Psychosocial outcomes of dyadic arts interventions for people with a dementia and their informal caregivers: A systematic review

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Abstract

Dementia is a neurodegenerative syndrome that can lead to profound psychological and social challenges for people with dementia and their informal caregivers. Previous research has found positive effects of arts-based interventions for people with dementia and caregivers that have been dyadic in nature and the present article sought to review these findings. A systematic literature review was conducted to investigate psychosocial outcomes of dyadic arts interventions. PsychINFO, Medline, Web of Science and ASSIA databases (from journal inception to March 2020) were searched as well as Google Scholar and reference lists of relevant studies. Interventions were delivered to people with dementia and their caregivers in community-based settings across five countries. Thirteen peer-reviewed journal articles met the criteria for inclusion in this review, six focusing on performing arts and seven on visual arts. The findings suggested that choral singing and visual arts interventions may have positive effects on psychosocial outcomes for both people with dementia and their informal caregivers. Improved wellbeing, quality of life, mood, enhanced identity and decreased social isolation were found in some studies. Importantly, across all studies, participants reported enjoying arts activities. This is the first review to systematically assess dyadic arts activities in a dementia context. These activities offer enjoyable and engaging experiences for many PWD and caregivers and were generally found to have positive results but mostly small sample size, lack of control groups and different outcome measures made comparisons challenging. Future research recommendations include further theoretical development, identifying key intervention components, and specifying relevant and measurable theoretically-informed outcomes within dyadic interventions for this population.

Keywords: the arts, dementia, caregivers, dyad, couples, psychosocial impact

What is known about this topic:

- The arts have been empirically shown to have a positive impact on the wellbeing and quality of life of people with dementia
- The arts are generally accessible to people internationally, in one form or another
- Most people report enjoyment when engaging in arts activities

What this paper adds:

- The importance of considering arts interventions that involve carers *together* with people with dementia
- A range of different arts activities generally have a positive effect on wellbeing and quality of life for dyad members
- Future research should consider further theoretical development, identifying key intervention components, and specifying relevant and measurable theoretically-informed outcomes within dyadic interventions

Introduction

The impact of dementia on relationships

Dementia has been shown to impact on the relationship between the person with dementia (PWD) and their informal caregiver(s), whether this is spousal or other relationship (NICE, 2006). As dementia progresses there can be a change of roles, loss of closeness and intimacy and a reduction in shared activities (Baikie, 2002; Balfour, 2014). There can be “altered structures”, as the organisation of the relationship changes (Merrick, Camic & O’Shaughnessy, 2016). This includes the level of reciprocity in the relationship, with fewer reciprocal conversations and less shared understanding. Couples tend to focus on maintaining normalcy and sometimes found a strengthening of the relationship. The concept of couplehood in dementia refers to the relationship between PWD and spousal caregivers (Hellström, Nolan, & Lundh, 2007). Particularly in the early stages of dementia, couples tend to focus on “sustaining couplehood” in order to maintain their quality of life (QOL) and involvement in the relationship (Hellström et al., 2007). One aspect of sustaining couplehood involves shared activities and “doing things together” (Hellström, Nolan, & Lundh, 2005, p. 16). It is possible therefore that dyadic activities could support couplehood by strengthening relationships. Discovering new ways to spend enjoyable time together (e.g. shared activities), can also increase wellbeing and happiness for PWD and caregivers (Carbonneau et al., 2010; Voelkl, 1998).

The arts

There are many different forms of arts interventions for PWD and their caregivers including visual, performing and literary arts (Young, Camic & Tischler, 2015). One type of performing arts intervention is music-based, utilizing music therapy, singing and/or music listening, whilst other forms include dance and drama. Findings for music interventions include decreases in depressive symptoms for PWD (van der Steen et al., 2018), positive impact on mood (McDermott, Crellin, Ridder, & Orrell, 2013) and improvement in behavioural and psychological symptoms of dementia (BPSD) (Raglio et al., 2012). For the visual arts, interventions have combined art viewing with art making or employed art making on its own using a range of art media including collage, drawing, painting, pastels, printmaking and sculpting (e.g. Camic, Tischler & Pearman, 2014; Windle et al., 2018) with increased self-esteem, wellbeing and QOL being reported (Beard, 2012; Kinney & Rentz, 2005; Rentz, 2002; Windle et al., 2018). Literary arts interventions have included storytelling, poetry and reading, with reading groups being associated with a reduction in severity of BPSD, increased enjoyment and renewed sense of identity (Billington, Carroll, Davis, Healey, & Kinderman, 2013). Storytelling has been shown to improve communication skills, increase positive affect and expressions of pleasure for PWD (Phillips, Reid-Arndt & Pak, 2010). The arts also have the potential to create enjoyable, non-stigmatising and non-clinical activities for caregivers and PWD to jointly engage (Chatterjee, Thomson, Lockyer & Camic, 2017).

Psychosocial dyad interventions

Literature reviews have found that other psychosocial interventions such as stress management training and social support may positively impact psychological difficulties and QOL for PWD and caregivers and delay residential home placement (e.g. Brodaty, Green, & Koschera, 2003; Van't Leven et al., 2013). These interventions can be delivered to the PWD and caregiver separately or jointly. It has been suggested that joint interventions and incorporating social components may be more effective than those delivered separately (Brodaty et al., 2003; Cooke, McNally, Mulligan, Harrison, & Newman, 2001). One review has looked at the influence of dyadic psychosocial interventions including psycho-education and art viewing in seven studies (Rausch, Caljouw, & van der Ploeg, 2017). Although qualitative findings were positive, no significant differences on quantitative outcomes were found, leading the authors to recommend a need to develop more dyadic interventions.

In summary, numerous reviews of arts-based interventions involving PWD have focused mostly on the PWD rather than the dyad. Dyadic arts-based interventions were reported to have positive effects on qualitative aspects but no significant differences were found on quantitative measures. No currently published reviews that we are aware of have solely reviewed the influence of dyadic arts-based interventions on psychosocial outcomes. This is of particular importance considering the increasing likelihood of informal caregivers being involved in caring for a family member who is not in residential care, and the growing societal dependence on informal caregivers as part of national dementia care strategies (e.g. Department of Health, 2015).

Methodology

A systematic literature review (Grant & Booth, 2009) was conducted to examine research on the psychosocial influence of dyadic arts interventions for PWD and informal caregivers. Although a standard or consensus definition of a systematic review does not exist (Krnic Martinic et al. (2019), the present review was guided by suggestions from Ulman (2011) and Moher et al. (2019). Because the area of arts and dementia remains a relatively new area of study, in order to cast a wide a net as possible, we included qualitative, quantitative and mixed-methods studies.

Definition of terms

Influence on psychosocial outcomes refers to any reported or observed effects on emotions, wellbeing, QOL, behaviour or forming and maintaining connections with others. Whilst the definition of the arts is open and debatable, we used a broad-based definition to include any activity or product done by people with a communicative or aesthetic purpose that expresses an idea or emotion. Dyadic arts interventions refer to any activity using a form of the arts which is participated in simultaneously by both a PWD and informal caregiver. The definition of an informal caregiver used in this review is “persons without formal health care education who are caring for or helping a person with functional disabilities, prolonged psychiatric or physical illness, or age-related problems” (Lethin, 2016, p. 16).

Literature search

PsychINFO, Medline, Web of Science (Core Collection) and ASSIA were searched with no beginning date to March 2020 to identify studies relevant to the review. The area of investigation is a relatively new one and we wanted to keep the dates of the search as broad as possible. Further searches, using the same search terms, were conducted on Google Scholar and hand-searching of reference lists of relevant articles. Search terms covered three main areas of arts-based interventions, performing arts, visual arts and literary arts; Boolean operators ‘AND’ and ‘OR’ were used to combine search terms (Table 1). Articles were screened for relevance by title and then by abstract before retrieving full texts (Figure 1). Inclusion and exclusion criteria for screening papers can be seen in Table 2. Papers including formal (paid) caregivers were not included due to the differing relationships between PWD and informal and formal caregivers. Interventions conducted in residential settings were also not included due to the different caring responsibilities of family caregivers in the community. Papers were also excluded if the intervention was not solely arts-based as it would be difficult to determine the influence of the arts intervention. Dance and other exercise-based interventions were excluded due to the overlap with the psychological impact of physical exercise (Thuné-Boyle, Iliffe, Cerga-Pashoja, Lowery, & Warner, 2012). Thirteen studies met the inclusion criteria (Table 4); seven were visual arts interventions and six were performing arts (no literary arts intervention studies met the inclusion criteria). Three studies were quantitative in design, five were mixed-methods and five qualitative. Only findings related to psychosocial outcomes were included due to the scope of this review.

Table 1 here

Figure 1 here

Table 2 here

Data extraction and analysis

The quality of papers was reviewed using the assessment criteria developed by Kmet, Lee and Cook (2004), (Table 3) as this was applicable to a range of quantitative, qualitative and mixed-method study designs (Table 4). Mixed-methods studies were scored using both quantitative and qualitative criteria. All authors agreed to inclusion and exclusion criteria, PB and PC independently read and assessed each study using Kemet et al.'s criteria and scored each criterion with a low of zero and a high of two. Any differences in assessment scores were then discussed and resolved.

Table 3 here

Structure of review

Study findings are first summarised under each type of arts intervention before considering methodological limitations. Finally, practice and research implications are considered.

Table 4 here

Results

The overall quality of the eight quantitative studies was mixed with a range from a low of 50 to a high of 92 percent with five scoring over 75 percent. Likewise, the 10 qualitative studies were also of varying quality with a range from 45 to 100 percent with seven scoring 75 percent or above. Weaknesses of many quantitative studies included small sample sizes, not reporting the participant or comparison group selection and not reporting how confounding variables were controlled. For qualitative methods, the use of reflexivity was underutilised and described in only four studies.

Performing arts

All six studies assessing the influence of dyadic performing arts interventions focused on group singing interventions. These studies (Table 3), ranged from 6 to 17 dyads. Four measured the effects of time-limited, multi-session singing groups (Camic, Williams, & Meeten, 2013; Clark, Tamplin, & Baker, 2018; Davidson & Almeida, 2014), one of which culminated in a concert performance (Mittelman & Papayannopoulou, 2018). One study focused on on-going, multi-session groups (Osman, Tischler, & Schneider, 2016) and the final study recruited participants from five different groups including both on-going and time-limited (Unadkat, Camic, & Vella-Burrows, 2017).

Three studies used quantitative measures (Camic et al., 2013; Davidson & Almeida, 2014; Mittelman & Papayannopoulou, 2018). Whilst Camic et al. (2013) found a slight increase in depression and no change in QOL for PWD following the group, this was in the context of slightly deteriorated scores on cognition and activities of daily living (ADL) assessments. In contrast, the remaining two studies found significantly positive improvements in QOL, communication with caregivers (Mittelman & Papayannopoulou, 2018) and lucidity (Davidson & Almeida, 2014) with additional benefit from attending multiple sessions (significant improvements in lucidity, mood and focus).

For caregivers, the quantitative findings were generally positive, with significant improvements in mood, relaxation (Davidson & Almeida, 2014) and self-esteem (Mittelman & Papayannopoulou, 2018). Davidson and Almeida (2014) commented that the relatively few significant findings may have been partly related to the small sample size. Contrastingly, some reported no change in depression scores (Mittelman & Papayannopoulou, 2018) or QOL (Camic et al., 2013). Other explanations for the apparent lack of change may be the relatively high levels of QOL at baseline, leading to a ceiling effect (Camic et al., 2013). There were equivocal findings concerning stress levels (Camic et al., 2013; Davidson & Almeida, 2014).

All six studies collected qualitative data, although Davidson and Almeida (2014) and Mittelman and Papayannopoulou (2018) did not use formal qualitative analysis. All included reports of the positive impact of the activity of singing and doing so in a social/group setting with other PWD and caregivers. Four studies highlighted other parts of the singing group experience to be important. These included the accessibility of singing for all (Camic et al., 2013; Clark et al., 2018; Osman et al., 2016; Unadkat et al., 2017), shared experience between the PWD and caregiver (Clark et al., 2018; Davidson & Almeida, 2014; Osman et al., 2016; Unadkat et al., 2017), the challenge of learning new songs and facilitator skills and characteristics (Camic et al., 2013; Clark et al., 2018; Mittelman & Papayannopoulou, 2018; Unadkat et al., 2017). Participants also reported gaining enjoyment from singing familiar songs that facilitated reminiscence (Osman et al., 2016). All six studies included comments on improved mood or wellbeing and three on the extended impact in terms of mood (Mittelman & Papayannopoulou, 2018), the enjoyment of singing at home (Camic et al., 2013; Mittelman & Papayannopoulou, 2018; Unadkat et al., 2017) and socialising with other members outside of the group (Clark et al., 2018). Three studies highlighted how singing groups helped develop the PWD's identity outside that of someone with a diagnosis (Clark et al., 2018; Davidson & Almeida, 2014; Unadkat et al., 2017). Two studies reported neutral or negative comments regarding participation in the group. These included some caregivers reporting initial apprehensiveness about attending, no effect on themselves but effects on the PWD, and difficulties with relaxation due to concerns about the PWD (Camic et al., 2013; Davidson & Almeida, 2014).

Visual arts

Five of the seven visual arts interventions assessed the impact of a combination of gallery/museum art-viewing and art-making (Camic et al. 2014; Camic, Baker, & Tischler, 2016; Eekelaar, Camic, & Springham, 2012; Flatt et al., 2015; Schall, Tesky, Adams, & Pantel, 2018) and two assessed art-viewing with object handling (Johnson, Culverwell, Hulbert, Robertson, & Camic, 2017; McGuigan, Legget, & Horsburgh, 2015). The number of dyads included in these studies ranged from 6 to 30 (Table 3). Two studies used single-session interventions (Flatt et al., 2015; Johnson et al., 2017) and the remaining five used multiple sessions. Three used quantitative measures of psychological functioning, one mixed-methods study (Camic et al., 2014) and two solely quantitative (Johnson et al., 2017), one of which was a randomised controlled design (Schall et al., 2018).

Overall, the findings were mostly positive. Camic et al. (2014), also found no site-specific differences between a Georgian period art gallery with mostly 17th and 18th century paintings and a contemporary gallery with conceptual and abstract art, suggesting a wide range of art can be used in interventions. Johnson et al. (2017) used a crossover design to control for the order of art-viewing and object-handling activities. They found a significant increase in wellbeing for PWD and caregivers following both activities, unaffected by order of activity. Also, there was no significant increase in wellbeing following a non-art activity, suggesting that the findings were not related only to group participation. Schall et al. (2018) also found significant improvements in wellbeing and QOL and decreases in apathy for PWD following art-viewing and art-making. The wait-list control group took part in independent museum visits and reported significant decreases in apathy. This may suggest that engagement with museum environments has an impact on apathy regardless of format. The control group also later took part in the intervention and their outcome measures were combined with those of the original intervention group. Once combined, there were significant decreases in overall neuropsychiatric symptoms, apathy and negative affect (depression and anxiety). These positive findings regarding wellbeing and emotional state were also confirmed in caregiver questionnaires.

All five studies reporting qualitative analysis described the positive impact of socialising with others and reduced isolation and four papers also reported positive effects from the dyadic nature of activities and sharing positive experiences (Camic et al., 2014; Camic et al., 2016; Eekelaar et al., 2012; McGuigan et al., 2015). Enjoyment of the programme was reported in all studies as well as positive effects on affect in two studies (Camic et al., 2016; Eekelaar et al., 2012) and self-esteem in one (Flatt et al., 2015). The art activities themselves were highlighted as important in all papers. Reported benefits included new learning, stimulation and the accessibility of the activities, which creates a sense of normalcy and altered perceptions about PWD's abilities. This was supported by McGuigan et al. (2015) who found consistently high levels of attention throughout, suggesting that PWD can engage in visual arts sessions. Three papers also reported an increase in reminiscence by the PWD during interventions (Eekelaar et al., 2012; Flatt et al., 2015; McGuigan et al., 2015). Two papers highlighted the importance of the gallery setting (Camic et al., 2014; Camic et al., 2016) and facilitator characteristics (Camic et al., 2016; Flatt et al., 2015).

No negative effects were reported. Some participants shared disappointment that the intervention was time-limited (Camic et al., 2016; Eekelaar et al., 2012) whilst others said that it would be difficult to continue the sessions long-term due to caregiving responsibilities (Camic et al., 2016). There were some reports of an extended effect after the sessions, with two studies highlighting caregiver-reported post-session cognitive benefits (Camic et al., 2014; McGuigan et al., 2015) and three reporting an intention to continue with visual art activities after the intervention (Camic et al., 2014; Camic et al., 2016; Eekelaar et al., 2012). Themes and quantitative outcomes did not appear to differ between the object handling and art-making interventions.

Methodological critique

With the exception of the qualitative aspects of Mittelman and Papayannopoulou's (2018) mixed methods study, all of the performing arts intervention papers reviewed were good quality (> 75%) according to the Kmet criteria (Kmet et al., 2004; Table 4). Overall, the 13 papers included clear and well-defined objectives, study designs and results and the conclusions were supported by the findings. Connections to theoretical frameworks and data verification strategies were well described in most qualitative studies. Nevertheless, there were methodological limitations across the literature which are described in the next section.

Whilst the Kmet quality assessment criteria used in the present review was robust and transparently documented, it was not developed to be arts or dementia specific and may not have always been able to assess some of the nuances of arts interventions or the dyadic component of the reviewed literature. One relevant example is the issue of participant choice when being invited to take part in an arts activity. Although all studies received ethical approval, the Kmet criteria does not assess whether a participant liked the art activity they participated in or were given a choice of another activity. Enjoying a leisure activity such as the arts, gardening or sports can be an important factor in the success (e.g. enjoyment, satisfaction) of the intervention. For a population that is arguably not always provided with different activity choices, developing expanded criteria to assess the intervention from the participant's perspective would contribute to a wider understanding of these activities.

Study design.

Study designs were well described and sample sizes varied across studies (n = 12 to 88). Six studies had small sample sizes (Camic et al., 2013; Camic et al., 2014; Davidson & Almeida, 2014; Eekelaar et al., 2012; McGuigan et al., 2015; Mittelman & Papayannopoulou, 2018) and whilst these were appropriate sample sizes for the designs and had positive results, larger scale studies are needed to have further confidence about the impact of the interventions. Only Johnson et al. (2017) reported using a power analysis to determine sample size, finding that the sample size was adequate for the within-subject comparisons. The general lack of power calculations and the small sample sizes make it difficult to determine whether the studies were sufficiently powered. Non-attendance at some sessions and drop-out rates were reported; in one study this meant that only one dyad attended all three sessions (Eekelaar et al., 2012), reducing the generalisability of findings.

While one RCT included a control group (Schall et al., 2018), the general lack of control groups reduced the ability to determine causality. Six studies also utilised repeated measures designs, allowing researchers to control for some confounding variables which could impact findings such as individual differences (Camic et al., 2013; Camic et al., 2014; Davidson & Almeida, 2014; Eekelaar et al., 2012; Johnson et al., 2017; Mittelman & Papayannopoulou, 2018). The qualitative study designs were clear and well described.

Sampling strategy.

All studies described recruitment settings. Unadkat et al. (2017) included participants from five different singing groups which increased the validity of findings. Six studies scored “partially” on the sampling strategy criteria due to insufficient sampling description (Camic et al., 2013; Camic et al., 2014; Davidson & Almeida, 2014; Eekelaar et al., 2012; Flatt et al., 2015; Mittelman & Papayannopoulou, 2018). These studies did not fully describe how participants were recruited (e.g. volunteer sampling) therefore it is unclear if some members of the target population were more likely to be recruited than others making it difficult to evaluate possible sampling bias. Only one study randomised participants (Schall et al., 2018). Whilst randomisation is considered the ‘gold standard’ of methods, it also has a limitation in that it may randomise people to an activity they do not like or feel competent to undertake. This may be particularly problematic for a dementia population or others who do not feel that they ‘have a voice’ in decision making. Although the self-selected nature of recruitment in 12 of the 13 studies is a limitation, randomisation and not considering participant preference is also troublesome and may raise ethical issues for people with dementia about not having activity choices in research studies.

Participant characteristics.

Six studies reported limited data on participant characteristics including minimal demographic information about caregivers (Camic at al., 2013; Camic et al., 2014; Camic et al., 2016), not reporting PWD gender (Camic et al., 2014; Camic et al., 2016; Davidson & Almeida, 2014) or type of dementia diagnosis (Camic et al., 2014; Camic et al., 2016; Davidson & Almeida, 2014; Eekelaar et al., 2012; Mittelman & Papayannopoulou, 2018). These limitations may reduce the replicability and generalisability of findings.

Information that was relatively well reported included stage of dementia/level of impairment, participant ages and the relationship between caregiver and PWD (out of 184 caregivers all but 10 were spouses or adult children). Most studies included people with mild to moderate dementia with three studies including some participants with severe dementia (Camic et al., 2013; Clark et al., 2018; Unadkat et al., 2017). However, severity of dementia was determined using different scales across studies, making direct comparisons difficult. All studies took place in Western countries and results may not be applicable in other countries with different cultural groups and socio-economic conditions.

Outcome measures.

Quantitative outcome measures were well defined and reported. A range of psychological measures were used across the studies including depression, daily functioning, QOL, stress, anxiety and self-esteem. Whilst these may be related constructs it becomes more difficult to compare study findings and interventions. Nearly all of the studies utilised a form of self-report measure. Four studies included measures of QOL with PWD (Camic et al., 2013; Camic et al., 2014; Mittelman & Papayannopoulou, 2018; Schall et al., 2018) and two measures of wellbeing (Johnson et al., 2017; Schall et al., 2018) reducing the possibility of direct comparisons. Only two visual arts studies used self-report measures with caregivers (Camic et al., 2014; Johnson et al., 2017).

Data collection and analysis.

Quantitative analysis methods were generally well described. Most studies using formal quantitative data analysis used parametric tests, however some did not comment on whether the sample was normally distributed (Camic et al., 2013; Davidson & Almeida, 2014; Mittelman & Papayannopoulou, 2018), thus making it uncertain if Type 2 errors occurred. Schall et al. (2018) did not appear to account for multiple statistical analyses (e.g. Bonferroni correction) which may increase the likelihood of Type 1 errors; for example, five t-tests were conducted on the Neuropsychiatric Inventory data. Mittelman and Papayannopoulou also used $p < .1$ as their significance value rather than $p < .05$. Although the justification for this was given as the small sample size, it may also increase the likelihood of a Type 1 error. Two studies did not report the variance of scores in their analysis (e.g. mean and/or SD), meaning that the distribution of scores could not be evaluated (Davidson & Almeida, 2014; McGuigan et al., 2015).

Most studies included a form of qualitative information from participants, gaining more in-depth information about their experiences. The description of qualitative data collection methods was limited in two mixed-methods studies due to minimal information being available about interview questions or topics (Camic et al., 2016; Eekelaar et al., 2012), contrastingly Flatt et al. (2015) included a good example of a focus group script. Three studies included little description of the analysis and development of codes and/or themes (Eekelaar et al., 2012; Mittelman & Papayannopoulou, 2018; Osman et al., 2016) with one using “informal thematic analysis” (Mittelman & Papayannopoulou, 2018). Although McGuigan et al. (2015) included an adequate description of data analysis, few quotes illustrated the themes, making it more difficult to link data and theory. In Camic et al., (2014) only themes reported by all participants were included in the final themes. Whilst this increased the validity, it may also have omitted useful information.

Verification and reflexivity.

Twelve studies reported verification methods for qualitative data analysis (e.g. inter-rater reliability), however one did not (Mittelman & Papayannopoulou, 2018). This study also based the findings on only one researcher’s notes, potentially increasing bias. Unadkat et al. (2017) explicitly discussed the possible impact of their own preconceptions on the qualitative data analysis and ways this was minimised. Clark et al. (2018) noted that as the interviewers also conducted the sessions, it is possible that their relationship with participants affected both participant responses and data analysis and managed this by involving a third author in the analysis process. Camic et al. (2016) used research diaries and transcripts of analysis to consider the impact of author perspectives on the findings. The remaining studies using a form of qualitative analysis (thematic analysis and “informal thematic analysis”) either contained no reference to the consideration of possible researcher preconceptions or, in one case, referred to reflexivity in the study design but not elsewhere (Camic et al., 2014). As a result, the possible influence of authors assumptions on data analysis is unknown.

Discussion

Some previous research has found positive effects of performing and visual arts on mood, self-esteem, wellbeing, QOL and BPSD for PWD when provided solely to this group (Beard, 2012; Kinney & Rentz, 2005; McDermott et al., 2013; Raglio et al., 2012; Rentz, 2002; Windle et al., 2018). However, there has also recently been a focus on interventions provided jointly to both the PWD and caregiver (Rausch et al., 2017). The aim of this paper was to review the literature on the influence of dyadic arts-based interventions on psychosocial outcomes for PWD and their caregivers. Overall the findings appeared generally positive, supporting previous research, but it is difficult to draw definitive conclusions given the methodological limitations such as lack of control groups and mostly small sample sizes. Despite these limitations, the methodological quality of studies was generally good.

Performing arts

Results suggested PWD were able to engage in group singing interventions and that they may have a positive influence on QOL and communication with caregivers, improved mood and wellbeing, and a positive impact on the PWD’s identity beyond that of someone with a diagnosis. However, only QOL and communication significantly increased. In some cases, it was reported that there was a longer impact in terms of mood, socialising outside of the group and continuing singing activities at home (Camic et al., 2013; Clark et al., 2018; Mittelman & Papayannopoulou, 2018; Unadkat et al., 2017). In PWD, Camic et al. (2013) found an increase in depression and BPSD and stable QOL in the context of cognitive decline, therefore future research should consider measuring cognition alongside other measures to assess psychological outcomes relative to cognitive deterioration. For caregivers, findings were encouraging, with significant improvements in mood and self-esteem, although some studies reported no change in depression scores or QOL (Camic et al., 2013; Mittelman & Papayannopoulou, 2018). It is possible that some of the lack of change was related to the cognitive deterioration experienced by PWD (evidenced by Camic et al., 2013), therefore this should be considered in future research with dyad relationships. Important contributing factors to the positive influence of interventions included the activity of singing, group setting in reducing isolation, dyadic nature of the activity and enjoyment of learning. Facilitator characteristics were also noted as important in engaging participants and making the group accessible (e.g. Clark et al., 2018; Unadkat et al., 2017).

Visual arts

Regarding visual arts interventions, for PWD significant increases in wellbeing (Johnson et al., 2017; Schall et al., 2018), QOL, affect and apathy (Schall et al., 2018) were noted, yet contrastingly, Camic et al. (2014) found no change in QOL. For caregivers, significant increases in wellbeing were also found (Johnson et al., 2017). Reports from PWD and caregivers highlighted similar findings to the performing arts literature in the importance of socialising in the group, its dyadic nature and enjoyment of new learning. In all studies, participants described enjoying the visual arts-based activity. Also highlighted were the effects of the intervention on affect, self-esteem and changing perceptions about PWD’s abilities through their engagement in the sessions (e.g. Camic et al., 2016; Flatt et al., 2015). The longer lasting impact of the group was also reported in terms of cognitive benefits for the PWD and a desire to continue with similar activities (Camic et al., 2014; McGuigan et al., 2015). Additionally, the art gallery setting was noted as an important place for interventions to take place (Camic et al., 2014; Camic et al., 2016).

Dementia care implications

With the lack of medications to cure or slow the progression of dementia and the potential for negative impacts on psychosocial functioning, there is a great need for interventions to improve the QOL in PWD and caregivers. Internationally, the increase in the number of PWD in the community and the high demand on health and social care services increases the need for alternative ways of improving wellbeing and mental health. There is also a need for interventions not only provided for the PWD but also caregivers who can also experience lower levels of QOL (Pinquart & Sörensen, 2003).

Although quantitative outcomes were mixed, performing and visual arts interventions can tentatively be linked with improved psychosocial outcomes for PWD and their caregivers as supported by qualitative findings. Engagement in group dyadic arts-interventions was associated with improved wellbeing, QOL and mood (Davidson & Almeida, 2014; Johnson et al., 2017; Mittelman & Papayannopoulou, 2018; Schall et al., 2018). The accessibility, high engagement and new learning aspects of the group may have led to the increased self-esteem and positive effects on the identity of the PWD and changes in the way they are seen by others. The group nature of the interventions facilitated decreased isolation and a sense of community with others experiencing similar challenges. The significant increase in communication from PWD towards caregivers in one study may also have been facilitated by the dyadic nature of the group. This positive impact of the dyadic aspect of the group was highlighted in seven of the thirteen studies and may indicate that the interventions provided a shared activity promoting “couplehood” (Hellström et al., 2005). As the group was for both partners of the dyad and reported to be accessible, this may have had a positive influence on relationships and communication, facilitating a sense of reciprocity (Merrick et al., 2016). Although additional research is needed in order to *routinely* suggest recommending dyadic arts-interventions for home dwelling people with dementia, dementia care charities and public health planners should now consider these as community-based activities that could be beneficial to couples and other dyads, particularly those who are socially isolated, have lower QOL or wellbeing or mood difficulties.

Limitations of the review

The search criteria may have been overly focused leading to the omission of studies, including those written in a language other than English and those with formal caregivers. The review was focused on peer reviewed articles which meant that grey literature was not included, and the findings may have been skewed by publication bias. There may have been limitations to using the Kmet tool for assessing quality as it was not developed to be arts or dementia specific and may not have always assessed the nuances of the interventions evaluated in this review.

Research recommendations

The findings suggest a role that performing and visual arts have a role to play in dementia care and although larger-scaled studies can help to inform public health policy and healthcare planning, recommending greater number of participants and comparison groups (e.g. Kinney & Renz, 2005; Rausch et al., 2007; van der Steen et al., 2018) as a *de facto* recommendation may be premature. A comprehensive, stepped approach is needed to understand the role of the dyad within arts interventions in dementia; this review has provided one step in that understanding but further work with theoretical development, identifying key intervention components, and specifying relevant and measurable outcomes is recommended. Medical Research Council (MRC, 2019) guidelines provide such an approach to developing and evaluating complex interventions, defined as “interventions with several interacting components…and several dimensions of complexity” (p. 9); a classification relevant to most dementia-focused arts and health activities. Those components in the present review include being in a dyad, the art form, location of intervention, dementia severity and dementia diagnosis. For community practitioners and local government public health departments, Public Health England (2016) has developed an evaluation framework that addresses theories of change, logic models and selecting and measuring outcomes in arts and health. Whilst time consuming to develop, understanding how and why change occurs, for example, when dyads are participating together in an arts activity, as Unadkat et al. (2017) has attempted to do, will help contribute to better interventions.

The existing research associates choral singing and visual arts interventions with increased wellbeing, QOL, improved mood and decreased isolation, however the range of outcome measures makes findings difficult to compare. Therefore, as Johnson et al. (2017) and Camic, Hulbert and Kimmel (2019) have done with the Canterbury Wellbeing Scales (Camic et al., 2020), further research with comparable theoretically-informed and dementia-specific outcome measures are necessary, supporting recommendations by Beard (2012) and van der Steen et al. (2018) who highlighted the need for "process" measures such as wellbeing and QOL. It may also be helpful to include measures of the dyadic relationship in future studies to assess any impact of arts activities on aspects of the relationship (e.g. satisfaction).

One of the most common designs used was mixed-methods, allowing researchers to gain further insight into participant's experiences of interventions and factors contributing to quantitatively-measured changes. Future research would benefit from theoretically-informed outcome measures (e.g. wellbeing, QOL, mood, physiological (D'Cunha et al., 2019; Thomas et al., 2017)) to be used alongside qualitative approaches. McDermott et al. (2013) also highlighted the need to find measures that are sensitive to change, as effects of interventions may be short-lived due to cognitive impairment. They also noted that interventions are still worthwhile if they improve QOL, even if the effects are temporary. Johnson et al., (2017) and Camic et al. (2019) supported this recommendation by providing evidence for the use of a brief, easily completed wellbeing measure based on visual analogue scales (Camic, 2020).

Positively, this review suggests that research focusing on arts-based interventions for people in the early to mid-stages of dementia has substantially increased since Beard's (2012) review. There was, however, a lack of studies evaluating the impact of dyadic literary arts interventions such that none met the criteria for this review. Given the evidence suggesting that individually delivered literary arts interventions may be associated with positive outcomes in PWD (Billington et al., 2013; Phillips et al., 2010), and the reported positive effects of other dyadic arts interventions, further research into dyadic literary arts interventions is warranted.

Conclusion

The aim of this review was to evaluate the literature on the influence of dyadic arts-based interventions on psychosocial outcomes for those with dementia and informal caregivers. This review tentatively links arts interventions with improved outcomes, as seen in some increases in QOL, wellbeing and mood on quantitative measures. These positive effects were also seen through qualitative data. In all studies participants reported enjoyment from engaging in the interventions and in some studies, participants reported increased wellbeing and self-esteem, improved mood and positive effects on the identity of the PWD. Aspects of the interventions reported to have a positive impact on participants included the activity itself (either choral singing or visual arts), both the group and dyadic nature of the sessions and new learning. In some studies, the longer lasting impact of the intervention was noted, both on psychological outcomes and continuing the shared activity after the study. Future research recommendations include further theoretical development, identifying key intervention components, and specifying relevant and measurable theoretically-informed outcomes within dyadic interventions.

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Table 1

Search terms and database results

		Database			
Search	Search terms	PsycINFO	Medline	Web of Science Core collection	ASSIA
1	"dement*" OR "Alzheimer*"	103 076	194 024	310 322	9 170
2	"carer*" OR "caregiv*" OR "spous*" OR "family*" OR "care partner" OR "dyad*"	426 479	932 242	1 241 591	104 907
3	"art" OR "arts" OR "sing" OR "singing" OR "music*" OR "theatre" OR	127 631	173 716	949 216	14 422

	“drama” OR “museum*” OR “literary” OR “creative writing” OR “poetry” OR “colo*ring” OR “storytell*”				
4	1 & 2 & 3	384	286	453	69

Table 2

Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Reports findings from an arts-based intervention	No report of the relationship between caregiver and PWD or intervention setting (e.g. formal/informal caregiver, residential/community)
Both PWD and their informal caregivers participated in the intervention	Included formal caregivers (if results were not reported separately from informal caregivers)
Outcomes included psychosocial impact or influence of intervention on participants	Included PWD living in residential settings (if results were not reported separately)
Intervention was delivered in the community	Written in any language other than English
Peer reviewed journal article	Intervention consists of training caregivers to deliver an intervention to the PWD separately

Any methodology	Included other interventions alongside arts-based intervention (e.g. counselling)
Published in any year	Included exercise-based interventions (e.g. dance)

Table 3 - Quality assessment criteria scores (Kmet et al., 2004)

Scores for quantitative methodologies

	Camic et al. (2013)	Davidson & Almeida (2014)	Mittelman & Papayannopoulou (2018)	Camic et al. (2014)	Eekelaar et al. (2012)	Johnson et al. (2017)	McGuigan et al. (2015)	Schall et al. (2018)
Question/objective sufficiently described?	2	2	1	2	2	2	1	2
Study design evident and appropriate?	2	2	2	2	2	2	1	2
Method of subject/comparison group selection or source of information/input variables described and appropriate?	1	1	1	1	1	2	1	2
Subject (and comparison group, if applicable) characteristics sufficiently described?	1	1	1	1	1	2	2	2
If interventional and random allocation was possible, was it described?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2
If interventional and blinding of investigators was possible, was it reported?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
If interventional and blinding of subjects was possible, was it reported?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Outcome and (if applicable) exposure measure(s) well defined and robust to measurement/misclassification bias? Means of assessment reported?	2	2	2	2	2	2	1	2
Sample size appropriate?	2	2	2	1	1	2	1	2
Analytic methods described/justified and appropriate?	1	1	1	2	2	2	0	1
Some estimate of variance is reported for the main results?	2	1	2	2	0	2	0	2

Controlled for confounding?	1	1	0	2	1	1	0	1
Results reported in sufficient detail?	2	2	2	2	2	2	2	2
Conclusions supported by the results?	2	1	2	2	2	2	1	2
Total score (%)	18/22 (82)	17/22 (77)	16/22 (72)	19/22 (86)	16/22 (72)	20/22 (91)	10/20 (50)	22/24 (92)

Scores for qualitative methodologies

	Camic et al. (2013)	Mittelman & Papayannopoulou (2018)	Osman et al. (2016)	Unadkat et al. (2017)	Camic et al. (2014)	Camic et al. (2016)	Eekelaar et al. (2012)	Flatt et al. (2015)	McGuigan et al. (2015)	Clark et al. (2018)
Question/objective sufficiently described?	2	0	2	2	2	2	1	2	1	2
Study design evident and appropriate?	2	2	2	2	2	2	2	2	1	2
Context for the study clear?	2	2	2	1	2	2	2	2	2	2
Connection to a theoretical framework/wider body of knowledge?	2	2	2	2	2	2	2	2	1	2
Sampling strategy described, relevant and justified?	1	1	2	2	1	2	1	1	1	2
Data collection methods clearly described and systematic?	2	1	2	2	2	1	1	2	1	2
Data analysis clearly described and systematic?	2	0	1	2	2	2	1	2	2	2
Use of verification procedure(s) to establish credibility?	2	0	2	2	2	2	2	2	2	2
Conclusions supported by the results?	2	1	2	2	2	2	2	2	1	2
Reflexivity of the account?	0	0	0	2	1	2	0	0	0	2

Total score (%)	17/20 (85)	9/20 (45)	17/20 (85)	19/20 (95)	18/20 (90)	19/20 (95)	14/20 (70)	17/20 (85)	12/20 (60)	20/20 (100)

Table 4

Summary of literature included in review

Study (year) Location	Sample	Aim(s)	Intervention	Methodology/ design (overall Kmet score)	Measures	Key findings
Camic et al., (2013) UK	PWD: 10, 50% male. Mean age 75 (range 68-88). Diagnoses: 60% AD, 20% VD, 10% MD, 10% MCI. MMSE mean 19 (range 5-28) Caregivers: 10 (spouse 9, adult child 1)	To determine a community singing group's impact on wellbeing, day-to-day functioning and social exclusion for PWD and their caregivers	10 weekly group singing sessions	Mixed-methods, repeated measures pre-, post- and 10-week follow-up, exploratory study using thematic analysis Kmet score: Quantitative: 86% Qualitative: 85%	Standardised: PWD: cognition (ACE-R/MMSE), depression (GDS), QOL (DEMQOL-4); Proxy measures completed by caregivers: QOL (DEMQOL-Proxy), BPSD (NPI), activities of daily living (BADLS); Self-report caregiver: anxiety, stress, depression (DASS), QOL (WHO-QoL BREF) Observations of engagement for PWD Separate semi-structured interviews with PWD and caregivers	PWD: Slight deterioration in cognition, ADLs and BPSD. Slight increase in depression. No sig difference in QOL. Caregivers: slight decreases in anxiety and depression, slight increases in stress, none sig. QOL - no change. Engagement – high. PWD themes: Challenged beliefs and attitudes, enjoyment, opportunity, singing, facilitator characteristics, new learning, personal changes. Caregiver themes: response to group – pre-group deliberation, ambience and environment, structure, social inclusion, experience of singing Perception of influence on PWD: social inclusion, new learning, enhanced emotions, impact outside the group
Camic et al., (2014) UK	PWD: 12. Mean age 78.3 (range 58-94). MMSE mean 20.1 (range 10-24). Caregivers: 12	Explore experiences of art gallery viewing and impact on caregiver burden, PWD-caregiver	8 weekly group art gallery sessions; 1-hour art-viewing, 1-hour art-making	Mixed-methods, pre-post- and comparing two intervention sites. Interviews 2-3 weeks post-	Standardised: PWD: QOL (DEMQOL-4); Caregivers: caregiver burden (ZBI), activities of daily living (BADLS) Joint semi-structured interviews	No sig differences on any quantitative measures pre-post or when compared between sites (traditional/contemporary). Trend for reduction in caregiver burden. Three overarching themes – social, cognitive abilities, gallery setting.

	(spouse 7, adult child 3, paid caregiver 2)	relationship, social and cognitive domains, social inclusion and QOL for PWD		using thematic analysis Kmet score: Quantitative: 82% Qualitative: 90%		
Camic et al., (2016) UK	PWD: 12. Mean age 78.3 (range 58-94). MMSE mean 20.1 (range 10-24). Caregivers: 12 (spouse: 7, adult child 4, paid caregiver: 1)	Develop a theoretical understanding of how art viewing and making impacts PWD and their caregivers	8 weekly group art gallery sessions; 1-hour art-viewing, 1-hour art-making	Qualitative, grounded theory Kmet score: 95%	Joint semi-structured interviews with PWD/caregivers; facilitator interviews; analysis of field notes; email blog	Four categories – gallery setting, intellectual stimulation, social relationships and changed perceptions. Theory developed of a three-way interaction between the intervention providing social interaction and intellectual stimulation in a valued place contributing to effects on PWD and caregivers
Clark et al., (2018) Australia	PWD: 9. 44% male. Mean age 79.1 (range 57-89). MMSE mean 19.1 (range 10-26). Caregivers: 9. (spouse: 9, adult child: 1) 44% male. Mean age 75.7 (range 61-90).	Explore how PWD and family caregivers experience a community singing group and its feasibility	20 weekly 2-hour group singing sessions	Qualitative, thematic analysis Kmet score: 100%	Joint semi-structured interviews exploring participants' experiences of the singing group	Five themes emerged: Therapeutic facilitation and design; accessibility; empathic friendship; PWD/FCG relationship; personal wellbeing.
Davidson & Almeida (2014) Australia. (Only group	PWD: 6. Mean age 79.5 (range 73-88). DSM-IV-TR: mild to	Exploratory study to examine whether a singing group	Stage 1: 1x 2-hour singing session	Quantitative Stage 1: Repeated measures, pre-post-	Stage 1: Bi-polar rating scales: completed by caregiver about PWD: lucidity, mood, agitation/relaxation,	Stage 1: sig improvement in PWD lucidity and caregiver mood, non-sig trends for improvement on all other variables pre- to post-.

A included in this review as group B conducted in residential settings and control setting unspecified)	moderate dementia. Caregivers: 6. Mean age 69.67 (range 42-86). Relationship: spouse or child.	has an impact on PWD's lucidity, mood, agitated behaviour and focus after a single session or six sessions	Stage 2: 6x 2-hour weekly singing sessions	Stage 2: Repeated measures, pre- post-sessions 2, 4 and 6 Kmet score: 77%	focus; Caregiver self-report: energy, mood, stress/relaxation, focus. Stage 2: Rating scales as in stage 1; brief qualitative joint interviews regarding mood and experience (not formally analysed)	Stage 2: sig difference in PWD focus at week 2. Non-sig trends for improvement on all other variables except caregiver focus week 2 and 4. Interviews supported quantitative findings of improvements on variables measured and other themes included identity, reminiscence, connection and proximity.
Eekelaar et al., (2012) UK	PWD: 6, 50% male. Mean age 78.67 (range 68-91). MMSE mean 21.67 (range 18-24). Caregivers: 6 (spouse: 5, adult child: 1), 50% male. Mean age 70.22 (range 66-96).	Exploratory study of the associations between visual arts-based interventions and cognitive stimulation	3x 90-min group art gallery sessions; 30 mins art-viewing, 60 mins art-making	Mixed methods, during sessions, pre-, post- and 4 week follow-up Kmet score: Quantitative: 77% Qualitative: 75%	Semi-structured interviews pre-, post- and follow-up Quantitative content analysis of recordings looking at episodic memory and verbal fluency for PWD Thematic analysis of caregiver's experiences of the group	Increase in episodic memory and semantic fluency during the gallery session compared to pre-interview and episodic memory maintained at post-interview. Themes included participating in a social activity, observing the PWD more like their "old selves" and sharing the experience together
Flatt et al., (2015) USA	PWD: 10, 50% male. Age: >60y =8. Diagnoses: 80% early stage AD, 20% "related cognitive disorders". Caregivers:10 (spouse or other family member), 40% male. Age: > 60 =6.	1. Identify enjoyable features of the activity 2. Ways the activity could be improved 3. Does group cohesion influence participant satisfaction	Art-museum engagement activity; 1 hour art-viewing, 2 hours art-making	Cross-sectional, qualitative using thematic analysis Kmet score: 85%	Brief satisfaction survey; focus group interviews with both PWD and their caregivers	Art making was the most enjoyable activity followed by group interaction and guided discussion. Overall satisfaction correlated with feelings of belonging and morale. Five themes identified: cognitive stimulation, social interactions, self-esteem and two themes related to particular aspects of the programme, activity related e.g. small groups and practical issues e.g. timing.

		4. Are past art experiences associated with overall experiences				
Johnson et al., (2017) UK	PWD: 36, 69% male. Mean age 74 (range 58-85). Diagnoses: 8% early-onset AD, 47% AD, 13% FTD, 11% VD, 21% MD. CDR (.5 or 1): early to mid-stage dementia. Caregivers: 30 (spouse, relative or close friend), 13% male. Mean age 66 (range 48-83).	Investigate the impact of art-viewing and object handling on subjective wellbeing for PWD and their caregivers	11 sessions of museum-based art-viewing (45 mins) and object handling (45 mins)	Quantitative, quasi-experimental, mixed 2x4 repeated measures crossover study Kmet score: 91%	Visual analogue scales (VAS) pre- and post-each activity measuring subjective wellbeing (happy/sad, well/unwell, interested/bored, confident/not confident, optimistic/not optimistic) completed by both PWD and their caregivers Brief evaluation questionnaire	Overall wellbeing sig increased following art-viewing and object handling for both PWD and caregivers.
McGuigan et al., (2015) New Zealand	PWD: 8, 38% male. Mean age 81 (range 73-90). Diagnoses: 75% AD, 12.5% VD, 12.5% MD Caregivers: 7 (spouse: 7, adult child: 2), 43% male. Age: 29% 35-44, 71% 55+.	Investigate the experiences of PWD and their caregivers who attended a six-week art gallery programme, to determine caregiver satisfaction and feedback for future programmes	Six weekly 2-hour museum-based programmes including art-viewing, object handling and exhibition tours	Mixed methods, repeated measures and evaluative focus groups using thematic analysis Kmet score: Quantitative: 75%	Attentiveness scale rated by observer every 60 seconds to measure PWD's concentration levels Focus groups with caregivers and volunteers on satisfaction, successes and improvements	PWD consistently showed "high" attention levels during the session. Themes included socialising, aspects of programme delivery, shared experience and practical issues.

				Qualitative 85%		
Mittelman & Papayannopoulou (2018) USA	PWD: 11, 64% male. Mean age 79.4. Early to early-mid stage of dementia estimated with Global Deterioration Scale. Caregivers: 11 (spouse: 9, child: 1, close friend: 1), 45% male. Mean age 71.7. Relationship:	Pilot study of a dyadic singing group to inform future interventions and investigate possible benefits of the intervention	13 week singing group culminating in a concert performance	Mixed methods, pre-post- repeated measures, used “informal thematic analysis” Kmet score: Quantitative: 86% Qualitative 60%	Standardised: PWD and caregiver: family communication (FAM), self-esteem (RSES); PWD only: QOL (QOL-AD; DEMQOL); caregivers only: social support (MOS), health-related QOL (SF-8) and depression (GDS). PWD’s measures completed by social workers/health professionals with the PWD. Open-ended questionnaires and joint focus groups	For PWD, sig improvement in QOL and communication with caregiver, non-sig trend for greater self-esteem. For caregivers, sig. improvement in self-esteem and non-sig trends for increased QOL and social support with no change in depression or communication. Qualitative reports included benefits of group belonging/socialising, enjoying the activity of singing and learning new skills.
Osman et al., (2016) UK	PWD: 10, 50% male. Caregivers: 10 (spouse: 7, adult child: 3), 2 male.	Examine the experiences of PWD and their caregivers following group singing	Ongoing singing groups	Qualitative, thematic analysis Kmet score: 85%	Joint semi-structured interviews examining experiences of attending, effects of the group on communication and relationships and any health/behaviour changes	Six themes emerged – social inclusion and support, sharing the experience, positive impact on relationships and memory, improved mood/wellbeing and accepting the diagnosis.
Schall et al., (2018) Germany	PWD (intervention group): 25, 40% male. Mean age 75.1. MMSE mean score 18.08. Mild to	Art museum-based interventions will have beneficial effects on emotional wellbeing, QOL	Six weekly 2-hour art museum sessions including museum tours (60 mins) and	RCT, mixed-method design Kmet score: 88%	Self-report PWD measures: cognition (MMSE; ADAS-Cog), depression (GDS), QOL (QoL-AD), neuropsychiatric symptoms (NPI), emotional wellbeing	No sig. difference in cognition, dementia severity or depression. Sig. increase in QOL post- intervention. Sig decrease in apathy following both intervention and control. After the control group participated in the intervention, their pre-post scores were combined with the intervention

	moderate dementia. PWD (controls): 19, 32% male. Mean age 76.4. Diagnoses (groups combined): 72.7% AD, 15.9% VD, 4.6% PDD, 6.8% aetiology unclear. Caregivers (intervention and controls combined): 44 (spouse: 24, adult child: 14, other: 6). Mean age 62.9.	and BPSD for PWD	art-making (60 mins)		(smiley face rating scale; FAHW; completed pre- and post- every session). Follow-up caregiver questionnaires after each session and at 3-month follow-up. Questions based on observation of PWD's communication, behaviour and engagement, included open-ended questions and evaluation of the art programme	group, showing sig. decreases in overall neuropsychiatric symptoms, apathy and negative affect (depression/anxiety) after the intervention. Statistically sig. improvements in wellbeing after sessions. Caregiver questionnaires confirmed positive impact on wellbeing and emotional state and gave positive feedback on the intervention.
Unadkat et al., (2017) UK	PWD: 17, 53% male. Mean age 77 (range 66-87). Diagnoses: 41% AD, 18% VD, 12% FTD, 12% MD, 6% MCI, 6% unspecified, 6% other. CDR impairment: 18% "questionable", 24% mild, 53% moderate, 6% severe.	Understanding the impact of group singing on the relationship between the PWD and caregiver and what factors contribute to this experience	Various singing groups	Qualitative, grounded theory Kmet score: 95%	Joint semi-structured interviews about the impact of the group and influencing factors	Theory developed describing the impact of the singing experience and the importance of effective facilitation, equal participation, group belonging and new experiences and the effects of these on PWD, caregivers and the relationship between them.

	Caregivers: 17 (spouse: 17), 47% male. Mean age 75 (range 61-89).					

Key: PWD = people with dementia; AD = Alzheimer's disease; VD = vascular dementia; MD = mixed dementia; MCI = mild cognitive impairment; FTD = frontotemporal dementia; PDD = Parkinson's disease dementia; ACE-R = Addenbrookes Cognitive Examination - Revised (Mioshi, Dawson, Mitchell, Arnold, & Hodges, 2006); MMSE = Mini Mental State Examination (Folstein, Folstein, & McHugh, 1975); GDS = Geriatric Depression Scale (Sheikh & Yesavage, 1986); DEM-QOL = Dementia Quality of Life Measure (Smith et al., 2005); DEM-QOL-Proxy = Dementia Quality of Life Proxy Measure (Brod, Stewart, Sands, & Walton, 1999); NPI = Neuropsychiatric Inventory (Cummings, Mega, Gray, Rosemberg-Thompson, & Gornbein, 1994); BADLS = Bristol Activities of Daily Living Scale (Bucks, Ashworth, Wilcock, & Siegfred, 1996); DASS = Depression Anxiety Stress Scales (Crawford & Henry, 2003; Lovibond & Lovibond, 1995); WHO-QoL-BREF = World Health Organization Quality-of-Life Scale (Skevington, Lofty, & O'Connell, 2004); ZBI = Zarit Burden Interview (Zarit, Reever, & Bach-Peterson, 1980); RSES = Rosenberg self-esteem scale (Rosenberg, 1965); FAM = Family Assessment Measure (Skinner, Steinhauer, & Santa-Barbara, 1983); QOL-AD = Quality of Life-Alzheimer's Disease (Logsdon, Gibbons, McCurry, & Teri, 2002); MOS = Medical Outcomes Study social support survey (Sherbourne & Stewart, 1991); SF-8 (Ware, Kosinski, Dewey, & Gandek, 2001); ADAS-Cog = Alzheimer's Disease Assessment Scale-cognitive subscale (Rosen, Mohs, & Davis, 1984); FAHW = Questionnaire of General Habitual Well-being (Wydra, 2003); Global Deterioration Scale (Reisberg, Ferris, de Leon, & Crook, 1982); Kmet = Standard Quality Assessment Criteria (Kmet et al., 2004); CDR = Clinical Dementia Rating Scale (Morris, 2003); DSM-IV-TR = Diagnostic and Statistical Manual of Mental Disorders 4th ed, text revision (American Psychiatric Association, 2000).