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The psychological and social impacts of museum-based programmes for people with a mild-to-moderate dementia: a systematic review

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Abstract

The importance of museum-based interventions for people with dementia has been increasingly appreciated. Yet, there is relatively little known about the psychological and social impacts of these interventions. To address this, the authors undertook a systematic review to elucidate these aspects of museum-based programmes for people with mild-to-moderate dementia. Four electronic databases were searched systematically, and eleven studies were included. Key findings were synthesised thematically, and six themes were identified: mood and enjoyment, subjective wellbeing, personhood, cognition, engagement, and social outcomes. These positive findings suggest that museum-based interventions for people with a mild-to-moderate dementia can offer a range of valuable benefits. This review also clarified that further mixed-methods studies and wait-list controlled studies, to clarify the factors that benefits may be attributed to,

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will contribute towards a more robust evidence base. In turn, this would positively impact funding and guide policy in this area.

Keywords: dementia, museum based, psychological and social impacts, systematic review, wellbeing.

Introduction

Dementia is a progressive condition marked by a deterioration in cognitive functioning and domains such as social behaviours, emotion regulation, and motivation, which affect a person's ability to carry out daily activities (World Health Organisation (WHO) 2019). There are many types of dementia that differentially affect the brain's chemistry and structure, and Alzheimer's disease is the most common form (Alzheimer's Society 2017). The number of people worldwide living with a dementia is increasing (from 47 million cases in 2015 to a predicted 75 million by 2030), situating dementia as a major cause of disability with high economic costs (WHO 2017). Consequently, strategies and policies have been developed to address this significant public health issue. The Global Action Plan on the Public Health Response to Dementia 2017–2025 (WHO 2017) outlines areas for action for moving towards better physical, mental and social wellbeing and reducing the impact of the disease on people with dementia (PWD), their families, carers and communities. The WHO report also notes the importance of developing person-centred and cost-effective interventions (2017: 5). It is important to acknowledge that dementia manifests differently in different people, and there are variations in cognitive, emotional and physical symptoms. Symptoms tend to intensify as the disease progresses (Stephan & Brayne 2014).

The challenges of living with a dementia place PWD at a greater risk of comorbid psychological difficulties such as anxiety and depression (National Collaborating Centre for Mental Health (NCCMH) 2018; National Institute for Health and Care Excellence (NICE) 2018). NICE (2018) guidance recommends a range of interventions that could support cognition, independence and wellbeing (1.4). Importantly, the physical, psychological and social impacts of dementia also affect families and carers (WHO 2019) as a person with dementia's roles, and relationships may alter (NCCMH 2018). The pioneering work of Kitwood (1997) is relevant here. Kitwood defined the concept of "personhood" in dementia as: "a standing or status that is bestowed upon one human being, by others, in the context of relationship and social being" (p. 8) and thus acknowledged the relational impact of dementia. The concept of wellbeing is also a key focus in dementia care (NICE 2018) although there are ongoing challenges regarding its definition and measurement (Camic et al. 2019). Kitwood (1997) identified five key psychological and wellbeing needs of PWD: comfort, attachment, inclusion, occupation and identity. Kaufmann and Engel (2014) extended the Kitwood's model, using empirical data to add "agency," comprising components of "self-determination," "freedom of action" and "independence," which results in feelings of self-efficacy and self-worth. They also noted PWD are important informants of their own wellbeing.

The World Alzheimer Report (Batsch & Mittelman 2012) highlights stigma and social exclusion as significant barriers for both PWD and their carers, who describe feelings of being marginalised by society and sometimes by family and friends. The 2019 report (Alzheimer's Disease International) also highlights experiences of unfair treatment, such as others making jokes about dementia symptoms, and PWD being denied choices or ignored. Moreover, understimulation, in combination with diminished social contact, has been linked to loneliness and depression in PWD, whilst social stimuli can increase positive affect (Cohen-Mansfield et al. 2011). In addition, communication is an area of impairment experienced by PWD, which can significantly impact the quality of relationships with others and requires finding different ways to communicate and understand each other (McCarthy 2011).

Social prescribing and arts interventions

The value of social prescribing for people with long-term conditions, as well as for those who require support with their mental health, or are isolated, has been increasingly evidenced (Chatterjee et al. 2018; NHS England 2019; Veall et al. 2017). With particular reference to PWD, in the United Kingdom, the All-Party Parliamentary Group on Arts, Health and Wellbeing (2017) championed the wider role of the arts in improving the quality of life in PWD and their carers, including visual art programmes such as those in museums and galleries. In line with this approach, museum-based interventions have proved an important way to promote the engagement and wellbeing of PWD (Camic & Chatterjee 2013; Smiraglia 2016).

The present review

A number of previous reviews have drawn together existing research, including grey literature on longstanding museum and art programmes, such as the Museum of Modern Art's Alzheimer's project "Meet me at MoMA" (Mittelman & Epstein 2009) and have examined their role for people living with dementia. The extant reviews have outlined the value and potential benefits of museum-based interventions for this population (Cousins et al. 2019; Kinsey et al. 2021; Sharma & Lee 2020; Windle et al. 2018). The current review differs from previous reviews in its aim to explore and identify the psychological and social impacts specific to museum-based programmes for people with mild-to-moderate dementia. In psychological literature and studies, subjective wellbeing is a key concept in relation to dementia. Moreover, wellbeing for people living with dementia is increasingly a concern in social policy; therefore, this was selected as a search term for this review. This provides an in-depth understanding specific to this population and setting and can inform future research and practice to contribute to a growing evidence base for museum interventions for PWD.

Methodology

A systematic review of the literature was undertaken, as described by Grant and Booth (2009). A search was conducted using the electronic databases: PsychINFO, Medline, Web of Science and Applied Social Sciences Index and Abstracts. The following search terms were used to identify relevant literature: Dement* OR Alzheimer* AND art* OR object* OR participatory OR creative* OR wellbeing OR well-being OR well being AND heritage* OR galler* OR museum* (Appendix 2). Other combinations of search terms were tried, including outcomes or combining the intervention type and location; however, these yielded tens of thousands of results, and it was decided outcomes would be implicit in the museum-based studies identified. Search terms were guided by the review topic, and key terms used in relevant literature and other literature reviews in the area. Dementia or Alzheimer's terms were thought sufficient to capture all subtypes of dementia. Terms used in the literature to describe relevant interventions were utilised with appropriate truncations to capture variations in wording or grammar and those relevant to the setting posed by the research question. No limits were applied to the year of the study; however, the search stop time was January 2020.

Figure 1 displays the process of identifying the papers reviewed here. Inclusion and exclusion criteria, as shown in Table 1, were developed to allow studies' eligibility for the review to be systematically determined.

Figure 1. Flowchart of the process of identifying included studies

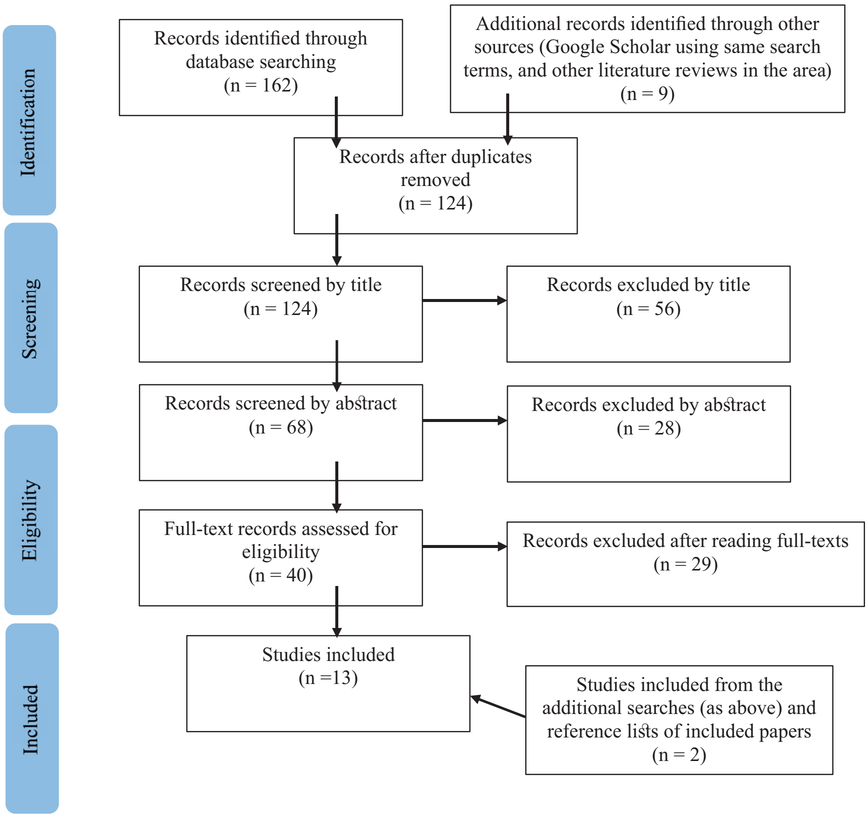

Table 1. Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
English language	
Empirical studies published in peer-reviewed academic journal articles	Grey literature or reports
Dementia sample (or clearly specified as in the large majority)	Non-dementia sample, e.g. other cognitive impairment, older people without a dementia or where this is not specified
Mild-to-moderate dementia	Where the stage of dementia is not clearly indicated or specified
Museum-based interventions	Other interventions, e.g. reminiscence and art therapy
The intervention takes place exclusively in a heritage setting, e.g. a museum or gallery	Part of the intervention takes place in a museum and part in a non-heritage setting
The study includes a focus on outcomes relating to the psychological and/or social impacts including wellbeing impacts on PWD following an art intervention	Focus is on physiological, clinical and environmental outcomes on PWD following an art intervention

Note. PWD: people with dementia.

Studies that met these criteria were selected for inclusion. Those on the border of the criteria were discussed amongst two of the authors and an independent researcher to ensure these were applied as systematically as possible. For example, some studies were conducted in part in a heritage setting and in part in an outreach setting, such as a day centre. Studies were excluded if they did not take place exclusively in heritage settings, or used PowerPoint presentations as opposed to viewing authentic art. This enabled the studies to be as homogenous as possible in order to meaningfully synthesise their findings in relation to the research question. Findings from studies including samples with a range of dementia severity (mild to severe) were included provided the intervention, and its findings were separately and clearly reported for people with a mild-to-moderate dementia. In addition, studies in which samples consisted of PWD and other cognitive disorders were included in cases where these characteristics were clearly specified, and the large majority of the samples were PWD. Table 2 presents a summary of the 11 studies included in this review.

Quality assessment

The QualSyst (Kmet et al. 2004) was used to systematically assess the quality of the included studies (Appendix 1). This set of criteria was chosen for its ability to simultaneously appraise both quantitative and qualitative studies. Mixed-method studies were scored using the tool for both for their quantitative and qualitative aspects. The tool was developed drawing on existing appraisal tools, has good inter-rater reliability and is particularly appropriate when synthesising different study designs. A specialist librarian was consulted and advised the authors on the search strategy and use of search terms. All authors agreed on the terms and search criteria and ensured that the subsequent data extraction was robust and accurate.

Ethical considerations

Ethical approval was not needed for this review because only data from previously published studies in which informed consent was obtained by the primary investigators were retrieved and analysed. Nonetheless, the authors were cognisant of search, availability and language bias and were careful to include a wide range of databases and not to simply include those studies that were most easily accessible.

Results

Overview of included studies

Of the 11 studies reviewed, three employed quantitative methods, two were qualitative and six utilised a mixed-methods approach. Two studies undertook different analyses on the same intervention. Given the infancy of research in this area, the majority of studies were exploratory, feasibility or pilot studies either investigating existing programmes or conducting sessions for the purpose of the research. They utilised a range

Table 2. Summary of studies included in the review

Study/quality rating	Sample	Aims	Intervention	Measures/ evaluation	Design/ methodology	Key findings
Burnside et al. (2017) USA Quality rating score: qualitative 80%	PWD ($n = 21$) Early or mild stages of dementia on average. Clinical Dementia Rating scale (CDR) 4 = 0.5, 14 = 1, 1 = 2 Age (60–84, $M = 76$) 76% university degree. Prior arts experience: none 19%, moderate 24%, extensive 57% Carers ($n = 21$) Spouses (52%), daughters, paid carers and other family members 1 African American dyad, 1 Asian dyad, 19 white dyads	To explore the impact of "Here: now," a museum-based experiential arts programme for PWD and their carers and to develop a conceptual model regarding important components, processes and outcomes	Two (on-going) programmes: 1. Monthly one-time discussion-based gallery tours (90 minutes, 5–6 dyads, 3 artworks) include group and dyad discussion 2. Six-week programme including a gallery tour and studio art-making classes (120 minutes, art work discussion and materials around themes of the art shown) Total of 7 gallery tours and 3×6 art-making classes. Dyads participated in 1 or more of these Guided by a museum educator trained in working with PWD and visual thinking strategies Frye Art Museum	Semi-structured telephone interviews with PWD ($n = 13$) and their carers ($n = 21$). These took place 2 weeks post-participation Interviewer was independent to the programme	Qualitative Grounded theory	Major themes: facilitation, engagement, mindfulness, enjoyment, socialisation, joint respite, personhood, relationship normalising, relationship affirming, relationship growth and personal growth These were divided into relationship effects and personal effects Important factors to the programme: museum space, facilitation process and socialisation with others Conceptual model comprised: antecedents, structural factors, process (mindfulness incorporating the themes of enjoyment, socialisation, joint respite and personhood), outcomes

(*Continued*)

Table 2. (*Continued*)

Study/quality rating	Sample	Aims	Intervention	Measures/ evaluation	Design/ methodology	Key findings
Camic et al. (2014) UK Quality rating score: Qualitative 90% Quantitative 77%	PWD ($n = 12$) Mild-to-moderate dementia. Mini-Mental Status Exam (MMSE) scores ranged from 10 to 24 ($M = 20.1$) Addenbrooke's Cognitive Examination-Revised (ACE-R) scores ranged from 18 to 73 ($M = 52.8$, SD = 18.4) Age (58–94, $M = 78.3$, SD = 8.8) 17 White British, 4 White European, 2 British Asian, 1 Black British Carers ($n = 12$) Neuropsychiatric inventory (NPI) completed by carers	To explore the feasibility and impact on social inclusion, carer burden, quality of life and daily living activities of a gallery-based intervention for PWD and their carers	8-Week group art-viewing (60 minutes) and art-making (60 minutes) sessions across two different art galleries for PWD and their carers Dulwich picture Gallery and Nottingham Contemporary	Standardised measures: PWD: Dementia Quality of Life Questionnaire (DEMQOL-4) Carers: Zarit Burden Interview (ZBI) and the Bristol Activities of Daily Living scale (BADLS) Semi-structured interviews with participating dyads 2–3 weeks post participation (50–90 minutes) Field notes taken by researchers who attended all sessions	Mixed-methods, pre-post design Thematic analysis on interviews and field notes	No significant pre-post differences between galleries No significant pre-post differences in quality of life (which remained stable), activities of daily living or carer burden (although there was a slight trend in reduction) Key qualitative themes: social impact, cognitive capacities and art gallery setting

(*Continued*)

Table 2. (*Continued*)

Study/quality rating	Sample	Aims	Intervention	Measures/ evaluation	Design/ methodology	Key findings
Camic et al. (2016) UK Quality rating score: Qualitative 85% (This is the same intervention and data as in Camic et al. 2014)	PWD (*n* = 12) Mild-to-moderate dementia Carers (*n* = 12)	To develop a theoretical understanding of the impact of art gallery-based programmes for PWD and their carers	8-Week group art-viewing (60 minutes) and art-making (60 minutes) sessions across two different art galleries for PWD and their carers Gallery facilitators (*n* = 4) led guided discussions on 2–3 artworks and in 3 sessions dyads also discussed an artwork or object of interest Art-making in studio with professional artist with experience working with older people. Theme influenced by paintings discussed. Different materials provided each week	Semi-structured interviews with participating dyads 2–3 weeks post-participation (50–90 minutes) Field notes written by the researchers Written communication between the facilitators and research team Semi-structured interviews with program facilitators (30–60 minutes)	Qualitative Grounded theory Triangulation of data sources	Emerging theory with four primary components: valued place, intellectual stimulation, social interaction and changed perceptions Impact on individual (positive affect), relational (social interaction) and community (changed perceptions) levels

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Table 2. (*Continued*)

Study/quality rating	Sample	Aims	Intervention	Measures/ evaluation	Design/ methodology	Key findings
D'Cunha et al. (2019) Australia Quality rating score: Quantitative 86% (The physiological data in this study were not included in the review)	PWD ($n = 25$) Moderate dementia as indicated by scores on the Mini-Addenbrooke's Cognitive Examination (M-ACE) 17 female Age ($M = 84.7$) Majority living in residential care and one living in the community Moderate level of independence as scored on BADL 17 Alzheimer's disease, 3 vascular dementia, 2 Parkinson's, 3 mixed 60% Australian Median of 10 years of education Family members/ friends/care staff were asked to act as a study partner	An exploratory study to investigate the impact of an arts programme on physiological and psychological measures	6-Week discussion-based art-viewing sessions (90 minutes, 3–4 works of art). Form of art differed each week. 5 groups. Led by 2 art educators trained in working with PWD and attended by 1–2 researchers Care staff and researchers were asked to limit their input and sat behind the group National Gallery of Australia	PWD: Geriatric Depression Scale (GDS), Health-Related Quality of Life Questionnaire for PWD (DEMQOL), M-ACE General Wellbeing Questionnaire (GWQ) sessions 1, 3 and 6 Carers: DEMQOL-carer Behavioural observation using a standardised template Exit questionnaire for those who recalled the sessions 6 weeks later	Quasi-experimental One week pre-1 day post the 6-week intervention with 6 week follow-up Statistical tests	Improvements in pre-post self-reported QoL for PWD but no differences were found in QoL as rated by carers Improvements in pre-post symptoms of depression and M-ACE scores (immediate recall and verbal fluency only) GWQ scores improved from sessions 1 to 3 and were maintained at session 6 Behavioural observations: increase in laughter and happiness between sessions 1 and 2 and then decreased. No other changes 48% completed exit questionnaire. Overall rated experience as memorable, looked forward to it, and carers felt it was beneficial for PWD. Participants rated average experience as 8.12 out of 10

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Table 2. (*Continued*)

Study/quality rating	Sample	Aims	Intervention	Measures/evaluation	Design/methodology	Key findings
Eekelaar et al. (2012) UK Quality rating score: Qualitative 80% Quantitative 82%	PWD ($n = 6$) Early-to-mid stages of dementia. MMSE (18–24, $M = 21.67$) Age (68–91, $M = 78.67$) Carers ($n = 6$) Five spouse, one son Both groups three male	Exploratory study investigating the impact of a gallery intervention on cognition in PWD, namely, episodic memory and verbal fluency	3-Week gallery sessions: discussion-based art-viewing (30 minutes, 2–3 artworks) and art-making (60 minutes) in a studio Led by an art educator and an art therapist Dulwich Picture Gallery	Semi-structured interviews with PWD and carers pre- and 4 weeks post-participation Audio recordings of art-making sessions	Mixed-methods Pre-post design Content analysis for outcomes relating to cognition from interviews and art-making sessions (not art viewing) Thematic analysis on carer post-interviews	Patterns of increased episodic memory from pre-interviews across the sessions and maintained at follow-up. A more ambiguous increase in verbal fluency (a slight decrease in disfluencies) from pre-interview across the sessions and not maintained at follow-up. Both consisted of much fluctuation across sessions Carer reports corroborated these improvements Themes: social activity, PWD becoming their old selves, shared experience

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Table 2. (*Continued*)

Study/quality rating	Sample	Aims	Intervention	Measures/ evaluation	Design/ methodology	Key findings
Flatt et al. (2015) USA Quality rating score: Qualitative 85% Quantitative 82%	PWD (n = 8) Early-stage dementia (n = 6) (Alzheimer's) and related cognitive disorders (n = 2). Referred to as ADRD Age (60+) Five female Eight Caucasian, two African American Carers (n = 10) Family	To explore the subjective experiences of people with ADRD and their carers of a museum activity	A one-time art museum activity: a discussion-based guided tour (60 minutes, 4 artworks) and an art-making studio activity (120 minutes). Four one-off sessions were held Led by a museum educator The Andy Warhol Museum	Unvalidated brief satisfaction survey Focus groups using a script to guide the interview (n = 4; 4–7 participants, 30 minutes) Both took place immediately after the intervention Field notes	Cross-sectional, qualitative Thematic analysis Descriptive and statistical analysis for the satisfaction survey	Key themes: cognitive stimulation, social connections and self-esteem In addition, themes of programmatic issues such as activity-specific concerns and program logistics were identified that could help improve future art programmes Participants enjoyed the art-making most followed by the group interactions (rated higher by people with ADRD than carers) and the guided art discussion Overall satisfaction related to having previous art/museum experience and to perceived social cohesion, including a sense of and positive feelings of morale

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Study/quality rating	Sample	Aims	Intervention	Measures/ evaluation	Design/ methodology	Key findings
Johnson et al. (2017) UK Quality rating score: Quantitative 82%	PWD ($n = 36$) Early-to-mid stages of dementia 2 early onset Alzheimer's, 17 Alzheimer's, 5 FTD, 4 Vascular, 8 mixed 25 male Age (58–85, $M = 74$) Living at home Carers ($n = 30$) Could attend with or without carer	To compare the impact of two museum activities and a social refreshment break on the subjective wellbeing of PWD and their carers	Group object handling (45 minutes) and art-viewing (45 minutes) with a social refreshment break in the middle (shorter in duration). 11 sessions in total. 4–8 people in a group. Included facilitator and volunteers. Same facilitator for all sessions. Museum in South East England	Subjective wellbeing pre- and post- activities (4 time points): Visual Analog Scales (VAS) happy/ sad, well/ unwell, interested/bored, confident/ not confident, optimistic/not optimistic Feedback questionnaire	Quasi-experimental Mixed 2×4 repeated-measures crossover design with two groups: PWD and carers	Significant improvements in wellbeing during both activities (irrespective of order) but not in the refreshment break for both PWD and carers This increase was not significantly greater after object handling than art-viewing Positive feedback on participant experiences: 91% used positive adjectives and 6% neutral. 55% said preferred object handling, 36% art-viewing, 9% both equally

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Study/quality rating	Sample	Aims	Intervention	Measures/ evaluation	Design/ methodology	Key findings
MacPherson et al. (2009) Australia Quality rating score: Qualitative 70% Quantitative 82% Only participants with mild-to-moderate dementia (community group) are included as group interventions, and findings were conducted and reported separately for those with moderate-to-severe dementia (residential group)	PWD ($n = 7$) Mild-to-moderate dementia. CDR = 4 mild, 3 moderate Living at home Age (56–80, $M = 70.8$) Accompanied by an Alzheimer's Australia volunteer Presence and role of carers is unclear Measure of behaviours associated with dementia that cause carer stress completed (only pre-intervention)	A pilot study to assess whether PWD could engage with an art-viewing activity in a gallery and explore the impact of this for participants	Ongoing programme 6-Week art-viewing group sessions (45–60 minutes, 4 artworks). 1 all male and 1 all female group Groups facilitated by the same 2 gallery educators National Gallery of Australia (NGA)	Video-recorded sessions for behavioural analysis Focus groups 6 weeks post-intervention with PWD, carers and educators	Mixed-methods Mixed-subject design. Time sampling methods to analyse engagement. (Weeks 1 and 5 coded to see change over time) Grounded theory to analyse focus group transcripts	No significant differences in engagement between sessions 1 and 5 suggesting participants started off and remained engaged throughout No significant main effects for type of participant (community vs residential) or session (1 or 5) Focus groups: PWD: enjoyment of the programme, engagement and intrinsic benefits independent of having dementia, normalisation and discovery of residual abilities, social aspects, future of the programme Carers: recall, enjoyment, social aspects and (no) lasting change. Logistical issues and improvements to the programme Educators reports likely across both groups (community and residential): initial expectations and subsequent experience, gaining skills. Enjoyment/confidence and memory stimulation in PWD

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Table 2. (*Continued*)

Study/quality rating	Sample	Aims	Intervention	Measures/ evaluation	Design/ methodology	Key findings
McGuigan et al. (2015) New Zealand Quality rating score: Qualitative 80% Quantitative 68%	PWD ($n = 8$) Severity of dementia not specified but noted all participants could provide their own written consent Age (73–90) Three men Six Alzheimer's, one mixed, one vascular Carers ($n = 8$) Five spouses, three children	A practice-based pilot study. To explore the experiences of a museum-based programme for PWD and their carers An additional aim of the museum was to consider the development and delivery to develop the programme for future use, the programmes development and implementation	6-Week museum programme (120 minutes: 20–30 minutes settling in, 35–40 minutes activity, refreshments provided after). Sessions took place in the members' lounge or gallery and included the use of objects or images alone, a combination of both, and three different gallery tours Led by museum volunteer guides with training to increase their understanding of dementia. A specialised tour style with "occasional opportunities for participants to speak" Focus was on an intervention PWD and cares could do together – equal focus Auckland Museum	Participant observation by independent researcher Focus groups at completion ($n = 2$, 2 with carers, 1 with volunteers, 60–90 minutes). Did not include PWD Individual interviews with Alzheimer's Auckland and museum staff Feedback sessions with volunteers and museum staff	Mixed-methods Time-sampling to evaluate attentiveness using unvalidated scale and continuous observation in rest of sessions Thematic analysis for focus groups and interviews	Average attentiveness remained high on average across the sessions. PWD were found to be most attentive in the session who used both objects and images and overall in sessions in the lounge compared with the gallery No statistical analysis Key themes: socialisation, programme delivery, shared experiences and practical issues Noted using objects in isolation was difficult for PWD without contextualising images and due to facilitators moving to the next topic whilst the previous object was being passed on, putting extra demands on attention to split this between the object and facilitator

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Table 2. (*Continued*)

Study/quality rating	Sample	Aims	Intervention	Measures/ evaluation	Design/ methodology	Key findings
Schall et al. (2018) Germany Quality rating score: Qualitative 70% Quantitative 79%	PWD (n = 44) Mild-to-moderate dementia Living at home 23 female 32 Alzheimer's disease, 7 vascular, 2 Parkinson's disease dementia, 3 unclear. Age (51–93, M = 75.1, SD = 7.70 in the intervention group and 76.4 years, SD = 8.68 in the wait-list control group) 54.5% had a university or similar higher education degree. 4.5% had no vocational qualifications Carers (n = 44) Spouses (56.8%) or adult children (31.8%)	To explore the impact of the ART Encounters: Museum Intervention Study (ARTEMIS) on PWD and their carers A subsample of a related study	Intervention group (25 dyads): 6-week group guided art tour (60 minutes, different themes, 4–8 people) and an art-making activity in studio (60 minutes, where carried out tasks in pairs). Total of 13 groups Staff had dementia training based on the TANDEM training model Frankfurt Stadel Museum Control group (19 dyads): independent museum visits 4 months prior to the intervention	Standardised measures PWD: cognitive status (MMSE and ADAS-Cog), Geriatric Depression Scale (GDS), Quality of Life in Alzheimer's Disease (QoL-AD), NPI PWD and carers wellbeing: self-rating Smiley Scale pre-post each session/ museum visit Carers subjective evaluations of PWD after each session	Randomised wait-list controlled study Mixed-methods Pre-post measures a few days before/ after the intervention Follow-up assessments with carers 3 months later	Significant pre-post improvements for self-reported QoL for PWD in the intervention group when compared with the control group, who had a positive non-significant trend Significantly improved total NPI scores and the subscales affective (depression and anxiety) and apathy post-intervention and significant improvement in apathy in the control group Significant positive increase in emotional wellbeing pre-post each intervention session for PWD with medium effect sizes Subjective evaluations by carers "largely confirm the positive impact on emotional state and wellbeing"

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Table 2. (*Continued*)

Study/quality rating	Sample	Aims	Intervention	Measures/ evaluation	Design/ methodology	Key findings
Young et al. (2015) UK Quality rating score: Quantitative 82%	PWD (n = 13) Early-to-mid stage dementia. Inclusion criteria: MMSE score between 10 and 24 11 female All White British Age (group 1: 60–94, M = 78.8, group 2: 73–91, M = 81.6) Carers (n = 13)	To investigate the impact of art-making and art-viewing on verbal fluency and memory Built on Eekelaar et al. (2012) to increase sessions and explore both art activities	8-Week discussion-based art-viewing (60 minutes, 1 artwork) and art-making in studio (60 minutes). In weeks 2 and 8 asked to bring in "interesting objects" to also pass around and discuss. Total of two groups Led by an artist educator who had dementia awareness training Contemporary art gallery	Audio recordings of art-viewing and art-making sessions (6.25% data missing due to failed audio recordings)	Quantitative content analysis on group data Data presented graphically as statistical analysis was not possible	Verbal fluency: disfluencies decreased and semantic clustering increased in both art activities from the first to final sessions. Disfluencies were more improved in art-making sessions and semantic clustering in art-viewing Reports of lifetime memories: overall increase from first to last sessions in both sessions, and more so in art-viewing However, these findings were not linear and considerable fluctuation occurred between sessions Exit interviews: carers reflected positive impact of the groups (not mentioned before the discussion)

of pre-post and cross-sectional designs and quasi-experimental designs, including one waitlist randomised controlled trial. Studies broadly aimed to investigate the experiences or impacts of museum-based interventions on PWD (and, to a lesser extent, their carers) in a range of domains such as subjective wellbeing, cognitive functioning, engagement, quality of life and mood. In addition, one study compared two museum-based interventions, and two studies also sought to develop a conceptual understanding.

All interventions took place in public art galleries or museums, in either or both the main galleries and private rooms. The length of interventions varied from one-off sessions to 8-week programmes, and sessions ranged from 45 minutes to 3 hours. Of the interventions used, seven included both art-viewing and art-making components (one of which also asked participants to bring in objects to share in two of eight sessions), two studies consisted of art-viewing only, one compared art-viewing and object handling, and one used only images, only object handling, a combination of both and gallery tours. The majority of interventions included a discussion-based exploration of art and involved facilitators with some training in dementia awareness or working with PWD. In addition, all interventions included carers. Some interventions were designed equally for carers and PWD, others noted carers were invited as support for PWD, and one study stated carers were optional, but most attended with a carer. The role of carers in one study was not specified. The majority of carers not only were family members but also included close friends, paid carers and staff. Data collection varied from in-the-moment measures to those several weeks post-intervention. Some measures relied more on the self-reports of PWD and others on the observations of researchers or carers. The studies took place in Australia, Germany, the UK and the USA.

Quality check and critique of studies

The overall scores of studies ranged from 68% to 91%. Overall, studies stated their aims clearly and used appropriate designs to address these. Most included small sample sizes (range = 6–44). This was deemed appropriate for one quantitative study. However, for many studies, this was rated as only partially appropriate, particularly given the use of statistical tests and general lack of power calculations, or the inability to conduct statistical tests and instead rely on drawing interpretations from descriptive data. One study did include power calculations, but their sample size was smaller than that specified for some calculations.

In relation to the recruitment of participants, studies were typically lacking in replicable detail around recruitment methods and procedures. All studies were rated as partially meeting the quality criteria in this domain, given the opportunity samples used. Authors demonstrated some awareness of this limitation in which samples may be biased to include people who have an interest in the arts.

The range of participant characteristics reported varied across the studies, although all but one study was rated as giving sufficient information. This study provided fewer characteristics and did not specify the sex of participants or where they were residing. One study did not specify the level of dementia severity but did note participants could consent for themselves. Several did not report the subtypes of dementia of people within the sample. These characteristics were not central to the research questions but can make it difficult to compare samples across studies.

Overall, studies did not control well for confounds. Few studies used a control group, and only one was able to randomly allocate to groups and used an appropriate method for this. However, comparability of baseline characteristics was conducted for a few studies.

Measures for outcomes were generally well reported and explained, including non-standardised measures. These were appropriate, again given the studies' exploratory nature. For example, two studies used quantitative content analysis as a novel way to explore data in a naturalistic setting, which, whilst not as robust as validated measures, was appropriate to the aims of the study to use non-obtrusive methods to capture in-the-moment change. A range of measures were used to explore diverse outcomes (including psychological, social, cognitive and, whilst not a focus of this study, physiological) sometimes using different tools across studies for the same domain. This can make it more difficult to compare studies and also reflects the widely reported difficulty of defining concepts such as "wellbeing" (Dodge et al. 2012). It should be noted that "wellbeing" is an outcome in the studies included here, rather than an intervention.

Quantitative analytical methods were often well described and appropriate. However, there were instances in which statistical tests were not conducted, without a clear rationale for their omission. In other cases, statistical tests were run for some parts of the data and not others, again without a clear rationale. It is possible this was due to small sample sizes but could also be due to only reporting tests that were run and yielded significant results, thus giving an incomplete picture of the analysis. Variance was often not adequately reported, only providing standard deviations.

Qualitative data collection methods were generally described well and were transparent and could, therefore, be replicated (Aguinis & Solarino 2019), with the exception of two studies, which did not give sufficient detail about the focus of interviews or focus groups. Qualitative methodologies varied from descriptive to thematic analysis and grounded theory. These were typically well explained with supporting quotes, and all but one study reported some method to increase credibility, including the triangulation of data, peer reviews and inter-rater reliability. However, only two studies reported using reflexivity, and none specifically described how their own characteristics may have influenced the data. Qualitative analyses were only partially explained in some instances. These included having few supporting quotes to allow a judgement to be made on the appropriateness of the interpretation in one study, and not clearly describing the analytical procedure, so that it could be sufficiently understood.

Results were reported in sufficient detail and had logical conclusions. Where descriptive results were interpreted as support for positive changes in a domain, conclusions presented this evidence more tentatively, acknowledging the limitations within the methodology. This was appropriate and prevented findings from being overstated.

Themes

Given the overlap in the outcomes and themes of the studies' findings, these were synthesised thematically through a reflexive process of re-reading studies to identify and refine themes.

Psychological outcomes: mood and enjoyment

Overall, improved mood and enjoyment were important aspects of the interventions.

Although quantitative results connected with mood and enjoyment were mixed, they suggested that positive outcomes were not maintained over time (D'Cunha et al. 2019; Schall et al. 2018).

In qualitative studies, improved mood and enjoyment featured consistently as benefits of the interventions identified by PWD (Flatt et al. 2015; Johnson et al. 2017; MacPherson et al. 2009). Burnside et al. (2017) highlighted "enjoyment," and Eekelaar et al. (2012) identified the theme PWD "becoming old selves," which included the subtheme "improvement in mood." Enjoyment was reported both during and after the interventions by D'Cunha et al. (2019).

Two studies investigated the specific components of the intervention that might have contributed to enjoyment, in more depth. In Johnson et al. (2017), preferences of the experienced art activities were rated equally (object handling and art-viewing). Flatt et al. (2015) found participants enjoyed the components of the intervention in the following order from the most enjoyable: art-making (rated significantly higher than the following two components), group interaction, and guided art discussion.

Finally, two studies (MacPherson et al. 2009; Schall et al. 2018) drawing on carers' and/or facilitators' perspectives regarding the impact of interventions on PWD also reported benefits to mood and enjoyment levels. MacPherson et al.'s (2009) analysis of carers' reports in relation to PWD resulted in the theme "enjoyment," with one carer noting, "you do it for the moment" (p. 748). Schall et al. (2018) descriptively reported carers' subjective evaluations of PWD during sessions. These reflected frequent expressions of positive emotion by PWD during creative activities such as those based on biographical themes and when drawing to music. The authors noted the reports "largely confirm the positive impact on the emotional state and well-being" (p. 738) reflected in their quantitative findings. Quotes from open-ended questions also referred to PWD experiencing enjoyment.

Clearly, notwithstanding the mixed results from quantitative measures, the reviewed papers suggest enjoyment and improved mood for PWD are two important potential benefits of the interventions.

Subjective wellbeing

The findings from the studies reviewed provide support for museum-based programmes having a positive impact on subjective wellbeing.

Employing a measure of general wellbeing questionnaire (GWQ), D'Cunha et al. (2019) found an increase between weeks 1 and 3, which was maintained at week 6. Johnson et al. (2017) found subjective wellbeing to significantly increase pre-post both art-viewing and object handling sessions but not for a refreshment break for both PWD and carers, suggesting wellbeing was impacted by the art activities over and above socialisation and refreshments. There was not a statistically significant difference between art viewing and object handling. Schall et al. (2018) also used a visual subjective wellbeing measure (Smiley Scale) pre- and post-intervention and control group sessions, finding significant improvements following the intervention and a non-significant but slightly positive trend in the control group. Comparisons between each of the intervention sessions with the control group showed an overall majority of medium effect sizes.

Personhood

Findings highlight the potential for museum-interventions to support the personhood of PWD.

Several qualitative studies identified concepts relating to personhood as themes in their analysis. Burnside et al. (2017) developed a conceptual model comprising themes of "personal growth" and "preservation of personhood." They also highlighted "personhood" as one of several incorporated themes that made up "mindfulness," which was reported to contribute to the process and essence of the intervention. Camic et al. (2016) also noted that both others and the gallery setting contributed to "a sense of normalcy, equality and personhood." MacPherson et al. (2009) identified themes of "normalisation and discovery of residual abilities" relating to being treated by others as normal and having the ability to do things despite dementia. Flatt et al. (2015) identified the theme "self-esteem" referring to the positive feelings expressed when discussing the intervention. This theme comprised the subthemes "feeling accepted or a sense of normalcy," "a sense of autonomy or control or mastery" and "feeling special or important."

Cognition

Memory and verbal fluency were two specific cognitive domains that featured in the reviewed literature. Overall, the findings suggest art gallery and museum interventions were cognitively stimulating and may improve aspects of memory and verbal fluency in PWD; however, these positive effects may not be maintained over time.

In qualitative analyses (Camic et al. 2014, 2016; Eekelaar et al. 2012; MacPherson et al. 2009; McGuigan et al. 2015), memory emerged as a commonly reported theme. Memory is a broad concept, and the studies referred to a range of processes, including "memory stimulation," "recall" (MacPherson et al. 2009), "engagement and new learning" (Camic et al. 2014) and "cognitive stimulation" (Flatt et al. 2015). McGuigan et al. (2015) referred to subthemes "nostalgia," "memories inspired by the sessions" and "other memories." Eekelaar et al. (2012) identified the subthemes "recalling memories" and "increased verbalizations." They found an overall increase in episodic memory frequencies from pre-interviews across sessions which were maintained at follow-up (including some variability). The authors noted these findings were corroborated by qualitative findings.

Camic et al. (2016) reported a superordinate category of "intellectual stimulation" referring to a learning experience rather than merely reminiscence.

Eekelaar et al. (2012) found overall improvements in verbal fluency (as explored through disfluent speech and semantic clustering) from pre-interviews to art-making sessions, but these were not maintained at follow-up. Disfluencies in speech only decreased slightly during art-making (and include some anomalies), which the authors acknowledge as a more ambiguous finding. Building on Eekelaar et al. (2012), Young et al. (2015) reported that both disfluencies and sematic clustering improved in both art-viewing and art-making activities from the first (or second session where there was missing data) to the final session. Lifetime memory reporting was also found to increase from the first to final sessions in both art activities, with a bigger impact during art-viewing than art-making (increase of 7.18% and 4.08%, respectively). However, changes in verbal fluency and memory were not linear and fluctuated considerably from session to session, which the authors note presents challenges when trying to draw definitive conclusions without looking in more depth at the content of session discussions.

Other findings also related to whether positive cognitive effects were maintained after the intervention. D'Cunha et al. (2019) reported a pre-post intervention increase in cognitive function (using the Mini-Addenbrooke's Cognitive Examination) in both the overall score and the subdomains of "immediate recall" and "verbal fluency," but this was not maintained 6 weeks later. Improvements in verbal fluency from pre-interviews to art-making sessions in Eekelaar et al. (2012) were similarly not maintained at follow-up.

Engagement

Overall, findings indicate that the art programmes engaged PWD in a variety of ways (including with the artwork and others present). Qualitative and quantitative results alike indicated that engagement was an important feature of the interventions. In the context of the studies reviewed, "engagement" referred to being involved in the art activity, being attentive and communicative, as well as participants feeling connected with others.

Thus, for Burnside et al. (2017), "engagement" encompassed participant responses including communication with the facilitator, the process of the art activity and the feeling of connected with others, whilst in Camic et al. (2016), the subthemes "engagement" included different perspectives on engaging with art from positive to feeling overwhelmed or discomfort.

Quantitative methods enabled some researchers to capture high levels of engagement experienced by PWD. MacPherson et al. (2009) explored changes in engagement. No significant differences were found between sessions 1 and 5, which the authors note suggests participants began and remained engaged throughout. Only a small proportion of negative or neutral observations was made (less than 10% across groups). McGuigan et al. (2015) found that the average attentiveness of PWD remained high across sessions. This study found higher mean scores in sessions held in a members' lounge (however several members were also observed to fall asleep) compared with the sessions involving gallery tours. However, the authors considered the potential impact of the increased difficulty in observing participants in the gallery in relation to this finding. PWD were found to be most attentive in a session that used both objects and images. The authors recommend this combination for maximising engagement opportunities.

Other studies reported more mixed results. D'Cunha et al. (2019) found that behavioural observations showed no changes in prompted or unprompted discussion, sleeping or negative emotions. However, they did find an increase in happiness and laughter between sessions 1 and 2. Eekelaar et al. (2012) found factual observations and opinions made by PWD in response to art works decreased during art-making sessions and rose again at follow-up, with some individual variability at follow-up in factual observations. The frequencies of emotional reactions to paintings occurred at a similar rate both pre- and during sessions and decreased in post-interviews; however, individual data show variability. Soliciting information (seeking knowledge and requesting guidance) was also observed. Seeking knowledge showed similar levels at pre- and during sessions, which dropped at post-interview, but with inconsistent individual patterns. One PWD displayed direct requests of guidance to facilitators (about what to do or say) and more so in sessions than in pre–post interviews.

Social outcomes

Overall, the studies highlighted a broad range of social benefits of the interventions.

McGuigan et al. (2015) identified themes of "socialisation," including subthemes of "connecting with others," "novelty," "re-engagement with the museum," "opening up another venue to visit" and the theme "shared experiences." Eekelaar et al. (2012) identified themes of "social activity" and subthemes of (reduced) "isolation" and "structure," and the theme "shared experience," with subthemes of "learning together" and "making art together." Camic et al. (2014) identified the theme "social impact" and subcategories of "social aspect of the group" and "caring relationship." Camic et al. (2016) also reported a superordinate category of "social interaction" with associated subcategories of "carer respite and support" and "interaction." Flatt et al. (2015) identified "social connections" as a theme with the subthemes "connecting with others" and "how others shaped the experience." In addition, they found people with early-stage Alzheimer's disease or related cognitive disorders to rate the group interactions significantly higher regarding enjoyment than their carers.

MacPherson et al.'s (2009) theme "social aspects" not only included positive elements of social contact but also expressed concerns such as "making an idiot of self." In addition, an identified theme from carers reports was "social aspects and [no] lasting change," whilst a theme from the comments of session facilitators was "excess disability," where PWD displayed less confidence when their carers' were present. Burnside et al. (2017) developed a conceptual model that identified the process and essence of the intervention as the theme "mindfulness," incorporating themes including "socialisation" and "joint respite." Their model highlighted an outcome of relationship effects comprising themes of "relationship normalising," collaborating and removing the stigma associated with dementia, "relationship affirming" in relation to the current bonds and "relationship growth" together in a meaningful experience.

Discussion

This review has investigated the psychological and social impacts of museum-based programmes for people living with a mild-to-moderate dementia. A synthesis of the findings of the 11 reviewed studies has highlighted key themes across the literature in relation to these impacts.

The papers reviewed here were largely exploratory in nature. Due in part to the practical restraints imposed by conducting research in naturalistic settings, sample sizes were small. As a result, any conclusions must be drawn tentatively, something the studies tended to acknowledge appropriately. With this caveat in mind, this review offers observations regarding key themes, acknowledging the evidence reviewed and its limitations.

Clear themes emerging across both qualitative and quantitative studies included social benefits, improvements in mood (although quantitative findings were mixed) and enjoyment. These reflect the findings of a previous review of museum programmes in a more general older adult population (Smiraglia 2016).

The theme of cognition was also evident and is more broadly explored in a review by Young et al. (2016). Papers utilising quantitative methods were again limited in the conclusions they could draw in relation to these findings. Sample sizes meant statistical analyses were unable to be run, instead descriptive frequencies and improvements were reported where small increases in measures were observed. At times, these observations appeared to obscure the substantial fluctuation in scores that occurred between sessions. However, as exploratory studies employing novel methods that seek to capture changes during sessions, rather than simply pre- and post, these emerging findings are promising.

Themes of subjective wellbeing, of which PWD are important informants (Kaufmann & Engel 2014), and personhood, relating to the concept defined by Kitwood (1997), were also reported in a number of reviewed studies and highlight the interventions as valuing PWD in a society where much stigma still exists (Batsch & Mittelman 2012). These studies demonstrate that whilst stigma continues to negatively affect the self-worth of people who live with dementia, art gallery and museum-based interventions can help ameliorate this.

Across the themes identified by this review, findings from quantitative measures were often mixed, which may reflect methodological limitations discussed, such as small sample sizes and a lack of power or, indeed, reflect a differential impact of different interventions. However, much overlap was found in the qualitative themes across the studies, suggesting a range of benefits for PWD. This finding supports Camic et al.'s (2014) assertion of the value of using mixed-method designs in the face of small sample sizes, as qualitative information can be useful in exploring the impact of interventions in the face of these issues.

Overall, the studies reviewed offered evidence that art gallery and museum-based interventions can be engaging and have a range of benefits pertaining to the psychological and social wellbeing of PWD. The findings also reflect wider literature promoting the positive benefits of museum settings and interventions for PWD (Camic & Chatterjee 2013). Therefore, it is recommended that health and social care professionals partner with local public health departments, museums and art galleries, to consider making these interventions more widely available and explore ways to increase access. This is in line with recommendations for improving dementia care, such as those outlined in the Prime Minister's Challenge on Dementia (DOH, updated from 2012 in 2020), social prescribing (NHS England 2019) and public health interventions (Camic & Chatterjee 2013).

Research considerations

Art galleries and museums in many countries now offer programmes and activities for PWD and their carers. What their future roles will be for dementia care within a public health framework – and how that will be funded – remains an area of discussion. The role of social prescribing may have an important impact here. Knowing what the most relevant outcomes are to assess also needs careful consideration. Wellbeing and quality of life are aligned with the concept of personhood (Kitwood 1997) and a more holistic and positive psychological approach to care (Stoner et al. 2019). This cuts across all types of dementia and levels of impairment and provides additional outcomes to consider other than outcomes limited to a cognitive domain (e.g. memory, thinking, language and judgement).

Pursuing mixed-methods studies (Camic et al. 2014) and including more wait-list controlled studies, as conducted by Schall et al. (2018), to clarify the factors that benefits may be attributed to will contribute towards a more robust evidence base, sensitive to the realistic issues faced in these settings. In turn, this could positively impact funding and guide policy in this area.

Limitations of this review

The Qualsyst tool (Kmet et al. 2004) used to assess the quality of the studies was appropriate, given its ability to guide critique on both quantitative and qualitative studies. However, despite clear questions and an adequate guide, there is still room for subjective interpretation.

This review sought to control for some confounds of the stage of dementia and setting by limiting its inclusion criteria to those living with a mild-to-moderate dementia and interventions based exclusively in heritage settings. Therefore, the findings may only be applicable to these specified settings and population. Future reviews could seek to compare outcomes for those with a mild-to-moderate and moderate-to-severe dementia, or in authentic heritage settings versus outreach interventions, to understand what impact these factors may have.

Given the focus of the research question, there was scope to consider other themes neither in the studies' findings, such as the museum setting, facilitation and logistics, nor in the findings relating to carers, facilitators or functional and physiological findings (of which there were fewer reported findings). These may lend themselves more to the processes and practical features in improving future interventions, which were not the focus of this review.

Conclusion

Art gallery and museum-based programmes are increasingly recognised as having the potential to engage PWD in the community and to positively impact wellbeing. However, there is a recognised lack of methodological rigour and research funding, which consequently limits the quality of the evidence-base. This systematic review has extended understanding of the psychological and social impacts of these interventions for people living with a mild-to-moderate dementia. Themes relating to psychological outcomes comprised mood and enjoyment, subjective wellbeing, and personhood; other key themes were cognition, engagement and social outcomes. These positive findings suggest that museum-based interventions for people with a mild-to-moderate dementia can offer a range of valuable benefits to this population in these domains.

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Appendix 1. QualSyst quality checklist and scores for quantitative and qualitative studies

QualSyst quality checklist and scores for quantitative studies

	Camic et al. (2014)	D'Cunha et al. (2019)	Eekelaar et al. (2012)	Flatt et al. (2015)	Johnson et al. (2017)	MacPherson et al. (2009)	McGuigan et al. (2015)	Schall et al. (2018)	Young et al. (2015)
1. Question/objective sufficiently described?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2. Study design evident and appropriate?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3. Method of subject/comparison group selection *or* source of information/input variables described and appropriate?	Partial	Partial	Partial	Partial	Partial	Partial	Partial	Partial	Partial
4. Subject (and comparison group, if applicable) characteristics sufficiently described?	Partial	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5. If interventional and random allocation was possible, was it described?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A
6. 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	N/A
7. 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	N/A

(*Continued*)

Appendix 1. (*Continued*)

QualSyst quality checklist and scores for quantitative studies

	Camic et al. (2014)	D'Cunha et al. (2019)	Eekelaar et al. (2012)	Flatt et al. (2015)	Johnson et al. (2017)	MacPherson et al. (2009)	McGuigan et al. (2015)	Schall et al. (2018)	Young et al. (2015)
8. Outcome and (if applicable) exposure measure(s) well defined and robust to measurement/misclassification bias? Means of assessment reported?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9. Sample size appropriate?	Partial	Partial	Yes	Partial	Partial	Partial	Partial	Partial	Partial
10. Analytic methods described/ justified and appropriate?	Yes	Yes	Yes	Yes	Yes	Yes	Partial	Partial	Yes
11. Some estimate of variance is reported for the main results/ outcomes	Partial	Yes	N/A	Partial	Partial	Partial	N/A	Partial	Partial
12. Controlled for confounding?	Partial	Partial	Partial	Partial	Partial	Partial	Partial	Partial	Partial
13. Results reported in sufficient detail?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
14. Conclusions supported by the results?	Yes	Yes	Yes	Yes	Yes	Yes	Partial	Yes	Yes
Total score (%)	17/22 (77)	19/22 (86)	18/22 (82)	18/22 (82)	18/22 (82)	18/22 (82)	15/22 (68)	19/24 (79)	18/22 (82)

Key: Yes (2); Partial (1); No (0).

Appendix 1. (*Continued*)

QualSyst quality checklist and scores for qualitative studies

	Burnside et al. (2017)	Camic et al. (2014)	Camic et al. (2016)	Eekelaar et al. (2012)	Flatt et al. (2015)	MacPherson et al. (2009)	McGuigan et al. (2015)	Schall et al. (2018)
1. Question/objective sufficiently described?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2. Study design evident and appropriate?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3. Context for the study clear?	Yes	Yes	Yes	Yes	Yes	Partial	Yes	Yes
4. Connection to a theoretical framework/wider body of knowledge?	Partial	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5. Sampling strategy described, relevant and justified?	Partial	Partial	Partial	Partial	Partial	Partial	Partial	Partial
6. Data collection methods clearly described and systematic?	Yes	Yes	Partial	Yes	Yes	Partial	Yes	Yes
7. Data analysis clearly described and systematic?	Yes	Yes	Yes	Partial	Yes	Partial	Partial	Partial
8. Use of verification procedure(s) to establish credibility?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
9. Conclusions supported by the results?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10. Reflexivity of the account?	No	Partial	Partial	No	No	No	No	No
Total score (%)	16/20 (80)	18/20 (90)	17/20 (85)	16/20 (80)	17/20 (85)	14/20 (70)	16/20 (80)	14/20 (70)

Key: Yes (2); Partial (1); No (0).

Appendix 2

Search terms

Dementia AND	Intervention AND	Setting
Dement* OR	art*	heritage
Alzheimer*	object*	galler* OR
	participatory	museum*
	creative* OR	
	wellbeing	
	well-being	
	well being	