

# **Wellbeing with Objects: Evaluating a museum object handling intervention for older adults in healthcare settings**

## **Abstract**

The extent to which a museum object handling intervention enhanced older adult wellbeing across three healthcare settings was examined. The programme aimed to determine whether therapeutic benefits could be measured objectively using clinical scales. Facilitator-led, 30-40 minute sessions handling and discussing museum objects were conducted in acute and elderly care (11 one-to-ones), residential (four one-to-ones and one group of five) and psychiatric (four groups of five) settings. Pre-post measures of psychological wellbeing (Positive Affect and Negative Affect Schedule) and subjective wellness and happiness (Visual Analogue Scales) were compared. Positive affect and wellness increased significantly in acute and elderly and residential care though not psychiatric care whereas negative affect decreased and happiness increased in all settings. Examination of audio recordings revealed enhanced confidence, social interaction and learning. The programme allowed adults access to a museum activity who by virtue of age and ill-health would not otherwise have engaged with museum objects.

## **Keywords**

happiness; healthcare; measures; museum object-handling intervention; subjective wellbeing

## **Introduction**

The Health and Social Care Act (Department of Health, 2012) introduced major reforms to United Kingdom (UK) health and social care delivery advocating preventative, multi-agency approaches. Reforms were prompted by pressures on healthcare services from an ageing population showing increases in age- and lifestyle-related diseases (e.g. dementia and diabetes) with poorer socio-economic communities experiencing higher mortality and morbidity rates (Marmot, Ryff, Bumpass, Shipley & Marks, 1998). Museums (including galleries) as community resources are well-positioned to promote cognitive and physical activity in non-traditional audiences (Camic & Chatterjee, 2013). Although museums have sufficient means to embrace individual and societal wellbeing, their contribution should be supported by appropriate research to quantify the therapeutic impact of museum-focused interventions (Chatterjee & Noble 2013).

A review and trial of clinical scales of wellbeing, quality of life (QoL) and health status (Thomson, Ander, Menon, Lanceley & Chatterjee, 2011) found that optimum measures for museum-focused healthcare interventions were the Positive Affect and Negative Affect Schedule (PANAS: Watson, Clark & Tellegen, 1988) and Visual Analogue Scale (VAS: EuroQol Group, 1990). A comparison of handling and discussing museum objects versus discussing photographs found pre-post PANAS and VAS improvements for the tactile intervention (Thomson, Ander, Menon, Lanceley & Chatterjee, 2012a). Research with female participants receiving cancer care demonstrated enhanced wellbeing for tactile over visual interventions using the same measures (Thomson *et al.*, 2012b).

Reviews of arts-in-health interventions (Staricoff, 2004, 2006) indicate positive therapeutic and medical outcomes including reduced stress, anxiety, depression and blood pressure. Similarly, museum interventions aim to improve patients' wellbeing and QoL, widening access to arts and culture (Chatterjee & Noble, 2009; Chatterjee, Vreeland & Noble, 2009). A

museum intervention for people with mild-to-moderate dementia (Camic, Tischler & Pearman, 2014) comprising art-viewing-art-making sessions used three pre-post measures: Dementia QoL (Smith *et al.*, 2005); Zarit Burden Interview (Zarit, Reever & Bach-Peterson, 1980); Bristol Activities of Daily Living Scale (Bucks, Ashworth, Wilcock & Siegfried, 1996). Results showed non-significant pre-post differences probably due to small samples (n=13 participant-caregiver pairs) though thematic analysis found self-reported cognitive capacity and social inclusion increases. A gallery intervention for people with mild-to-moderate dementia (Eeckelaar, Camic & Springham, 2012) exploring art-viewing-art making on pre-post cognitive measures showed enhanced episodic memory but inconclusive findings for verbal fluency. Thematic analysis of audio recordings from museum object-handling sessions determining features contributing to wellbeing (Ander *et al.*, 2013; Paddon, Thomson, Menon, Lanceley & Chatterjee, 2013) implicated novel thinking and meaning-making, increased vitality, sense of identity and enhanced social skills.

Unlike health-related QoL measures linked to medical outcomes, wellbeing focuses on positive aspects of mood and cognition (Hird, 2003); is typically self-reported and connects to positive psychology (Seligman, 2002). The Health Education Authority (1997:49) defines wellbeing as 'emotional and spiritual resilience' and Keyes (2002:210) describes high levels of wellbeing, positive emotion and psychological functioning as 'flourishing'. A contentious issue in wellbeing measurement is the interdependency of constructs such as wellness, happiness and QoL. Hird differentiates objective wellbeing related to material and social circumstances from subjective wellbeing based on individual self-assessment and further split into hedonic and eudemonic wellbeing. Hedonic, associated with happiness, implies interdependency of life satisfaction and positive mood whereas eudemonic, related to realisation of potential, advocates independency of happiness and wellbeing.

The current research aimed to evaluate museum interventions for older adults in differing healthcare settings using subjective wellbeing measures (PANAS and VAS). The study advanced research by making comparisons of acute and elderly and residential care with psychiatric care, a setting not previously measured in museum interventions. It was hypothesized that pre-post comparisons would demonstrate enhanced wellbeing (increase in positive emotion, wellness and happiness; decrease in negative emotion) across settings.

## **Method**

### *Design*

A mixed, pre-post design with repeated measures factors of score (pre- and post-session) and between participant factors of setting (acute and elderly, psychiatric or residential) was employed. Self-report measures comprised PANAS (10 positive and 10 negative emotions rated from 1 'not at all' to 5 'extremely') and VAS (vertical scales rated from zero 'unwell'/'unhappy' to 100 'well'/'happy'). Incomplete data sets were omitted. Mauchly's sphericity test showed data violated analysis of variance assumptions so one-tailed, mixed test by setting (2x3) multivariate analysis of variance (MANOVA) with Wilks' Lambda F value adjustment was used. Simple effects were examined using planned, one-tailed t-tests. Proportion of variance was estimated by partial eta squared effect sizes. Previous studies indicated an optimum sample size (n=14) to detect large effects with power 0.8(80%),  $p < .05$  (Cohen, 1992) and as not attained for two settings, observed power calculations were undertaken. The study received medical research ethics approval (MREC No: 06/Q0505/78).

### *Participants*

Participants (n=40) were older adults (65-85 years) in three healthcare settings: Central London hospital acute and elderly care with chronic conditions (n=11: 2 males, 9 females); two regional hospital psychiatric wards with clinical anxiety and depression (n=20: 5 males,

15 females); and north London residential nursing home (n=9: 4 males, 5 females).

Participants gave their own consent and none had a diagnosis of dementia. Though more females than males participated, the gender imbalance was similar to healthcare setting ratios.

### *Materials/Apparatus*

Museum objects comprising archaeological artefacts (amulets, flint tools, pottery), artwork (engraving plates, prints), geology samples (fossils, rocks, minerals) and zoology specimens (horns, shells, teeth) were selected from university collections on the basis of visual, tactile and kinaesthetic properties. Objects were compiled into six boxes of six in conservation materials with fact sheets. Project information leaflets consent forms and measures were printed on A4 (210x297mm) paper. Digital audio recorders were used when consent was given for recording.

### *Procedure*

Sessions were conducted one-to-one for acute and elderly care; in small groups for psychiatric care and using both methods in residential care depending on individual preference and staff availability. Both female facilitators (postdoctoral psychologist and postgraduate museum professional) received health and safety training (infection control from London hospital and object handling from university museum) and obtained Disclosure and Barring Service (DBS) clearance. Participants read information leaflets, signed consent forms, washed hands (soap or alcohol gel) and completed pre-session measures. Sessions lasting 30-40 minutes comprised semi-structured interviews (Appendix I) featuring sensory and emotional aspects of objects (e.g. 'What does it feel like?'; 'How does it make you feel?'). Participants completed post-session measures and re-washed hands.

## **Results**

PANAS and VAS pre-post mean differences for pooled settings (Table 1) showed increases in positive PANAS (13%), wellness VAS (9%) and happiness VAS (14%) and a decrease in negative PANAS (16%). MANOVA s (Table 2) showed highly significant main effects of test for all measures and an interaction of test by setting for positive PANAS.

<INSERT TABLE 1 ABOUT HERE>

<INSERT TABLE 2 ABOUT HERE >

Partial eta squared effect sizes (Table 3) showed large (14% plus) values (Brace, Kemp & Snelgar, 2009:303) with over 80% power for the main effects and significant interaction. The t-tests showed significant PANAS and VAS pre-post mean differences for all settings except psychiatric care where positive PANAS and wellness VAS were non-significant (Table 4; Figure 1).

<INSERT TABLE 3 ABOUT HERE >

<INSERT TABLE 4 ABOUT HERE >

<INSERT FIGURE 1 ABOUT HERE >

## **Discussion**

Object handling sessions were successful in measuring wellbeing using clinical scales.

Inferential tests showed that positive PANAS, wellness VAS and happiness VAS increased, and negative PANAS decreased in acute and elderly and residential care but found no

differences in positive PANAS and wellness VAS in psychiatric care. For acute and elderly and residential care, increases in positive PANAS were larger than decreases in negative PANAS. Psychiatric participants showed the largest reduction in negative PANAS, moderate gains in VAS wellness and greater gains in VAS happiness. A qualitative study of psychiatric care (Ander *et al.*, 2013) reported museum sessions gave depressive or anxious participants an additional focus to wondering about their discharge date, a finding that could account for increase in happiness but not lack of improvement in positive wellbeing so alternatively, duration of stay was explored.

Acute and elderly participants experienced the shortest stay (3-5 days) though some remained on the ward for six weeks waiting for residential assessment. Although psychiatric participants experienced a longer stay (12 weeks) that might explain low pre-session wellbeing, residential participants would most likely remain in care until the end of their lives, though possibly regarded the care home as their own home as they had their possessions about them. As duration could not account conclusively for poor psychiatric wellbeing, audio was analysed. Thematic analysis revealed potential reasons why acute and elderly care settings showed wellbeing improvements; participants asked questions, engaged in meaningful conversation, held amulets they wanted to 'keep' and spontaneously commented on the value of object handling. One participant said she was feeling anxious in hospital, unable to concentrate on television or books but felt better looking at interesting objects. Another with a poor prognosis said the session took her mind off the bad news, helping her not to get immersed in it.

Responses to object handling from psychiatric participants elicited curiosity; most found objects fascinating but expressed dissatisfaction with the system. Participants with improving health commented on how seeing things so old helped them come out of themselves and interact with the world again. Although post-session positive PANAS measures remained

similar, negative PANAS decreased more than in other settings. It was plausible that as negative emotions were plentiful given the mental health diagnosis, there was greater scope for reduction, though this explanation proved inconclusive as pre-session measures showed only marginally greater negative emotion for psychiatric than acute and elderly care. It was likely that several severely depressed participants, who the therapist thought would benefit from joining in, experienced a larger drop in negative emotion reducing the group average.

Residential participants showed improvements in wellbeing and happiness but were apathetic about objects; if persuaded to hold them they handed them back after a few seconds and comments were initiated by staff. Lack of interest was attributed to the fact that many had never visited a museum or had done so once on a school trip. Participants preferred to read fact sheets and look at pictures demonstrating curiosity but limiting conversation. Group sessions were held to encourage sociability but after realising they required support by as many staff as participants, one-to-ones were conducted instead. Although these engendered conversation, focus was an issue; residents deviated to reminiscence (e.g. being a Land Girl, meeting the Queen) or daily routine (e.g. teatime, visitors). Staff advised that residents preferred soft colourful textiles and a passive role in activities (e.g. listening to a story). Textiles were not used for sessions because of risks to infection control. Furthermore, the protocol was developed to promote shared exploration not story-tell.

### *Limitations*

Findings the study should be regarded with caution due to the small sample size, short intervention exposure, lack of control group and mix of one-to-one and group sessions. Regarding the lack of control group, permission for research was given on the basis that participants would experience a museum session, therefore there was no 'life-as-usual' condition making it unclear whether differences were due to the intervention or other factors



such as increased social interaction or attention. Control groups would add considerable rigour to a quasi-experimental study of this sort and it is recommended that future studies conduct randomised controlled trials where participants experience a museum-related intervention or life-as-usual so that comparisons can be made. Further recommendations include the consistent use of one-to-one or group methods and carrying out a series of sessions over a longer time span.

### *Conclusions*

The research objective was to conduct museum object handling with older adults in differing healthcare settings and measure therapeutic benefits using valid and reliable clinical scales. Previous quantitative research into museum interventions found wellbeing improvements in acute and elderly (Thomson *et al.*, 2012b) and residential care (Thomson *et al.*, 2012a) but participants from psychiatric care were not included in the studies. The current study compared older adults receiving psychiatric care with those in acute and elderly and residential settings. Findings showed increased positive emotion and wellness for acute and elderly and residential though not psychiatric care and increased happiness and decreased negative emotion for all settings. Participants were not diagnosed with dementia as in the Camic *et al* and Eeckelaar *et al* studies but analysis of audio recordings implied similar cognitive gains of enhanced confidence, social interaction and learning. The study allowed people who would not otherwise have engaged with museums to benefit from access to museum objects albeit the intervention only measured short-term gain. It is recommended that a longitudinal study taking measures over several weeks is conducted within a randomised controlled trial to endorse the current findings.

## **Acknowledgements**

The research was conducted with the support and advice of the hospital Arts Curator and hospital and healthcare staff.

## **Declaration of Conflicting Interests**

The authors declared no potential conflicts of interest with respect to the authorship and publication of this article.

## **Funding**

The authors disclosed receipt of the following financial support for the research: This work was supported by the Arts and Humanities Research Council (Award No: AH/G000506/1; Heritage in Hospitals).

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## Tables and Figures

Table 1. Pre-post means, standard deviations (SD) and mean differences for pooled settings

Scores	Pretest mean (SD)	Posttest mean (SD)	Mean difference (SD)
Positive PANAS	27.957 (9.484)	31.506 (10.950)	3.549 (5.877) p<0.001***
Negative PANAS	15.926 (5.894)	13.369 (4.007)	-2.557 (4.239) p<0.001***
Wellness VAS	60.880 (23.485)	66.271 (22.073)	5.391 (11.457) p<0.005**
Happiness VAS	60.318 (24.692)	68.853 (21.825)	8.535 (12.019) p<0.001***

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

Table 2. *F* value, probability and mean square (MS) error for main effects and interactions

Measure	Main effect of test	Interaction of test by setting
Positive PANAS	F(1,37) = 31.735 p<0.001*** MS error = 382.910	F(2,37) = 9.405 p<0.001*** MS error = 113.483
Negative PANAS	F(1,37) = 10.603 p<0.002** MS error = 98.024	F(2,37) = 0.447 p<0.643 MS error = 4.135
Wellness VAS	F(1,37) = 9.297 p<0.004** MS error = 630.028	F(2,37) = 0.383 p<0.684 MS error = 25.983
Happiness VAS	F(1,37) = 15.132 p<0.001*** MS error = 1126.567	F(2,37) = 0.419 p<0.661 MS error = 31.166

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

Table 3. *Partial eta squared* effect sizes and observed power for main effects and interactions

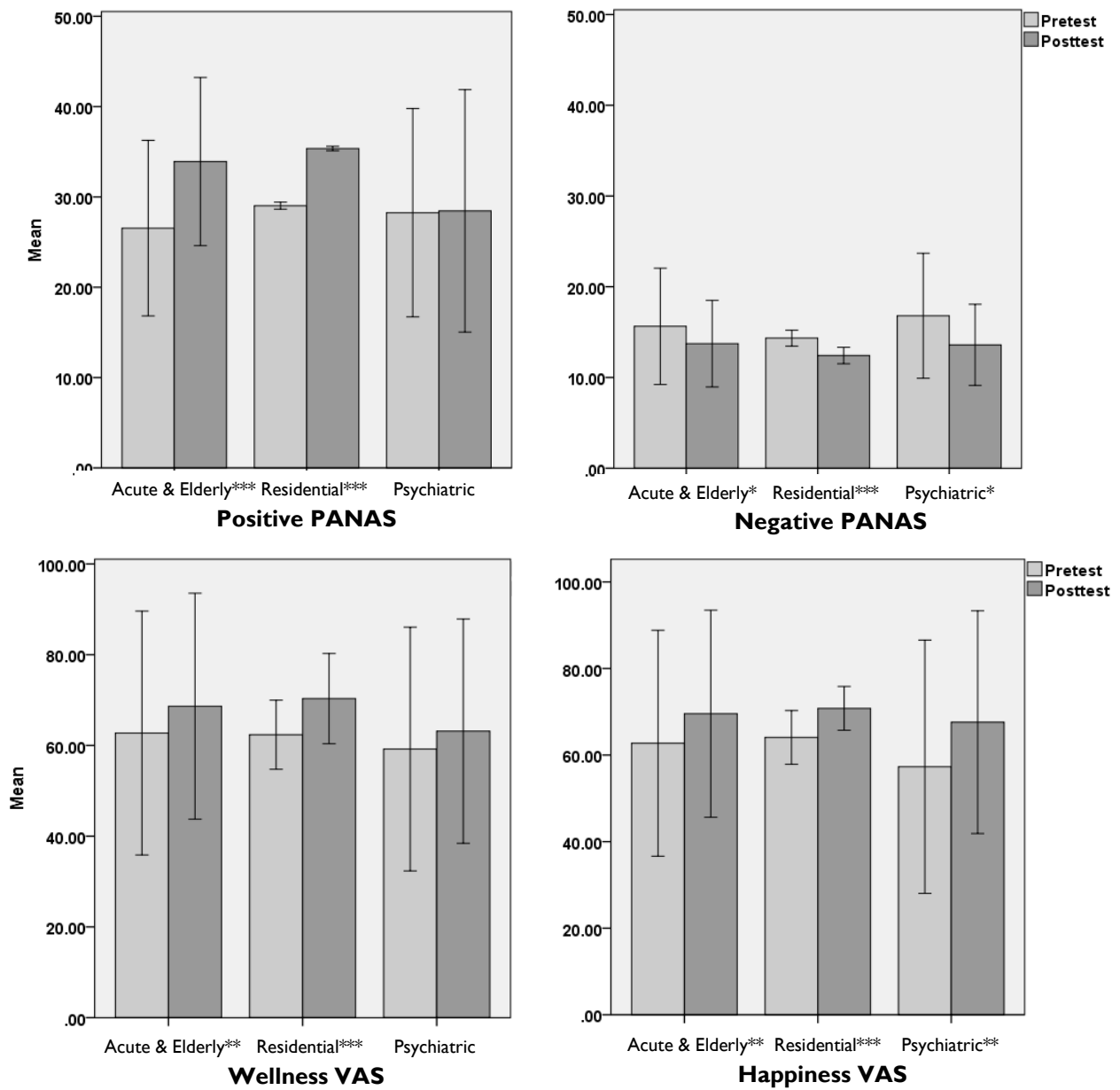
Measure	Main effect of test	Interaction of test by setting
Positive PANAS	eta=0.462 (46%) power=1.000 (100%)	eta=0.337 (34%) power=0.969 (96%)
Negative PANAS	eta=0.223 (22%) power=0.887 (89%)	eta=0.024 (2%) power=0.117 (12%)
Wellness VAS	eta=0.201 (20%) power=0.844 (84%)	eta=0.020 (2%) power=0.107 (11%)
Happiness VAS	eta=0.290 (29%) power=0.966 (97%)	eta=0.022 (2%) power=0.113 (11%)

Table 4. *Pre-post* mean differences

Measure	Acute and elderly care	Residential care	Psychiatric care
Positive PANAS	t(10)=4.766 p<0.001***	t(8)=30.298 p<0.001***	t(19)=0.156 p<0.878
Negative PANAS	t(10)=-2.148 p<0.029*	t(8)=-192.00 p<0.001***	t(19)=-2.553 p<0.01**
Wellness VAS	t(10)=2.148 p<0.007**	t(8)=6.590 p<0.001***	t(19)=1.152 p<0.123
Happiness VAS	t(10)=3.516 p<0.003**	t(8)=3.481 p<0.001***	t(19)=2.853 p<0.01**

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

Figure 1. Pre-post means (error bars +/- 1SD) for healthcare settings



Significance levels for mean differences \*p<0.05; \*\*p<0.01; \*\*\*p<0.001