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**Abstract**

*Background:* The communication skills of older adults living in care homes is an underexplored topic. Aging can lead to reduced communication ability and activity; and in the care home environment, there may also be fewer communication opportunities. This situation is likely to negatively impact wellbeing. Previous reviews have found evidence of the effectiveness of behavioural interventions in increasing wellbeing, but no systematic review to date has focused specifically on the evidence base for group language and communication interventions in this population.

*Aims:* To identify and evaluate the evidence for behavioural interventions with older adults, delivered in groups in residential settings, that specifically included a language or communication activity. To explore the impact of such intervention on the specific domains of language, communication and social interaction. To determine whether behavioural mechanisms of action can be identified.

*Methods:* Embase, Medline, Ovid Nursing database, Psych info, and CINAHL complete were searched and produced 158 records for screening, of which 22 remained for review. In order to identify and evaluate the quality of the evidence base presented the following research questions were posed: What research has been conducted in this area? What is the methodological quality of the studies identified? How complete is the intervention reporting? How was change measured in the domains of language, communication and social interaction? Is there evidence of efficacy, indicated by statistically significant improvement, in these domains? How did the interventions work? Synthesis tools employed included the PEDro-P Scale, the TIDieR checklist and the ITAX.

*Main Contribution:* 22 studies met the criteria for review. One of the studies used solely language or communication interventions, but the remaining 21 studies used behavioural interventions which incorporated language and communication activities to varying degrees. Studies fell into 4 broad intervention types: Reminiscence or Life Review, Cognitive Stimulation, Narrative or Storytelling, and Multi-modality Group Communication. The majority of studies were of fair methodological quality, with a moderate level of detail provided in treatment reporting. Statistically significant improvement was reported by authors in all 4 intervention types and across language, communication and social domains. Social interaction, social support, and behavioural skills were the most consistent mechanisms of action in the reviewed behavioural interventions.

*Conclusion:* Despite limitations in the evidence base there are important positive signs for the beneficial effects of supporting language and communication in care homes. Blinding of assessors, and the accuracy and accessibility of statistical reporting are important areas to address in order to improve the quality of the evidence base.

#### *What this paper adds*

Aging can lead to reduced communication ability and activity, and in the care home setting, there may also be fewer communication opportunities. This situation is likely to negatively impact wellbeing. Previous reviews have found evidence of the effectiveness of behavioural interventions in increasing wellbeing. The communication skills of older adults living in care homes is an underexplored topic. No systematic review to date has focused specifically on the evidence base for group language and communication interventions in this population. This review reveals important positive signs for the beneficial effects of supporting language

and communication in care homes. Social interaction, social support, and behavioural skills were the most consistent mechanisms of action in the reviewed behavioural interventions.

## **Introduction**

NICE quality standards on the mental wellbeing of older adults in care homes highlight the elements that underpin optimum functioning, such as self-esteem, feeling in control, having a purpose in life, and a sense of belonging (NICE, 2013). Communication has a key role in supporting these elements of functioning, in both older adults with dementia and those without. Communication skills change with age because of changes in cognition, physical health, and wellbeing; but also, because aging is responsible for physiological changes in hearing, voice, and speech (Caruso et al. 1995; Zraik et al. 2006). Aging can compromise linguistic skills, such as word-finding (Heller and Dobbs, 1993) and the maintenance of coherence (Marini et al. 2005). When considered within the context of a care home setting, this is likely to impair communication quality and reduce communication opportunities.

Maintaining the communication skills of older adults in care homes presents a unique set of challenges. High levels of hearing, visual and cognitive impairment have been documented amongst care home residents. One large European study found that 32% of care home residents tested had a single (hearing or visual) impairment and a further 32% presented with dual visual and hearing impairment (Yamada et al., 2014). This was associated with communication difficulty in both groups. Many care home residents also have a cognitive impairment, such as dementia. Matthews et al., (2013) reported the prevalence of dementia in care settings for older adults in the UK to be 70%. In addition to physiological difficulties experienced by much of the general aging population, care home residents are likely to have

experienced a combination of personal losses (e.g. home, spouse, friends, functional ability) which can increase social isolation and reduce communication opportunities (Drageset et al., 2015). There is a high incidence of loneliness in care homes both amongst those with dementia and those without (Drageset et al., 2011), including evidence that it affects older people living in care homes more than twice as much as those living in the community (Victor, 2012). The care home environment can present barriers to social communication. Conflicting pressures on care home staff (who constitute key interaction partners for residents) including lack of training and/or perceived time to use communication strategies mean that interaction is often functional and task-based, and individual (targeting staff-resident interaction), rather than group-based and social (Windle et al., 2020).

Many care homes are not yet providing person-centred care, with a key problem identified being a lack of meaningful activities to occupy resident's time and support their mental wellbeing (Alzheimer's Society, 2007). NICE guidelines state that organisations providing care for older adults are required to ensure staff are trained to offer both spontaneous and planned activities that are meaningful to residents and promote their health and mental wellbeing (NICE, 2013). It can be hypothesised that residential care homes *could* offer the possibility of new social connections, and improved well-being if residents were provided with appropriate opportunities for, and facilitation of, meaningful social interaction and communication activities, as proposed by Theurer et al., (2015).

Personal stories are core to daily communication, and are important for social roles, identity, and wellbeing (Coupland, 2009). Although established intervention programmes<sup>1</sup> in care homes often use personal story telling (e.g. reminiscence) they do not focus on the linguistic and cognitive skills required to tell stories, and do not directly support any of the skills that can deteriorate with age (Marini, 2018). In a meta-analysis of 15 studies, Bohlmeijer and colleagues (Bohlmeijer et al. 2007) found a moderate influence of *reminiscence* intervention on life-satisfaction and well-being in older adults but *Life Review* was found to have significantly greater beneficial effect than simple reminiscence. Bohlmeijer et al. (2007) cited the following broad definition of reminiscence, used by Woods et al., (1992): “the vocal or silent recall of events in a person’s life, either alone or with another person or group of people” (p. 291) and reported that life review is more structured and evaluative in nature than reminiscence, with a key component being the integration of important life-events in a coherent, meaningful story. These characteristics rely on good communication skills (particularly storytelling skills) and so the age-related communication difficulties highlighted above are likely to reduce the effectiveness of Life Review.

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1) <sup>1</sup> For the purpose of this paper the terms *intervention* and *intervention programme* refer to a structured group activity run in a residential care setting by a member of staff, volunteer or external professional for recreation and/or wellbeing. These may be referred to in the literature as: therapy, programme, training, or intervention.

*Effects of language, communication and cognition intervention for older people*

Much of the evidence base for communication support in residential settings for older adults focuses on the implementation of staff training programmes which aim to support resident wellbeing /quality of life by facilitating resident communication and improving staff-resident interaction (Egan et al., 2010; Eggenberger et al., 2012; Morris et al., 2018). Approaches include use of adaptive and facilitative communication strategies and external communication and memory aids (Clarke, 1995). Interventions aimed more directly at *linguistic and cognitive skills*, and published examples of targeted, *Speech and Language Therapist-led* interventions are less common. Although there are no published evaluations of linguistic training in residential care homes in the UK, SLT-led programmes for maintaining/improving the communication skills and confidence of older adults have run successfully in Australia, both with a community-based sample (Worrall et al., 1998) and with care home residents (Jordan et al., 1993). In the care home sample (Jordan et al., 1993) four groups of communicatively impaired older care home residents (hearing impairment, Parkinson's, aphasia and dementia) took part in an intervention run by trained volunteers aimed at improving communication and self-efficacy (Jordan et al., 1993). Results varied within and between groups and despite some individual examples of positive gains in communication skills and the ability to self-manage communication difficulties, the only area to show improvement across the combined groups was demonstrated knowledge of the communication process, specific to each programme. In an SLT-led controlled trial, with community-based participants, Chapman et al. (2004) found that older adults with mild-moderate dementia who participated in an 8-week SLT-led cognitive-communication programme, whilst also taking their usual donepezil medication, demonstrated slower decline in discourse functioning, functional ability and global functioning when compared to

a medication only control group. This evidence base indicates that explicitly supporting language and communication skills can benefit older adults living in care homes.

### *Existing reviews of behavioural interventions with older adults*

There are a large number of existing systematic reviews of behavioural treatment research in older adults. The vast majority of reviews focus on adults with dementia and measure the impact of intervention approaches (e.g. cognitive, social, emotion-oriented, psychological, or reminiscence) on domains such as mood, depression, quality of life, cognition, behaviour and general health or functioning. They often encompass a broad range of methodological designs, modes of delivery (group and individual intervention), settings (care homes, day centres, participants' own homes), and treatment recipients (residents, staff, caregivers) within a single review rather than focussing on *group* intervention for *care home residents* with and without dementia targeting *communication* as we do here.

Key systematic reviews for consideration include those which evaluated *communication*, *cognitive stimulation*, and *emotion-oriented* interventions for older adults with dementia, as well as those which reviewed *social* interventions in care homes. Bourgeois (1991) focussed exclusively on intervention studies which targeted *communication* skills, but this review was limited to older adults with dementia and did not look specifically at group interventions or residential settings. Indeed, the author noted the paucity of treatment research conducted in this area by communication specialists. A Cochrane Review (Woods et al., 2012) looking at the use of cognitive stimulation programmes in people with dementia found consistent evidence of improved cognition in people with mild to moderate dementia, which exceeded reported benefits in pharmacological trials. Indeed, NICE guidance recommends Cognitive

Stimulation Therapy, (along with Reminiscence Therapy), for older adults with mild to moderate dementia (NICE, 2018). In a review of social interventions for older adults in nursing homes (Mikklesen et al., 2019), results indicated positive outcomes for social and/or health related measures. Studies included reminiscence therapy, cognitive, video conference, and support group interventions. A review of *emotion-oriented approaches* used in the care of adults with dementia found evidence that changes in the interaction style of staff, in particular the use of communication techniques, positively impacted residents' behaviour (Finemma et al., 2000). Staff training and implementation of interaction approaches such as validation therapy were found to improve both staff *and* residents' experience.

Swan et al., 2018 conducted a systematic review of communication interventions for people with moderate-severe dementia, administered by speech-language pathologists and which reported on communication function or participation and/or well-being related to communication. They reviewed 11 studies describing cognitive stimulation, cognitive training (including 1 exploring naming therapy), and cognitive rehabilitation approaches using augmentative and alternative communication. These studies included a mix of group and individual approaches and focussed solely on people with moderate-severe dementia. Although Swan et al.'s review did not exclusively explore the evidence base of interest in the current review, it did uncover preliminary evidence to support group communication interventions for older adults with dementia which requires further investigation.

The extent and efficacy of *group language* and *communication* interventions and activities for older adults in care homes had not been explored systematically before the current review. Guided by work on narrative discourse in speech and language therapy research, and the role of personal storytelling in maintaining identity, wellbeing and social communities, the current review focuses specifically on studies which include elements of language, storytelling, or reminiscence with a focus on personal stories in the treatment programmes. The review selects those studies which measured the impact on language, communication or social interaction; and also those which were delivered in a group format, in care homes. We are interested in the potential to increase communication opportunities, and associated wellbeing benefits, for all residents rather than subgroups such as only those with dementia.

The overall aims of identifying and evaluating the quality of the evidence base are as follows:

- 1: To describe the evidence base for behavioural interventions with older adults, delivered in groups in care homes, that specifically included a language or communication activity.
- 2: To evaluate the methodological quality of the studies in this evidence base.
- 3: To evaluate the completeness of intervention reporting as a measure of how readily these approaches could be replicated by researchers and/or implemented in practice.
- 4: To identify how change was measured in language, communication, and social domains.
- 5: To identify whether these interventions were effective in changing language, communication and/or social interaction.
- 6: To explore the evidence base for indicators about how these interventions affect change.

## **Methods**

Scoping searches were performed in November 2019 to identify any existing systematic reviews, systematic review protocols and primary research relating to the proposed research questions/areas. Key words relating to the concepts storytelling, aging, residential settings, group contexts, and communication were used to search the following databases: Cochrane Library, NICE, TRIP, PROSPERO, with no results.

### *Search Terms*

Systematic searches of research literature were performed using the following databases: Embase, Medline, Ovid Nursing database, Psych info, and CINAHL complete. Key words and subject terms were created which related to the following domains: storytelling, older people, residential settings, group intervention, and communication/ language skills. See table 1 for details.

**[Insert Table 1 here]**

### *Selection Criteria*

#### *Study*

We restricted our search to studies using controlled study design with pre and post-tests, which were published in English in a peer reviewed journal. We included primary research

only and excluded qualitative research studies, systematic reviews, conference abstracts, and theses. Searches were conducted by the lead author (LDa) and queries were answered by the second author (LDi). All articles published between January 1985 and November 2019 were considered for inclusion.

### *Participants*

Studies were included if their participant samples were 50 years and older, and residents in care or nursing home facilities.

### *Intervention*

Studies were included if they specifically stated that intervention was delivered in a group setting. Language or narrative was not required to be the primary focus or outcome of the studies; however, language activities were required to be incorporated within the intervention of interest as the *experimental* condition, and not used as an active control. All interventions were required to be delivered in person (e.g. not via a computer programme) in a residential, care or nursing home environment. Multicentre studies conducted across a combination of residential and community settings, which met all other criteria, were included.

### *Measures*

Standardised measures, rating scales or questionnaires were included. Studies were only included if they used a measure of at least one of the following domains: language; communication; social interaction, participation or behaviour. Studies using language,

communication or social interaction measures which were *subscales* of an assessment battery (e.g. cognitive or quality of life) were included if the appropriate subscale results were reported separately in the paper.

### *Data Extraction*

The following information was extracted from papers: study design; objectives; sample size and inclusion criteria; intervention protocol; materials and any facilitation strategies used; dosage; measurement tools; results; and any mechanisms of action reported. This data was extracted by the first author (LDa) and independently checked by other members of the team, following Cochrane guidelines. Details about the proportion of data checked and or independently scored for each research question are below. See table 2 for a summary of methods of synthesis and evaluation.

**[Insert Table 2 here]**

### *Methods for appraisal*

Appraisal of the methodological quality of the final papers in this review was conducted using the PEDro-P Scale (see Appendix 1), an adapted version of the PEDRo Scale (Maher et al., 2003), which can be used for randomised and non-randomised controlled trials. The first author (LDa) scored 100% of papers and the second author (LDi) independently scored a sample of 22% (5 out of 22) papers. Disagreements were discussed until a mutual consensus was reached.

The Template for Intervention Description and Replication Checklist (TIDieR; Hoffman et al., 2014), see Appendix 2, was used to measure the completeness of intervention reporting.

An initial stage of data extraction and scoring was carried out on 100% of papers by the first author (LDA) using the TIDieR checklist. Data was extracted and scored for a sample of 25% (6 out of 22) papers by the second author (LDi). Disagreements were discussed until a mutual consensus was reached. It became apparent that details were not being captured about the amount and nature of the information provided in studies, particularly in relation to materials used, procedure and the expertise of intervention providers. For example, some studies provided detailed, systematic descriptions of interventions with specific, practical information whilst others also met the criteria but provided broader overviews of intervention programmes with use of themes or categories. The TIDieR checklist format was, therefore, adapted by the first author (LDA), and approved by the second author (LDi) in order to better reveal the difference in reporting detail between the papers. See Appendix 3 for the adapted scoring criteria. This allowed us to examine the range of information provision in more detail, and identify examples of higher quality reporting within 3 specific items of interest (3. materials, 4. procedure, and 5. intervention provider). The adapted scoring system provided opportunities for an additional 5 marks over 3 items, dependent on the level of detail provided, and accessibility of information and resources for the *reader*, for purposes of evidence synthesis primarily but also treatment replication. One author (LDA) scored 100% of papers using the adapted scoring system. A sample of 25% of papers (6 out of 22) was checked by the second author (LDi). Both the original and adapted TIDieR scores are reported in this paper (see table 4 and Appendix 5).

The Intervention Taxonomy (ITAX; Schultz et al., 2010) was used to augment the aspects of intervention reporting covered by the TIDieR checklist. Data was extracted for 3 specific

dimensions of the ITAX which were considered useful in characterising treatment interventions in terms of how they were *delivered* (sensitivity to participant characteristic and treatment content strategies) and how the interventions *worked* (mechanisms of action).

### *Outcome measure, results and efficacy*

Information about all outcome measures included in the 22 papers was extracted by the first author (LDa). The next step was to narrow the focus to only those outcome measures of interest to this review, these were measures relating to the domains of *language, communication* and *social interaction*. This sub-selection was done by the first author (LDa) and independently verified by a second author (LDi). The final step was to extract information about the reporting of efficacy. This was independently done by two authors (LDa and NB) with 86% agreement (19 out of 22 papers). Where there was disagreement the opinion of the expert team member (NB) was taken. Use of measurement tools in the domains of language, communication and social interaction varied greatly between the studies and included standardised measures and informal and bespoke tools created for the purposes of the study. This information is, therefore, presented descriptively, with comparisons and similarities drawn where possible. Information regarding the psychometric evaluation of measurement tools, where this was available and accessible, is presented in the results table in Appendix 6.

## **Results**

*RQ 1: What research has been conducted in this area?*

Database searches, reference lists and hand searches produced a total of 158 records for screening. Of these, 133 were discarded as they did not meet our criteria. A set of 23 papers remained for review (see Figure 1 for PRISMA Flowchart). During analysis it was discovered that 1/22 of these papers (Woods et al. 2006) reported additional analysis (correlation) on the data set from another paper in the review (Spector et al. 2003). For this reason, we have combined the reporting of these two papers. This reduces the total number of papers (i.e. data sets) reviewed to 22 which is the figure used in the sections below.

**[Insert figure 1 here]**

The reviewed studies represent a broad range of geographical locations. 6 studies were conducted in the UK, 4 in Italy, 6 in the United States, 2 in China, 1 in Japan, 1 in the Czech Republic, 1 in Ireland and 1 in Canada. Sample sizes ranged from 16-201 participants. The smallest study, with 16 participants across hospitals, care homes, and day centres was conducted by Okumura (2008). Spector et al. (2003), conducted a large multicentre study with 201 participants from 18 Residential Homes and across five Day Centres.

Dementia was not used as a search term in scoping or systematic searches as the focus of this review was to explore and appraise the evidence for behavioural interventions containing language or communication activities in care homes for older adults. The vast majority (20/22) of the final papers, however, only included participants with cognitive impairment. The largest proportion of papers (11 out of 22) included residents with mild to moderate dementia (Bartolucci and Batini 2019a, 2019b; Capotosto et al., 2017; Lin et al., 2019; Orrell et al., 2005; Philips et al. 2010; Siverová and Bužgová 2018; Spector et al., 2001; Spector et al., 2003; Spector et al., 2010;; Winningham and Pike, 2007). Four papers

included participants with moderate to severe dementia (Hutson et al., 2014; Okumura et al., 2008; Santo Pietro & Boczko, 1998; Strom et al., 2017). One paper specified mild cognitive impairment (Zhang et al., 2018), and 1 paper (Orten, 1989) included a sample of “moderately confused” (p.75) care home residents which the author reported was “suggestive of the mid-range of functioning within general nursing center populations” (p. 79). Two papers (Tabourne 1991, 1995) specifically included people with cognitive impairment but their reporting of participant criteria relating to diagnosis and severity was less easy to decipher. Tabourne (1991) included participants with “probable Alzheimer’s disease” (p.15) and used the Mini-Mental State Examination (MMSE; Folstein et al. 1975) to confirm “mental impairment and mild to moderate confusion” (p. 17), but did not provide numerical data for the reader to interpret. Tabourne (1995) included participants with “dementia or depression with cognitive impairments” (p. 254) and reported that MMSE scores ranged between 4 and 25, without providing individual participant characteristics data for interpretation. One paper did not specify level of cognitive functioning in their participant criteria (Haslam et al., 2010). This study included residents in receipt of *standard care* (n=33), often described in the UK as *residential care*, and those who received *specialized care* (n=40), due to needs associated with a dementia diagnosis, and randomly assigned participants across 3 conditions. The remaining 2 papers specifically recruited participants with no cognitive impairment (Cesetti et al., 2017, Rattenbury and Stones, 1989).

Studies fell into 4 broad intervention types: Reminiscence or Life Review, Cognitive Stimulation, Narrative or Storytelling, and Multimodal Group Communication Treatment. The first two intervention types were fairly homogenous in approach and further investigation of the broader evidence base suggested that they are both relatively

established activities for older people in residential care settings, although they may be referred to by a different name. NICE guidelines for supporting people with dementia recommend offering group Cognitive Stimulation Therapy and considering group Reminiscence Therapy for people living with mild to moderate dementia, to promote cognition, independence and wellbeing (NICE, 2018.) Narrative and Storytelling interventions were more heterogeneous as a group in terms of aims, rationale and delivery. One study used a Multimodality Group Communication Programme called *The Breakfast Club*, devised and delivered by speech and language therapists. Key details about each study are outlined in Table 3 and summarised below, grouped into intervention type.

#### *Reminiscence or Life Review*

Reminiscence or Life Review interventions in this review focused on autobiographical discussion in a group context. Multisensory stimuli including photographs, props, food, music, and video footage from the past were often used to aid the reminiscence process, with the exception of Orten et al., (1989) where props were actively discouraged. All the intervention programmes in this group progressed through chronological life stages. The majority of programmes (6 out of 7) followed this structure closely, focusing on a different life stage each week or session e.g. school years, first jobs, marriage (Orten et al., 1989; Rattenbury & Stones 1989; Siverová and Bužgová, 2018; Tabourne 1991, 1995) and 2 papers (Okumura et al., 2008; Zhang et al., 2018) also used more general themes, such as music, housework and cooking. The terms Life Review and Reminiscence were, at times, used interchangeably in the literature but Life Review was typically a more structured and active evaluation of an individual's lifespan with the intention of addressing, and even resolving, emotional difficulties or conflicts (Butler, 1963), citing Erikson's model of aging (Erikson, 1950). In the

broader evidence base, Life Review tends to have been delivered as an individual intervention and Reminiscence is a more established group intervention. The selection criteria for the current review, however, stipulated group intervention studies.

Intervention in the Reminiscence or Life Review group ranged from highly structured programmes with considered and rationalised use of stimulus material (Siverová and Bužgová 2018; Zhang et al., 2018) to those more loosely based around a different life stage or theme for discussion each week or session (Orten 1989; Rattenbury 1989; Tabourne 1991,1995.) Participants were provided with opportunities to reminisce, and the time and space to verbally present their memories to the group, should they wish to do so. These reminiscences were generally not explored at a story or language level.

### *Narrative or Storytelling*

Narrative or storytelling interventions focused more specifically on stories and longer narratives, and were made up of two subcategories: passive, receptive tasks; and active, creative tasks. In the passive, receptive studies (Bartolucci and Batini 2019a, 2019b), participants were required to listen to narrative texts of increasing length and complexity, that were read aloud to them. The majority of the participants' time was spent attending and listening to stories, with an opportunity, but no obligation or reported facilitation, to express their thoughts about the text, before and after the listening task. In the studies which featured active tasks, participants were involved in the exploration of narrative themes and structure, and/or story creation. These interventions ranged from a highly structured format, based on the narrative phases of traditional Italian fairy tales and 4 designated emotional states (Cesetti et al., 2017) to the more spontaneous, but responsive

and carefully facilitated, creative expression fostered in the TimeSlips story telling intervention (Lin et al, 2019; Phillips et al, 2010).

### *Cognitive Stimulation*

This group comprises 3 different approaches: Cognitive Stimulation Therapy (CST), a cognitive enhancement programme, and a programme called Sonas. All 3 approaches focused on stimulating cognitive function and increasing social interaction. Five papers (Capotosto et al., 2017; Orrell et al., 2005; Spector et al., 2001; Spector et al., 2003; Spector et al., 2010) are connected to the Cognitive Stimulation Therapy (CST) programme first developed by Spector et al. (2001), who in turn acknowledge that their study was heavily influenced by a randomised controlled trial carried out by Breuil et al. (1994). Cognitive Stimulation Therapy (CST) is an intervention approach developed using aspects of Reality Orientation, Reminiscence Therapy, and Validation Therapy. Reminiscence is described above. Reality Orientation focuses on orientating subjects to the 'here and now' using external memory aids, and reinforcement of essential information about individuals and their immediate environment. Validation Therapy theory advocates the acknowledgment and appreciation of all communicative contributions, rather than correction; the use of empathy; and a focus on the emotions behind the presenting behaviour (Spector et al., 2001). CST aims to stimulate a range of cognitive functions in a group context through a variety of activities including reminiscence, discussion of current topics; focused language activities, such as semantic, categorisation and word association tasks; visual analysis; and functional numeracy tasks, such as handling money. This approach focuses on using residual skills and stimulating recall of longer term/episodic memories.

Two studies (Spector et al. 2001, Spector et al. 2003) described the development and refinement of their programme, one paper described a maintenance study following on from the RCT in 2003 (Orrell et al. 2005), one study replicated the programme in Italy (Capotosto et al. 2017) with translation and adjustments for the Italian cultural context, and one paper (Spector et al. 2010) presented further analysis of language subscales not previously presented in the Spector et al. (2003) paper. A key difference between CST and the cognitive enhancement programme (Winningham and Pike, 2007) and is that the latter attempts to encode *new* memories by combining multisensory stimulation with a variety of cognitive tasks. These tasks included learning and recalling information about other group members (e.g. favourite foods, vacations or pets) meaning social interaction *between* residents was core to the intervention.

The final subgroup within this category is an intervention programme called Sonas, which was developed by a speech and language therapist. The Sonas programme was used in 2 of the reviewed papers (Hutson et al., 2014; Strom et al., 2017). It is similar in format to the other 2 cognitive programmes within this category but places a greater focus in its aims on supporting and developing the communication skills of care home residents, hoping to effect change at a personal, environmental and institutional level.

#### *Multimodal Group Communication Treatment*

The remaining study used a Multimodal Group Communication Treatment called *The Breakfast Club*. This approach differed from the other 3 intervention categories as it focused on the use of functional, social language in the context of an everyday activity (preparing, consuming and tidying away breakfast) in situ. A high level of careful facilitation was employed by the speech and language pathologists who delivered the intervention,

including verbal cuing, and modelling and elicitation of social language in context, as well as language specific tasks (e.g. semantic categorisation).

*RQ 2: What is the methodological quality of the studies identified?*

As specified in the selection criteria, all of the studies were controlled trials and as such met the criteria for evaluation with the PEDro-P scale (see Appendix 4 for scores). There was a fairly broad range of marks (out of 10) from 3-7. None achieved full marks. Studies lost points for non-inclusion of information about the following: random allocation; concealment of allocation; similar baseline scores between groups; blinding of subjects, therapists and assessors; obtainment of measures from more than 85% of subjects initially allocated to groups for at least one key outcome; intention to treat; reporting of results for between-intervention group statistical comparisons for at least one outcome; and provision of point measures and measures of variability for at least one key outcome. Just over half of the papers (12) related to randomized controlled trials (Capotosto et al. 2017; Haslam et al. 2010; Hutson et al. 2014; Lin et al. 2019; Orten et al., 1989; Rattenbury & Stones 1989; Spector et al. 2001; Spector et al. 2003; Spector et al. 2010; Strom et al. 2017; Tabourne 1991, 1995). The remaining 10 studies were non-randomized controlled trials (Bartolucci and Batini 2019a, 2019b; Cesetti et al. 2017; Okumura et al. 2008; Orrell et al. 2005; Phillips et al., 2010; Santo Pietro & Boczko 1998; Siverová and Bužgová 2018; Winningham & Pike, 2007; Zhang et al., 2018).

Although not validated, the following classification of scores has been used by authors (Cashin & McAuley, 2020; De Morton, 2009) for the *PEDro* Scale (Maher et al., 2003): scores of 0-3 are considered 'poor', 4-5 'fair', 6-8 'good', and 9-10 'excellent'. In previous reviews using the *PEDro-P* Scale, a cut-off score of 6 has been used to identify studies of sufficiently

high methodological quality for inclusion (Murray et al., 2013). As the evidence base is small, we did not exclude lower-rated studies, but instead, following Joanna Briggs Institute recommendations (Aromataris & Munn, 2020), we included all papers that met the initial search criteria in order to explore the nature and quality of research conducted in this area. Of the studies reviewed, 8 met the aforementioned threshold of 6 points or above on the PEDro-P Scale. Four papers achieved a score of 7 on the PEDro-P Scale. Of these, 3 used the CST approach (Capotosto et al., 2017; Spector et al., 2003; Spector et al., 2010) and one used creative storytelling (Lin et al., 2019). Four papers achieved a PEDro-P score of 6. These included: a narrative listening programme (Bartolucci & Batini., 2019a); a positive narrative intervention (Cesetti et al., 2017); Sonas, a cognitive stimulation approach, (Hutson et al., 2014); and Reminiscence Therapy (Rattenbury & Stones, 1989). The remaining 14 papers achieved scores below 6 (see table 4).

Blinding of assessors for at least 1 key outcome was reported in 8 papers (Bartolucci & Batini 2019a, 2019b; Cesetti et al., 2017; Hutson et al., 2014; Lin et al., 2019; Santo Pietro & Boczeko, 1998; Spector et al, 2003; Spector et al, 2010). Blinding of subjects was reported in 1 paper (Capotosto et al., 2017) and allocation was concealed in 4 papers (Lin et al., 2019; Spector et al., 2001; Spector et al., 2003; Spector et al., 2010).

### *RQ 3: How complete is the intervention reporting?*

Completeness of intervention reporting was evaluated using the TIDieR checklist (see Appendix 2). All studies achieved moderate scores (out of 12) within a small range (6-9.) All papers reported on: a brief name or phrase to describe the intervention; rationale; procedure; mode of delivery; and location of intervention. Studies lost points on the following items: materials, intervention provider, tailoring of interventions, and planned and

actual adherence or fidelity. Three papers failed to provide information about the length of treatment sessions (Orrell et al., 2005; Tabourne, 1995; Winningham and Pike, 2007). None provided information relating to modification of the intervention (see Appendix 5 for an overview of TIDieR scores achieved). Evaluation with the adapted TIDieR scoring system produced a broader range than the original criteria (out of 17), from 6-12.

### *Materials*

The category of materials most commonly referred to across the studies (in 12 out of 22 papers) was multisensory stimuli (Capotosto et al., 2017; Hutson et al., 2014; Orrell et al., 2005; Santo Pietro & Boczko, 1998; Siverová & Bužgová 2018; Spector et al., 2001; Spector et al., 2003; Spector et al., 2010; Strom et al., 2017; Tabourne 1991, 1995; Winningham & Pike, 2007; Zhang et al., 2018). This included reminiscence objects, food, smells, videos and music. Winningham and Pike (2007) used stimulation of the senses (e.g. smell, sight and touch) *whilst* carrying out cognitive tasks to help encode *new* memories. All of the papers in the Cognitive Stimulation Therapy group used a reality orientation board to support participants' attention and orientation within sessions, whilst also providing continuity between sessions.

### *Procedure*

Reporting of intervention procedure varied between studies. Papers also varied in the level of detail reported about control conditions. Intervention schedules ranged from relatively high intensity programmes such as 40 sessions of up to an hour, 5 days a week (Bartolucci &

Batini, 2019a) to weekly 2-hour sessions for 4 weeks (Cesetti et al. 2017). See Table 3 for reported intervention protocol, strategies and materials.

**[Insert Table 3 here]**

*RQ 4: How was change measured in language, communication and social domains?*

Domains targeted in studies included: cognition; memory; quality of life; psychological and social wellbeing; self esteem; attitude towards aging; mood (self-rated), emotional state (observed), and measures of psychological symptoms such as depression and anxiety; language; communication; social interaction, participation or behaviour, and perceived social support; illness severity; sleep quality; global functioning; activities of daily living; behaviour and level of disorientation. All of the studies in the review but one (Orten et al. 1989) used multiple assessment tools to measure outcome. These ranged from formal, standardised assessments and self rating scales, to informal bespoke measures (rating scales and observation sheets.) Some studies used individual subscales from standardised assessment which suited the aims of their study. (An overview of the measurement tools used in each of the studies can be found in Appendix 6.)

A range of language and communication measures were employed. These included the following language measures: The Functional Assessment of Communication Skills (FACS; Fratalli et al.1995) adapted for a Chinese population (Chen, 2015), The Holden Communication Scale (Holden and Woods, 1995), Arizona Battery of Communication Disorders in Dementia (ABCD), the Communication Outcome Measure of Functional

Independence Scale (COMFI; Santo Pietro & Boczko, 1997), the Narrative Language Test (Carlomagno et al., 2013) and a verbal fluency task (Okumura et al., 2008).

Three cognitive assessments with language subscales were used: the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS; Randolph, 1998), the Alzheimer's Disease Assessment Scale – Cognition (ADAS–Cog; Rosen et al., 1984), and the Beijing version of the Montreal Cognitive Assessment (MoCA-BJ; Zhang et al., 2017) adapted from the Montreal Cognitive Assessment (MoCA; Nassreddine et al., 2005).

Social behaviour, interaction, and participation were measured using formal self-rating scales, such as subscales from the Keyes' Social Well-Being Scales (SWB; Keyes, 1998), the Social Support Appraisals (SS-A) Scale (Vaux et al., 1986) the Social Support Behaviors (SS-B) Scale (Vaux et al., 1987), The UCLA Loneliness Scale (Russell, 1996; Russell et al., 1978) the Todai-shiki Observational Rating Scale (TORS; Kurokawa et al., 1999), and a number of bespoke observation rating scales. Orten et al. (1989) created the Evaluation of Social Behavior Scale in which assessors recorded data on behaviours such as initiation of and response to conversation, listening to others, speech coherence, attitude to others and general outlook on life. Tabourne (1991, 1995) designed rating scales to assess social interaction, specifically incidences of initiation and response to conversation, both verbal and non-verbal. Two quality of life assessments with subscales relating to social interaction and participation were used by Siverová and Bužgová (2018): domain 3 of The World Health Organisation Quality of Life – BREF (WHOQOL-BREF; Harper 1996), which relates to social relationships; and subscale 4 of The World Health Organisation Quality of Life- OLD (WHOQOL-OLD; Power et al. 2005) which relates to social participation. Santo Pietro & Boczko, (1997) measured incidences of *cross-conversation*, which was defined by the

authors as “any utterance by a group member addressed to another group member, not the facilitator, whether self-initiated or in response to the other member's utterance or action” and enabled evaluation of “the degree to which group members acknowledge and relate to one another” (p.151). Rattenbury and Stones (1989) used time sampling analysis to measure the frequency of verbal participation and calculate an average “talking score” for each participant for every week of the intervention. This was achieved by a research assistant making a note of which participants were talking at 15-second intervals, throughout each weekly session, and as such focused on the *amount* of verbal interaction rather than the *nature* of language content or any associated social behaviours.

The most commonly used measure was the Holden Communication Scale which featured in 5 studies (Hutson et al., 2014; Orrell et al., 2005; Spector et al., 2001; Spector et al., 2003; Strom et al., 2017). With the exception of 3 papers (Capotosto et al., 2017; Okumura et al., 2008; Zhang et al., 2018), studies assessed a single domain only i.e. social *or* language *or* communication. Only a small minority of papers (6/22) reported maintenance measures (Bartolucci & Batini, 2019b; Lin et al., 2019; Orrell et al., 2005; Orten et al., 1989; Strom et al., 2017; Zhang et al., 2008)

*RQ 5: Is there evidence of efficacy, indicated by statistically significant improvement, in these domains?*

The outcome measures of interest for this review from all 22 papers are presented in Appendix 6. Synthesis of outcome data indicated that there is some evidence of efficacy in all 3 domains of interest here of (language, communication and social interaction) and across all 4 intervention types. Statistically significant improvements (in language,

communication or social domains) at post-test were reported by the authors in 16 out of the 22 papers. Given the varied methodological quality of the reviewed papers, with the majority (14/22) scoring below a 6 on the PEDro-P Scale, these results should be interpreted with caution.

Of the papers which scored 7 on the PEDro-P Scale, the highest score achieved within this review, the majority (3 out of 4) reported significant improvements in the domains of language, communication or social interaction (Capotosto et al., 2017; Lin et al., 2019; Spector et al., 2010). Of the papers which scored 6 on the PEDro-P Scale, one reported significant improvements (Bartolucci & Batini., 2019a) and the remaining 3 papers (Cesetti et al., 2017; Hutson et al., 2014; Rattenbury & Stones, 1989) reported no significant improvements in these domains. See table 4 for an overview of methodological appraisal, replicability and efficacy.

**[Insert Table 4 here]**

Spector et al. (2010) analysed data from the Spector et al., (2003) RCT, with the authors reporting that language was the cognitive skill which showed the most improvement following CST. Spector et al. (2010) suggest that it may have been the combination of language, communication and social interaction elements which were targeted in the CST intervention that brought about change. This included a focus on implicit learning, feelings and opinions rather than an expectation to learn or retrieve factual information, which nurtures residual skills; encouraging residents to consider and express their own views,

including discussion of some more controversial topics and current affairs, thereby generating genuine interest, engagement and motivation to convey personal opinions; and finally use of language specific tasks, such as object categorisation and word association, to support semantic processing.

Lin et al. (2019) used TimeSlips creative storytelling and found, through maintenance measures, that residents demonstrated sustained benefits in the domains of social communication, but not cognition, weeks and months after treatment had finished. These findings suggest that group interventions in residential settings may have the potential for longer lasting beneficial effects in particular (social) domains, which warrants further investigation.

#### *RQ 6: How did the interventions work?*

Three dimensions from the ITAX were used to examine how the interventions worked: sensitivity to participant characteristics; treatment content strategies; and mechanisms of action.

#### *Sensitivity to Participant Characteristics*

Sensitivity to participant characteristics is defined by Shultz et al. (2010) as the “Extent to which participant background, experience and abilities are incorporated in the delivery of intervention” (p.11). Studies from all 4 intervention types demonstrated consideration of the impact of declining cognition and living in a residential care setting on participants’ psychosocial wellbeing, communication and general functioning, in the *development* and *delivery* of their interventions. Examples of sensitivity to participant characteristics in both

the *development* and *delivery* of interventions are of interest here and as such have been included for discussion. In the studies evaluated for this review, sensitivity to participant characteristics included consultation of care home residents in the *development* of intervention programmes through codesign (Zhang et al., 2018) and *Participatory Action Research* (Lin et al., 2019), and use of specific strategies in the *delivery* of interventions, such as adaptation of interaction style (Bartolucci and Batini 2019a, 2019b; Phillips et al., 2010; Spector et al., 2001; Spector et al., 2003; Spector et al., 2010); facilitation of social communication (Haslam et al 2010; Santo Pietro & Boczko, 1998; Tabourne, 1995; Zhang et al, 2018); and visual stimuli or support (Cesetti et al, 2017; Phillips et al, 2010).

A focus on participants' residual skills rather than deficits, was evidenced across all 4 intervention types, highlighting strengths and aiming to reduce experiences of failure. This was demonstrated in Reminiscence Therapy or Life Review interventions through stimulation and discussion of long-term memories, which tend to be preserved longer than other areas of cognitive functioning in people with dementia (Thorgrimsen et al. 2002). The TimeSlips storytelling intervention focused on creativity rather than tasks which challenged memory and cognitive function (Phillips et al., 2010), and Spector et al (2001) stated the fourth of their five guiding principles to be a focus on "Implicit learning (familiarity and "intuition"), rather than explicit "teaching"." (p.384). Winningham and Pike (2007) used evidence about cognitive plasticity and neurogenesis on older adults to inform their intervention activities, in which they attempted to encode new memories through multisensory stimulation.

### *Treatment Content Strategies*

Analysis of treatment content strategies revealed the use of facilitation techniques and props in all 4 intervention types. Strategies ranged from verbal cuing and prompting (Tabourne, 1995); open ended prompts, avoidance of correction and frequent recapping of the group story (Phillips et al., 2010), reality orientation techniques (Spector et al., 2001; Spector et al., 2003; Spector et al., 2010) to use of the comprehensive MESSAGE communication strategy framework by Zhang et al., 2018.

The provision of information and skill-building techniques were employed by Winningham and Pike (2007) in order to motivate participants and encourage self-efficacy. Orten et al., (1989) concluded that the skill and experience of the intervention provider was an important variable in their study, indicating the significance of not only *what* materials, activities and strategies are used in an intervention but how they were used. See Table 3 for detail of materials and strategies reported in each paper.

### *Mechanisms of Action*

The mechanisms of action proposed in the reviewed studies fell within the ITAX categories of knowledge, behavioural skills, motivation, self-efficacy, social support, and social engagement.

### *Knowledge, motivation and self-efficacy*

The cognitive enhancement programme used by Winningham and Pike (2007) was the only intervention which referred to a specific intention to increase the knowledge, motivation and self-efficacy of participants. The provision of information (about the brain, how memory works and ways to improve memory) was used to increase participants' knowledge and

encourage self-efficacy, and recent research with encouraging outcomes relating to cognitive plasticity and neurogenesis in older people was used in to increase participants' motivation. This has echoes of the previously mentioned evidence for self-management of communication difficulties in older people (Jordan et al., 1993; Worrall et al. 1998).

### *Social support and social engagement*

A group format formed part of our selection criteria and as such was used in all the studies reviewed. However, social interaction was cited as an important component of treatment interventions in a large proportion of papers (Cesetti et al., 2017; Capotosto et al., 2017; Haslam et al., 2010; Hutson et al., 2014; Phillips et al. 2010; Santo Pietro & Boczko, 1998; Siverová and Bužgová, 2018; Spector et al., 2001; Spector et al. 2003; Spector et al., 2010; and Tabourne, 1995; Winningham and Pike, 2007; Zhang et al., 2018). Suggested benefits of a supportive group context include the opportunity for meaningful verbal communication, “improving self-esteem through social stimulation and encouragement” (Spector et al. 2003 p.252), sharing of opinions and experiences (Phillips et al. 2010; Cesetti et al. 2017; Siverová and Bužgová, 2018; Spector et al. 2010), stimulating “intragroup social relationships” (Capotosto et al. 2016 p. 332), and helping to establish a “social support system” in the setting (Zhang et al. 2018 p. 621).

A number of studies focused specifically on the importance of verbal interaction *between* participants, in addition to staff-resident interaction, and made this integral to their activities (Cesetti et al., 2017; Santo Pietro & Boczko ,1998; Siverová and Bužgová, 2018; Spector et al., 2001; Spector et al., 2003; Tabourne, 1991, 1992; Winningham and Pike, 2007). The treatment content itself varies across these studies (learning and recalling

information, feeding back on personal stories, and collaborative tasks) but all have interaction in common as a mediator of treatment content.

Rattenbury (1989) found that participants' observed level of social interaction, calculated as an individual *talking score*, correlated with positive changes in mood and behaviour.

Tabourne (1995) found interesting differences between the social behaviour and level of interaction of the *novices*, who were attending life review sessions for the first time, and *veterans*, who had previously completed a similar programme. Veterans demonstrated higher levels of social interaction and were more likely to initiate conversation than novices.

The sustained improvement in a number of social skills and mood reported by Tabourne (1991, 1995) suggests that social support and social engagement could have been mechanisms at work in these treatments.

### *Behavioural Skills*

Cognitive stimulation was the final mechanism of action to emerge from the reviewed studies. Cognitive stimulation didn't fit within the designated mechanisms of action provided by the ITAX framework, so behavioural skills was considered the closest fit. As the name would suggest, cognitive stimulation formed the basis of the Cognitive Stimulation intervention approach, in combination with validation and reality orientation interaction techniques. In two of the intervention types, Cognitive Stimulation and Narrative or Storytelling, this cognitive stimulation focused, at least in part, on the processing of language. The CST programmes used in Spector et al. (2001) and Spector et al (2003) included word association and object categorisation tasks as well encouraging group discussion and expression of participants' views on current affairs, amongst a range of activities targeting different cognitive processes. Bartolucci and Batini (2019a) described in

detail a complex process of cognitive stimulation and connectivity that is unique to the experience of listening to narrative: “Processing narrative material means understanding the intentions, goals, emotions, and other mental states of the characters, which is referred to as mentalizing” (p. 307).

Studies in the Reminiscence or Life Review intervention group focused on the cognitive stimulation provided by reminiscence opportunities. Multisensory stimulation was often used to enhance the experience and focus attention. The opportunity for creative expression, when carefully facilitated, was discussed as a mechanism of change in the papers which employed the TimeSlips intervention approach (Lin et al., 2019; Phillips et al., 2010).

The authors noted variation across the studies in the skill levels of the interventionists, which may be a potential factor in the efficacy of a behavioural intervention. There is not enough evidence here to draw any conclusions but correlations and hypotheses related to this possible mechanism of action, reported by Orten et al., (1989), have been noted in Appendix 6.

## **Discussion**

The aim of this review was to identify, describe, and appraise the evidence base for group interventions incorporating language and communication for older adults in care homes. To our knowledge it is the first systematic review of its kind.

Our findings suggest that the evidence base is relatively small and made up of 4 intervention types Reminiscence or Life Review, Narrative or Story Telling, Cognitive Stimulation and Multimodality Group Communication Treatment. The methodological quality of studies

ranged from poor to good, with a moderate level of detail provided in treatment reporting. A diverse range of measurement tools were employed, encompassing a variety of domains, with a few exceptions which focused on observing social interaction in greater detail. This meant that efficacy data was disparate and presented some challenges in the synthesis of evidence.

#### *Identifying and characterising the evidence base*

The selection criteria for this review specified controlled trials and half of the final studies were RCTs, which are considered the highest quality evidence for healthcare research, defined by hierarchies such as the Cochrane Consumer Network (The Cochrane Collaboration, N.D.). Evaluation using the PEDro-P scale, however, confirms the importance of establishing the methodological quality of studies, including controlled trials and RCTs on an individual basis to avoid exaggeration of treatment effects, as discussed by Murray et al., (2013). The reviewed studies varied in terms of the following: sample size; intervention type, including materials and strategies; dosage; and training of intervention providers. Despite not using dementia as a search term, the vast majority of studies in the final review (20 out of 22) included participants with cognitive impairment.

#### *Appraising the evidence base*

This review indicates broadly *fair* methodological quality with some examples of higher methodological quality, categorised as *good* within the PEDro-P framework (Bartolucci & Batini., 2019a; Capotosto et al., 2017; Cesetti et al., 2017; Hutson et al., 2014; Lin et al., 2019; Rattenbury & Stones, 1989; Spector et al., 2003; Spector et al., 2010), and a moderate level of completeness in the reporting of intervention protocol in this area. Reporting on

materials, the intervention provider, and intervention adherence and fidelity are important areas to address in order to improve the quality of the evidence base.

### *Outcome measurement*

The reviewed studies generally demonstrated an ambitious, broad-view approach to outcome measure, encompassing cognition, general health and functioning, and psychological wellbeing rather than a deeper dive into language processing. On the whole, where language was assessed, it was not particularly systematic or targeted. Santo Pietro & Boczko (1998) focused on the social use of language in the context of daily tasks in their *Breakfast Club* intervention, and measured both functional communication and incidents of “cross conversation” between participants. The remaining papers, however, did not contain a rationale for the decision to assess specific aspects of language, e.g. ‘worked on’ skills vs. generalisation of skills to different domains and contexts. For example, none of the Narrative or Storytelling intervention studies assessed narrative skills, but narrative skills were assessed by Capotosto et al. (2017) in a study where narrative wasn’t targeted as a skill. Some encouraging observations were reported about longer-term positive changes in social behaviour following Life Review intervention, but these maintenance measures were informal and anecdotal.

### *Efficacy*

Findings from this review indicate some evidence that group interventions with older adults in care homes can contribute to changes in language, communication and social interaction with statistically significant improvements reported by the authors in all 4 domains.

Four papers achieved 7 out of 10 points on the PEDro-P Scale measure of methodological quality, the highest score within this review (Capotosto et al., 2017; Lin et al., 2019; Spector et al., 2003; Spector et al., 2010). These studies are likely to offer the most reliable and valid results for interpretation. They represent 2 of the 4 intervention types covered in this review: Cognitive Stimulation (Capotosto et al., 2017; Spector et al., 2003; Spector et al., 2010) and Narrative or Storytelling (2017; Lin et al., 2019).

#### *Limitations of the current review*

Despite all of the reviewed studies being controlled trials, there was a huge variety in the areas of primary outcome, assessment methods and level of detail provided regarding treatment protocol. The broad ranging nature of measurement tools and targeted domains meant that efficacy data was disparate and challenging to synthesise.

Our ability to draw firm conclusions about the likely beneficial effect of intervention to improve language and communication for residents in care homes was hampered by the limited number of studies identified in the initial key word search. This also limited our ability to provide specific examples of interventions that were effective in improving communication, increasing communication activities and impacting quality of life. However, those examples which we have highlighted here in the discussion show promise and the data suggests that further research is warranted.

*Directions for future research*

The current role of SLTs with older adults in care homes should include support for communication for people with dementia (RCSLT, 2014) but with swallowing difficulties affecting between 50 and 75% of nursing home residents (O'Loughlin and Shanley, 1998), dysphagia referrals are placing increased demands on SLT services (RCSLT, N.D). Moreover, the NICE guidelines relating to older people in care homes (not only those with dementia) emphasise the importance of regular participation in meaningful activities to support health and mental wellbeing (NICE, 2013). This review does not provide evidence about the need for SLT involvement in supporting communication in this client group, to maintain functioning and wellbeing, and so this is an area for future research. What it does provide is evidence that positive improvements in communication are possible through group interventions in care homes. Since SLTs are experts in this field, we would argue that they should have a central role in the future research in this area. It may be that the role of SLTs in these settings isn't to intervene directly but rather to provide a consultative, training or support role to specific care home staff (e.g. Activities or Engagement Coordinators). This could include designing targeted language and communication intervention programmes to be delivered by care home staff under the guidance (training and monitoring) of an SLT. Further research informed by the speech and language evidence base and communication specialist knowledge is warranted. This should include consultations with key stakeholders (care home staff, residents and family members) to further explore the nature of the need for communication support in care homes. Additional research into outcome measures for language and communication in this client group is also required in order to show efficacy and help develop the evidence base.

Social interaction, social support, and cognitive stimulation emerged as fairly consistent mechanisms of action in the reviewed behavioural interventions which suggests that these are the likely key ingredients on which to focus efforts. Motivation and self-efficacy, also warrant further investigation, particularly in typically aging older adults and those with mild cognitive impairment.

### *Clinical implications*

The current review provides indicative evidence to support use of the following principles, activities, and strategies when working with older care home residents:

- collaboration with residents in the planning and development of activities;
- supporting and maximising *residual skills* with adaptations for difficulties as required (e.g. visual, hearing and cognitive);
- facilitating communication and meaningful interaction *between* residents with opportunity for increased agency where possible (e.g. residents leading discussion rather than passively listening);
- supportive strategies, props, and considered use of subject matter in order to stimulate engagement and meaningful discussion;
- stimulation of (linguistic) cognitive processes via a range of group activities and forms of engagement appropriate to individual levels of cognitive functioning (e.g. listening to and creating stories, dedicated language tasks, discussion of topics of interest and modelling of language in context);
- use of multisensory stimuli to increase engagement (and possibly support encoding of new memories).

This is, perhaps, a routine set of skills for SLTs but not for care home staff, which emphasises the potential for increased involvement of SLTs. Such involvement could include the development of targeted communication interventions or training for care home staff, so as to embed these principles in care home settings.

## **Conclusion**

Communication difficulties, as well as situational and environmental limitations experienced by many care home residents can lead to reduced communication opportunities and activity in these settings which in turn can negatively impact wellbeing. There is some evidence of the effectiveness of behavioural interventions in increasing wellbeing and our review adds to this, with reported improvement across language, communication and social domains.

The evidence base spans a fairly broad time frame but remains small and is limited by heterogeneity, particularly in the domains measured, despite intervention approaches falling fairly neatly into 4 types. The resulting disparate outcome data, and the variable methodological quality of studies, means it is not yet possible to draw conclusions about which approach, if any, is most efficacious.

In spite of these limitations our review highlights important positive signs for the beneficial effects of supporting language and communication in residential care. It is important that future research builds on this foundation to improve communication skills, increase communication activity and thereby support wellbeing.

**Data availability statement**

Data sharing is not applicable to this article as no new datasets were created or analysed in this study.

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