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Joana Johnson BSc Hons

**PSYCHOSOCIAL INTERVENTIONS AND MUSEUMS**

**Section A**

**Psychosocial interventions offered by museums and art galleries:**

**A literature review**

**Word Count: 7,955 (174)**

**Section B**

**The impact of art-viewing and museum object handling on subjective  
wellbeing of people with dementia and their carers**

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## **Summary of the portfolio**

### **Section A**

This section reviewed the empirical literature on art-related psychosocial interventions offered by museums and art galleries. Twenty studies were found to meet inclusion criteria for the review: ten studies of psychosocial interventions hosted by a museum or art gallery utilising their collections, and ten studies investigating the impact of outreach programmes provided by museums comprising facilitated heritage object handling. A background and rationale for the review was provided, and findings relating to psychological outcomes were synthesised. Theories that may explain the psychological basis of the findings were drawn on, and salient points relating to methodological critique raised. Findings were discussed in light of areas for further research.

### **Section B**

This section investigated the impact of museum object handling, a refreshment break and art-viewing on the subjective wellbeing of people with dementia and their carers during a museum session using a repeated-measures crossover design. Measures of subjective wellbeing showed significant increases during the museum session for all participants irrespective of the order in which art-viewing and object-handling were presented. Pre/post-condition measures were pooled across orders and indicated that, for all participants, subjective wellbeing did not increase significantly from the refreshment break but did from object-handling. A significant increase in subjective wellbeing from art-viewing was also found for carers and people with dementia. Participant feedback from an end-of-intervention questionnaire was positive. Limitations, future research and potential for partnership working between healthcare professionals and museums were discussed.

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**Section A: Literature Review**

**Psychosocial interventions offered by museums and art galleries:**

**A literature review**

**Word Count: 7,955 (174)**

**For submission to**

***Arts & Health: An International Journal for Research, Policy and Practice***

### **Abstract**

The role of the creative arts in healthcare is attracting growing attention from NHS stakeholders, government policymakers, and researchers. Museums and art galleries are increasingly being recognised as having an important part to play in maintaining public health, being ideally placed to provide community psychosocial interventions. A systematic review of the peer-reviewed empirical literature to date found research on this topic in two areas: group psychosocial interventions provided within a museum or gallery targeted at particular groups (e.g. people with dementia or psychosis), and outreach programmes provided by museums where facilitators ran heritage object handling sessions in various healthcare settings using loan boxes of artefacts. Studies used qualitative, quantitative and mixed methods to operationalise a range of psychological outcomes. These were grouped into four thematic areas: wellbeing, interpersonal aspects, personal narratives and cognition, and described several positive outcomes. Findings were synthesised and discussed with reference to psychological theories that may underpin the psychological impact these interventions appear to have. Their methodology was critically appraised and recommendations for clinical application and further research were made.

**Keywords:** museum, art gallery, community, psychological impact, wellbeing

## **Introduction**

### **Psychology, arts and health**

A wealth of evidence suggests that interacting with the arts can be beneficial for physical and mental health and wellbeing, as detailed in Staricoff's extensive review (2004). Service users may benefit from healthcare professionals' collaboration with the innovative initiatives museums are developing and the combination of expertise this would afford (Camic & Chatterjee, 2013). There has been a call for applied psychologists to consider expanding their focus to include harnessing the arts in their practice (Camic, 2008), as their impact on wellbeing and quality of life make it a highly relevant area for professionals whose role is to work with distressed people.

### **The psychology of aesthetic appreciation**

Aesthetic appreciation is an 18<sup>th</sup> century concept originating from the philosophy of art which sees viewing art as involving a qualitatively distinct process from that of viewing ordinary items. This is supported by some neuroscientific studies within the field of neuroaesthetics which have implicated separate and distinctive neural networks for 'pleasant' versus 'artistically sublime' stimuli. Ishizu and Zeki (2014) found that neural activation correlated with to what extent participants described the experience as sublime. Activated areas included emotional centres such as the posterior hippocampus, fusiform gyrus, inferior/middle frontal gyrus, and the basal ganglia. This remains an area of contention, as other neuroimaging studies have not supported this notion of a clear-cut distinction (e.g. Brown, Gao, Tisdelle, Eickhoff & Liotti, 2011).

Leder, Belke, Oeberst and Augustin (2004) proposed a model that incorporates cognitive and emotional experiences involved in art-viewing, positing that aesthetic judgments are often at least partly interpretive and dependent on cultural norms. They hypothesised that viewing art initiates a stage process that first involves visual and attentional

processes in perceiving the art stimulus. Aspects of the artwork (such as familiar variables) may then be integrated with past experience, followed by cognitive mastering and evaluation where the perceiver uses this information to interpret and makes sense of the artwork. This leads to an affective response from the aesthetic experience, which may be positive or negative.

Grand works of art may encourage other psychological processes such as shifting perspective, taking people outside of present difficulties and encouraging reflection on their position within the wider world (de Botton & Armstrong, 2013). One may feel less alone in one's joys or struggles, as there is no human experience that has not been documented or captured in some art form over the centuries; one may also connect with an experience represented in the art, relating it to one's own life (Goulding, 2012). The physical environment of a museum or art gallery is often aesthetically grand, beautiful, or simply outside of the norm, and this can evoke responses in people that may be seen to be therapeutic, stimulating and conducive to psychological wellbeing (Roberts, Camic & Springham, 2011; Smith, 2014).

### **Museums and psychological outcomes**

**Wellbeing.** The Merriam-Webster dictionary defines wellbeing as “the state of being happy, healthy or successful”, while Dodge, Daly, Huyton and Sanders (2012) conceptualise it as a point of equilibrium between challenges faced and an individual's resource pool. Psychological perspectives on the conceptualisation of the multi-dimensional construct of wellbeing have differed, and there remains little consensus as to its definition. Hedonic wellbeing conceptualises wellbeing as one's own pleasure and happiness, and may be seen as relatively simple to quantify with self-report measures of subjective wellbeing (Swindells, Lawthorn, Rowley, Siddiquee, Kilroy & Kagan, 2013). Eudaimonic wellbeing is characterised as “the realisation of inner potential through meaningful relationships and

purposeful activity” (Swindells et al., 2013, p. 2), and arts interventions may be compatible with this understanding of wellbeing. Eudaimonic wellbeing is considered to be less transient than hedonic wellbeing, perhaps capturing the complexity of wellbeing more comprehensively, although challenges remain as to how eudaimonic constructs may be operationalised and measured within the confines of a research study (Biswas-Diener, Kashdan & King, 2009).

**Community psychology.** The British Psychological Society (2009) emphasises the importance of a broader public health or social approach to supporting wellbeing with an “innovative use of psychological expertise” (p. 14). Community psychology theories offer ways to understand and improve people’s difficulties on a broader, more holistic level rather than locating problems within individuals, positing that unequal distribution of resources in society leads to some groups being disadvantaged and marginalised (Miller & McClelland, 2006). As publicly accessible, non-stigmatising settings, museums are well placed to enable social inclusion and empowerment of disadvantaged groups in a wider context (Camic & Chatterjee, 2013). Thus community psychology principles may be particularly relevant in theorising the psychological impact that socially inclusive programmes offered by museums can have, especially for disadvantaged groups. Camic and Chatterjee’s (2013) framework for museum involvement in public health is aimed at promoting health, increasing social inclusion and building community cohesion. Some museums are resourced to export services out into the community such as artist residencies and loaning boxes of artefacts. This parallels principles of community psychology, whose principles advocate the widening of therapeutic activities beyond traditional healthcare settings (Levine, Perkins & Perkins, 2005).

**Government and policy context.** In 2007, Arts Council England and the Department of Health (DoH) published ‘A prospectus for arts and health’ which documented



a range of arts and health programmes implemented across the country. Although numerous arts and health projects exist, the area remains a relatively emergent field of research and practitioners are under increasing pressure to demonstrate their efficacy, especially in relation to health-related outcomes (Clift et al., 2009).

The current UK government's 'Big Society' agenda emphasises the role of voluntary and community organisations in addressing social needs, especially in areas where specialist medical knowledge is not essential. As a result, numerous psychosocial interventions have been further developed by various third-sector organisations, charities, and, increasingly, museums. The previous Labour government demonstrated its belief in museums having a key role to play in addressing social isolation by launching the 'Open to All' package in 2008 ([www.opentoalltraining.co.uk](http://www.opentoalltraining.co.uk)), which provided training resources to give gallery staff greater confidence in welcoming and improving access to museums for groups such as people with mental health problems.

### **Methodology**

A systematic review (Grant & Booth, 2009) of peer-reviewed empirical literature relating to psychological outcomes of psychosocial interventions offered by museums was carried out, in order to appraise its findings and contributions to date.

### **Definition of terms**

In this review, the term 'museum' was used to refer to both museums and art galleries. Psychosocial intervention was defined as a group or one-to-one activity emphasising psychological or social rather than biological factors (Ruddy & House, 2005). Psychological outcome was intended to mean an observed or self-reported consequence relating to the mind or emotions, such as any emotional, intellectual, cognitive or behavioural changes.

Criteria for the review are found in Table 1. Initial Google searches revealed a large amount of grey literature in the form of museum project evaluations. In order to ensure a level of quality, impartiality and methodological rigour for critical appraisal, only articles published in peer-reviewed journals were included. No date parameters were applied, as empirical research in this area is at a relatively early stage (Royal Society for Public Health [RSPH], 2013).

This review focused on papers referring to or describing some form of psychological outcome. Data mining looked for one or more of the following constructs in each article: happiness, wellbeing, mood, emotion, social impact, cognition and learning, in order to follow examples of previous reviews of art-based interventions (e.g. Beard, 2012). Articles with a sole focus on education without reference to any other psychological constructs were excluded, as partly the purpose of this review was to explore the knowledge base towards museums as proponents of psychological outcomes. Articles describing art therapy interventions were excluded, as this is a form of psychological therapy in its own right conducted by professionally trained art therapists which is rarely a resource museums have access to.

Table 1

*Summary of inclusion and exclusion criteria*

Inclusion criteria	Exclusion criteria
Published in a peer-reviewed journal	Art-related community activity without reference to involvement of a museum or art gallery
Reports a psychosocial intervention provided by a museum or art gallery	Participants under the age of 18
Refers to some aspect of psychological outcome	No reference to any aspect of psychological benefit
Qualitative, quantitative or mixed methodology	Sole focus on education
Written in the English language	Art therapy
Any date	Dissertation abstracts
Any country	Sole reporting of experiences of staff

An initial search in September 2014 across Medline, PsycINFO and Social Policy and Practice databases using keywords galler\* OR museum\* AND psych\* yielded 675 articles. On screening the titles, 71 articles appeared relevant for the parameters of this review; 604 were duplications or irrelevant. Their abstracts were read; 48 of these were excluded in line with the above criteria. Twenty-three articles were read in full; 16 were subsequently excluded. Seven articles meeting inclusion criteria remained. Reference lists of these were hand-searched for articles which met the inclusion criteria; 10 further articles were obtained. Reading these provided further relevant keywords to use as search terms to cross-check for any additional relevant articles (Table 2).

Table 2

*Search terms used for literature review*

Word group 1	Word group 2	Word group 3
<b>Museum*</b>	<b>Psych*</b>	Object*
<b>Galler*</b>	Wellbeing	Handling
Heritage	Well being	Art
Art galler*	Psychosocial intervention	Visual art
	Quality of life	
	Activity	
	Mental health	
	Social inclusion	
	Health	
	Happiness	

*Note.* Terms of original search in **bold**; all other search terms were used to cross-check for further articles. Boolean operators OR were used for words within each column, AND was used across rows. Searches were conducted with and without word group 3.

These additional searches returned 10 articles already obtained from hand-searching reference lists and no further articles meeting inclusion criteria. Three prominent authors in this field were approached by personal communication to cross-check the search; three further articles (advanced online publications) were obtained in this way. Searches were repeated in January 2015 to ensure no key articles were missed. Figure 1 depicts article retrieval process in flow chart form; Table 3 summarises literature appraised in this review.

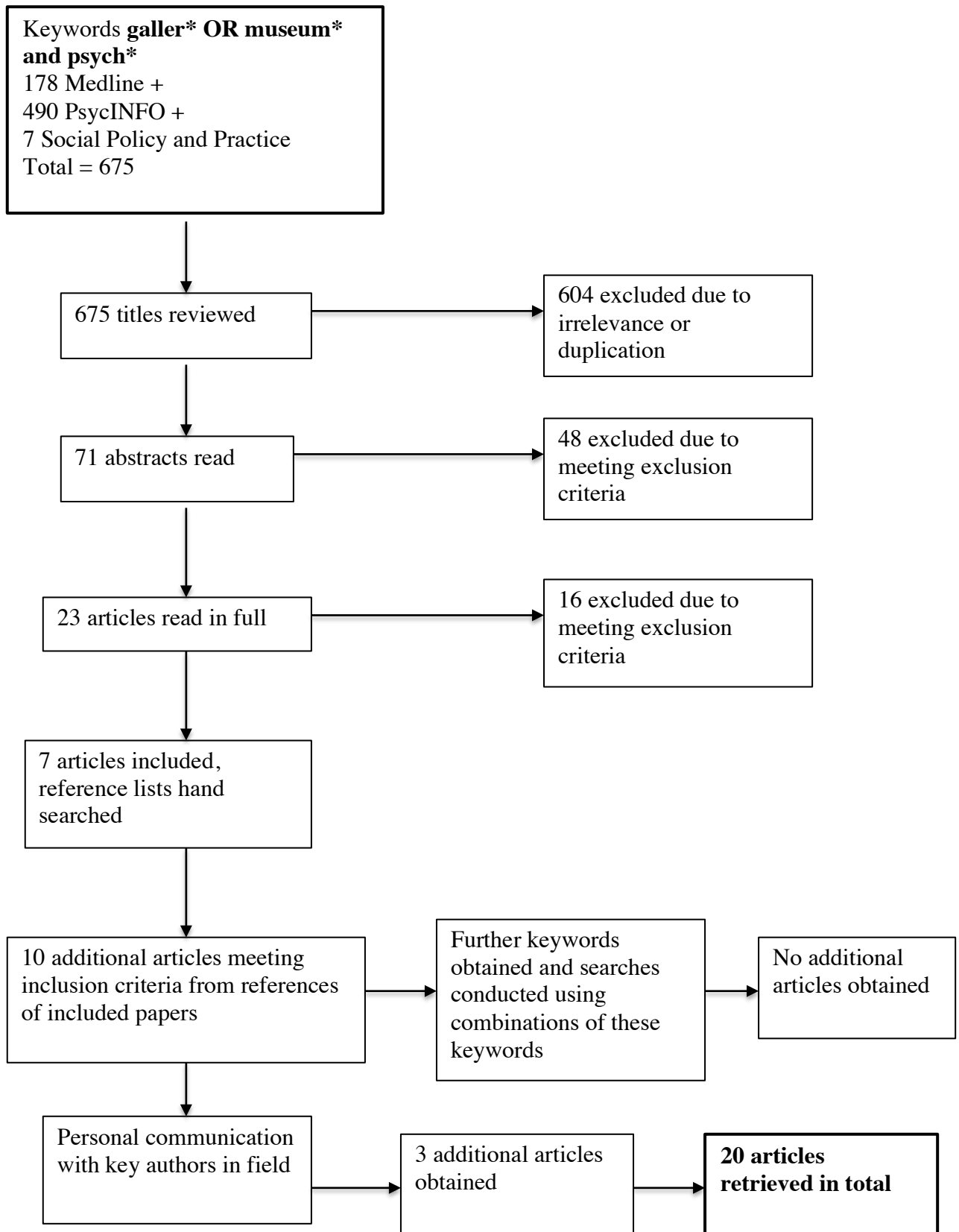


Figure 1. Flow chart of article selection process.

Table 3

*Summary of literature meeting inclusion criteria*

<u>Authors (year)</u>	<u>Sample</u>	<u>Activity</u>	<u>Methodology / study design</u>	<u>Variables / measures</u>	<u>Findings</u>
<b>Group psychosocial interventions taking place within a museum or gallery (10 studies)</b>					
Mittelman & Epstein (2009); Rosenberg, (2009)	37 people with a dementia (PWD), 37 carers; USA	Facilitated art-viewing; 2 sessions	Mixed-methods repeated measures	Mood (visual assessment scale), communication/ interaction (Family Assessment Measure), Rosenberg self-esteem scale & QoL (QoL-AD). Observer rating scales of mood and level of engagement; post-intervention and focus group follow-up with carers	Improved mood, engagement with art and facilitator, enjoyment and interaction. Participants reported being intellectually stimulated
MacPherson et al. (2009)	15 PWD living at home or in residential care; Australia	Facilitated art-viewing; 6 weekly sessions	Mixed-methods, observational and grounded theory	Filmed sessions analysed for levels of engagement using time sampling methods. Analysis of post-intervention focus groups	Participants seen to be engaged through experiencing enjoyment, intellectual stimulation and social benefits such as feeling a part of a group

		Computer-based cognitive stimulation	cognitive stimulation)	measures, unspecified questionnaire measuring carer stress	observations. Reported decline in carer stress
Roberts et al. (2011)	8 family carers of people with mental health problems, 2 facilitators; UK	Facilitated art-viewing and art-making; 2 90-minute sessions	Qualitative: grounded theory	Semi-structured research interviews and edited audio recordings from art-viewing sessions	Social and psychological support provided to carers: a preliminary theory was proposed
Eekelaar et al. (2012)	6 PWD, 6 carers; UK	Facilitated art-viewing and art-making; 3 weekly sessions	Pre-post mixed methods design; quantitative content analysis	Episodic memory, recall, verbal fluency and subjective experience assessed via semi-structured interviews	Themes of social benefits and “becoming old selves”. Episodic memory improved during and after intervention, as did verbal fluency (to a lesser degree)
Goulding (2012)	43 older people aged 60-92, UK	3 visits to 3 contemporary art exhibitions	Unspecified qualitative method. Participants grouped by existing engagement with the arts	Quality of life assessed via semi-structured interviews pre and post each visit	Themes around new learning, social inclusion, broadening of horizons. Participants in ‘non-engaged’ group reported particular wellbeing benefits
Colbert, et al. (2013)	7 people with psychosis, 2 gallery staff, 1 art therapist, NHS staff; UK.	Facilitated art-viewing and art-making; 4 weekly 2½-hour sessions	Narrative analysis	Interviews conducted to ascertain narratives around visiting the gallery, being in a group, mental health problems, wellbeing and social inclusion.	Narrative around different staff-client relationships emerged, with themes of validation, commonality and genuineness. Intervention described as promoting recovery and wellbeing through achievement away from mental health service setting
Camic et al. (2014)	12 PWD, 12 carers; UK	Facilitated art-viewing and art-making; 8 two-hour sessions	Mixed-methods repeated measures design: standardised quantitative measures, thematic	Rating of quality of life for PWD (DEMqoL-4), activities of daily living (BADLS) and carer burden (ZBI); semi-	No significant difference on quantitative measures. Qualitative feedback implied positive social impact, enhanced cognitive abilities and improved quality of life

			analysis	structured interviews	irrespective of art genre
Flatt et al. (2014)	10 PWD and 10 family carers; USA	Art-viewing and art-making; single 3-hour session	Mixed methods: qualitative thematic analysis and quantitative survey	Subjective experiences: focus group interviews and statistical analysis of satisfaction survey	Focus groups identified three key themes: cognitive stimulation, social impact, and self-esteem. Survey results indicated high satisfaction, with art-making rated highest
Roe et al. (2014)	17 older residents in care home, 10 staff, 1 relative; UK	Various arts-related activities; 6 monthly sessions	Qualitative: content analysis. Evaluation research using non-participant observation	Field notes (Spradley's (1980) framework of nine dimensions). Observations and semi-structured focus group interview	Increase in wellbeing, engagement, learning, social inclusion and creativity. Benefits to gallery and care staff included increased confidence in arts and health programmes, and questioning own assumptions
<b>Museum outreach programmes involving use of heritage objects (10 studies)</b>					
Chatterjee & Noble (2009)	24 hospital inpatients; UK	Single one-to-one object handling session with undergraduate student facilitators	Quasi experimental: Mixed methods pre-post repeated measures design; thematic analysis	Outcome measures of life and health satisfaction (visual analogue scales: VAS) and mood adjective checklist used; audio recordings of sessions	Statistically significant increases on measures of life and health satisfaction. Project seen as useful experience for students and a positive distraction from ward life for patients.
Chatterjee et al. (2009)	32 hospital inpatients; UK	Single one-to-one object handling session	Quasi experimental: Mixed methods pre-post repeated measures design; constant comparative method	Outcome measures of life and health satisfaction (VAS); audio recordings of sessions	Non-statistically significant increase on measures of life and health satisfaction. Two overarching themes emerged: "impersonal/educational", "personal/reminiscence"
Lanceley et al. (2011)	10 service users with physical health issues; UK	Single one-to-one object handling session	Qualitative: constant comparative method framed by Kleinian theory	Audio recordings of sessions	Object handling was an aid to conversing with patients and had potential as a tool for assessment or intervention in therapeutic work
Thomson et al. (2011)	40 female oncology	Single one-to-one object	Quasi experimental: Mixed methods pre-	Outcome measures of subjective wellbeing	Self-report measures for object handling sessions were evaluated and

	inpatients; UK	handling session	post repeated measures design	(happiness and wellness: VAS, mood: PANAS)	effective measures identified
Ander et al. (2012)	185 service users from physical and mental healthcare settings; UK	Single one-to-one or group object handling session	Qualitative: grounded theory analysis using a constant comparative method	Audio recordings of 51 sessions	Wellbeing outcomes included improved mood, confidence, and reduced anxiety. Engagement processes included wonder and concentration
Thomson et al. (2012a)	158 service users from a NHS Trust hospital, neurological rehabilitation units and a care home; UK	Single one-to-one object handling session or viewing photographs of objects	Quantitative: quasi experimental comparison (object handling vs photograph-viewing) pre-post repeated measures design	Outcome measures of subjective wellbeing (happiness and wellness: VAS, mood: PANAS)	Statistically significant improvements on VAS (wellness and happiness) in object handling condition. Comparison showed a statistically significant advantage for object handling over photograph-viewing
Thomson et al. (2012b)	100 female oncology and non-oncology hospital inpatients; UK	Single one-to-one object handling session or viewing photographs of objects	Quantitative: quasi experimental comparison (object handling vs photograph-viewing) pre-post repeated measures design	Outcome measures of subjective wellbeing (happiness and wellness: VAS, mood: PANAS)	Statistically significant improvements on measures of positive emotion, wellness and happiness in object handling condition compared with photograph-viewing condition for both oncology and non-oncology patients
Ander et al. (2013)	82 patients and 8 staff from physical and mental healthcare settings; UK	One-to-one and group object handling sessions (up to 8 sessions)	Qualitative: constant comparative method based on constructivist grounded theory	Audio recordings of sessions	Emergent themes included increase in positive emotion, tactile stimulation, improved sense of identity, new perspectives and learning
Paddon et al. (2013)	57 hospital patients; UK	Single one-to-one object handling	Quasi experimental: mixed methods pre-post repeated	Outcome measures of subjective wellbeing (happiness and wellness:	Statistically significant improvements on measures of wellness, happiness and positive mood. Decrease in



		session	measures design; content analysis	VAS, mood: PANAS); audio recordings of sessions	negative mood. Sessions provided space for patients to make meaning of their experiences
Thomson & Chatterjee (2014)	40 older adults, in acute and elderly care, residential, and psychiatric settings; UK	One-to-one and group object handling sessions	Quasi experimental: mixed methods pre- post repeated measures design; thematic analysis	Outcome measures of subjective wellbeing (happiness and wellness: VAS, mood: PANAS). Thematic analysis of recorded sessions	Statistically significant increase in positive mood and wellness in acute, elderly and residential care; not found in psychiatric care. Negative mood decreased and happiness increased in all settings. Themes of increased confidence, social interaction and learning.

## Results

### Overview of retrieved literature

The search identified an international spread of empirical literature. The psychosocial interventions fell into two broad categories: group psychosocial interventions hosted by and run on a museum site, and museums providing outreach programmes using loan boxes containing museum artefacts that could be handled. Interventions were described, and their findings relating to psychological outcomes were grouped into the following thematic domains and summarised: wellbeing, interpersonal outcomes, personal narratives and cognition.

### Description of group psychosocial interventions

**Art viewing.** The earliest reported study was conducted in the New York's Museum of Modern Art (Rosenberg, 2009). Their "Meet Me at MoMA" programme aimed to make art accessible to people with dementia. The intervention comprised a monthly 90-minute facilitated tour of the gallery with small groups of people with dementia and their family carers. This research describes the first activity of its kind reported in empirical literature. Other museums were evidently inspired by the programme, as MacPherson, Bird, Anderson, Davis and Blair (2009) subsequently used the model with people with dementia in Australia. Older adults in Goulding's (2012) study attended organised visits to view art at three contemporary exhibitions over the course of two years. All art-viewing interventions were conducted by a museum facilitator who encouraged discussion and personal interpretation of the exhibits.

**Art-viewing and art-making.** Colucci, Musella, Finizio, Maggio and Fasanaro (2010) also used elements of the 'Meet me at the MoMA' programme at the Royal Palace in Naples, adding an art-making component. This model was also used by Eekelaar, Camic and Springham (2012) at the Dulwich Picture Gallery, while Camic, Tischler and Pearman (2014)

examined similar sessions at two galleries housing different genres of art (17<sup>th</sup>-18<sup>th</sup> century art and contemporary art). Flatt, Liptak, Oakley, Gogan, Varner and Lingler (2014) also used art-viewing and art-making with people with dementia and carers. Roberts et al. (2011) offered art-viewing and art-making sessions to carers of people with mental health problems, while Colbert, Cooke, Camic and Springham (2013) offered four sessions to NHS staff and people with an experience of psychosis.

**Multiple arts-related activities.** Roe, McCormick, Lucas, Gallagher, Winn and Elkin's (2014) intervention for older adults included art-viewing, art-making, museum object handling and live animal handling at the Whitworth and Manchester Museum.

### **Psychological outcomes of group psychosocial interventions**

The studies reported a range of outcomes relating to mood, emotion, quality of life, engagement with the session, and wellbeing. These were grouped and synthesised under the concept of wellbeing.

**Wellbeing.** Rosenberg (2009) reported statistically significant increases in mood on a self-assessment scale for all participants after each gallery visit compared to a baseline taken at the start of the visit. The measures also indicated that no participant left the gallery less happy than when they arrived. Their observations of people with dementia during art-viewing revealed that the majority spent at least 60% of the time looking at either the facilitator or the art, which authors interpreted as suggestive of a level of consistent interest and good engagement. MacPherson and colleagues (2009) used observational time-sampling methods to look at changes in frequency of 'highly engaged' behaviours over time (categorised as behaviours denoting active listening, e.g. smiling and nodding whilst maintaining eye contact with speaker). People with dementia living at home were significantly more engaged at the start of the programme than those in residential care (with more severe dementia). However, by the end of the programme, a statistically significant

difference was no longer observed between the two groups due to engagement increasing over time for people with a more severe dementia. Their grounded theory analysis of focus groups conducted at the programme's conclusion described deepening an existing or sparking a new interest in art, as well as a sense of achievement gained from doing something new. This was interpreted as indicating that both groups of participants had benefited from the programme, despite the initial lower levels of engagement among the residential group.

Colucci et al. (2010) reported observing improvements in participants' mood and 'behavior profile' (behaviour that challenged staff was implied), while participants in the computer stimulation comparison group did not experience these outcomes. Eekelaar et al. (2012) reported that family carers stated they felt that their relatives with dementia showed improved mood and confidence during the gallery sessions, with all but one participant verbalising an emotional response to the artworks. Camic et al. (2014) did not observe statistically significant differences in standardised measures of quality of life, although it did not decline, which may be considered to be a positive result given the degenerative nature of dementia. Qualitative data indicated that attendance had a positive impact on quality of life, although a significant increase in the ability of the people with dementia to complete daily living activities was not found, perhaps indicating a reasonable limit to the extent of impact of the arts activities. One carer described the experience as "inherently empowering, because she [spouse with dementia] is doing something, looking at and talking about art" (p.5). Some participants stated that the benefits gained were enhanced by the art gallery setting itself. Satisfaction survey results reported by Flatt et al. (2014) indicated that enjoyment was generally high across all participants, and that previous experience of the arts was associated with greater overall satisfaction with the programme. Roe et al. (2014) reported themes encompassing enjoyment and positive feelings, with participants using positive adjectives to

describe the outings. Observational data indicated that although some participants were anxious at the start of the sessions, this reduced over time.

Goulding (2012) reported wellbeing benefits in the form of a break from routine and broadening of horizons, with some art provoking strong emotional reactions. Participants grouped as 'non-engaged' with the arts reported particular benefits around the novelty of connecting with the art such as "feeling like a human being again" (p.225). Roberts et al. (2011) reported the eight family carers found the experience engaging on emotional, aesthetic and educational levels, with the intervention helping them to feel valued. Colbert et al.'s (2013) use of narrative analysis aimed to explore whether their intervention could facilitate modification of stigmatising narratives of psychosis dominant in the culture and in their personal history. This study found that most participants who attended the programme described the project as contributing to wellbeing and recovery in three ways: provision of an opportunity to gain a sense of achievement, the physical process of art-making, and the distraction the activities afforded.

**Interpersonal outcomes: Family relationships.** In Rosenberg's (2009) study, carers reported valuing a shared, stimulating experience with their family members. Although not statistically significant, a positive increase was found in subjective appraisal of family relationships using the communication, affective expression and involvement subscales of the Family Assessment Measure (Skinner, Steinhauer & Santa-Barbara, 1983). Colucci et al. (2010) reported a decrease in carer stress, although no details of how this was measured are reported. Eekelaar et al. (2012) found inclusion of family carers in the intervention promoted shared experience, and authors posited this was likely to have had a positive impact on their relationship. A robust quantitative measure of carer burden (Zarit Burden Interview (ZBI): Zarit, Reever & Bach-Peterson, 1980) used by Camic et al. (2014) did not indicate statistically significant improvement, although there was a trend towards reduced carer

burden. This finding was supported by thematic analysis of transcribed interviews, which reported that the intervention promoted shared experiences within the couple, and enhanced the caring relationship.

Rosenberg (2009) offered social and pragmatic explanations as to why interactive art-viewing as a couple may be helpful, such as providing an opportunity for communication and connection, and a conduit through which the couple can learn more about one another's interests and ideas. Isserow (2008) has proposed that the enjoyment of looking at art promotes dyadic interactions within the context of the attachment relationship; a qualitatively distinct source of enjoyment which further adds to existing enjoyment derived from the aesthetic stimulation itself. A key aspect of the enjoyment may be sharing the experience and making meaning of it with another person in a triangular fashion (Isserow, 2008). Art-viewing in a dyad may prompt the couple to look at one another, sharing a conduit of affect, leading to them attuning with one another on an emotional level.

**Interpersonal outcomes: Group interactions.** MacPherson et al.'s (2009) focus groups indicated that the social impact of the group was an important benefit derived from the intervention, while Colucci et al. (2010) observed the art-related activity encouraged dialogue and social interaction between group members. Qualitative evidence reported by both Eekelaar et al. (2012) and Camic et al. (2014) included reference to benefits such as widening of social circle and social inclusion. Eekelaar et al.'s (2012) participants also displayed a positive emotional reaction to the group aspect, with some wanting it to continue. Flatt et al. (2014) used a quantitative survey to explore whether participants' perceptions of group cohesion was related to their satisfaction, and found a significant positive correlation. Some interesting differences between what was important to people with dementia and carers emerged (e.g. people with dementia rated group interactions as more important than carers did). One participant in Colbert et al.'s (2013) study described viewing and discussing the art

in a group as a “bonding process” (p. 254), while participants in Roe et al.’s (2014) study also saw the creative process in art-making as key to group cohesion. Similarly, Goulding (2012) reported that participants found the process of discussing memories evoked by the art to be bonding.

Macnaughton, White and Stacey (2005) conceptualised how there can be both social and individual benefits derived from using the arts and creativity as a route to improved health, using art-based projects to create and enhance social relationships. Therapeutic group factors (conceptualised by Yalom & Leszcz, 2005) can be present in group psychosocial interventions, promoting therapeutic benefits such as a sense of universality (realising one is not alone in experiencing one’s problems) and group cohesiveness (giving members a sense of acceptance, belonging and value). Existential factors (such as learning to exist as part of something larger than oneself) can promote acceptance of difficulties as part of life (Yalom & Leszcz, 2005). Being a group member can also simply address social isolation if new relationships are formed through a group meeting regularly.

Art-viewing in a group allows exploration of diverse narratives and co-construction of meanings. It lends itself to the exploration of multiple realities, which may be particularly important for people with dementia where differences in cognitive perception become evident, causing distress. Facilitating client-led conversation allows for a collaborative, participatory approach aligning with Kitwood’s person-centred model (1997) to meet the psychological needs of people with dementia. The paradigm of interacting with the arts encourages implicitly conveys an acknowledgement of abilities, resources and resiliencies in a strengths-based model, as there is no ‘right or wrong’ in interpreting art. Enjoyment derived from co-constructing meanings with facilitators and group members seemed consistent with existing theories. For example, Millis (2001) posited that information given about an artwork leads to a greater elaboration of its cognitive representation, which leads to

greater enjoyment and pleasure from the aesthetic experience. This effect was demonstrated experimentally to be particularly pronounced for metaphorical information irrespective of whether it was true.

**Personal narratives.** Colbert et al. (2013) conducted interviews to ascertain whether an art gallery intervention altered personal narratives about mental health problems and social inclusion. They found that participating in the intervention had led staffs' narratives to be modified to reflect a lowering of a divide between them and the people with experiences of psychosis, reflecting the commonality of human experience. There was also evidence that participants had explicitly used the content of the artworks to reflect on and normalise their experiences of psychosis, modifying the dominant (usually negative) narrative. Participants felt validated and links were drawn from the art that encouraged reflection on empathy, participation, genuineness, and recovery. Roberts et al. (2011) identified psychological processes such as mentalizing, reflexivity, rewriting of narratives and externalising taking place during the sessions, with participants personally connecting with experiences depicted in the art. They also found that participants conceptualised the gallery as a safe space in which to reflect. Goulding (2012) found that, for some participants, the visits prompted self-reflection on their lives, making links between their own experiences and those depicted in the artworks which elicited gratitude.

**Cognition.** Flatt et al. (2014) identified key themes relating to cognitive stimulation in the form of learning a novel skill (silk-screening). Goulding's (2012) participants identified psychological benefits of lifelong learning, with the novelty of contemporary art seen to be cognitively stimulating. Some participants were writers who described having writing ideas stimulated by the exhibitions. MacPherson et al.'s (2009) themes from focus groups with family carers included discovery of residual abilities of people with dementia, such as noticing that aspects of artworks made an impression which was recalled at a later



date. Facilitators reported noticing memory stimulation when people with dementia recognised artworks and other group members. They saw the art as instrumental in eliciting verbalised memories, some of which were autobiographical. Benefits derived from the activity were not seen as reversing the disease process or having a lasting change. This was not seen as a limitation by carers but seen as worth doing “for the moment” (p.751).

Eekelaar et al. (2012) directly assessed episodic memory, recall, verbal fluency and subjective experience using quantitative content analysis of semi-structured interviews. Enhancement of verbal fluency was not pronounced, however findings suggested that episodic memory was enhanced for people with dementia as a result of aesthetic appreciation and interaction with the art. Inclusion of a follow-up enabled the authors to demonstrate that gains in episodic memory were maintained four weeks later: the first study in the field to demonstrate longer-term benefits from art-based interventions with this population. Camic et al. (2014) did not explicitly set out to assess cognitive capacities, but found that carers spontaneously mentioned cognitive changes they had observed in their family member with dementia, such as increased concentration during art activities compared with activities done at home, and seeing them “more mentally sharp, a bit more with it” (p.5). Themes of new learning, memory and cognitive stimulation emerged in focus groups, with one person with dementia saying “I didn’t realise I could still learn new things” (p.5).

Numerous empirical studies have demonstrated beneficial effects of short-term interventions comprising sensory and/or cognitive stimulation for people with dementia. For example, Gaebler and Hemsley (1991) observed that people for whom the dementia is at an advanced stage where verbal communication is precluded showed a level of affective response to and engagement with music. A further stimulation intervention, conducted with people with Alzheimer’s Disease, comprised drawing, associative conversation, naming and classification of common objects. This intervention yielded significant improvements on

brief cognitive test scores, while participants who did not receive the intervention did not show these improvements (Breuil et al., 1994). Such studies have informed the basis of cognitive stimulation therapy (CST) group interventions, which use stimuli such as music, stories and group discussions to elicit subjective opinions, with emphasis on a person-centred approach. CST has produced evidence for improvements in cognition, mood, confidence and communication in people with dementia, and is now a nationally recommended non-pharmacological intervention for the condition (National Institute for Health and Clinical Excellence, 2006; Woods, Auguirre, Spector & Orrell, 2012).

### **Description of museum object handling interventions**

Ten further studies meeting the inclusion criteria investigated the impact of brief psychosocial interventions in the form of museum object handling sessions conducted in healthcare settings such as general, oncology, psychiatric and neurological rehabilitation hospital wards, and residential care facilities. A range of facilitators were used (museum professionals, psychologists, medical students, nurses and volunteers).

Chatterjee and Noble (2009) first ran a pilot study assessing the impact of an outreach programme where loan boxes of objects from University College London (UCL) Museums were taken into a hospital to be handled at patients' bedsides. The objects included natural history specimens such as gems, fossils, as well as objects of archaeological interest. One-off 20-minute sessions were conducted, comprising discussion with the facilitator as patients handled the objects. The session protocol included questions such as "What does the object feel like?" and "Can you think of any experience that might relate to this object?" All seven quantitative or mixed methods studies used Visual Analogue Scales (VAS: EuroQol Group, 1990): a self-report scale measuring 'in-the-moment' subjective perceptions of health and happiness pre and post session. Five of these seven studies additionally used the Positive

And Negative Affect Schedule (PANAS: Watson, Clark & Tellegen, 1988), a mood adjective checklist using a Likert scale to rate to what extent a particular emotion is experienced.

Thomson, Ander, Menon, Lanceley, and Chatterjee (2012a) found that outcomes did not significantly vary as a function of which healthcare setting the intervention was conducted in, gender of participants, or content of loan box, indicating the broad applicability of this intervention. Thomson et al. (2012a), and Thomson, Ander, Lanceley, Menon and Chatterjee (2012b) built on previous work by including a comparison condition: facilitated object handling compared with facilitated viewing photographs of objects. This comparison helped to elucidate the 'active ingredient' in observed changes in subjective wellbeing in order to understand if interaction with a listener was sufficient to elicit a change in wellbeing, as critics of arts interventions suggest (Simmons, 2006), or whether outcomes were conferred by handling the objects.

### **Psychological outcomes of museum object handling interventions**

**Wellbeing.** Chatterjee and Noble (2009) found statistically significant increases on VAS measuring life and health satisfaction after the museum object handling sessions compared to a baseline taken just before the start for 57% of participants. Thematic analysis of session recordings showed patients tended to express enjoyment, interest, and an appreciation of an activity which they found enriching. For some participants, boredom was suppressed by the sessions. However, outcomes varied: for 43% of participants, the session did not produce changes in wellbeing, and some participants expressed an increase in boredom and a lack of interest in the session. For health status perception, 38% showed a significant increase whereas 62% showed no change.

Chatterjee, Vreeland and Noble (2009) also used pre-post measures of health status and life satisfaction, and found statistically significant increases. Similarly, Thomson et al. (2011) found pre and post outcome measures of subjective wellbeing showed highly

significant increases in positive affect, happiness, and wellness, and highly significant decreases in negative affect after a single object handling session compared with baseline measures.

Thomson et al.'s (2012a) comparison of object handling and photograph-viewing found pre and post outcome measures of subjective wellbeing and mood showed statistically significant improvements in the object handling condition. Comparison of conditions showed a statistically significant advantage for object handling over photograph-viewing. Similarly, Thomson et al. (2012b) reported significant improvements on measures of positive emotion, wellness, and happiness in the object handling condition, whilst the photograph-viewing condition group showed no change in wellness or happiness. A decrease in negative mood was found in both conditions, with no statistically significant difference found between the two conditions on this dimension. No significant additional gain in wellbeing was found for patients in oncology settings than non-oncology settings, confirming previous research findings that outcomes appear to be broadly similar across different healthcare settings.

Ander et al.'s (2012) qualitative analysis revealed that wellbeing outcomes included improved mood, confidence, and reduced anxiety, and participants expressed wonder at the novelty of the objects whilst engaging with them. Ander et al.'s (2013) qualitative study found themes of enjoyment, increase in positive emotion, distraction from ward life and a decrease in negative emotion. They reported that handling objects gave a sense of vitality, participation, and tactile stimulation.

Paddon, Thomson, Lanceley, Menon and Chatterjee (2013) also observed significant improvements on VAS measures of wellness and happiness. Content analysis was used to determine which words participants used most frequently to express any emotion elicited by handling the objects. These included "amazed", "happy" and "purposeful", as well as use of negative words to describe their experiences in the hospital, such as "painful" and "tired"

(p.12). Thomson and Chatterjee (2014) found that positive mood and wellness increased significantly in all four healthcare settings except psychiatric care, while happiness increased and negative affect decreased significantly in all settings. Thematic analysis indicated themes of increased confidence, and engagement in meaningful conversations. Authors reported that some participants with improving health conditions saw the objects as helping them to interact with the world after a period of illness, while another participant with a poor prognosis experienced the session as a positive distraction.

Ander et al. (2012) reported that participants' reactions provided insight into why heritage objects elicited emotions and wellbeing benefits over and above ordinary objects (although a direct comparison was not undertaken). The opportunity to handle rare museum objects is likely to prove exciting and memorable (MacDonald, 2007); indeed, participants in the reviewed studies referred to a sense of privilege evoked by touching the objects, breaking a 'do not touch' taboo so often found in museums (Chatterjee & Noble, 2009). Touching a museum object gives a greater sense of its genuineness as an artefact which may heighten the sense of privilege (Trewinnard-Boyle & Tabassi, 2007).

Neuropsychological evidence suggests that museum objects may confer significance and meaning, as well as simply be pleasurable to hold on a somatosensory level (such as a smooth stone). Touch is a key exploratory sense, and may also invoke a sense of wellbeing through being linked to emotional and motivational systems in the brain such as the insula cortex, meaning that certain tactile sensations can be motivationally salient and intrinsically rewarding (Critchley, 2008).

**Personal narratives.** Chatterjee and Noble (2009) found that object handling with a facilitator elicited 'personal/reminiscence' responses as objects provoked reflections on emotion and identity. Ander et al. (2013) found themes of improved sense of identity and new perspectives, while Paddon et al.'s (2013) content analysis revealed that sessions

provided space for patients to think and make meaning of their experiences. Lanceley, et al.'s (2011) findings indicated that museum object handling was an aid to discussing difficult emotions, with objects acting as vehicles for communication as participants transferred their thoughts and feelings on to chosen objects. Findings indicated handling objects gave a vocabulary to express difficult emotions, and some participants expressed a wish to keep a particular object they perhaps grew attached to. Authors concluded that handling objects had potential as an intervention approach or an assessment platform for therapeutic work. These findings linked to previous work in the field where even ordinary objects have been conceptualised as being able to form a 'psychological bridge', supporting people to connect their internal and external world (Camic, Brooker & Neal, 2011).

**Cognition.** Ander et al. (2013) and Thomson and Chatterjee (2014) described themes relating to new learning about a novel subject. Chatterjee and Noble (2009) identified 'impersonal/education' benefits in which facts about the objects were acquired by touch, facilitating a connection with the object and its origins which could be explored. Ander and colleagues (2012) proposed that interacting with museum objects prompted memories, cultural meanings, history, and provided links to the present. Other authors have argued that museum objects trigger projections and associative or 'meaning-making' cognitions (Dudley, 2010; Froggett, Farrier & Poursanidou, 2011).

Theories relating to memory may explain the cognitive components of handling a museum object and how these processes may in turn impact on wellbeing. Educational theory suggests that learning is a cognitive process that is associated with positive effects on mood (Uljens, 1997) and may be intrinsically rewarding, thus playing a role in increasing wellbeing. Dual coding theory hypothesises that visual and verbal information have distinct cognitive representations that are integrated in working memory during encoding (Baddeley & Hitch, 1974). In short term memory storage, information is organised in terms of sensory

properties such as similar shapes and colours (known as the ‘contiguity effect’: Clark & Paivio, 1991). This theory posits that, on sensory registration, perceptual information is held in a sensory store, and that working memory performance is enhanced when there is an interaction between the two sensory modalities (visual and verbal).

Dual coding theory partially provides a theoretical framework which may explain why stimulating multiple sensory modalities may involve a deeper level of encoding or processing and thus may facilitate learning (Paddon et al., 2013). Museum object handling with a facilitator involves visual, auditory and tactile input. A ‘triple coding hypothesis’ builds on dual coding theory to posit that vision, touch and hearing contribute to learning in that touch reveals unique information that is integrated with visual and auditory input, resulting in greater elaboration that may deepen encoding and therefore enhance memory (Baddeley, Eysenck & Anderson, 2009). Thomson and colleagues (2012a) used these theories to posit that the effect of combining haptic, visual and verbal input may expand the sensory capacity of working memory, and proposed that, when combined with other senses, the effect of touch on emotion, cognition and memory may be amplified.

### **Methodological issues**

This methodological critique of all studies was guided by Greenhalgh’s (1997a) criteria used to assess the quality of published research. Greenhalgh’s (1997b) criteria to evaluate qualitative research were also drawn on, with references to other authors in relation to more specific aspects of qualitative methodology (e.g. Mays & Pope, 2000).

**Intervention delivery.** On considering the methodological quality of the studies, some questions were raised regarding the delivery of the interventions. In Ander et al.’s (2012) study, facilitators from academic, healthcare and museum-related professions conducted the sessions, and although a standardised session protocol was used there was a possibility that varying professional backgrounds encouraged different responses that may

have influenced wellbeing outcomes. The length of sessions also varied from 15-75 minutes, and it was not clear whether longer sessions had a different impact to shorter sessions. Roe et al. (2014) introduced a new dimension to previous research in the handling of live animals, making it not solely art-based. This study provided an example of how, in complex art-based interventions which contain multiple variables, it can be difficult to elucidate the 'active ingredient' accounting for the outcomes.

**Study designs.** Positively, several studies went beyond simply illustrating an association between art-based psychosocial interventions and psychological outcomes, and were designed to begin to elucidate which elements of the interventions produced the outcomes and to whom they applied. Camic et al.'s (2014) comparison between a traditional and contemporary gallery extended the previous knowledge base by indicating that benefits do not appear to be restricted to particular genres of art. Flatt et al.'s (2014) study aimed to gain a more detailed understanding of the variables affecting satisfaction with art-based interventions, attempting to investigate them separately (e.g. art-making, social element, aesthetic enjoyment, previous experience of the arts). In Goulding's (2012) study, participants were selected and grouped by level of existing engagement with the arts ('engaged' participants recruited from writing and cinema groups, 'non-engaged' participants from non-arts community groups). Qualitative results were reported separately for these groups which enabled elucidation of particular wellbeing outcomes specific to each group.

**Recruitment strategy.** A feature common to all studies investigating a psychosocial intervention conducted in a museum was that participants were recruited on a self-selecting basis. This may mean that participants who had an existing interest in art would volunteer for the study, and would demonstrate having benefited from it, but these results may not be generalisable to people without prior positive experiences with art. Goulding (2012) and



Flatt et al. (2014) made some attempt to control for this by assessing participants' past experience with the arts, which may have helped to mitigate this bias.

**Control and comparison groups.** None of the reviewed studies used a 'treatment as usual' control group, although several studies acknowledged this meant that limited inferences could be made about the causality of the positive changes observed (e.g. Chatterjee & Noble, 2009; Eekelaar et al., 2012; Lanceley et al., 2011). Most studies did not include any form of comparison group, which made it difficult to elucidate what it was about the interventions that influenced the outcomes. While commendable that Colucci et al. (2010) included a computer stimulation comparison group, its duration and content were not reported, limiting conclusions that can be drawn. Thomson et al.'s (2012a and 2012b) use of a photograph-viewing comparison group strengthened the study design considerably, potentially demonstrating there are unique wellbeing-related benefits obtained from handling museum objects.

**Follow up.** Eekelaar et al., (2012) was the only study which included a follow-up (at four weeks), although several studies (e.g. Ander et al., 2012; Lanceley et al., 2011) recognised this lack as a limitation. Paddon et al. (2013) pointed out that a longitudinal design that also accounted for increases or decreases in wellbeing caused by life events would have improved the design of the study.

**Sample size.** Sample sizes of studies of psychosocial interventions in museums tended to be small. For example, in Eekelaar et al.'s study (2012), only three dyads attended all three sessions. Quantitative and mixed-methods studies investigating museum object handling studies tended to use much larger sample sizes, although details on whether the study reached power were not always reported.

**Demand characteristics.** The results of the studies reviewed were overwhelmingly positive. Across all studies, participants may have felt pressure to report positive results from

a sense of obligation. In Rosenberg's (2009) study, researchers attempted to control for demand characteristics by inviting participants to submit further feedback by post after the programme had ended.

**Outcome measures.** Several studies used reliable outcome measures that had been validated on the population (e.g. Rosenberg, 2009: QOL-AD; Camic et al., 2014: DEMQOL-4, BADLS, ZBI). Rosenberg's (2009) groundbreaking study developed a battery of empirical self-report measures for people with dementia, as caregivers are frequently asked to answer on their behalf which may mean that important information about their experience is lost (Mittelman & Epstein, 2009). Colucci et al. (2010) formed an example of a less rigorous study which reported use of questionnaires to assess wellbeing-related outcomes for carers and people with dementia, but did not state which questionnaires were used, meaning that no inferences could be drawn regarding their content, reliability, or validity.

Thomson et al.'s (2011) evaluation of clinical scales of wellbeing measurement considered how internally valid and externally reliable they were (measures had to have been previously used in healthcare settings, but could not be 'disease-specific' as they needed to be applicable to most patient groups). The selected measures (VAS: EuroQol Group, 1990, and PANAS: Watson, Clark & Tellegen, 1988) were evaluated to be brief, specific, practical and statistically sensitive enough to detect change pre and post a short intervention. Seven of the studies on museum object handling used similar measures, which facilitates comparison of outcomes across numerous settings.

Authors tended to recognise that even a sensitive numerical outcome measure was unlikely to capture the complexity of psychological outcomes, reflected in the fact that 10 of the 12 studies that used outcome measures combined them with observations or qualitative methods.

**Observational methods.** Studies varied in the extent to which observational methods were reported. MacPherson et al. (2009) listed participant behaviours that were deemed to be indicators of engagement and affect and how they were categorised, assessing changes in the frequency of these behaviours as outcomes. Authors reported time-sampling methods and detailed statistical analyses in full, which focused on changes in ‘very engaged’ behaviours over time. Roe et al. (2014) reported that sessions were observed and field notes were recorded during and after each session by a member of the research team. Authors included a comprehensive description of the model used (Spradley’s (1980) framework of nine dimensions of observation, cited in Roe et al., 2014). Weaker studies (e.g. Colucci et al., 2010) did not provide descriptions of which behaviours were observed, what they were deemed to indicate, details of systematic methods used for observations, or inter-rater reliability. This did not facilitate evaluation or replication of the intervention.

**Qualitative methodology.** A range of qualitative methods was used to capture outcomes that quantitative measures and observations did not necessarily detect. More robust qualitative studies used quality control methods. For example, a strength of the content analysis in Roe et al.’s (2014) study was independent analysis of codes by two members of the research team. MacPherson et al. (2009) used independent analysis of transcripts of focus groups by two raters, for which there was a high level of agreement (although the value was not reported). Flatt et al. (2014) reported the methodology of the qualitative analysis fully, and described how coding was completed by multiple researchers and discussed to resolve code divergence. Roberts et al. (2011) used grounded theory methodology which was appropriate to the relatively small sample size, and the sample was reported to meet criteria for theoretical sufficiency, although was recognised to be too small to continue to theoretical saturation. Researchers reported some negative aspects to the sessions, which gave a balanced view.

Colbert et al.'s (2013) choice of narrative analysis added a novel perspective to existing research. The process used to conduct validity checks was described, and the method was clearly described and referenced, aiding replication. Coherence and analysis was cross-checked among researchers and with participants to ensure it accurately reflected their experience. Participants were also given the opportunity to provide feedback on the analysis, which further strengthened the validity of the findings (Mays & Pope, 2000). Lanceley et al. (2011) and Paddon et al. (2013) provided substantial excerpts from session transcripts, which facilitated greater understanding of the psychological processes that this activity may contribute to.

Ander et al. (2013) reported quality control measures implemented, which included Marshall and Rossman's (2006) criteria for reliability and validity, ensured by meticulous record keeping and detailed documentation (Mays & Pope, 2000). Researchers used reflexive field notes to reflect on their values and experiences throughout the process of running the sessions. Camic et al. (2014) also used reflexive accounts from researchers to aid an awareness of what they brought to the analysis process and how this might influence it. In this study, there was sole inclusion of themes relevant to all respondents, and it may have given the research a broader scope if dissonant themes had also been included.

In Goulding's (2012) study, no information was given about agreement of themes across interviews and the quality of the analysis was compromised by an apparent lack of quality control measures implemented, such as cross-validation of themes with another researcher (Greenhalgh, 1997b; Mays & Pope, 2000). The study as a whole appeared to present an anecdotal narrative of the project, and the process by which quotations were selected was not made explicit, meaning that there is a danger they may have simply fitted authors' preconceptions: a problem not uncommon in qualitative research (Silverman, 2011). Use of a more robust method (such as explicitly following the phases of thematic analysis

delineated by Braun & Clarke, 2006) would have increased the quality of the research. Thomson and Chatterjee's (2014) description of the process of locating themes in their analysis was also limited in comprehensiveness. These limitations are seen in light of the studies being highly original, ecologically valid and opening up a hitherto unexplored area (Greenhalgh, 1997a).

### **Discussion**

This review found research on psychosocial interventions provided by museums in two areas: group art-based interventions conducted in a museum, and outreach programmes offered by museums in the form of facilitated heritage object handling. Group psychosocial interventions in museums were shown to elicit a range of psychological outcomes for participants, which included enjoyment, social inclusion, new learning and increases in subjective wellbeing. The studies sometimes yielded surprising results: targeted groups considered to be 'non-traditional' museum visitors such as older people and people with mental health problems (Department for Culture, Media and Sport, 2013) obtained a range of benefits from the interventions, with some participants having little prior engagement with the arts. Some studies even challenged commonly held perceptions, such as that people with dementia are unable to learn new skills or information (e.g. Eekelaar et al., 2012). The studies also consistently indicated that museum object handling sessions offered at least short-term psychological benefits in the form of increases in subjective wellbeing for adults in a range of healthcare settings.

The reviewed studies were largely exploratory and several were described as pilot studies, reflecting the state of this emerging field of research. As a result, it remained difficult to elucidate the proportion of the outcomes that could be attributed to the art-based component of these complex interventions, which are defined as interventions with several interacting components (Medical Research Council, 2008). In the case of art-based

interventions, these components could include the activity (e.g. art-viewing), its subject (the selected artworks), location, the facilitator (the whole experience may be inextricably linked to the person delivering the intervention) and interactions with other group members.

Thomson et al.'s (2012a; 2012b) comparison study results were considered stronger because they began to address this important question by comparing object handling with photograph-viewing. Unless art-based psychosocial interventions can be empirically demonstrated to have added value when compared with, for example, a social community group, it will be difficult to obtain larger-scale funding for such projects that are so clearly valued by people who attend them.

### **Implications for research**

Both qualitative and quantitative methods are needed to fully illustrate the complexities of the phenomena that occur when participants experience an arts intervention (RSPH, 2013), which this body of research has begun to provide. Although not of consistently high methodological quality, its contribution to the knowledge base is valued in that it sets the scene to move towards clearer research questions that can be answered using more robust study designs.

Some challenges remain in operationalising and quantifying wellbeing, and establishing reliable and valid measures suitable for the purposes of art-based interventions. Objective outcome measures could be further developed, such as measuring physiological changes that occur when viewing art (Chatterjee & Noble, 2013). Amending study designs to include a waiting list control group or use of a randomised control trial comparing art-based interventions with usual care would further strengthen existing findings.

Questions for future research could include:

1. How can psychological outcomes derived from group psychosocial interventions offered by museums and galleries be isolated from outcomes relating to social interaction?
2. Do some forms of art-based psychosocial intervention offer more psychological benefits than others?

### **Clinical implications**

Museums are potentially safe spaces for vulnerable groups, providing opportunities for reduction of social isolation in a stimulating environment (Chatterjee & Noble, 2013). Clinical psychologists are well placed to recommend museum programmes or visits to clients who would benefit from this. Lanceley and colleagues (2011) concluded that object handling had potential for use in therapeutic work. Clinical psychologists could use museum objects to assist clients to articulate and explore their internal world and as a way to facilitate engagement in therapy.

There may also be opportunities for clinical psychologists to develop a consultant role on projects by advising and supporting museum staff working with vulnerable client groups. Clinicians could set up psychosocial interventions in collaboration with local NHS services, such as partnering with local museums and memory clinics (Camic & Chatterjee, 2013). Certain genres of museum may be particularly suitable for specific groups, such as a military museum offering clinically supervised activities for physically or psychologically injured ex-servicemen (Bodley, 2012).

### **Conclusions**

The current review aimed to appraise the empirical evidence relating to psychological outcomes of art-based psychosocial interventions provided by museums. Research was principally conducted with participants considered to be 'non-traditional' museum users, such as people with mental health problems, people with dementia, and hospital patients. A range

of positive outcomes relating to increased wellbeing, interpersonal interactions, personal narratives and cognition were evidenced. Challenges remain in elucidating the active components of the interventions that produced these outcomes, and to what extent the multiple variables that art-based interventions consist of can be understood independently of one another. Further research improving on the methodological issues described will be mutually beneficial to healthcare and arts stakeholders alike.



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## **Section B: Empirical study**

**The impact of art-viewing and museum object handling on  
subjective wellbeing of people with dementia and their carers**

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### **Abstract**

**Purpose:** Previous research has shown that people with dementia and carers derive wellbeing-related benefits from group art-viewing, and that facilitated museum object handling is effective in increasing subjective wellbeing for people with a range of health conditions. The present study aimed to compare the impact of these activities on subjective wellbeing of people with dementia and carers.

**Methodology:** A quasi-experimental crossover design was used. People with early to middle stage dementia and their respective carers ( $N = 66$ ) attended a museum session in small groups where they participated in three activities: museum object handling, a refreshment break and art-viewing. Visual analogue scales were used to rate subjective wellbeing pre and post object-handling and art-viewing.

**Findings:** Mixed-design ANOVAs indicated wellbeing significantly increased for people with dementia and carers during the museum session irrespective of the order in which they participated in object-handling and art-viewing. Analysis of pre and post-condition scores across pooled orders indicated wellbeing significantly increased from object-handling and art-viewing for carers and people with dementia. A refreshment break did not produce significant change in wellbeing for either group. An end-of-intervention questionnaire indicated that experiences of the session were positive.

**Conclusions:** Limitations and directions for future research were discussed. Results provided a rationale for partnership working between museums and healthcare professionals.

**Keywords:** museum object handling, art-viewing, wellbeing, dementia, carer

## Introduction

Over the course of the past century, public health has improved in Western countries to the extent that our expected lifespan has substantially increased. One in 6 people are now over 65 years old, and this is expected to increase to 1 in 4 by 2050 (Cracknell, 2010). This has numerous implications for stakeholder policy as ageing is now a public health priority and services will need to be adequately planned and resourced (Royal Society for Public Health [RSPH], 2013). One solution may be to harness existing community resources to promote physical and mental health outside of traditional medical settings.

## Dementia

Recent research has estimated there are currently around 850,000 people in the UK living with a dementia (Alzheimer's Society, 2014). This number is predicted to increase to 1.4 million over the next 30 years (Department of Health [DoH], 2009), with 225,000 people developing the disease every year (Alzheimer's Society, 2014). Dementia is a term used to describe a cluster of neurodegenerative clinical syndromes of which neurological changes in the brain leading to cell death is the main feature. Cognitive symptoms can include verbal and nonverbal memory loss, deterioration of executive functioning and personality changes. Depression, anxiety, social exclusion and loss of confidence have also been demonstrated to be significant concerns for people with dementia (Alzheimer's Society, 2014). There is no known cure for dementia, and pharmacological interventions currently have limited efficacy in slowing its progression. However, there is growing evidence for the efficacy of non-pharmacological interventions where these are aimed at improving functioning, quality of life and increasing wellbeing (Kaufmann & Engel, 2014; Zeilig, Killick & Fox, 2014).

**Wellbeing in dementia.** There remains little consensus regarding a complete definition of wellbeing, though it is agreed to be a complex and multidimensional construct (Dodge, Daly, Huyton & Sanders, 2012). The World Health Organisation (WHO) redefined

a state of wellbeing as one “in which every individual realises his or her own potential, can cope with the normal stresses of life... and is able to make a contribution to his or her community” (WHO, 2011). Some authors have argued in favour of emphasising the subjective nature of wellbeing, elevating the capacity of the person themselves to assess their own state of health and happiness (Keyes, Shmotkin & Ryff, 2002). Argyle and Bolton (2005) argue that it is possible to be ill and still be in a state of wellbeing, and other authors have highlighted the crucial impact the social context has on the wellbeing of people with dementia. For example, Kitwood (1997) rejects a solely biomedical deficit-based model of dementia so that the person does not become defined by their illness but retains a sense of ‘personhood’.

**Meaningful activity in dementia.** Recent research has shown that older adults who are cognitively impaired are significantly less likely to be socially and cognitively active than older adults without a cognitive impairment (Johnson, Whitlatch & Menne, 2014). The authors further demonstrated a positive relationship between staying active and having good quality of life, irrespective of the level of cognitive impairment. Research has shown that engaging in meaningful activity in the early stages of dementia can help people to focus on their residual abilities and offset a sense of loss (Genoe & Depuis, 2014). Kitwood (1997) also emphasised the importance of providing meaningful activities in which people with dementia can meet their needs to engage, be included in a group and able to contribute. Cognitive stimulation therapy (CST) forms an example of a psychosocial intervention that can meet these needs by using stimuli such as music and stories in a group setting to elicit subjective opinions, with emphasis on a person-centred approach. CST has produced evidence for improvements in cognition, mood, confidence and communication in people with dementia, and is now a nationally recommended non-pharmacological intervention for the condition (National Institute for Health and Clinical Excellence, 2006; Woods, Auguirre,

Spector & Orrell, 2012).

### **Carers**

Around two thirds of people with dementia live in private households, and the number of family carers<sup>1</sup> or friends who support them informally is currently estimated to be 670,000 (Alzheimer's Society, 2014). There has been a call for further support as many are older adults themselves, and evidence suggests that caregiving roles may adversely affect carers' mental health (Department of Health, 2008). Many people with dementia and carers living in their own homes are coming to terms with the diagnosis and may not have wider social support as families are more dispersed. Increased time spent on practical caregiving may mean that, over time, participation in activities previously shared between people with dementia and carers may decline, especially activities that require concentration and social interaction (DiLauro, Pereira, Carr, Chiu & Wesson, 2015). However, qualitative research has also indicated that doing leisure activities together can improve the relationship between people with dementia and their carers by helping them find new ways to relate in the face of cognitive losses (Carbonneau, Caron & Desrosiers, 2010). It is therefore highly pertinent to include carers in psychosocial interventions where these involve meaningful shared activity with the person they are caring for (DiLauro et al., 2015).

### **The arts in dementia care**

A wealth of evidence suggests that interacting with the arts can be beneficial for health and wellbeing (see Staricoff, 2004, for an extensive review of the use of a range of art forms in healthcare settings). Since social and cognitive stimulation are commonly cited as needs for people with dementia (Cohen-Mansfield, 2005), it would seem appropriate to consider what the arts can contribute to meeting these needs. Many art forms are

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<sup>1</sup> In the present study the term 'carer' was used to refer to people who provide support to a person with dementia in a non-professional capacity. This term was used as shorthand, however it is acknowledged that it may not reflect how the spouses, partners, children, relatives and friends conceptualise their relationship or role.

participatory in nature, and due to their universality and accessibility can be used and enjoyed by people who may require assistance or adaptations to communicate (Camic, 2008). Best practice guidelines for psychosocial interventions in dementia care now recommend engagement in arts-related activities and sensory stimulation (British Psychological Society, 2009; Guss et al., 2014), which contain key elements of CST such as stimulation of multiple senses, exploratory conversation that does not 'put people on the spot', a focus on present impressions and meeting social needs (Spector, Woods & Orrell, 2008).

**Art-viewing.** In recent years, there has been an increase in the number of empirical studies investigating the impact of interventions for people with dementia and carers such as group facilitated art-viewing (e.g. Rosenberg, 2009; MacPherson, Bird, Anderson, Davis & Blair, 2009), and group art-viewing with art-making (e.g. Camic, Tischler & Pearman, 2014). Art-viewing studies have indicated positive outcomes in terms of increased subjective psychological wellbeing, a sense of broadening of horizons and social inclusion (Flatt, Liptak, Oakley, Gogan, Varner & Lingler, 2014; Rosenberg, 2009; Young, Camic & Tischler, 2015). Other studies observed people with dementia showing increases in sustained attention and intellectual engagement with the paintings (Camic et al., 2014), and stimulation of episodic memories and communication (Eekelaar, Camic & Springham, 2012). The involvement of carers was deemed to be an important aspect, since these activities were deemed to form a vehicle of communication between the carer-person with dementia dyad (Rosenberg, 2009) and give the carer new insights into the person with dementia's abilities (Zeilig et al., 2014).

There is now evidence to suggest that new learning occurs in people with dementia (Clare, Wilson, Carter, Breen, Gosses & Hodges, 2000; Eekelaar et al., 2012). Mell, Howard and Miller (2003) also suggested that new skills can emerge after the onset of dementia, and that artistic development can continue even when language abilities deteriorate. Graham,

Stockinger and Leder (2013) demonstrated that, for people with Alzheimer's Disease, aesthetic judgements are similar to those of healthy adults, providing further evidence that art-based interventions may draw on residual abilities even when cognitive impairment is present.

In a recent review, Salisbury, Algar and Windle (2011) concluded that interventions for people with dementia using the visual arts have been shown to reduce isolation, promote communication, encourage residual creative abilities and enable expression of a sense of identity, although there has been a call to more consistently include the subjective experience of people with dementia in this research (Beard, 2012). There has also been critique of the studies' methodological rigour, as research in this field has primarily consisted of small-scale feasibility and pilot studies, tending to lack control or comparison groups and longer-term follow-ups (Camic, 2008; Clift et al., 2009; Young et al., 2015; Zeilig et al., 2014).

**Museum object handling.** Arts in healthcare research has also indicated that museum object handling sessions are effective in achieving significant increases in subjective wellbeing, at least in the short-term (Solway, Camic, Thomson & Chatterjee, 2015). These sessions comprise tactile, visual and conversational exploration of genuine museum artefacts with a facilitator (Chatterjee & Noble, 2013). Studies of object-handling have used qualitative and quantitative methodologies in a range of healthcare settings such as oncology (Lanceley et al., 2011); neurological rehabilitation and residential care (Ander et al., 2012); and general inpatient wards (Thomson, Ander, Menon, Lanceley & Chatterjee, 2011; Paddon, Thomson, Lanceley, Menon & Chatterjee, 2014). Studies have mostly quantified outcomes of single one-to-one sessions, however preliminary results from a group object-handling session conducted in a residential home with older adults showed promise in increasing communication and social contact (Thomson & Chatterjee, 2014a).



Two comparison studies involving object-handling have shown that subjective measures of wellness and happiness of hospital patients increased significantly after a single 30-minute object-handling session in comparison with a photograph-viewing control group (Thomson, Ander, Menon, Lanceley, & Chatterjee, 2012a; Thomson, Ander, Lanceley, Menon & Chatterjee, 2012b). This seemed to indicate a wellbeing-related advantage gained by the tactile element over and above viewing and discussing photographs of the same objects.

These findings may be explained by psychological theories about touch: a key sense, which may become more important for people as they get older (Rowlands, 2008), particularly if vision and hearing are impaired. Neuropsychological evidence posited by Critchley (2008) suggests that certain types of cutaneous touch implicated in this activity may invoke a sense of wellbeing through being linked to emotional and motivational systems in the brain such as the insula cortex. It has also been argued that the stimulation of multiple sensory modalities facilitates a deeper level of encoding in working memory (known as dual coding theory: Baddeley & Hitch, 1974) and thus may facilitate learning (Paddon et al., 2014). Multisensory integration describes the process by which the brain combines information from different sensory systems (Stein, Stanford & Rowland, 2009) and organises multiple streams of information into a coherent and salient concept (Freiherr, Lundström, Habel & Reetz, 2013). Multisensory processes are thought to be particularly important in social situations (Hunter, 2011), as they are implicated in the perception and processing of emotional stimuli (Freiherr et al., 2013). With declines in individual sensory systems during ageing, there is evidence that the older adult brain uses compensatory strategies to maintain multisensory integration capabilities (Freiherr et al., 2013). One theory relating to the mechanism by which this occurs posits that reduced sensitivity of individual senses combined with age-related or neurobiological decline in cognitive processing increases the relative

effect of enhancement from multisensory integration (Hairston, Laurienti, Mishra, Burdette & Wallace, 2003). Evidence exists suggesting that older adults may particularly benefit from the simultaneous presentation of congruent information via multiple sensory modalities (Hunter, MacPherson & Phillips, 2010; Laurienti, Burdette, Maldjian & Wallace, 2006). Thomson and colleagues (2012a) posited that multisensory integration occurs in museum object handling activities (i.e. the combination of haptic, visual and auditory input), and that this contributes to greater depth of encoding of sensory information which enhances memory and learning (Baddeley, Eysenck & Anderson, 2009). Since learning is a cognitive process associated with positive effects on mood (Uljens, 1997), it may be intrinsically rewarding, thus playing a role in increasing wellbeing. Other authors have emphasised that holding museum objects can trigger memories, projections and associations that may invoke a meaning-making process beneficial to subjective wellbeing (Dudley, 2010; Froggett, Farrier & Poursanidou, 2011).

### **Rationale for the present study**

Since people with dementia have particular needs due to cognitive changes, a 'one-size-fits-all' approach to art-based interventions may not be appropriate. If differences in benefits derived from such interventions are demonstrated, and if these are applicable to certain groups and not others, limited resources could be channelled to offer tailored interventions to address a group's specific psychological and social needs. Art-based interventions have frequently been criticised for lacking a comparison group (Clift et al., 2009) meaning that limited inferences can be drawn regarding the importance or necessity of the art component. This has led to critics suggesting that benefits obtained from these interventions can be accounted for by social interactions alone (Simmons, 2006).

**Aims.** This study used a museum session which comprised two art-based conditions (art-viewing and object-handling) and a social activity in the form of a refreshment break to compare their impact on the subjective wellbeing of people with dementia and their carers.

**Hypotheses.** The following hypotheses were tested on people with dementia and carers as separate groups to ascertain whether they derive different outcomes from the session.

1. There will be a significant increase in subjective wellbeing during the museum session as a whole.
2. There will be a significant increase in subjective wellbeing during the museum session irrespective of the order in which object-handling and art-viewing are experienced.
3. There will be a significant increase in subjective wellbeing post object-handling compared to a pre object-handling baseline.
4. There will be a significant increase in subjective wellbeing post art-viewing compared to a pre art-viewing baseline.
5. There will not be a significant increase in subjective wellbeing after a refreshment break compared to a pre-break baseline.
6. The increase in subjective wellbeing will be greater in the object-handling condition than in the art-viewing condition.

## **Method**

### **Participants**

**Inclusion criteria.** Criteria for participation in the study were considered in terms of remaining socially inclusive whilst not having excessive sample variability that may affect the hypothesis-testing, following examples of previous studies (e.g. Camic et al., 2014).

Inclusion criteria were a diagnosis of any type of dementia in the early to middle stages,

living at home, and capacity to give informed consent. Carers had to be over the age of 18 and could be a spouse, relative or friend. People with dementia could attend without a carer if they wished.

**Recruitment strategy.** A convenience sampling method was adopted. Most participants were recruited from a post-diagnostic group for people recently diagnosed with dementia and their family members provided by a local NHS memory assessment service. Some participants were recruited via a service user forum. No financial incentive was given to take part. Recruitment took place over a period of 13 months; 134 participants initially registered their interest in participating (64 dyads and 6 people with dementia who did not identify a carer). Nine dyads were unable to attend due to illness; 15 dyads changed their mind about participating in the study without giving a reason; 10 dyads no longer wished to participate due to other life events taking precedence.

**Consent.** Since dementia symptoms vary on any given day, the notion of giving informed consent as a static, one-off event becomes redundant (Dewing, 2008). In this study, participants were offered the opportunity to register their consent at numerous stages throughout the recruitment process. These comprised opting in to receive further information about the study (Appendix A) at the post-diagnostic or service user group, explanation of the participant information sheet (Appendix B) and consent form (Appendix C) by the researcher over the telephone, and receipt of a confirmation letter (Appendix D). Participants were offered the opportunity to withdraw from the study at any point. A fuller description of this process is provided in Appendix E.

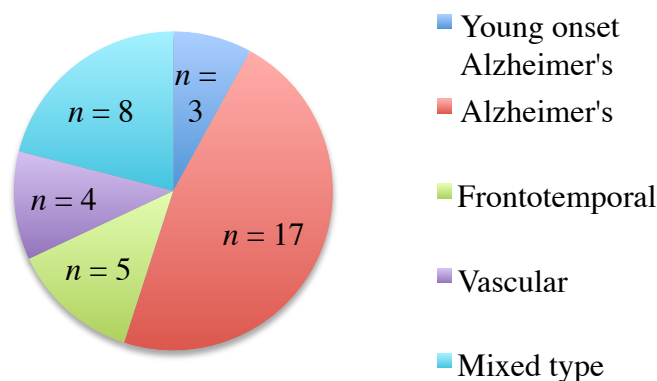
**Sample characteristics.** Sixty-six participants took part in the study: 36 people with dementia and 30 carers. Six participants were recruited from the service user forum and 60 from the post-diagnostic group. Table 1 depicts gender and age characteristics of the sample.

Table 1

*Gender and age characteristics of sample*

		<u>PWD</u>	<u>Carer</u>
Gender ( <i>n</i> )	Male	25	4
	Female	11	26
Age (years)	Mean (SD)	74 (7.06)	66 (9.95)
	Range	58–85	48–83

The average length of time since dementia diagnosis was 9 months (range: 2-24 months). Two people with dementia had a co-morbid diagnosis of Parkinson's disease; one had a lateral visual impairment. Figure 1 depicts prevalence of dementia type in the sample. This was broadly comparable to national prevalence figures, although Alzheimer's was slightly underrepresented in the sample while frontotemporal and mixed types were slightly overrepresented (Alzheimer's Society, 2014).



*Figure 1.* Prevalence of dementia type in sample.

### Design

This quasi-experimental study had a mixed 2 x 4 repeated-measures crossover design with two separate groups: people with dementia and carers. The first factor (between-subjects) was the order in which participants experienced the experimental conditions with one level as object-handling first and art-viewing last (summarised as Order 1: MOH-AV)

and the other level as art-viewing first and object-handling last (summarised as Order 2: AV-MOH). The second factor (within-subjects factor) was the time point at which self-report measures of wellbeing were administered (Figure 2). This factor had four levels: Time 1 (pre first condition), Time 2 (post first condition and pre refreshment break), Time 3 (post refreshment break and pre second condition), and Time 4 (post second condition).

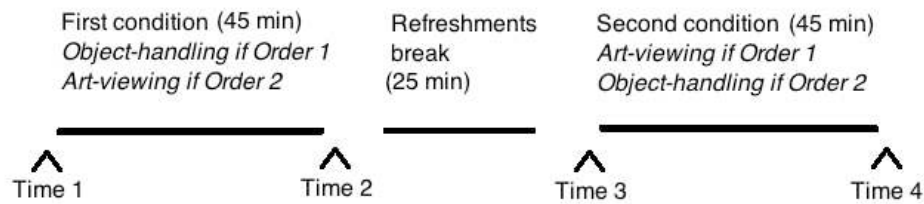


Figure 2. Time points at which self-report measures of wellbeing were administered.

**Measures taken to reduce bias.** Control measures implemented included using the same facilitator for all sessions and use of a repeated-measures crossover design, which counterbalanced the order to account for any order effects. Additionally, the facilitator and volunteers were not aware of the directionality of the hypotheses.

**Power calculation.** An *a priori* power calculation using G\*Power statistical software (Erdfelder, Faul & Buchner, 1996) indicated that, to detect a medium effect size ( $f = .25$ ) with 80% power and alpha .05 two-tailed, the between-subjects factor required  $N = 82$ ; the within-subjects factor required  $N = 24$ ; the interaction required  $N = 24$ . The study was conducted with the possibility that the actual effect size for the between-subjects factor may be large rather than medium, therefore allowing rejection of some null hypotheses even with a smaller sample size.

## Measures

**Visual analogue scales.** Visual analogue scales (VAS) were selected to measure subjective wellbeing. They are self-report measures in the form of ‘vertical thermometers’

with two anchor points at either end and are frequently used in healthcare settings to measure subjective characteristics (EuroQol Group, 1990). VAS are deemed to be suitable for assessing changes across a short period of time, are considered to have validity within-subjects and are usually easily administered (Wewers & Lowe, 1990). It has been demonstrated that people with dementia use VAS in a way that is conceptually similar to the general population (Arons, Krabbe, van der Wilt, Olde-Rikkert & Adang, 2012). Thomson and Chatterjee (2014b) also validated VAS with older adults, and people with mild, moderate and severe dementia. Research on museum object handling thus far has largely been conducted in hospitals, using VAS to measure wellness and happiness (Solway et al., 2015). It was felt that these two dimensions were insufficient to capture the outcomes of activities conducted in museums. Since many researchers agree that wellbeing is a complex, multifaceted construct (Dodge et al., 2012), the present study used five subscales in an attempt to capture dimensions of wellbeing outcomes pertinent to this group and setting, yet also sought not to overly burden participants with lengthy and cognitively challenging measures. Participants self-reported on scales of 0–100 how happy/sad, well/unwell, interested/bored, confident/not confident and optimistic/not optimistic they were feeling at that moment in time (Figure 3). Their previous ratings were not made available to them at any time as an attempt to control for demand characteristics, as they may have felt pressure to report an improvement.

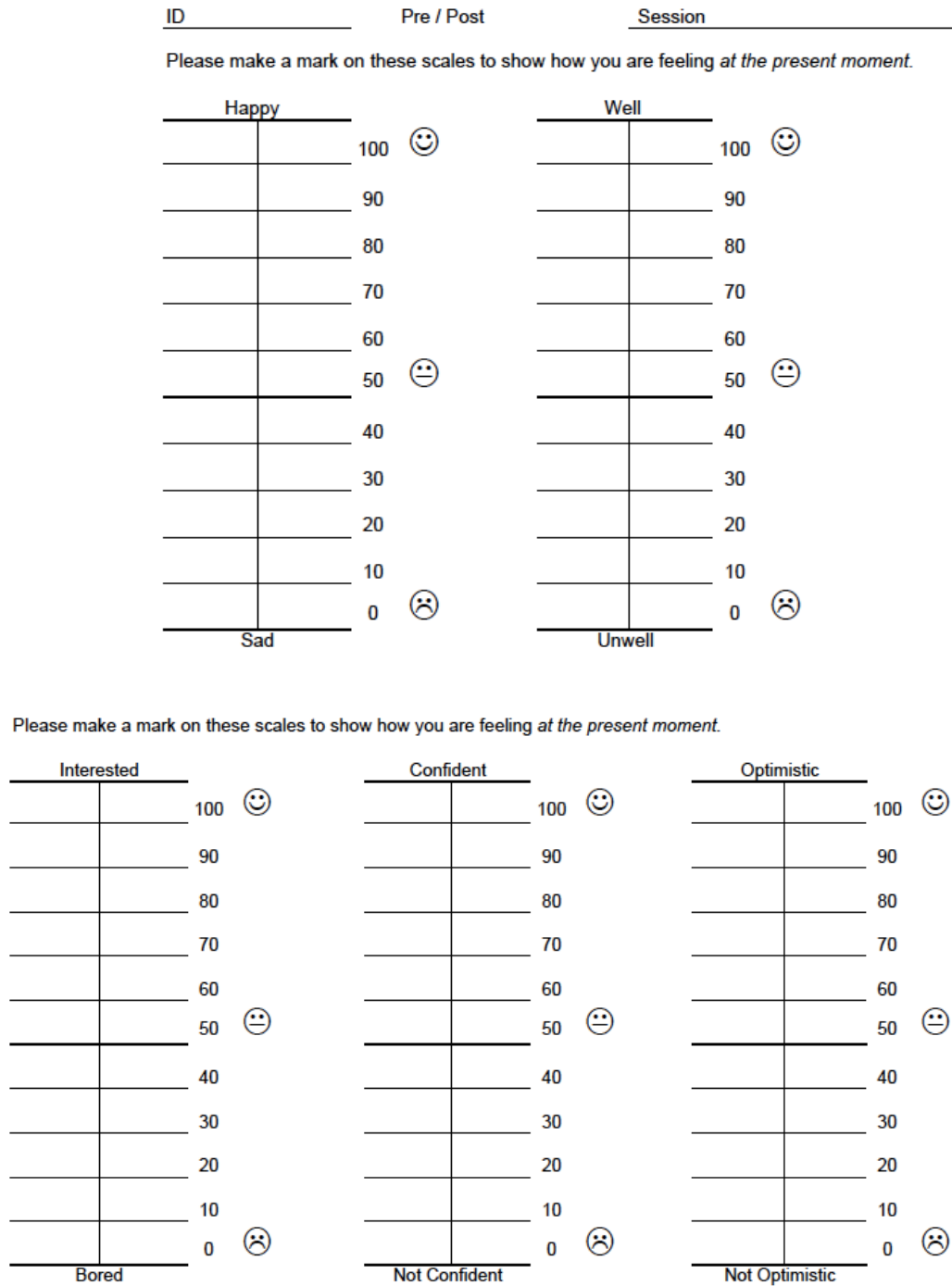


Figure 3. Visual analogue scales used in the present study.

The *interested*, *confident* and *optimistic* subscales were initially piloted with people with dementia and carers by Weiner and Camic (2014). Ander and colleagues (2011) suggested that engagement may be a key aspect of wellbeing relevant to a museum context. This seemed important to capture, as there is theoretical and empirical support for the



benefits of engaging people with dementia in activities they find interesting (Genoe & Dupuis, 2014). Engagement was conceptualised as a continuum between *interested* and *bored* to avoid confusion from other common uses of the word. The dimension of confidence was included, since research has indicated this can decrease over time in people with dementia (Miller & Butin, 2000). The dimension of optimism sought to measure hopefulness about the future, and is included other validated measures of wellbeing such as the Positive and Negative Affect Schedule (Watson, Clark & Tellegen, 1988) and the Warwick Edinburgh Mental Wellbeing Scale (Stewart-Brown & Janmohamed, 2008).

**Feedback forms.** Previous research (e.g. Ander et al., 2011) has strongly recommended that elements of participants' experience are also captured in an idiosyncratic way that reflects individual preferences without sole reliance on numerical measures. The feedback questionnaire (Appendix J) included questions eliciting a personal evaluation of the museum session and contained open questions about which aspects were preferred and which could be improved.

## **Procedure**

**Intervention planning.** A museum in the southeast of England was the site for the study. The museum's permanent collection included artefacts from ancient Egypt, the Anglo-Saxon period, as well as a wide range of paintings, taxidermy, and other curiosities from the 17<sup>th</sup>–20<sup>th</sup> centuries. A dementia service user forum provided consultation on the practicalities of running the sessions, including recommendations on structure, length, time of day, how rooms should be set up and how many volunteers would be needed. A training session for museum staff and volunteers was carried out by the researcher and supervisors which comprised an overview of the project, a briefing of their roles, education about dementia and advice on maximising person-centred communication.

**Ethical considerations.** The study was submitted for a proportionate review and was

approved by the National Research Ethics Service (reference 13/LO/1353: Appendix L). No substantive ethical issues were identified by the review panel. Sessions were conducted focusing on present impressions of the art: questions about knowledge or past events were avoided with the aim that both people with dementia and carers could contribute equally. Appendix F contains a fuller consideration of potential ethical issues and how these would be managed. No upsetting or unanticipated responses arose during the sessions.

**The museum session.** The average size of each museum group was 6 people (3 people with dementia and their respective carers) ranging from 4 to 8 people. The facilitator and two volunteers were present at each session; one of the volunteers was a psychology undergraduate student known to most participants, having been present at the post-diagnostic groups. The researcher attended all but three of the sessions. Sixteen sessions were scheduled and 11 were run in total (five were cancelled due to dropout; remaining participants were transferred to a subsequent session). Sessions were counterbalanced: six sessions began with the object-handling condition and five with the art-viewing condition.

1. On the day of the session, participants were welcomed in the museum foyer by the researcher and a volunteer. They were then shown to a dedicated room for group work and greeted by the facilitator, who invited them to make a name badge. Introductions and general conversation were encouraged to help participants feel at ease.

2. At the start time, the facilitator gave an outline of the session schedule, checked if anybody had any questions, and emphasised their right to withdraw at any time. Consent forms were then collected. VAS were explained and administered, with volunteers assisting with one-to-one explanations where necessary.

3. The museum object handling condition lasted for 45 minutes. The facilitator presented the objects one at a time and participants had the opportunity to hold, examine and talk about them as a group as they were passed round. The facilitator asked questions about

participants' present impressions of the objects (Appendix G contains the session protocol); reminiscences and anecdotes were welcomed. VAS were re-administered at the end of this condition.

4. After a 25-minute break, during which the group had tea, coffee, biscuits and general social conversation, participants completed VAS again. The facilitator and volunteers then showed the group into one of the gallery rooms and invited them to talk about their impressions of some paintings on display. This comprised the art-viewing condition which lasted for 45 minutes. During this condition, the facilitator asked similar questions about present impressions of the art-works (Appendix G).

5. Participants completed wellbeing measures at the end of this condition, after which they were invited to complete the feedback form.

6. They were then given a pack containing a debriefing letter (Appendix H), a museum brochure, a postcard of one of the paintings, and a list of questions similar to ones used in the session to use on future museum visits if desired (Appendix I).

**Objects for handling.** Figure 4 depicts some museum objects used for handling in the present study.



*Figure 4.* Objects used in handling sessions (clockwise from bottom): Victorian carbolic soap, Ancient Egyptian scarab stone, Iron Age axe head, geode, 19<sup>th</sup> century African headdress rest, fossilised Megalodon shark's tooth, 18<sup>th</sup> century tinderbox

**Paintings for art-viewing.** Paintings were selected which had different content and styles, and a potential for visual discovery. Selection was also influenced by practical considerations such as size and suitability of the gallery area for small group discussion (Figure 5).



*Figure 5.* Part of the gallery area for used art-viewing.

### Data analysis

VAS subscale scores at each time point were summed to derive a composite overall wellbeing score (Table 2). Overall wellbeing scores were used as the dependent variable for inferential statistics.

Table 2

*Data obtained for each participant*

	<u>VAS score at Time 1</u>	<u>VAS score at Time 2</u>	<u>VAS score at Time 3</u>	<u>VAS score at Time 4</u>
Overall wellbeing				
Happiness				
Wellness				
Interestedness				
Confidence				
Optimism				

SPSS version 22 was used for all analyses. Data was checked for normality in order that parametric analyses could be conducted where possible, since VAS are deemed to be interval data (Paul-Dauphin, Guillemin, Virion & Briancon, 1999). Mixed-design analyses of variance (ANOVAs) were conducted to test for main effects of Time and Order for people with dementia and carers as separate groups. The size and significance of the differences between Time 1 and 2 (pre and post first condition), Time 2 and 3 (pre and post refreshment break), and Time 3 and 4 (pre and post second condition) were then tested by performing bootstrap paired-sample *t*-tests. Bootstrapping procedures are recommended by Ader, Mellenbergh and Hand (2008) for situations where the sample size may be insufficient to provide a normal distribution. Bonferroni corrections (described by Bland & Altman, 1995) were applied to reduce the risk of inflation of Type I error: alpha levels were adjusted accordingly ( $\alpha = .05 / 3 = .017$ ). These procedures were applied to all *t*-tests reported.

## Results

### Hypotheses

The following hypotheses were tested on people with dementia and carers as separate groups.

1. There will be a significant increase in subjective wellbeing during the museum session (Analysis 1 and 4).
2. There will be a significant increase in subjective wellbeing during the museum session irrespective of the order in which object-handling and art-viewing are experienced (Analysis 1 and 4).
3. There will be a significant increase in subjective wellbeing post object-handling compared to the pre object-handling baseline (Analysis 2 and 5).
4. There will be a significant increase in subjective wellbeing post art-viewing compared to the pre art-viewing baseline (Analysis 2 and 5).

5. There will not be a significant increase in subjective wellbeing after a refreshment break compared to the pre-break baseline (Analysis 3 and 6).
6. The increase in subjective wellbeing will be significantly greater in the object-handling condition than in the art-viewing condition (Analysis 7).

### Descriptive statistics

Table 3 itemises mean VAS scores for overall wellbeing at Times 1, 2, 3 and 4. They indicate that overall wellbeing scores increased over the course of the museum session.

Table 3

*Mean (SD) overall wellbeing scores at Time 1, 2, 3 and 4*

		<u>Mean overall wellbeing</u> Time 1 (SD)	<u>Mean overall wellbeing</u> Time 2 (SD)	<u>Mean overall wellbeing</u> Time 3 (SD)	<u>Mean overall wellbeing</u> Time 4 (SD)
PWD ( <i>n</i> = 36)	Order 1 (MOH-AV)	391.84 (74.30)	431.58 (68.82)	436.58 (55.88)	442.11 (47.68)
	Order 2 (AV-MOH)	367.06 (89.11)	402.06 (77.96)	398.82 (83.73)	429.12 (63.34)
Carer ( <i>n</i> = 30)	Order 1 (MOH-AV)	382.00 (80.37)	427.00 (62.62)	434.47 (57.07)	455.33 (52.52)
	Order 2 (AV-MOH)	363.67 (71.92)	410.00 (55.84)	413.33 (53.97)	434.00 (58.65)

*Note.* Maximum overall wellbeing score = 500.

Tables 4-7 itemise mean VAS scores for happiness, wellness, interestedness, confidence and optimism pre and post object-handling and pre and post art-viewing. They indicated that post object-handling scores were higher than pre object-handling scores, and that post art-viewing scores tended to be higher than pre art-viewing scores.

Table 4

*Mean (SD) subscale scores for PWD (*n* = 19) within Order 1 (MOH-AV)*

	<u>Happiness</u>		<u>Wellness</u>		<u>Interestedness</u>		<u>Confidence</u>		<u>Optimism</u>	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
MOH	82.37 (16.36)	90.26 (13.38)	72.37 (23.24)	82.21 (20.09)	83.42 (15.46)	87.90 (16.78)	75.53 (19.21)	84.74 (16.03)	75.16 (18.35)	84.47 (15.54)
AV	90.79 (11.34)	91.58 (11.67)	85.79 (17.42)	84.21 (16.77)	88.42 (14.63)	94.21 (8.37)	84.74 (16.79)	86.84 (13.36)	86.84 (12.04)	85.26 (13.49)

*Note.* Maximum score = 100.

Table 5

*Mean (SD) subscale scores for Carers (n = 15) within Order 1 (MOH-AV)*

	<u>Happiness</u>		<u>Wellness</u>		<u>Interestedness</u>		<u>Confidence</u>		<u>Optimism</u>	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
MOH	78.00 (21.11)	88.67 (13.55)	73.33 (23.50)	80.67 (15.80)	84.00 (15.49)	90.33 (20.04)	72.00 (24.44)	85.67 (12.66)	74.67 (21.00)	81.67 (17.90)
AV	90.13 (10.01)	92.33 (10.83)	83.33 (14.48)	85.00 (16.15)	89.00 (18.91)	96.33 (7.19)	85.67 (15.22)	91.47 (11.87)	86.33 (14.70)	90.20 (13.06)

Table 6

*Mean (SD) subscale scores for PWD (n = 17) within Order 2 (AV-MOH)*

	<u>Happiness</u>		<u>Wellness</u>		<u>Interestedness</u>		<u>Confidence</u>		<u>Optimism</u>	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
AV	72.65 (18.72)	82.35 (17.06)	72.35 (20.40)	79.41 (19.11)	78.82 (22.81)	82.65 (14.59)	68.82 (22.81)	75.59 (20.76)	74.41 (19.27)	82.06 (16.30)
MOH	82.65 (17.51)	88.82 (12.32)	78.24 (20.46)	84.12 (13.83)	82.35 (13.59)	88.24 (15.61)	77.65 (17.95)	82.35 (15.16)	77.94 (19.61)	85.59 (14.88)

Table 7

*Mean (SD) subscale scores for Carers (n = 15) within Order 2 (AV-MOH)*

	<u>Happiness</u>		<u>Wellness</u>		<u>Interestedness</u>		<u>Confidence</u>		<u>Optimism</u>	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
AV	71.67 (19.24)	83.33 (12.77)	70.33 (17.16)	80.33 (13.69)	74.67 (15.06)	84.33 (13.74)	79.00 (17.95)	85.00 (13.29)	68.00 (16.99)	77.00 (12.50)
MOH	83.67 (11.72)	87.67 (11.78)	80.67 (13.21)	86.00 (12.98)	82.33 (13.74)	89.00 (11.98)	85.67 (14.25)	87.67 (12.94)	81.00 (12.56)	83.67 (14.20)

Overall wellbeing change scores were calculated by subtracting pre-condition overall wellbeing scores from post-condition overall wellbeing scores. All overall wellbeing change scores were positive, indicating that participants' subjective wellbeing did not tend to decrease after experiencing either art-based condition (Table 8).

Table 8

*Mean (SD) overall wellbeing change scores*

		<u>Museum object handling</u> Mean overall wellbeing change score (SD)	<u>Art-viewing</u> Mean overall wellbeing change score (SD)
PWD (n = 36)	Order 1 (MOH-AV)	39.74 (75.65)	5.53 (32.27)
	Order 2 (AV-MOH)	30.29 (49.69)	35.00 (42.97)
Carer (n = 30)	Order 1 (MOH-AV)	45.00 (64.22)	20.86 (30.35)
	Order 2 (AV-MOH)	20.67 (41.53)	46.33 (58.99)

**Tests for normality**

Table 3 depicts output from Shapiro Wilk's tests for normality of distribution for overall wellbeing scores at Times 1, 2, 3 and 4, used for Analyses 1-6. This interpretation was accompanied by visual inspection of the histograms, normal Q-Q plots and box plots, which showed that overall wellbeing scores were approximately normally distributed for people with dementia and carers within orders 1 and 2. Skewness and kurtosis values are also reported in Table 9.

Table 9

*Shapiro-Wilk's statistics showing normality of distribution for overall wellbeing scores*

Order	Overall wellbeing	Participant	Shapiro-Wilk			Skewness (SE)	Kurtosis (SE)
			Statistic	df	p		
Order 1 MOH-AV	Time 1	PWD	.946	19	.337	-.13 (.52)	-1.17 (1.01)
		Carer	.902	15	.101	-1.01 (.58)	.55 (1.12)
	Time 2	PWD	.878	19	.019*	-.95 (.52)	.34 (1.01)
		Carer	.918	15	.181	-.69 (.58)	-.26 (1.12)
	Time 3	PWD	.913	19	.083	-.42 (.52)	-1.03 (1.01)
		Carer	.920	15	.195	-.87 (.58)	.17 (1.12)
	Time 4	PWD	.929	19	.169	-.46 (.52)	-.82 (1.01)
		Carer	.798	15	.003*	-1.78 (.58)	3.31 (1.12)
Order 2 AV-MOH	Time 1	PWD	.947	17	.408	-.078 (.55)	-.54 (1.06)
		Carer	.959	15	.676	.36 (.58)	-.65 (1.12)
	Time 2	PWD	.918	17	.137	-.14 (.55)	-1.15 (1.06)
		Carer	.933	15	.299	-.01 (.58)	-1.42 (1.12)
	Time 3	PWD	.876	17	.028*	-1.27 (.55)	3.11 (1.06)
		Carer	.969	15	.836	-.09 (.58)	-1.90 (1.12)
	Time 4	PWD	.887	17	.041*	-.33 (.55)	-1.43 (1.06)
		Carer	.907	15	.124	-.79 (.58)	.078 (1.12)



*Note.* SE = Standard Error; \* denotes data that deviated significantly from a normal distribution. Bootstrapping procedures (Ader, Mellenburgh & Hand, 2008) were later used to compensate.

### **Inferential statistics**

**Analysis 1: Main effects of Time and Order for people with dementia.** This analysis tested Hypotheses 1 and 2: There will be a significant increase in subjective wellbeing during the museum session, and this will be irrespective of the order in which conditions are experienced.

A mixed-design ANOVA with Time (Time 1, 2, 3 and 4) as a within-subjects factor and Order as a between-subjects factor revealed a significant main effect of Time for people with dementia ( $F(3, 102) = 13.54, p < .001, \eta_p^2 = .285^2$ ). There was no significant main effect of Order ( $F(1, 34) = 1.583, p = .217, \eta_p^2 = .044$ ). There was no significant interaction between Time and Order ( $F(3, 102) = .65, p = .585, \eta_p^2 = .019$ ). Therefore, Hypotheses 1 and 2 were supported for people with dementia.

**Analysis 2: Increases in overall wellbeing by condition for people with dementia.** Since no significant main effects of order were found for people with dementia, results for object-handling and art-viewing were pooled across both orders for this analysis (Cohen, 2007) to test Hypotheses 3 and 4.

**Museum object handling.** Paired sample *t*-tests indicated that overall wellbeing scores were significantly higher post object-handling ( $M = 437.08, SD = 58.47$ ) than pre object-handling ( $M = 394.31, SD = 64.71$ ),  $t(35) = 4.036, p < .001, d = .67^3$ . Hypothesis 3, that there will be a significant increase in subjective wellbeing from object-handling, was supported for people with dementia when scores were pooled across both orders.

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<sup>2</sup>  $\eta_p^2$  = Partial eta-squared; the percentage of the total variability attributable to this factor. Suggested norms: small effect size = 0.01, moderate effect size = 0.06, large effect size = 0.14 (Cohen, 1988)

<sup>3</sup> Cohen's *d* estimates of effect size: .2 = small effect size, .5 = medium effect size, .8 = large effect size (Cohen, 1988)

**Art-viewing.** Paired sample *t*-tests indicated that overall wellbeing scores were also significantly higher post art-viewing ( $M = 423.19$ ,  $SD = 66.02$ ) than pre art-viewing ( $M = 403.75$ ,  $SD = 80.47$ ),  $t(35) = 2.194$ ,  $p = .006$ ,  $d = .26$ . Hypothesis 4, that there will be a significant increase in subjective wellbeing from art-viewing, was supported for people with dementia when scores were pooled across both orders.

**Analysis 3: Pairwise comparisons across pooled orders for people with dementia.** Paired sample *t*-tests indicated that overall wellbeing scores were significantly higher at Time 2 ( $M = 417.64$ ,  $SD = 73.74$ ) than at Time 1 ( $M = 380.14$ ,  $SD = 81.40$ ),  $t(35) = 3.65$ ,  $p = .001$ ,  $d = 0.61$ . There was no significant difference between overall wellbeing scores at Time 2 ( $M = 417.64$ ,  $SD = 73.74$ ) and Time 3 ( $M = 418.75$ ,  $SD = 71.95$ ),  $t(35) = .133$ ,  $p = .895$ . Overall wellbeing scores were not significantly higher at Time 4 ( $M = 435.97$ ,  $SD = 55.19$ ) than at Time 3 ( $M = 418.75$ ,  $SD = 71.95$ ) with the Bonferroni corrections applied:  $t(35) = 2.42$ ,  $p = .021$ ,  $d = .40$ . Hypothesis 5, that there will not be a significant increase in subjective wellbeing from a refreshment break, was supported for people with dementia.

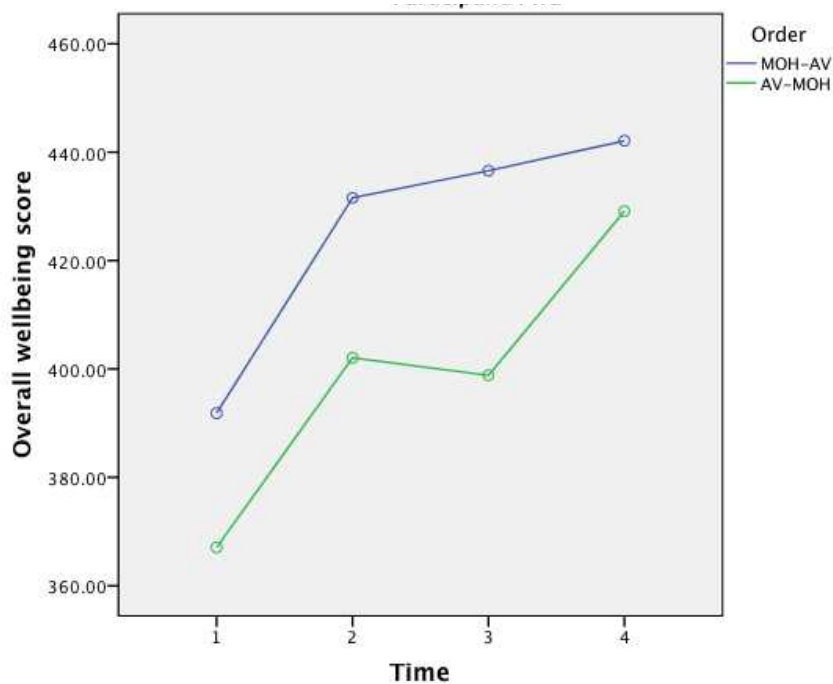


Figure 6. Plot showing main effect of Time on overall wellbeing for PWD with separate lines for order.

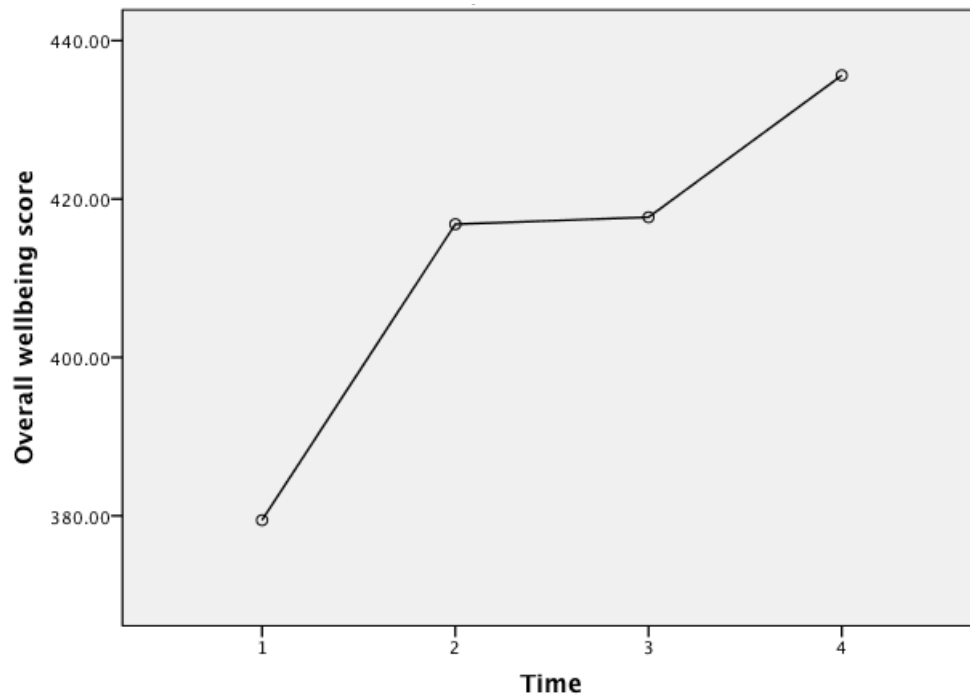


Figure 7. Plot showing main effect of Time on overall wellbeing for PWD across pooled orders.

**Analysis 4: Main effects of Time and Order for carers.** This analysis tested Hypotheses 1 and 2: There will be a significant increase in subjective wellbeing during the museum session and this will be irrespective of the order in which conditions are experienced.

A mixed-design ANOVA with Time (Time 1, 2, 3 and 4) as a within-subjects factor and Order as a between-subjects factor revealed a significant main effect of Time for carers ( $F(1.95, 54.45)^4 = 23.46, p < .001, \eta_p^2 = .456$ ). There was no significant main effect of Order ( $F(1, 28) = .945, p = .339, \eta_p^2 = .033$ ). There was no significant interaction between Time and Order ( $F(1.95, 54.45) = .029, p = .969, \eta_p^2 = .001$ ). Therefore, Hypotheses 1 and 2 were supported for carers.

**Analysis 5: Increases in overall wellbeing by condition for carers.** Since no significant main effects of order were found for carers, results for object-handling and art-

<sup>4</sup> Mauchly's test indicated that the assumption of sphericity had been violated ( $\chi^2(5) = 23.70, p < .001$ , therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ( $\epsilon = .65$ ).

viewing were pooled across both orders for this analysis (Cohen, 2007) to test Hypotheses 3 and 4 for carers.

**Museum object handling.** Paired sample *t*-tests indicated that overall wellbeing scores were significantly higher post object-handling ( $M = 430.50, SD = 59.71$ ) than pre object-handling ( $M = 397.67, SD = 69.13$ ),  $t(29) = 3.296, p = .003, d = .60$ . Hypothesis 3, that there will be a significant increase in subjective wellbeing from object-handling, was supported for carers when scores were pooled across both orders.

**Art-viewing.** Paired sample *t*-tests indicated that overall wellbeing scores were significantly higher post art-viewing ( $M = 432.67, SD = 58.04$ ) than pre art-viewing ( $M = 399.07, SD = 73.25$ ),  $t(29) = 3.844, p = .001, d = .70$ . Hypothesis 4, that there will be a significant increase in subjective wellbeing from art-viewing, was supported for carers when scores were pooled across both orders.

**Analysis 6: Pairwise comparisons across pooled orders for carers.** Paired sample *t*-tests indicated that overall wellbeing scores were significantly higher at Time 2 ( $M = 418.50, SD = 58.93$ ) than at Time 1 ( $M = 372.83, SD = 75.51$ ),  $t(29) = 4.13, p < .001, d = .75$ . There was no significant difference between overall wellbeing scores at Time 2 ( $M = 418.50, SD = 58.93$ ) and Time 3 ( $M = 423.90, SD = 55.62$ ),  $t(29) = 1.065, p = .296$ . Overall wellbeing scores were significantly higher at Time 4 ( $M = 444.67, SD = 55.77$ ) than at Time 3 ( $M = 423.90, SD = 55.62$ ),  $t(29) = 3.183, p = .003, d = .58$ . Hypothesis 5, that there will not be a significant increase in subjective wellbeing from a refreshment break, was supported for carers.

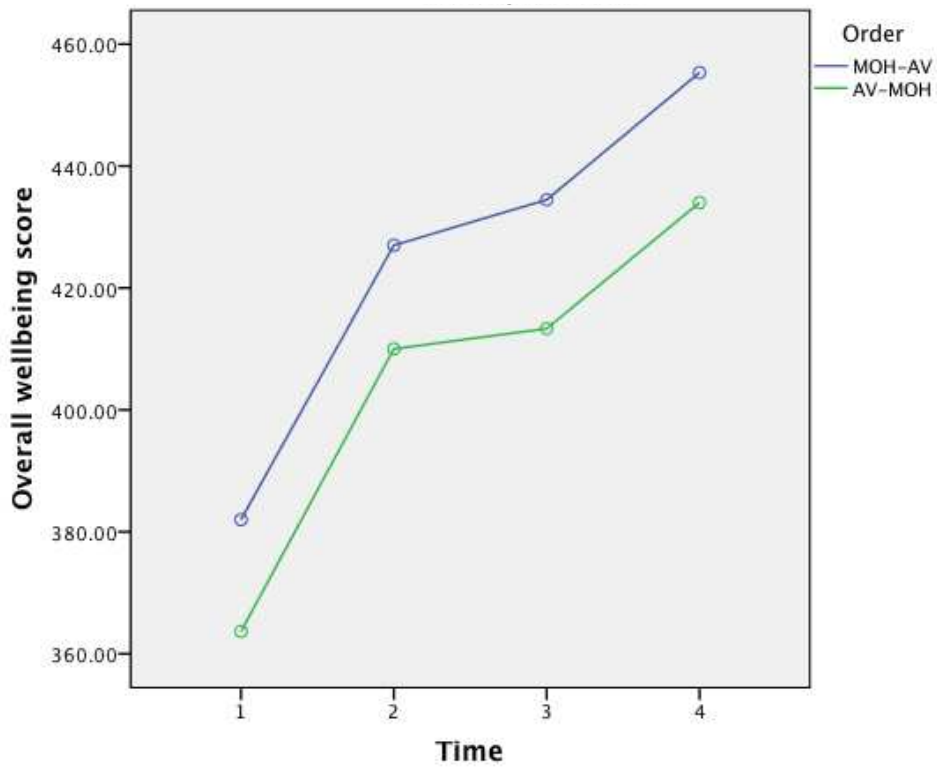


Figure 8. Plot showing main effect of Time on overall wellbeing for carers with separate lines for order.

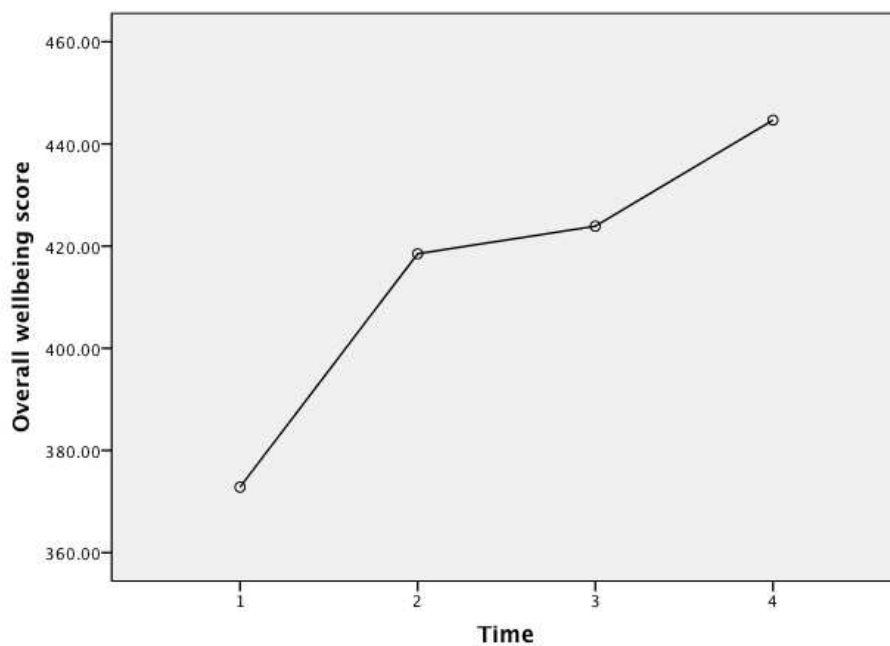


Figure 9. Plot showing main effect of Time on overall wellbeing for carers across pooled orders.

**Analysis 7: Comparison of overall wellbeing change scores.** This analysis tested Hypothesis 6, that the increase in subjective wellbeing would be significantly greater in the

object-handling condition than in the art-viewing condition. Descriptive statistics (Table 8) had indicated that for people with dementia, when art-viewing was presented last, there was less of an increase in overall wellbeing than when object-handling was presented last. However, paired sample *t*-tests found no significant differences between object-handling and art-viewing wellbeing change scores for either people with dementia or carers within orders 1 and 2. Therefore, Hypothesis 6 was not supported for people with dementia or carers.

**Analysis 8: Inter-correlations between VAS subscales.** Pearson product-moment correlations were computed to assess the relationship between the five VAS subscales at each time point. Significant positive correlations were found between all VAS subscales with the exception of Optimism at Time 1.

Table 10

*Pearson's inter-correlations between VAS at Time 1 (N = 66)*

	<u>Happiness</u>	<u>Wellness</u>	<u>Interestedness</u>	<u>Confidence</u>	<u>Optimism</u>
<u>Happiness</u>	–	.483**	.665**	.579**	-.154
<u>Wellness</u>	.483**	–	.448**	.461**	.022
<u>Interestedness</u>	.665**	.448**	–	.677**	-.51
<u>Confidence</u>	.579**	.461**	.677**	–	-.070
<u>Optimism</u>	-.154	.022	-.051	-.070	–

*Note.* \*\* = significant at the 0.01 level (two-tailed). All other correlations were non-significant.

Table 11

*Pearson's inter-correlations between VAS at Time 2 (N = 66)*

	<u>Happiness</u>	<u>Wellness</u>	<u>Interestedness</u>	<u>Confidence</u>	<u>Optimism</u>
<u>Happiness</u>	–	.739**	.714**	.716**	.558**
<u>Wellness</u>	.739**	–	.426**	.586**	.510**
<u>Interestedness</u>	.714**	.426**	–	.681**	.708**
<u>Confidence</u>	.716**	.586**	.681**	–	.652**
<u>Optimism</u>	.558**	.510**	.708**	.652**	–

Table 12

*Pearson's inter-correlations between VAS at Time 3 (N = 66)*

	<u>Happiness</u>	<u>Wellness</u>	<u>Interestedness</u>	<u>Confidence</u>	<u>Optimism</u>
<u>Happiness</u>	–	.750**	.667**	.651**	.744**
<u>Wellness</u>	.750**	–	.422**	.567**	.639**
<u>Interestedness</u>	.667**	.422**	–	.600**	.702**
<u>Confidence</u>	.651**	.567**	.600**	–	.704**
<u>Optimism</u>	.744**	.639**	.702**	.704**	–

Table 13

*Pearson's inter-correlations between VAS at Time 4 (N = 66)*

	<u>Happiness</u>	<u>Wellness</u>	<u>Interestedness</u>	<u>Confidence</u>	<u>Optimism</u>
<u>Happiness</u>	–	.721**	.727**	.627**	.694**
<u>Wellness</u>	.721**	–	.540**	.545**	.610**
<u>Interestedness</u>	.727**	.540**	–	.637**	.617**
<u>Confidence</u>	.627**	.545**	.637**	–	.767**
<u>Optimism</u>	.694**	.610**	.617**	.767**	–

### Summary of results

Table 14 summarises hypotheses supported by the data.

Table 14

*Summary of hypotheses*

<b>Hypothesis</b>	<b>PWD (n = 36)</b>	<b>Carer (n = 30)</b>
1. There will be a significant increase in subjective wellbeing during the museum session.	Supported	Supported
2. There will be a significant increase in subjective wellbeing during the museum session irrespective of the order in which object-handling and art-viewing are experienced.	Supported	Supported
3. There will be a significant increase in subjective wellbeing post object-handling compared to the pre object-handling baseline.	Supported	Supported
4. There will be a significant increase in subjective wellbeing post art-viewing compared to the pre art-viewing baseline.	Supported	Supported
5. There will not be a significant increase in subjective wellbeing after a refreshment break compared to a pre-break baseline.	Supported	Supported
6. The increase in subjective wellbeing will be significantly greater in the object-handling condition than in the art-viewing condition.	Not supported	Not supported

### **Data from feedback forms**

**Open questions.** Brief evaluative comments were obtained from the end-of-intervention questionnaire. The data generally conveys positive emotions and enjoyment of the activities, with emphasis on feeling welcomed. One question asked “How did you find the session today?” 91% of the 66 respondents used positive adjectives such as “interesting”, “excellent” and “uplifting” to describe the session; 6% used neutral adjectives such as “OK”. Quotations of interest included “It’s a privilege to be able to hold something so old” and the session “brought me to life”. The complete data is presented in Appendix L.

**Closed questions.** Of the participants who answered the question “Do you normally visit galleries and museums?” 44% answered “no” or “sometimes”. 100% of these participants ( $n = 27$ ) stated that they would visit the museum again. However, due to an administration error, only 27 of the 66 participants answered this question, therefore results should be interpreted in light of this smaller sample size. A further question asked participants which activity they preferred. All participants ( $N = 66$ ) answered this question: 55% ( $n = 36$ ) answered ‘museum object handling’, 36% ( $n = 24$ ) answered ‘art discussion’, and 9% ( $n = 6$ ) answered ‘both equally’.

## **Discussion**

### **Summary of findings**

This quasi-experimental crossover design investigated the impact of a museum session comprising object-handling, art-viewing and a refreshment break on the subjective wellbeing of people with dementia and their carers. Descriptive statistics indicated that VAS measures of happiness, wellness, interestedness, optimism and confidence (summed to derive a composite score named overall wellbeing) increased after both object-handling and art-viewing conditions compared to a baseline taken just before the start of each condition. As hypothesised, mixed-design ANOVAs indicated that subjective wellbeing significantly



increased during the museum session for both people with dementia and carers, irrespective of the order in which object-handling or art-viewing were presented. It was predicted that the refreshment break would not bring about a significant increase in overall wellbeing, and results of pairwise comparisons supported this hypothesis. Because there was no significant main effect of order, overall wellbeing scores for art-viewing and object-handling were pooled across both orders (Cohen, 2007). It was hypothesised that people with dementia and carers would show significant increases in subjective wellbeing post object-handling and art-viewing compared to respective pre-condition baselines. For people with dementia, pairwise comparisons indicated that there was a significant increase in subjective wellbeing from both object-handling and art-viewing. Carers also experienced a significant increase in overall wellbeing from both object-handling and art-viewing. Effect sizes for significant findings ranged from small-medium and large as quantified by Cohen's *d* (Cohen, 1988).

Descriptive statistics indicated that art-viewing, when presented last, appeared to have less of an impact in increasing overall wellbeing for people with dementia. Pairwise comparisons of overall wellbeing change scores indicated the increase in subjective wellbeing from object-handling was not significantly greater than the increase from art-viewing for people with dementia or carers in either order. Therefore, the hypothesis that the increase in subjective wellbeing would be significantly larger in the object-handling condition than in the art-viewing condition was not supported. It is acknowledged that the non-significance of the main effect of order in ANOVAs may have been due to an insufficient number of participants to achieve power (82 participants were required for the between-subjects factor), therefore findings should be considered in light of this. There was also a possibility that overall wellbeing at Time 1 for people with dementia and carers was lowered due to anxiety around entering a novel situation. The increase in overall wellbeing

at Time 2 may therefore, in part, reflect a natural reduction of anxiety with acclimatisation to a situation.

As far as is known, this was the first study to have quantitatively compared two museum art-based interventions. Previous research in object-handling used VAS to measure wellness and happiness, therefore the addition of subscales measuring interest, confidence and optimism added a further dimension. The present study also demonstrated the feasibility of using VAS multiple times during an art-based intervention with people with early to middle stage dementia. Findings are in line with previous research with non-dementia populations which demonstrated that brief object-handling interventions brought about significant increases in subjective wellbeing (e.g. Paddon et al., 2014). Broadly, findings are also in line with results showing that art-viewing sessions elicit enjoyment and improvements in mood among people with dementia and carers (e.g. Rosenberg, 2009).

Feedback from an end-of-intervention questionnaire was overwhelmingly positive. It indicated both activities were enjoyed, with a slight preference for object-handling. Participants appeared to value being welcomed to the museum as a special group. Previous research has also indicated that the site of the intervention was deemed to be an important aspect to participants, as both the aesthetically pleasing environment and the special welcome led people who may not be traditional museum-goers to feel valued (Roberts, Camic & Springham, 2011; Camic et al., 2014). Questionnaire data also indicated that participants who did not normally visit museums expressed an intention to return, possibly implying an increased intention to utilise this community resource.

Critics of arts interventions have called for evidence for the efficacy of the art-related component (Simmons, 2006), as there is currently little evidence to disprove that psychological benefits obtained from such interventions cannot be solely attributed to social factors. In the present study, the refreshment break formed a social occasion and did not

bring about significant increases in participants' wellbeing. Therefore, the suggestion that any group or social activity increases wellbeing was not supported. An alternative explanation may be that the break was of insufficient duration; making it of equal length to the other conditions would have enabled a more robust comparison<sup>5</sup>.

### **Theoretical explanations**

Working memory may remain relatively intact in people in early-stage Alzheimer's Disease (Morris, 1994), and art-viewing and object-handling activities were structured to appeal to this residual ability as they used primary sensory functions and required focus only on what was happening in the present moment. The facilitator's questions elicited 'in the moment' observations with the aim that people with dementia were not placed at a disadvantage as factual knowledge was not emphasised. However, it was noticed that participants, including people with dementia, frequently asked questions that indicated they wished to acquire facts about objects and paintings. This may imply that acquisition of semantic knowledge is more important to this population than previously thought, and is analogous with findings suggesting that the arts can be used to support new learning in people with dementia (Eekelaar et al., 2012).

Isserow (2008) posited that wellbeing benefits in art-viewing interventions may at least partly be attributed to the 'triangular' element of the experience, whereby attention jointly directed at an art object forms a shared experience, promoting enjoyment from the shared interactions that follow. Object-handling adds a tactile element to viewing and discussion, and in turn may elaborate and intensify these aspects of the shared social experience (Thomson et al., 2012a) in the group or person with dementia-carer dyad. For both caregivers and people with dementia, object-handling appeared to enhance wellbeing,

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<sup>5</sup> This was not done in the present study because in the planning stages service users advised that two hours would be the most suitable session duration.

lending support to existing guidelines for psychosocial interventions in dementia care that recommend a more elaborate kinaesthetic and multisensory experience (Guss et al., 2014; Spector et al., 2008). Being closer to and physically connected with the object may have offered an intimate and engaging experience (Thomson & Chatterjee, 2014a). Museum object handling differs from therapies using reminiscence objects, as the artefacts are usually novel and rare. Some authors have suggested that the process of encountering novel stimuli can increase cognitive processing in people with dementia, especially in a context with co-current social interaction, positing that this may lead to new neuronal connections being formed (Spector et al., 2008). Ander et al. (2012) found that participants frequently expressed a sense of privilege and wonder at the historical significance of the objects during handling sessions, and suggested this may be a key determinant implicated in increasing subjective wellbeing. A sense of privilege may have been particularly potent for this group, given that stigma, social exclusion and shame are often associated with dementia (Graham et al., 2003).

### **Limitations**

**Representativeness of sample.** Participants were recruited from post-diagnostic and service user groups, therefore people who attend groups were overrepresented in the sample while those who do not were systematically excluded. This means that the results cannot be generalised to all people with dementia and carers, as people do not attend groups for a range of reasons such as social anxiety or simply preference. It is also not known whether participants who volunteered did so due to an existing interest in art, in which case results may not be generalisable to people who do not have any interest in art.

**Gender imbalance.** Most people with dementia were male and most carers were female. This gender imbalance forms a potential confounding variable which it would have

been desirable to control for by having equal numbers of male and female people with dementia and carers.

**Individual differences.** In the raw data, it was observed that participants responded in different ways to the intervention. For example, some participants marked the maximum value on all scales so no increase could be observed. For a small minority of participants, the interventions did not precipitate any increase and even appeared to yield some slight decreases in overall wellbeing for reasons that this quantitative study design did not elucidate. It is therefore important to acknowledge that, despite the results indicating that overall wellbeing scores tended to increase after participation in art-viewing and object-handling activities, participants' responses were affected by individual differences, the nature of which is as yet unknown.

**Limitations of VAS.** The design of the present study required a measure of subjective wellbeing suitable for repeated administration. Due to their brevity, the dimensions of subjective wellbeing captured by the VAS were limited in scope and comprehensiveness. The meaningfulness of the results was dependent on the extent to which participants were able to conceptualise the scale as a representation of abstract concepts (Wewers & Lowe, 1990). It was observed that a few people with dementia appeared to have limited difficulty with this, although further individual explanation appeared to resolve this. Paul-Dauphin et al. (1999) found that participants tend to give higher ratings when VAS are depicted vertically. Future research could use horizontal scales which may help to avoid a ceiling effect.

**Short-term nature.** It is not known for how long any gains in subjective wellbeing were maintained. Previous research found that carers value art-based interventions even if they only had a short-term impact (Macpherson et al., 2009). A longer-term design could measure the impact of multiple sessions, or ask participants to complete VAS in the evening

of each day of the week, comparing these with the evening of the day they attended the museum to see if any increases lasted beyond the day of the session.

### **Practice implications**

**Implications for healthcare professionals.** The results of this study lend support to clinical psychologists and other healthcare professionals encouraging people with dementia and carers to make use of art-based psychosocial interventions offered by museums. It seemed that offering an option for an activity which encouraged participation in a community intervention following the end of the post-diagnostic group was valuable. It may have offered new opportunities for enjoyable activities, capitalising on the abilities of people newly diagnosed with a dementia, as Genoe and Depuis (2014) found. The session provided an implicit message that meaningful activities can continue through illness in line with a recovery-based approach (Shepherd, Boardman & Slade, 2008). During recruitment, several carers commented on the appeal of a group suitable for their needs that was situated in a non-medical institution, supporting previous ideas of the value of offering therapeutic interventions not associated with illness (Ander et al., 2012) and in non-stigmatising community settings (Camic & Chatterjee, 2013). Clinical psychologists may also wish to make links with third-sector organisations to consider running health-related psychosocial interventions within such stimulating and enjoyable settings.

**Implications for museums.** Museums may wish to link with healthcare providers to combine expertise and offer their services in a way that people with dementia can participate in and benefit from. The intervention set up for the purposes of the present study has continued to have an ongoing impact in that museum staff are continuing to run monthly object-handling and art-viewing sessions in partnership with the local memory assessment service, promoting social inclusion and offering a service to a previously unreached group.

**Future research**

Future research is planned at the host museum to compare object-handling and art-viewing with a non-treatment control group of equal duration in a randomised control trial. Future research could also use observational methods such as using video footage to code aspects of physical engagement with objects (e.g. where eye contact rests and how long objects are held for). Use of brain-scanning methods (e.g. functional MRI) may also shed light on the neuroanatomical areas implicated in object-handling, and if these vary with the type of dementia diagnosis. As in most previous similar research, people with dementia in the present study were all in early to middle stages of dementia. In contrast, Macpherson et al. (2009) demonstrated that people with more severe dementia were able to become engaged with art-viewing over multiple museum sessions. Zeilig et al. (2014) has recommended that research is further broadened to include people with severe dementia, and results of the present study warrant further investigation into object-handling as a potentially helpful intervention for this population.

**Conclusions**

This study compared the impact of two art-based interventions conducted in a museum setting. In line with previous research, it demonstrated the value of using art-viewing with people with dementia and their carers, while a novel finding was that object-handling may also be a useful activity for people with dementia. Neither carers nor people with dementia experienced a significant increase in subjective wellbeing during a refreshment break, pointing to the value of the art-based components of this psychosocial intervention. Participants' feedback was very positive and indicated that the museum session was greatly enjoyed. Museums present emerging opportunities for clinical psychology practice and research, and professionals may wish to consider working collaboratively across disciplines to offer art-based interventions to as yet unreached populations.

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**Section C: Appendices of supporting material**

**Appendix A: Information flyer used in recruitment**

*Images removed from the electronic copy*

**We are running informal Art Discussion/Museum Object Handling sessions for people with memory problems and their family members****What's involved?**

1. You and your family member/friend coming to The Beaney, a museum in Canterbury, for around two hours one afternoon.
2. You will be in a small group of people.
3. You will be welcomed by museum staff, and shown to a room where we will sit down and talk about some museum objects which you can touch.
4. We will then go to a different room in the gallery to look at and talk about some paintings.
5. The session will include a break with tea and refreshments.
6. This is part of a research project, so you will be asked to complete some short questionnaires during the session about how you are feeling, and a feedback form at the end of the session.

For more information and to participate in this project, please call  
**Jo Johnson on 07908 873996**

## **Appendix B: Participant Information Sheet**

*Images removed from the electronic copy*

### **Information about the Art and Wellbeing Project**

Hello. My name is Jo Johnson and I am a Trainee Clinical Psychologist at Canterbury Christ Church University. I would like to invite you to take part in a research project about how art can help people with memory problems. Before you decide, it is important that you understand why the research is being done and what it would involve for you.

You are welcome to tell others about the study if you wish.

Part 1 of this sheet tells you the purpose of this study and what will happen if you take part.

Part 2 gives you more detailed information about how the study will be conducted.

#### **Part 1**

##### **What is the purpose of the study?**

The purpose of the study is to get some information on how a group session of viewing art and handling objects from a museum collection might be helpful and interesting for people with memory problems and their carers.

##### **Why have I been invited?**

You have been invited to take part in the study for one of the following reasons:

- because you have been identified as someone with a memory problem and you have expressed an interest in taking part. Please invite a family member, carer or friend to come with you.
- Or, you are a family member, carer or friend of somebody who has a memory problem who is interested in taking part, and you have been invited to take part with them.

**Do I have to take part?**

It is entirely up to you to decide to join the study. If you agree to take part, I will ask you to sign a consent form. You are free to withdraw at any time, and you do not have to give a reason. This would not affect your care or ability to take part in other museum programmes.

**What will happen to me if I take part?**

If you decide that you wish to take part, you will receive a phone call from myself (Jo) or a colleague of mine in November. I or my colleague will answer any questions that you may have, and you can tell us whether you would like to take part or not. If you would like to take part, we will go through the Consent Form over the phone with you. We will also invite you to the next session that is convenient for you and you will receive a confirmation letter through the post inviting you to come to the Beaney House of Art and Knowledge, 18 High Street, Canterbury, CT1 2RA for the session on a certain day and time. The letter will include a map and some information on how you can get there. In the letter, we will ask you to bring the signed Consent Form along with you to the session.

The information that will be kept about you for the study will be kept anonymously by using your participant number instead of your name.

**What will I have to do?**

On the day of the session, you should come to the Beaney at the time stated on the letter and come in through the entrance on Best Lane. Ask at reception for the Art and Wellbeing session. (Unfortunately we are unable to provide transport for you, however if travel is difficult for you, please let us know as soon as possible and we will try and assist you.) You will be directed to a room where a museum facilitator will welcome you.

First, you will be asked to fill in a very short questionnaire (sample attached) about how you feel at that time. The questionnaire will have five scales on which you can rate your current state of wellbeing. Then, the facilitator will show you some art work and objects in the gallery. The facilitator will tell you about them and you can discuss what you think about them in the group if you wish. You will be asked to fill in the rating scales again, indicating how you are feeling at the time.

There will then be a tea and refreshment break. After this, the facilitator will ask you to fill in the rating scales again, and then show you some museum objects which you can touch. Finally, you will be asked to complete the rating scales once more as well as a short feedback form letting us know your opinion of what the session was like. After that, you are welcome to look around the rest of the museum or make your

way home. That will be the end of your participation in the project. The session will last around one and a half to two hours in total, including the refreshment break.

**What are the possible disadvantages and risks of taking part?**

If you find being in a group uncomfortable, you may be a little anxious at first. However, we will do our very best to help you feel comfortable. Touching objects may bring about memories that could be unpleasant, but if that happens you can put the object aside.

**What are the possible benefits of taking part?**

We hope that museum object handling sessions will be beneficial and enjoyable for you. We think, based on previous similar activities already done, that you will hopefully experience something new, interesting and different.

**What if there is a problem?**

Any complaint about the way you have been treated during the study or any possible harm you might suffer will be addressed. The detailed information on this is given in Part 2.

**Will my taking part in the study be kept confidential?**

Yes. We will follow ethical and legal practice and all information about you will be handled in confidence. The details are included in Part 2.

This completes part 1. If the information in Part 1 has interested you and you are considering taking part, please read the additional information in Part 2 before making a decision.

**Part 2**

**What will happen if I don't want to carry on with the study?**

If you change your mind about coming to the session, you can simply not come along or preferably call us to let us know you won't be coming along. You do not have to give a reason. If you come along to the session but decide to leave early, we will use anonymous data from any questionnaires you have completed. If you do not wish this data to be used, you may take the questionnaires with you. We will endeavour to ask you at the time or telephone you to see if there are any problems we can help with. If you do not want this to happen, please let us know.

**What if there is a problem?**

If there is a problem during the session, you can ask one of the facilitators to help you or to give you more information.

If you want any independent advice about the research project, then you can contact a member of the Patient Advice and Liaison Service (PALS) on 0800 7839972.

### **Complaints**

If you have any concerns or complaints about the research, please contact: Professor Paul Camic, Research Director, Department of Applied Psychology, Canterbury Christ Church University, [paul.camic@canterbury.ac.uk](mailto:paul.camic@canterbury.ac.uk) or call 03330 117114.

### **Will my taking part in this study be kept confidential?**

Your confidentiality will be safeguarded during and after the study. You will be given a participant number which will be on all questionnaires and feedback sheets instead of your name. They will be kept in a safe place during and after the study.

### **Involvement of the General Practitioner (GP)**

You can of course tell your GP that you are taking part in the study if you wish. We will not contact your GP unless we feel concerned about your health or safety and we would always try to inform you beforehand.

### **What will happen to the results of the research study?**

We will send you an information sheet at the conclusion of the study letting you know what we have learnt from it. This could be up to 1 year after you participate in the session. If you do not wish to receive this information, please let us know.

It is hoped that the results of the study will be published in a journal. We may use some anonymous quotes from feedback forms in the article, but if your quotes are used, we will ensure that it will not be possible to identify you from the quotes. We will keep the information from the study for up to 10 years, stored securely on password-protected equipment.

### **Who is organising and funding the research?**

Canterbury Christ Church University is funding the research. The Kent and Medway Partnership Trust (your local NHS) is helping to organise the research. Representatives at the Beaney House of Art & Knowledge in Canterbury are also involved.

### **Who has reviewed the study?**

All research in the NHS, including this study, is looked at by independent group of people called a Research Ethics Committee, to protect your interests. This study has

been reviewed and given approval to go ahead by the IRAS Research Ethics Committee (number: 13/LO/1353).

**Further information and contact details**

If you would like to speak to me and find out more about the study or have questions about it answered, you can call or leave a message for me on 07908 873996. If you leave a message, please leave a contact number so that I can get back to you. You can also email me. My email address is [jj157@canterbury.ac.uk](mailto:jj157@canterbury.ac.uk)

As mentioned above, you are welcome to talk to other people about the study to seek advice on whether you should take part or not. This might include members of your family or a healthcare professional involved in your care.

**Thank you for reading this information and, if you decide to participate, we look forward to welcoming you at the Beaney House of Art and Knowledge!**

Research Supervisors

Professor Paul Camic	03330 117114
Alison Culverwell	01227 865 846



**Appendix C: Consent Form**

Title of Project: Art and Wellbeing

Name of Researcher: Jo Johnson

Please initial boxes:

1. I confirm that I have read and understand the information sheet dated 4 September 2013 (version 2.0) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered in a way I am happy with.
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. I understand that my medical care or rights to visit the museum will not be affected.
3. I understand that some data collected during the study may be looked at by the project supervisors Paul Camic and Alison Culverwell, but that the data will not have my name on it. I give permission for these people to look at my data.
4. I agree that anonymous quotes from any feedback that I write down may be used in published reports of the study findings.
5. I agree to take part in the above study.
6. I would **not** like to receive information about the findings of the research when it is finished.

Name of Participant \_\_\_\_\_ Date \_\_\_\_\_

Signature \_\_\_\_\_

Witness \_\_\_\_\_ Date \_\_\_\_\_

Signature \_\_\_\_\_

**Appendix D: Sample invitation letter**

*Images removed from the electronic copy*

Participant name (and name of carer if living at same address)

Address

<date>

Dear XXXXX,

Thank you for your interest in the Art and Wellbeing Project at The Beaney House of Art & Knowledge, Canterbury. You are receiving this letter because you have expressed an interest in taking part.

If you are still interested, please read the Information Sheet enclosed with this letter. It gives you some more information about the project.

**What's involved?**

1. Coming to The Beaney House of Art & Knowledge, a museum in Canterbury, for around two hours one afternoon.
2. Please bring a relative or friend, or you can come alone if you prefer.
3. You will be in a small group of people.
4. You will be welcomed by museum staff, and shown to a room where we will sit down and talk about some museum objects which you can touch.
5. We will then go to a different room in the gallery to look at and talk about some paintings.
6. The session will include a break with tea and refreshments.
7. You will be asked to complete some short questionnaires during the session about how you are feeling, and a feedback form at the end of the session.

You do not have to know anything about art or museum objects to take part! It is about having an interesting and enjoyable experience.

**When is the session?**

Please come to The Beaney House of Art & Knowledge on **<date>** at **2:00 pm**. We will be finished by 4:00 pm.

There is a map enclosed with this letter which explains how to get to The Beaney.

**What happens now?**

I (Jo Johnson, the researcher) will telephone you in 3-5 days' time to answer any questions you may have and talk you through completing the Consent Form. We can also talk about any special requirements you may have (such as hearing or mobility requirements).

You can also telephone me on **07908 873996** if you have any questions or to confirm your attendance.

Please bring the completed Consent Form with you to the session.

We look forward to welcoming you at the Beaney House of Art & Knowledge!

Yours sincerely,

Jo Johnson  
Telephone: 07908 873996

*Images removed from the electronic copy*

**The Beaney House of Art & Knowledge  
18 High Street, Canterbury**

### **Appendix E: Consent process**

In the present study, consent was conceptualised as a multi-stage process throughout which participants registered their ongoing consent, the stages of which were as follows:

1. Attendees of the post-diagnostic or service user group were given a brief introduction to the study and offered the opportunity to register their interest by having their name and telephone number written on a list. These participants were given a flyer (Appendix A), a Participant Information Sheet (Appendix B) and Consent Form (Appendix C) to take home and read. They were told they would receive a telephone call a few days later. The researcher's telephone number was provided should participants have any queries in the interim. Their right to discard the information should they no longer wish to participate was emphasised.
2. A few days later, the researcher telephoned participants to answer any questions, confirm participation, and go through the Consent Form. Where possible, participants signed the Consent Form whilst on the telephone with the researcher. The couple was booked in to attend a museum session on a convenient date.
3. Participants were sent an invitation letter to a session at the museum by post (see Appendix D for sample) with directions.
4. Three days prior to the session, the researcher telephoned the participants to confirm attendance and answer any questions.
5. At the session, the right to withdraw was verbally reiterated by the facilitator.

### **Appendix F: Additional commentary on ethical considerations**

The following ethical issues were identified and steps taken to adhere to best practice were outlined.

#### **Confidentiality**

Guidance was followed as outlined in “Confidentiality: NHS Code of Practice” (Department of Health [DoH], 2003), which outlines that staff must:

- a. check where practicable that information leaflets on patient confidentiality and information disclosure have been read and understood. These should be available within each NHS organisation;
- b. make clear to patients when information is recorded or health records are accessed;
- c. make clear to patients when they are or will be disclosing information with others;
- d. check that patients are aware of the choices available to them in respect of how their information may be disclosed and used;
- e. check that patients have no concerns or queries about how their information is disclosed and used;
- f. answer any queries personally or direct the patient to others who can answer their questions or other sources of information;
- g. respect the rights of patients and facilitate them in exercising their right to have access to their health records.” (DoH, 2003, p.11)

The researcher was in possession of confidential material about participants for the duration of the study. This comprised:

1. Name, address, date of birth
2. Nature of diagnosis of dementia where applicable
3. Document matching participant names with participant numbers

These details were held in a password-protected document and on an encrypted memory stick.

Paper-based data was coded by participant number only thus was not identifiable. It should not be possible to identify individuals from the answers on feedback forms. This data was nonetheless marked as confidential and stored in a secure location.

### **Other ethical considerations**

It was possible that participants may become anxious if they were not used to being in a group in a public place. The facilitator and volunteers were aware of this, and prior to running the sessions had attended a training session on working with people with a dementia and their carers in a group setting.

Sessions were conducted with a focus on current experiences (see Appendix G for session protocol) so as not to provoke distress through asking questions about the past.

In the event that touching a particular museum object provokes unpleasant recollections, the participant will be invited to put it aside if they wish. The facilitator will encourage the topic of conversation to be changed if it becomes apparent that any participants are becoming distressed.

In the Participant Information Sheet and Consent Form, (Appendix B and C) people with dementia were referred to as people with memory problems in order to not place unnecessary emphasis on a recent diagnosis which is likely to have caused distress. They clearly stated that participants are welcome to indicate to the facilitators if there were any problems and leave the session if need be.

A debriefing letter (Appendix H) invited participants to contact the researcher to discuss any aspect of the study if they wished.

With these considerations followed, it was deemed there was little likelihood that the sessions will cause distress to participants.

### Appendix G: Museum object handling and art-viewing protocol

The protocol was adapted from the work of several authors.

Acknowledgements to Dr Helen Chatterjee, UCL Museums: the museum object handling protocol is a modified version of her research team's original protocol.

The art-viewing protocol was adapted from studies conducted by the following authors: Camic, Tischler and Pearman (2014); Eekelaar, Camic and Springham (2012).

#### Museum object handling session

1. The session begins with a general introduction and explanation of the project. Participants are given a more detailed, step-by-step overview of the session and asked whether they have any questions or concerns. The participants are then asked if they agree to fill out the questionnaires (Visual Analogue Scales and Feedback Form), and to sign the Consent Form if they have not already done so.
2. The session leader asks the participants to complete the Visual Analogue Scales 1.
3. While/after the box of objects is unpacked, the session leader asks:
  - *How do you feel about handling museum objects?*
  - *Do you visit museums?*
4. Once the objects are laid out, the session leader selects an object and offers it to a group member to hold, asking the questions as group members pass it round such as:
  - *What does the object feel like?*
  - *What do you find interesting about it?*
  - *What do you feel about the object?*
  - *What attracted you to this object?*
  - *What do you think this object is?*

#### Additional questions/prompts

Example prompt – you are holding something that people made 3,000 years ago that comes from a rainforest/etc, to emphasise connection with other people/places/times.

- *Do you have any questions about the object(s)?*
- *Where do you think it comes from?*
- *What material do you think it is made out of?*
- *What use do you think the object would have?*
- *Have you seen an object like this before? What does it remind you of?*
- *Do you have any other questions about the object(s)?*

In the group, participants take it in turns to hold and examine the different objects and the session leader gives information and facilitates conversation as appropriate, with an emphasis on here-and-now experiences. After around 45 minutes, the session leader packs the objects away and asks participants to complete the VAS again.

Other suggested questions could include:

- How would you describe this object?
- What do you think the object is made of?
- How do you think it was made?
- Where do you think it came from? What do you think is its history?
- Who do you think might have used it?
- Who might have made this object?
- What was it used for?
- Do you notice any interesting patterns or textures?
- What do you think the object is made of?
- How do you think it was made?
- Does the object convey a feeling? How does this object make you feel?
- Does the object remind you of anything?
- If you owned this object, where would you put it in your home? Would you give it as a gift to someone or bin it?

### **Art-viewing**

For the art-viewing session, participants are shown into a room in the gallery where further objects and paintings are on display. The session leader asks similar questions as above relating to participants' visual experiences of the art.

Example questions may include:

- Can you think of a word to describe this work?
- Describe what you see. Look again: is there anything else? What about the background or the area around the work? (Where does it begin and end?)
- What is the mood of this painting (or object)?
- What feelings does it convey?
- What colours do you see?
- Are they bright or dull... light or dark? Do you like them?
- Does the colour symbolise something?
- What time of day do you think it is? How can you tell?
- If there are people in the painting, what are they doing?
- If there are not people in the painting, what is happening in this painting?
- Do you notice any interesting patterns?
- Can you see any interesting textures?
- What do these patterns/textures mean/suggest?
- What is the work made of?
- How is the object made/formed?
- How does this work/object make you feel?
- What do you think the work is about?

VAS are completed both before and after this condition, which also lasts for around 45 minutes.



**Appendix H: Debriefing letter**

# Thank you

## for your participation!

We hope you have enjoyed the afternoon, and that you will come back to visit the Beaney soon!

We have enclosed a list of other fantastic galleries and museums in the area which you might like to visit.

If there is anything about today that you would like to discuss further, you can telephone Jo on 07908 873996.

Jo will write to you with the findings of the research study when it is finished (December 2014)!

Very best wishes,

<signed by researcher, facilitator and volunteers>

*Images removed from the electronic copy*

**Appendix I: List of 'take home' questions**

**Next time you visit an art gallery or museum, here is a list of possible topics to talk about...**

- What word would you use to describe this painting/object?
- What is the mood of this painting?
- What feelings does it convey?
- What colours do you see? Do you like them?
- Does the colour symbolise something?
- What is happening in this painting?
- Do you notice any interesting patterns or textures?
- How does this painting/object make you feel?
- What do you think the painting is about?
- Do you like it?
- If you had this object/painting in your home, where would you put it?

**Appendix J: Feedback questionnaire****Feedback Form**

*It would be much appreciated if you could answer the following questions about your experience at the museum today. If you have any questions, please just ask.*

1. Do you normally visit galleries and museums?
2. How did you find the session today?
3. What was good about it?
4. How could it have been improved?
5. Feel free to write any further comments here.
6. Which did you prefer: the art discussion or the museum object handling? (please tick)
  - Art discussion
  - Museum object handling
7. Do you think you will visit the museum again? ( Yes / No )

**Thank you for coming to the session!**

**Appendix K: Data from feedback forms (questions 2-5)**

	2. How did you find the session today?	3. What was good about it?	4. How could it have been improved?	5. Any further comments?
1	Very interesting	Handling museum objects	I don't know how it could have been improved.	I felt very comfortable and not rushed into anything. I was really happy to just sit there and look at things. I was able to take time - this was great. It was important to me.
2	Good	Very interesting	It would have helped if it was quieter in the Art gallery	--
3	Wife told me. OK Yes	Friendly, much variety	Awful room acoustic	Yes - bleak white interior with awful aggressive colour choice cupboards etc
4	Very interesting	Friendly atmosphere	--	Thank you
5	Very interesting	Everything	Considering the time allowed, I don't think it could really have been improved	Excellent people to work with. They all showed lots of enthusiasm
6	Good	Nice discussion	Different paintings	The museum is worth another visit
7	Good to meet with others	Makes me feel we should come back. We live near and do not take advantage	Not sure	--
8	I did enjoy myself	It was easy going & relaxing	I don't know it could!	Thank you very much - we were made to feel very welcome
9	Very interesting	Learning about the objects getting us to see deeper into the artworks	I enjoyed it so much no improvement needed	Many thanks to those who organised today
10	Very good/interesting	Factual/informative/relaxed	Perhaps 2½/ 4 hrs	Excellent afternoon, look forward to more
11	Excellent, very interesting & informative	Everything	nothing comes to mind	--
12	Very interesting & enjoyable	The things we touched and the information about the objects	None	
13	Well worth doing	Very interesting. Well paced and infomative. Good opportunity to chat about exhibits. Good number of people attending and helping. Refreshment break came at the right time.	Not sure it could have been improved	Thank you for organising this afternoon
14	Interesting, well worth coming	Handling exhibits	maybe the chance before coming to request seeing certain items - to be able to ask if available to see/handle	Good presentation by all concerned, very caring
15	very interesting and uplifting	The way it was shown and the story behind it was very good (both paintings and objects)	Costly! (I didn't like the dark paintings) Different paintings (not	Pleased with what I see and could be better

		more about Art	friendly and helpful	
19	Soothing	Feeling the objects	More paintings	I would have liked to see more paintings
20	Very informative, educational, and very satisfying. Gives me confidence. Not treated like an idiot!	People are kind, understanding and patient	None	You've given me more confidence, made me feel relaxed
21	Very interesting	The variety of objects handled	By having more and varied objects	Having more objects covering a wide number of years and purposes
22	Very interesting	Enjoyable	Meeting a group of new people	Tea trolley? Biscuits?
23	Interesting	Informative	?	--
24	Interesting	Meeting other people, objects session	More interesting choice of paintings and more paintings	More on the project objectives & background & data to date, why choose art and objects i.e. Which part of brain stimulated. (but maybe too much info would bias the results)
25	Intriguing	Good materials	more "hands on"	--
26	Interesting	--	Not a lot	Looking at the painting lifts your cares and depressive thoughts
27	Interesting	Meeting others	--	It was very interesting to touch history
28	OK	Exploring	More time	Purpose of experiment not clear
29	Stimulating	Sparked a lot of thoughts	It was great as it was	Just very interesting and thought provoking
30	Very interesting	It was stimulating	It was good as it was	It was very enjoyable
31	Great	The attitude of the presenters and the personal touch	It was fine	It was interesting to get an interest feel about museums in general and was very special to be given a feel of wanting to return
32	Very good	Interesting & stimulating	More of it	Discussion of a broader range
33	Of great interest	Excellent	More expansive	Greater depth of paintings covered. I haven't been to a museum since with my children - I appreciate something being put on for older people
34	A friend	The art gallery - thank you	Unable to hear very much - poor acoustics	Thank you for an interesting afternoon
35	A friend recommended	Visiting the gallery	A bit echoey!	Thank you, enjoyed the afternoon
36	Good, interesting	Interesting	No	Not sure as to the reason/why this session was held?
37	Excellent	Everything	--	Very interesting & enjoyable
38	Very good	Talking about things with other people	Keep it as it is	It was good to see as the meeting went on. People look more happy. Can we come to another meeting as soon as possible
39	Interesting & fun	Lots of laughter, chatter and nice people	Love to see lots more	Have really enjoyed the session, have learnt a lot. Will visit many more museums in the future. Would love to see this group again. It made me feel more confident.
40	Stimulating	Feeling and touching the objects	Maybe more objects and more info on them	Having been such a success it would be nice if we could have one session a month bringing in different objects and a little more information on each so we know we have actually learnt something.
41	<tick>	<tick>	<tick>	<tick>
42	Interesting	Interesting	--	--
43	Really enjoyable	Very interesting - well paced & stimulating	Can't think of anything that would improve it	--
44	Interesting	Think making		--
45	Good	Very interesting		I have enjoyed the day
46	Interesting & enjoyable	Enjoyed looking at artefacts & pictures - a good prompt to visit the Beaney more often	I would have liked to see more pictures or artefacts in a slightly longer session	Pleasant atmosphere, friendly staff, comfortable location/room
47	Very interesting	The interaction of the group & the social side of the meeting together	less complicated feedback forms	--

48	Good	Discussing an handling objects, discussing paintings in group	More time in the Art Gallery (personal)	Above does not reflect the value of the object part of session
49	OK	Good	--	--
50	Good	Handling mostly	More handling	I enjoyed it. The object handling made me feel relaxed and uplifted.
51	Good	--	--	--
52	Very interesting	Handling objects	More art	--
53	Stimulating	Diversity	Slightly speeded up?	--
54	Laid back and informative	General discussion and allowed to feel as well as look	More obscure objects to be passed around	Generally led along to maintain interest but slightly pedestrian speed which seemed the session lacked sparkle
55	Very good	So many lovely things to see	--	I've had a lovely day. Excellent. You've been very good to us
56	Absorbing	Handling ancient artefacts	Viewing other paintings	It was a privilege to handle ancient objects and discuss the beautiful paintings
57	Pleasurable	Enjoyed very much	Probably	--
58	Very enjoyable	Interesting articles and paintings	Not at all	Staff were very pleasant
59	Interesting	Art discussion	No	--
60	Very good	All of it	No	--
61	Very interesting	Being able to handle objects, rather than just looking at them	Was more than adequately covered	--
62	Very interesting	Seeing and feeling the objects	No need	It's a privilege to be able to hold something so old
63	Very interesting. Brought me "to life". Also reminded me of my childhood – good memories	Friendly staff who facilitated group dynamics and got us talking and reminiscing	Difficult to say because it was so very good	I was amazed at how two members of the group ( <i>names removed</i> ) were initially very quiet and serious (and looked bored), and they became animated and lively after handling the objects. Thank you, it was brilliant!
64	Very interesting and constructive	Object handling was interesting, more so than the Art discussion	Perhaps the Art course should have been in a quieter room	Not sure how my input will help
65	OK	Feeling the smooth stone. One or two of the paintings in exhibition	--	--
66	Interesting	Useful procedure to help the demonstrative working of the brain function	Just regular changes of items to aid discussion	I felt much more aware of BRAIN function

**Appendix L: Letter confirming ethical approval**

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**Appendix M: Letter confirming NHS R&D approval**

*This has been removed from the electronic copy*



## **Appendix N: Summary of findings for ethics panel and R&D**

### **Background**

Previous research has shown that facilitated art-viewing art in a gallery setting can have a beneficial impact on people's sense of their wellbeing. This research has been done with people with memory problems, people with mental health problems, and family carers. Previous research has also shown that museum object handling has a beneficial impact on people's sense of their wellbeing. This research has been done with people in hospital who have cancer, a brain injury, and people on a general hospital ward.

### **Aims**

The aims of this study were to formally measure whether museum object handling increases subjective wellbeing in people with dementia and their family carers when done in a gallery setting. It also aimed to directly compare the impact of two arts-related activities to see if one is more beneficial than the other.

### **Methodology**

1. Participants attended a session at the Beaney where they took part in a Museum Object Handling session and an Art Viewing session. There was a tea break between the two sessions.
2. The average size of the group was 6 participants, plus the facilitators.
3. 66 people in total participated in the project: 36 people diagnosed with a dementia and 30 family carers.
4. About half of the participants did the Museum Object Handling (MOH) session first, followed by Art Viewing (AV).
5. The other half of the participants did the Art Viewing session first, followed by Museum Object Handling.
6. We asked participants to complete rating scales (called "Visual Analogue Scales") about how they were feeling at that moment, before and after each activity. These asked them to rate, on a scale of 0-100, how they were feeling at that moment on the following dimensions:
  - Happy
  - Well
  - Interested
  - Confident
  - Optimistic

These scores were added together to give a measure of overall wellbeing.

### **Summary of findings**

For all participants, their overall wellbeing increased significantly during the museum session as a whole. There was no significant main effect of order, i.e. whether the first activity was Museum Object Handling or Art Viewing did not make a significant impact on the results.

During the tea break, for all participants, there was no significant change in their wellbeing score. Therefore an activity comprising refreshments and general conversation together as a group did not appear to make a significant difference to people's sense of wellbeing.

When the order in which activities were done was not taken into account, for people with a memory problem, their wellbeing increased significantly after a Museum Object Handling session and after an Art Viewing session.

When the order in which activities were done was not taken into account, for carers, their wellbeing increased significantly both after doing a Museum Object Handling session and significantly after an Art Viewing session.

### **Conclusions**

These results seem to imply that most people enjoyed both Art Viewing and Museum Object Handling, and both activities contain benefits for both family carers and people with a dementia.

**Appendix O: Summary of findings letter for participants**

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**The Beaney House of Art & Knowledge  
Art and Wellbeing Project  
Final Results**

Thank you for participating in the Art and Wellbeing Project at The Beaney House of Art & Knowledge, Canterbury! You are receiving this letter because you opted in to receive information about the results of the research project that has now finished.

**A recap of the project**

1. You attended a session at the Beaney where you took part in a Museum Object Handling session, and an Art Discussion session. There was a tea break between the two sessions.
2. 66 people in total participated in the project: 36 people with a memory problem and 30 family carers.
3. Some groups did Museum Object Handling as the first session, and some did Art Discussion as the first session.
4. We asked you to complete questionnaires about how you were feeling, before and after each activity.

**What were we trying to find out?**

We wanted to see if the two activities had an impact on increasing people's wellbeing.

**What were the results?**

Overall, everybody's sense of wellbeing increased significantly during the afternoon at the Beaney. It didn't matter whether the first activity was Museum Object Handling or Art Discussion.

In general, for people with memory problems, both Museum Object Handling and Art Discussion appeared to have a beneficial impact on wellbeing.

In general, for carers, both Museum Object Handling and Art Discussion appeared to have a beneficial impact on wellbeing.

The tea break did not make a significant difference to people's sense of wellbeing.

### **What happens next?**

As a result of this study, the Beaney is considering expanding its programme of activities to include similar activities for people with memory problems and their carers. Do continue to visit the Beaney to keep up to date with what they are offering!

Thank you once again for participating, and we would like to take this opportunity to send you and your family our best wishes for Christmas and the New Year.

Jo Johnson  
Lead Researcher  
Canterbury Christ Church University

Mitch Robertson  
Head of Programming & Collections  
The Beaney House of Art & Knowledge

**Appendix P: Research budget**

## 1. Room hire and refreshments at The Beaney House of Art &amp; Knowledge

Learning Lab hire £20.00 per hour

Refreshments £6.50 per session

**Budget approved to total of £500.00****Sub-Total £500.00**

## 2. Researcher travel within region:

Return journey to consult with external supervisor and/or contacts at gallery:

6 x 120 miles @ £0.45 per mile = £324.00

Return journey to attend sessions at gallery 6 x 120 miles @ £0.45 per mile =

£324.00

**Sub-Total for travel £ 648.00**

## 3. Postage

200 information and invitation to participate letters (standard size) to be posted

second class @ £0.50 each = £100.00

200 letters with information of results of study (standard size) to be posted second

class @ £0.50 each = £100.00

**Sub-total for postage £ 200.00****+ overhead £950.00****Total Cost of this Project: £ 2,298.00**

The amount listed here is the total cost of completing this research project. The added £950 covers university costs such as the library, computers, supervision, etc.

These costs will be met by the Canterbury Christ Church University as part of the research budget for Clinical Doctorate students.

**Appendix Q: Guidelines for submission to *Arts & Health: An International Journal for Research, Policy and Practice***

**Manuscript preparation**

**1. General guidelines**

PLEASE NOTE: The main text should be formatted according to the Taylor & Francis layout guidelines. These guidelines include information on section headings, table and figure formatting, and other essential main text elements. The references should be formatted in APA style. Links to both the Taylor & Francis layout guidelines and the APA references guidelines can be found below.

Manuscripts are accepted in English. Any consistent spelling and punctuation styles may be used. Please use single quotation marks, except where 'a quotation is "within" a quotation'. Long quotations of words or more should be indented without quotation marks.

**Research and policy manuscripts**

A typical manuscript will not exceed 6500 words including tables, references, captions, footnotes and endnotes. Manuscripts that greatly exceed this will be critically reviewed with respect to length. Authors should include a word count with their manuscript.

Manuscripts should be compiled in the following order: title page; abstract; keywords; main text; acknowledgements; references; appendices (as appropriate); table(s) with caption(s) (on individual pages); figure caption(s) (as a list).

**Abstracts** of 150 words are required for all manuscripts submitted. The abstract must be divided into the following sections: Background, Methods, Results, Conclusions.

Each manuscript should have 3 to 5 **keywords**.

Search engine optimization (SEO) is a means of making your article more visible to anyone who might be looking for it. Please consult our guidance [here](#).

Section headings should be concise and follow the Taylor & Francis guidelines on hierarchy.

All authors of a manuscript should include their full names, affiliations, postal addresses, telephone numbers and email addresses on the cover page of the manuscript. One author should be identified as the corresponding author. Please give the affiliation where the research was conducted. If any of the named co-authors moves affiliation during the peer review process, the new affiliation can be given as a footnote. Please note that no changes to affiliation can be made after the manuscript is accepted. Please note that the email address of the corresponding author will normally be displayed in the article PDF (depending on the journal style) and the online article.

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Please supply a short biographical note for each author.

Please supply all details required by any funding and grant-awarding bodies as an Acknowledgement on the title page of the manuscript, in a separate paragraph, as follows:  
*For single agency grants:* "This work was supported by the [Funding Agency] under Grant [number xxxx]."

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Authors must also incorporate a [Disclosure Statement](#) which will acknowledge any financial interest or benefit they have arising from the direct applications of their research. For all manuscripts non-discriminatory language is mandatory. Sexist or racist terms must not be used.

Authors must adhere to [SI units](#). Units are not italicised.

When using a word which is or is asserted to be a proprietary term or trade mark, authors must use the symbol ® or TM.

### **Additional guidelines for original research papers**

While these guidelines are not intended to be prescriptive it is important that authors of original research also take into consideration the following points:

#### *Title page:*

The title of the article should convey something specific about the topic

a. The role of service user participation in a community based visual arts and health programme: an ethnographic case study.

#### *Main part of manuscript:*

**Background.** This should establish the context and rationale for the research and provide an overview of the paper. It should also provide a critical account of current relevant research, showing how evaluation of its strengths, limitations and gaps supports the rationale for the current study.

**Research approach and methodology.** This should begin with a statement of the research aims and objectives. As well as informing the reader about the rationale for the approach taken this section should provide a critical account of the methods used. It should address the responses by the researcher/s to any methodological or ethical challenges they faced during the study.

**Results.** This should outline the main findings from the research.

**Discussion/conclusions and implications.** This should situate the research findings within the broader context of current knowledge as well as addressing the implications of the study for research, policy and practice.

References

Contact information

### **Systematic and Literature Review**

The journal welcomes systematic reviews and literature reviews that are deemed to make a substantial contribution to the field. Systematic reviews should follow internationally recognised guidelines (e.g. Cochran Reviews) for the development, organisation and reporting of reviews. Literature reviews should present a clear rationale for the review, be well organised into coherent subsections that are appropriately titled, and present well-defined conclusions and recommendations for future research. The length for systematic and literature reviews is 8000 words including tables, figures and references. Longer submissions will be considered but we urge authors only to do this in exceptional circumstances.

### **Practice-Based Reports**

Each issue will publish one or two articles focusing on programmes that demonstrate 'best practice' in the arts and health field. Programmes can be delivered in any venue (e.g. hospital, clinic, community centre, museum, etc.) but must address an issue or problem broadly related to healthcare. Practice-oriented articles are meant to inform the reader about innovative, groundbreaking, emerging and/or longstanding programmes from around the globe. A typical article will be between 2000-3000 words.

While these guidelines are not intended to be prescriptive it is important that authors take into consideration the following points:

*Title page:*

The title of the article should convey something specific about the programme

a. Story telling and poetry in a children's cancer unit

*Main part of manuscript:*

Abstract: Not to exceed 100 words.

Introduction: A description of the programme, its history, how it is funded, location, and population served

Programme rationale and goals

How the programme is evaluated. This is a key area and authors should describe the evaluative aspects of the programme in detail. Please include any data the programme has collected if possible. Include a discussion of any challenges relating to evaluation, e.g. methodological issues, ethical issues, resource issues

Future plans for creative activity

References (if relevant)

Recommended reading (if relevant)

Contact information

## **2. Style guidelines**

Description of the Journal's reference style.

Description of the Journal's article style.

Guide to using mathematical scripts and equations.

An Endnote output style is available for this journal.

## **3. Figures**

Please provide the highest quality figure format possible. Please be sure that all imported scanned material is scanned at the appropriate resolution: 1200 dpi for line art, 600 dpi for grayscale and 300 dpi for colour.

Figures must be saved separate to text. Please do not embed figures in the manuscript file.

Files should be saved as one of the following formats: TIFF (tagged image file format), PostScript or EPS (encapsulated PostScript), and should contain all the necessary font information and the source file of the application (e.g. CorelDraw/Mac, CorelDraw/PC).

All figures must be numbered in the order in which they appear in the manuscript (e.g. Figure 1, Figure 2). In multi-part figures, each part should be labelled (e.g. Figure 1(a), Figure 1(b)).

Figure captions must be saved separately, as part of the file containing the complete text of the manuscript, and numbered correspondingly.

The filename for a graphic should be descriptive of the graphic, e.g. Figure1, Figure2a.

## **4. Publication charges**

### **Submission fee**

There is no submission fee for *Arts & Health: An International Journal for Research, Policy and Practice*.

### **Page charges**

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Manuscripts should be submitted in Word. These files will be automatically converted into a PDF file for the review process. LaTeX files should be converted to PDF prior to submission because ScholarOne Manuscripts is not able to convert LaTeX files into PDFs directly. All LaTeX source files should be uploaded alongside the PDF. The journal does not allow Microsoft Word 2007 documents. Please use Word's "Save As" option to save your document as an older (.doc) file type.

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## Appendix R: Guidelines for submission to *Aging & Mental Health*

### 1. General guidelines

Manuscripts are accepted only in English. Any consistent spelling and punctuation styles may be used. Please use single quotation marks, except where 'a quotation is "within" a quotation'. Long quotations of 40 words or more should be indented without quotation marks.

Manuscripts may be in the form of (i) regular articles not usually exceeding **5,000 words** (under special circumstances, the Editors will consider articles up to 10,000 words), or (ii) short reports not exceeding **2,000 words**. These word limits **exclude** references and tables. Manuscripts that greatly exceed this will be critically reviewed with respect to length. Authors should include a word count with their manuscript.

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