attend first and final sessions
Richeson et al. (38)	2007	Group	Person
Sprange et al. (39)	2015	Person in group and four individual sessions with therapist	Person

<b>Skills training n=4</b>			
Curtin (40)	2011	Individual sessions with instructor.	Person Information to carer to reinforce training
Gitlin et al (41)	2018	Individual dyad with therapist	Dyad
Graff et al. (42)	2006	Individual dyad with therapist	Dyad
Voigt-Radloff et al. (43)	2011	Individual dyad with therapist	Dyad
<b>Education n=2</b>			
Galvin et al. (44)	2014	Dyad care consultation	Dyad
Quayhagen et al (16)	2000	Groups for dyads	Dyad
<b>Stimulation-oriented approaches (n=11)</b>			
<b>Exercise and physical activity interventions n=8</b>			
Canonici et al. (45)	2012	Group for dyads	Dyad
Holthoff et al. (46)	2015	Individual sessions with trainer	Person
Miu et al. (47)	2008	Group	Person

Pitkälä et al. (48)	2013	Two interventions: Group sessions; individual sessions with therapist	Person
Sobol et al. (49)	2016	Group	Person
Steinberg et al. (50)	2009	Individual program supervised by caregiver	Person Caregiver trained in exercise program
Vruegdenhil et al. (51)	2011	Individual program supervised by caregiver	Person Caregiver trained in exercise program
Yaguez et al. (52)	2011	Group for dyads	Dyad
<b>Arts and recreation interventions n=3</b>			
Camic et al. (53)	2014	Group	Dyad
Petrescu et al. (54)	2012	Group	Person
Ullan et al. (55)	2013	Group	Person
<b>Emotion-oriented approaches (n=13)</b>			
<b>CBT and psychotherapies n=6</b>			
Auclair et al. (56)	2009	Dyad counselling	Dyad
Burns et al. (57)	2005	Individual sessions with therapist	Person

Cheston et al. (58)	2003	Group	
Quayhagen et al. (16)	2000	Dyad counselling	Dyad
Spector et al. (59)	2015	Group	Person
Stanley et al. (60)	2013	Individual sessions with therapist. Telephone 'booster' sessions	Person Training to carer to reinforce skills
<b>Reminiscence n=7</b>			
Amieva et al. (15)	2016	Group	Person and carer separately
Chung (61)	2009	Group	Person
Jo & Song (62)	2015	Group	Person
Johnston et al. (63)	2015	Individual sessions with therapist	Person
Tadaka & Kanagawa (64)	2007	Group	Person
Woods et al. (65)	2016	Groups for dyads	Dyad
Wu & Koo (66)	2016	Group	Person
<b>Social support approaches (n=5)</b>			
Cheston & Howells (67)	2015	Group	Joint and separate sessions for person and carer

Gaugler et al. (68)	2011	Group	Joint and separate time in sessions
Goldsilver & Gruneir (69)	2001	Group	Person
Logsdon et al. (70)	2010	Group	Joint and separate sessions
Quayhagen et al. (16)	2000	Group	Person
<b>Multi-modal approaches (n=9)</b>			
Burgener et al. (71)	2008	Group	Person
Charlesworth et al. (72)	2016	Individual sessions for person and caregiver separately; groups for dyad	Carer separately Person separately Dyad
Fischer-Terworth & Probst (73)	2011	Group	Person
Kim (Hwan-hee) (74)	2015	Group	Person
Marshall et al. (75)	2015	Group	Person
Prick et al. (76)	2016	Individual dyad sessions	Dyad
Roberts & Silverio (77)	2009	Groups for each separately and for dyad	Person Carer Dyad

Viola et al. (78)	2011	Group sessions with therapists for dyads	Dyad
Waldorff et al. (79)	2012	Individual sessions for each alone. Separate groups for person and carer.	Person Carer Dyad



**Table 3: Main outcome domains measured and studies reporting significant effects**

<b>Outcome</b>	<b>Number of studies which measured this domain</b>	<b>Studies reporting significant effects 53 (%)</b>
<b>Person with dementia</b>		
Cognitive functioning	40	16 (40%) (17,19, 21, 23, 24, 26-30, 34, 36, 46, 52, 64, 74)
Quality of life	27	5 (18%) (21, 61, 62, 70, 74)
ADL/physical functioning	28	13 (46%) (15, 21, 25, 42, 45-47, 49-51, 61, 62, 71)
Behavioural symptoms	1	0
Anxiety/depression/neuropsychiatric symptoms	37	6 (16%) (22-24, 29, 44, 70, 74)
Physical health	6	0
Other (e.g. self-efficacy, relationship quality, satisfaction, hope etc.)	20	7 (35%) (20, 21, 33, 37, 38, 44, 71)
<b>Carer</b>		
Caregiver burden/stress/distress	15	1 (6%) (45)
Coping/competence	8	1 (12%) (42)
Depression	6	1

		16%) (16)
Other (e.g. physical health, knowledge, quality of life etc.)	8	3 (37%) (33, 36, 44)