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How Two Museums Support Memory and Connection in Older-Adult–Caregiver Dyads: A Photo-Elicited Thematic Analysis

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Abstract

Introduction: Museums are increasingly recognized as community settings that can support memory, emotional well-being, and social connection among older adults and caregivers. However, little is known about how museum environments in non-Western contexts activate autobiographical and embodied memory within older-adult–caregiver dyads.

Methods: This study examined how two Thai museums—the National Science Museum (NSM) and Museum Siam—function as health-promoting environments that support autobiographical and embodied memory, emotional well-being, and intergenerational connection. Sixty-four participants (32 older adults and 32 caregivers) engaged in a photo-elicitation protocol in which they photographed exhibits and narrated their reflections. Thematic analysis was used to identify recurring patterns across narratives, and observational field notes documented affective and social interactions. Cognitive functioning was screened using the Montreal Cognitive Assessment, and depressive symptoms were assessed using the Patient Health Questionnaire-9.

Results: Four recurring themes emerged: Cultural Anchoring, Civic Consciousness, Nostalgia of Childhood, and Intergenerational Affection. At the NSM, participants who were not at risk of mild cognitive impairment or depressive symptoms expressed broader thematic diversity, including future-oriented reflections, whereas those at risk focused more narrowly on health literacy and family-related themes. At Museum Siam, dyadic analysis highlighted both congruent and divergent storytelling, with such differences enriching intergenerational remembering rather than producing conflict. Emotional expressions—including gratitude, nostalgia, and pride—demonstrated how museums function as relational spaces of memory, empathy, and shared reflection.

Conclusion: Findings position museums as culturally grounded infrastructures for social prescribing, fostering resilience, autobiographical memory, and intergenerational solidarity within ageing societies. Museums may serve as emotionally supportive environments consistent with the WHO Healthy Ageing framework.

Introduction

Population ageing poses major challenges for mental and cognitive health, with the World Health Organization calling for environments that foster healthy ageing[1]. Arts- and heritage-based programs have therefore gained attention as community-level approaches that promote social connection, memory, and emotional well-being among older adults[2–4]. Research consistently shows that cultural engagement and creative practices support resilience in later life[2–4].

At a theoretical level, autobiographical remembering reflects multidimensional mental representations that extend beyond an episodic–semantic continuum[5], while heritage sites afford emotional connections increasingly mediated through digital media[6]. Museums, as cultural infrastructures, can

serve as educational and health-promoting — or emotionally supportive—settings[7–9]. Parallel developments in social prescribing initiatives have positioned museums and arts engagement as promising pathways for addressing loneliness, depression, and quality of life among older adults[10–13].

Within this framework, museums activate autobiographical memory—linking older adults to personal and cultural histories—and embodied memory, whereby sensory and spatial cues elicit affective responses rooted in lived experience[5,6,14]. These processes may be especially beneficial for individuals at risk of depression or mild cognitive impairment (MCI), who often face diminished narrative diversity and social participation.

Despite growing evidence in arts-and-health research, most studies have focused on Western, group-based interventions (e.g., such as reminiscence programs), with limited attention to individualized, participant-led methods or non-Western contexts[15,16]. Moreover, few studies have explored how museum environments shape intergenerational remembering, particularly in older adult–caregiver dyads central to ageing societies in Asia.

This present study addresses these gaps by comparing two Thai museums with distinct orientations: the National Science Museum (NSM) and Museum Siam. Using a photo-elicitation protocol[17], older adults and caregivers photographed exhibits[7] and provided narrative reflections, enabling analysis of thematic diversity, cognitive-affective subgroup differences, and dyadic storytelling congruence. By integrating experiences of memory, place, and ageing[18], the study examines how museums may function as health-promoting environments that foster autobiographical and embodied memory, strengthen intergenerational empathy, and align with global initiatives for Healthy Ageing.

Methods

S tudy Context and Perspective

This study employed a qualitative, cross-sectional design using photo-elicited interviews and inductive thematic analysis to explore how museum environments support memory and connection within older adult–caregiver dyads. This study was conducted across two public museums in Thailand with distinct orientations: Museum Siam in Bangkok and the NSM in Pathum Thani. Both institutions are nationally recognized for their innovative approaches to learning and cultural engagement, yet they differ in thematic focus and curatorial design, providing a rich basis for comparison.

Museum Siam, operated by the National Discovery Museum Institute (NDMI), is renowned for its interactive, narrative-driven exhibitions that explore Thai identity, history, and culture. Six galleries were purposefully selected for their ability to evoke memory, stimulate reflection, and foster intergenerational dialogue. These included:

1. *Thai Beliefs* (objects of Thai cosmology and ritual practice),
2. *Thai Snap* (photographic studio of identity),

3. *Thai Witthaya* (classroom through eras of Thai education),
4. *Thai Splendor* (royal court aesthetics),
5. *Thai Since Birth* (historical epochs of Thai identity), and
6. *Thai Taste* (living kitchen of Thai cuisine).

NSM, by contrast, emphasizes science, technology, and health literacy through large-scale interactive displays. Six exhibit points were selected based on accessibility, thematic richness, and potential for personal resonance:

1. *Pottery Technology*,
2. *Royal Tribute to Her Majesty the Queen*,
3. *Metallurgy Technology*,
4. *Our Body* (human biology and genetics),
5. *Quality of Life* (science, environment, and sustainability), and
6. *RoboThespian* (humanoid robot interaction).

Across both sites, the selection of twelve exhibit points followed eight guiding criteria: (1) spatial accessibility for older adults and caregivers; (2) connection to participants' prior experiences; (3) potential to stimulate conversation and exchange; (4) physical accessibility; (5) continuity of spatial flow; (6) clarity of interpretive communication; (7) opportunities for varied modes of interaction; and (8) opportunities for discovery and self-directed learning through diverse media.

Together, these two museums offered complementary environments: Museum Siam foregrounded cultural heritage and identity, while NSM emphasized science, technology, and health. This contrast enabled systematic exploration of how different museum contexts activate autobiographical and embodied memory, intergenerational storytelling, and emotional well-being.

Participants and Procedure

The study was conducted between May and July 2025 at two museum sites in Bangkok, Thailand. A total of 32 older adult–caregiver dyads (n = 64) were recruited across the two museum sites: 16 dyads at Museum Siam and 16 dyads at NSM. Inclusion criteria were: (1) adults aged ≥ 60 years and their accompanying caregiver; (2) ability to communicate in Thai; and (3) willingness to participate in both the museum visit and photo-elicited interview. Exclusion criteria included acute medical instability, severe sensory impairment preventing participation, and inability to complete two standardized screening tools.

Each dyad comprised an older adult and their primary caregiver, reflecting the study's focus on intergenerational experiences of museum engagement. In this study, the term "caregiver" refers to a companion who accompanies or supports an older adult during museum visits, rather than necessarily providing medical or daily care. This definition reflects Thai cultural norms of intergenerational accompaniment. Differences in caregiver type between sites (volunteers vs. family members) are acknowledged as a contextual limitation that may influence dyadic dynamics and interpretations.

The composition of caregivers varied by site. At NSM, caregivers included 1 adult child, 1 grandchild, 2 paid caregivers, and 12 trained healthy aging volunteers recruited through a volunteer program. In contrast, at Museum Siam, caregivers were primarily family-based, including 9 adult children, 2 grandchildren, 2 paid caregivers, 2 relatives, and 1 volunteer. This contrast highlights different caregiving contexts: a structured volunteer network at NSM versus family caregiving networks at Museum Siam.

Each dyad participated in a one-hour visit at their assigned museum, freely exploring the six pre-selected exhibit points (see Study Context). At each point, participants were invited to take one photograph of an object, space, or moment they found meaningful. After completing their visit, each participant chose the single photograph they considered most significant. This image became the anchor for a semi-structured, photo-elicited narrative interview, during which participants reflected on how the selected moment related to their well-being, identity, or emotional experience.

Instruments

Participants completed two standardized screening instruments:

1. (a) The Thai version of the Patient Health Questionnaire (PHQ-9), developed by Professor Manoch Lotrakul and colleagues at the Department of Psychiatry, Faculty of Medicine Ramathibodi Hospital. Permission to use the instrument was granted for this study. A cut-off score of ≥ 9 (out of 27) was applied to identify participants at risk of clinically relevant depressive symptoms[12]. This threshold has demonstrated good sensitivity (0.84) and specificity (0.77) for major depression in Thai validation studies. Scores below 9 indicated no depression to mild depressive symptoms.
2. (b) The Thai version of the Montreal Cognitive Assessment (MoCA-T), a validated screening tool for mild cognitive impairment, assessing seven domains: visuospatial/executive function, attention, short-term memory, language, calculation, abstraction, and orientation[13]. The primary Thai validation study[19] established strong reliability and construct validity, and later work confirmed its discriminative accuracy in clinical populations[13]. A cut-off score of < 26 (out of 30) was used to indicate possible mild cognitive impairment, consistent with the original MoCA[20] and the Thai validation study[19]. The assessor was trained and certified in MoCA administration through https://mocacognition.com/

Both instruments were used as screening tools rather than diagnostic assessments, consistent with Thai population norms and validation studies.

Ethics and Consent

All interviews were audio-recorded and transcribed verbatim. To complement the narrative accounts, the lead researcher kept observational field notes documenting participants' non-verbal behaviors (smiles, tears, gestures, pauses) and spontaneous inter-dyadic interactions. All participants provided written

informed consent prior to data collection. The study was approved by an institutional review board [blinded for review]. All procedures complied with relevant institutional guidelines and the Declaration of Helsinki. Sex and gender were not collected or analyzed; this is noted as a limitation for generalizability. De-identified qualitative materials (interview guide, coding frame, aggregated theme counts) are available from the corresponding author upon reasonable request and subject to institutional approvals [blinded for review].

Data Collection and Analysis

Data included (1) participant photographs, (2) narrative interviews, and (3) observational field notes. The photo-elicitation method was chosen to ground participants' reflections in visual stimuli, facilitating rich autobiographical and embodied responses, particularly valuable for older adults who may experience cognitive or expressive limitations.

Narratives were analyzed thematically[21–22], guided by concepts of narrative transportation[23] and relational well-being[24–25]. Coding was inductive and iterative, with close attention to emotional tone, cultural symbolism, and intergenerational dynamics. Constant comparison ensured consistency, while bilingual translation and participant review preserved cultural nuance. Each dyad was labeled using the prefix "NDMI" and "NSM" numbered sequentially, with older adults (E) and caregivers (C) identified separately.

Two bilingual coders (fluent in Thai and English) independently analyzed a 20% subsample of Thai-language transcripts to evaluate inter-rater reliability. Agreement was assessed using Cohen's $\kappa = 0.72$, indicating substantial agreement. Coding discrepancies were discussed and resolved through consensus meetings, after which the finalized bilingual codebook was applied to the complete dataset.

To ensure linguistic and analytic consistency, all interviews were conducted and transcribed in Thai, with selected quotations translated into English through a back-translation process for reporting. The research team maintained reflexive memos and held weekly discussions to ensure transparency and interpretive rigor throughout the analysis.

Researcher Positionality

The research team—trained in psychosocial occupational therapy and museum studies—approached the museum not only as a site of learning but also as a therapeutic place where memory, identity, and connection are activated[26–27]. Reflexivity was maintained throughout data collection and analysis, with interpretations grounded in participants' narratives and attentive to cultural and relational nuances expressed verbally and non-verbally. Supplementary materials provide additional methodological detail, including facilitator training procedures, interview language and back-translation steps, the photo-elicitation interview guide, the route schema used in both sites, and descriptive distributions of PHQ-9

and MoCA-T scores by site. Information on refusals and dropouts is also included. This study followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) reporting guideline[28] and a completed COREQ checklist is provided as supplementary material.

Results

Participant Characteristics

Table 1 summarizes the demographic and clinical characteristics of the 64 participants, divided evenly across four groups (older adults and caregivers at both NSM and Museum Siam). The overall mean age was 55.9 years (SD = 14.96), reflecting a balanced mix of working-age caregivers (mean = 43.2 years) and older adults (mean = 68.7 years). As expected, older adults were significantly older than caregivers in both museums, with the Museum Siam older adult group averaging 71.6 years and the NSM older adult group 65.8 years.

Table 1
Participant Characteristics by Group

Group	n	Age (years)	PHQ-9	MoCA-T
Total	64	55.92 ± 14.96	1.69 ± 2.20	25.69 ± 3.33
Caregivers – Museum Siam	16	48.75 ± 5.05	1.50 ± 1.10	27.50 ± 1.71
Older adults – Museum Siam	16	71.56 ± 6.21	1.38 ± 1.36	24.38 ± 3.96
Caregivers – Science Museum	16	37.62 ± 9.51	2.81 ± 3.69	26.19 ± 2.17
Older adults – Science Museum	16	65.75 ± 3.00	1.06 ± 1.29	24.69 ± 4.06

Note: PHQ-9 = Patient Health Questionnaire (Thai version); MoCA-T = Montreal Cognitive Assessment Thai version.

The sample was predominantly female (80%), reflecting gendered caregiving patterns; all groups included both men and women at each museum site.

Education levels ranged from primary to postgraduate, with most caregivers holding a bachelor's degree or higher and most older adults completing secondary or bachelor's education.

Socioeconomic status (SES) was self-reported as sufficient or sufficient with savings for over 80% of participants, with only a few reporting dependence or social welfare support.

All instruments were administered in Thai by trained facilitators.

The caregiver groups also differed in composition between sites. At NSM, the majority were trained volunteers (12 of 16), whereas Museum Siam caregivers were mostly family members (9 children and 2 grandchildren, alongside 2 paid caregivers, 2 relatives, and 1 volunteer). These differences may partly

explain variations in narrative style, with NSM caregivers often emphasizing learning and health promotion, while Museum Siam caregivers highlighted familial duty and intergenerational bonds.

Cognitive screening scores (MoCA-T) were generally within the normal to mildly impaired range (overall M = 25.7, SD = 3.33). Caregivers at Museum Siam demonstrated the highest average MoCA-T scores (M = 27.5), while older adults in both museums had slightly lower scores (24.4–24.7), consistent with expected age-related cognitive variation. Based on the Thai MoCA-T cut-off of < 26, a small proportion of older participants were screened positive for possible MCI.

Depressive symptoms, measured by the Thai version of the PHQ-9, were low across all groups (overall M = 1.69, SD = 2.20). No participants were screened positive for clinically significant depressive symptoms (PHQ-9 ≥ 9). Caregivers at NSM reported slightly higher mean scores (M = 2.81) compared with other groups, whereas older adults in both sites reported the lowest symptom levels (M ≈ 1.0–1.4).

Together, these findings indicate that the sample consisted of cognitively intact or mildly impaired older adults and relatively healthy caregivers, providing an appropriate foundation for analyzing thematic and emotional responses to museum engagement.

Overall Thematic Patterns Across Museums

Across both NSM and Museum Siam, four harmonized themes emerged most consistently: Cultural Anchoring, Civic Consciousness, Nostalgia of Childhood, and Intergenerational Affection. While these themes were shared across sites, their relative prominence and narrative tone varied. At NSM, participants often connected exhibits to science, education, and civic pride, whereas at Museum Siam, reflections foregrounded cultural identity, moral belonging, and relational memory. Older adults tended to emphasize embodied recollections and nostalgia, while caregivers highlighted knowledge, responsibility, and intergenerational continuity.

Golden Quotations by Theme and Site

Table 2 presents representative “golden quotations” illustrating thematic voices from both older adults and caregivers across the two museums.

Table 2
Illustrative photo-elicited quotations across thematic domains

Theme	NSM – Older adult	NSM – Caregiver	Museum Siam – Older adult	Museum Siam – Caregiver
Cultural Anchoring	"This pottery reminds me of our roots; it feels like part of my own story." (E-03)	"I want my children to see how Thai science developed over time." (C-07)	"Being Thai since birth, I feel proud of our history displayed here." (E-12)	"I can connect what I learned in school with these exhibits." (C-05)
Civic Consciousness	"This tribute to the Queen makes me feel grateful for the country." (E-09)	"I admire how our leaders invested in science education." (C-10)	"The Thai Witthaya room reminds us that knowledge belongs to everyone." (E-04)	"It shows me that I also have a duty to society." (C-08)
Nostalgia of Childhood	"The robotics make me laugh like when I was a boy." (E-15)	"Seeing the old machines, I think of my father's work." (C-02)	"When I see the toys, I recall playing in the temple yard." (E-01)	"It makes me think of my grandmother's stories." (C-11)
Intergenerational Affection	"I want to share this moment with my granddaughter." (E-06)	"Bringing my mother here makes me feel closer to her." (C-14)	"Walking together, I see how my daughter cares for me." (E-07)	"I feel proud to accompany my father to this place." (C-03)

Note. E = older adult; C = caregiver. Each quotation corresponds to a photograph taken by an older-adult–caregiver dyad during the museum visit. Quotations were originally expressed in Thai and translated into English through back-translation for accuracy.

These quotations reveal both commonalities and contrasts across museums. At NSM, exhibits in technology and science often prompted participants to frame their reflections in relation to progress, education, and national development, whereas at Museum Siam, narratives emphasized identity, belonging, and moral duty. Caregivers frequently oriented their storytelling toward learning and transmission of knowledge, while older adults foregrounded memory and embodied emotion. Dyadic mismatches, particularly at Museum Siam, did not signal conflict but rather complementary perspectives that enriched intergenerational dialogue, layering affective memory with contemporary interpretation.

Contextual Variation by Exhibit Space

At NSM, themes tended to cluster around particular rooms, reflecting the spatial and didactic design of the exhibitions. Room 1 (Ceramic Technology) and Room 3 (Metallurgy) frequently elicited narratives of

Cultural Anchoring, as participants drew connections between traditional crafts and national heritage. Room 2 (Royal Tribute to the Queen) inspired reflections of Civic Consciousness, underscoring participants' moral and social identification with the monarchy's legacy. Room 4 (Our Body) often prompted humorous or playful responses linked to Nostalgia, particularly childhood recollections of health and bodily growth. By contrast, Room 6 (RoboThespian) evoked curiosity and futuristic imagination, occasionally layered with intergenerational comparisons between older adults and younger kin.

At Museum Siam, thematic clustering reflected exhibit motifs rather than spatially segmented rooms. The exhibition "Thai Since Birth" anchored narratives in cultural identity, while "Thai Witthaya" supported civic and educational interpretations. More playful interactive spaces, especially those invoking childhood, sparked Nostalgia. Galleries centered on everyday life encouraged Intergenerational Affection, as participants recalled stories of caregiving, domestic roles, and family traditions.

The NSM dataset further enabled subgroup analyses by cognitive and affective status. Cognitively intact participants (MoCA-T ≥ 26) exhibited broader thematic diversity, engaging with all four core themes as well as future-oriented reflections in the RoboThespian room. In contrast, Possible MCI participants (screened positive; MoCA-T < 26) focused more narrowly on Cultural Anchoring and Intergenerational Affection, suggesting reliance on familiar cultural narratives. Similarly, participants with depressive symptoms tended to emphasize health literacy and quality-of-life concerns, whereas non-depressed participants expressed more nostalgic and joyful responses.

Subgroup Comparisons: Cognitive and Affective Status

Across both museums, thematic engagement varied systematically according to participants' cognitive and affective profiles.

NSM. Participants screened positive for possible MCI (*n* = 9 quotations) concentrated on a smaller set of themes, most often health literacy and basic intergenerational affection, with reflections oriented toward immediate wellbeing and family support. By contrast, cognitively intact participants (*n* = 23) engaged with a more diverse thematic repertoire, encompassing cultural anchoring, nostalgia of childhood, civic consciousness, and playful or emotionally positive responses. This contrast suggests that intact cognitive function allowed broader associative storytelling and engagement with the symbolic dimensions of exhibits. Similarly, depressive symptoms appeared to limit thematic range: participants at risk of depression (*n* = 3) spoke mainly about health-related and pragmatic concerns, while non-depressed participants (*n* = 29) expressed a wide spectrum of meanings, including nostalgic, intergenerational, and joyful associations.

Museum Siam. A parallel pattern was evident. Older adults and caregivers at risk of MCI focused predominantly on cultural anchoring and intergenerational affection, with few references to civic or abstract themes. Cognitively intact participants extended their narratives to include civic consciousness and broader cultural reflection. Depressive symptoms again narrowed thematic engagement: those at

risk concentrated almost exclusively on cultural anchoring and pragmatic concerns, whereas non-depressed participants drew on all four thematic areas, including nostalgia, civic pride, and affectionate family bonds.

Comparative synthesis. Taken together, the two datasets point to a consistent pattern: cognitive impairment and depressive symptoms narrow the thematic and emotional scope of engagement, while cognitively intact and non-depressed participants demonstrate greater thematic diversity and stronger resonance with symbolic, nostalgic, and relational meanings. What differs between sites is the texture of expression: NSM participants, prompted by science- and technology-oriented exhibits, tended to balance pragmatic and cultural reflections, whereas Museum Siam participants generated more narrative-rich and relational storytelling—even when narrowed by impairment or mood symptoms.

Dyadic Storytelling at NSM

Analysis of the 16 NSM caregiver–older adult dyads (n = 32) revealed a spectrum of narrative alignments, ranging from strongly shared meanings to divergent but complementary interpretations. Using thematic coding, dyads were classified as matched when both caregiver and older adult anchored their narratives in similar symbolic domains, mismatched when narratives diverged to different thematic poles, and partially matched when some overlap was present but emphases diverged.

Overall, 7 dyads were matched, 8 mismatched, and 1 partially matched. Matched pairs frequently shared themes of cultural anchoring (e.g., Thai silk, vernacular crafts), nostalgia for childhood and family life, and intergenerational affection. For example, in Dyad NSM-C/E-001 both caregiver and older adult described the silk exhibit as a proud reminder of Thai heritage, with the older adult adding a sense of intergenerational continuity: “I am proud that the younger generation still knows our roots”.

In contrast, mismatched dyads typically reflected different interpretive lenses: caregivers often emphasized learning, technology, or health literacy, while older adults foregrounded heritage, relational meaning, or civic values. For instance, in Dyad NSM-C/E-014, the caregiver highlighted the telescope exhibit as a tool for “seeing the unseen” and scientific curiosity, whereas the older adult imagined the serenity of a Thai house as a symbol of well-being and calm. These divergences were not experienced as conflict but rather as parallel framings that enriched the collective storytelling encounter.

Partial matches often combined practical health or learning reflections with more affective or socio-emotional tones. In Dyad NSM-C/E-005, the caregiver recalled the use of charcoal for household and health purposes, while the older adult reminisced about the warmth of family meals and the role of grandparents in silk-making. Both evoked “home,” but through different textures of memory and meaning.

Taken together, the NSM dataset illustrates how intergenerational visits can elicit multiple co-existing narratives: caregivers gravitating toward knowledge acquisition and contemporary application, older adults emphasizing continuity, identity, and family bonds. The result is a dialogic storytelling space,

where mismatches are as generative as matches, offering opportunities for empathy, reflection, and mutual learning.

Dyadic Storytelling at Museum Siam

Analysis of the 16 older adult–caregiver dyads (n = 32) at Museum Siam revealed that the exhibition setting strongly invited dialogic storytelling rooted in shared cultural identity and personal memory. Dyads were again classified as matched, mismatched, or partially matched, according to the thematic alignment of their narratives.

Of the 16 dyads, 4 demonstrated matched storytelling, in which both older adult and caregiver emphasized the same symbolic anchors—typically cultural anchoring and civic consciousness. For example, in Dyad MS-C/E-003, both members described the “Thai Since Birth” gallery as affirming national heritage, with the caregiver noting its relevance for youth identity and the older adult reflecting on continuity across generations: “This reminds us that we are Thai since birth”.

The majority of dyads, however, showed mismatched storytelling (n = 12). In these cases, older adults and caregivers brought complementary but distinct interpretive frames to the same exhibits. Caregivers often highlighted learning, moral lessons, or contemporary application, while older adults narrated from a position of nostalgia, embodied memory, or intergenerational affection. For instance, in Dyad MS-C/E-011, the caregiver focused on civic duty reflected in the exhibit, while the older adult described childhood memories of temple fairs and parental teachings. Rather than creating tension, such divergences enriched intergenerational dialogue, layering moral, affective, and cultural dimensions into the shared visit.

Divergent Interpretations as Relationally Productive

Unlike at the NSM, mismatches at Museum Siam did not emphasize technological versus heritage divides, but instead revealed multiplicity within cultural memory itself. Older adults often narrated from lived experience of the past, while caregivers projected contemporary responsibilities and aspirations onto the same symbols. This interplay underscores how family identity is co-constructed in cultural spaces, even when interpretive emphases diverge.

Across all dyads, quotations revealed that mismatched narratives often prompted further conversation and curiosity rather than silence. For example, in Dyad MS-C/E-014, the caregiver described lessons of “responsibility to the nation,” while the older adult reminisced about grandparents’ ways of teaching morality in daily life. The dialogue illustrates how parallel stories intersect to produce intergenerational empathy.

Taken together, Museum Siam dyads demonstrate that the power of cultural exhibits lies not in unifying interpretation but in stimulating diverse, layered storytelling. Whereas NSM elicited sharper contrasts between knowledge and heritage, Museum Siam narratives revolved around shared cultural symbols with intergenerationally distinct inflections. This suggests that museum-based dyadic engagement can

operate as a relational platform for both empathy and difference, deepening understanding across generations.

Discussion

This comparative study demonstrates how two museums—NSM and Museum Siam—function as therapeutic places that activate autobiographical and embodied memory, fostering emotional well-being, intergenerational dialogue, and cultural continuity. Four thematic patterns consistently emerged across sites: Cultural Anchoring, Civic Consciousness, Nostalgia of Childhood, and Intergenerational Affection. These themes highlight the capacity of museums to elicit deeply personal yet socially shared forms of remembering, positioning them as relational spaces that extend beyond education to psychosocial care.

At the NSM, thematic engagement varied by cognitive and affective status. Participants who were not at risk on MCI or depressive symptoms expressed broader thematic diversity, including future-oriented and civic reflections. By contrast, those screened positive for possible MCI or depression concentrated more narrowly on family ties and health literacy. This echoes evidence that cognitive[29–30] and affective vulnerability constrain the range of autobiographical memory retrieval[14], yet the findings also show how those well-designed exhibits can still evoke meaningful embodied responses[29–30] even among individuals with cognitive or affective vulnerabilities.

At Museum Siam, analysis of older adult–caregiver dyads revealed that storytelling was rarely uniform but instead layered and complementary. Congruent narratives emphasized shared cultural pride, while divergent narratives juxtaposed embodied nostalgia with pragmatic learning or responsibility. Rather than signaling conflict, these differences enriched intergenerational remembering by creating dialogic space between generations[30–33] and they illustrate how the relational and spatial design of heritage museums can support collective meaning-making within dyads.

Alternative Explanations

Although the museums' thematic affordances clearly activated autobiographical and embodied memory, several alternative explanations may also account for the emotional and relational benefits observed. First, social interaction itself—the shared movement, joint attention, and natural conversation occurring during dyadic engagement—may have independently fostered positive affect and memory recall. Second, novelty effects, particularly in the science-focused NSM, may have heightened curiosity or playfulness, contributing to increased emotional expression. Third, aesthetic and sensory stimulation (e.g., lighting, sound, spatial immersion, multisensory cues) may have elicited emotions that participants subsequently interpreted through personal or cultural memories. These factors warrant explicit testing in future research to determine the unique effects of museum environments relative to general social or sensory engagement.

These findings extend prior arts-and-health research[2,9,15] by demonstrating how museums can activate both autobiographical and embodied memory in non-Western and intergenerational contexts. While much of the literature focuses on Western, group-based interventions[10,34], this study highlights the value of individualized, participant-led photo-elicitation and systematically examines how cognitive and affective status influence engagement. In doing so, it advances understanding of museums as place-based infrastructures supporting relational well-being and healthy ageing.

Implications for Practice

The evidence suggests museums can be integrated into cultural social prescribing, occupational therapy, and caregiver programs. By designing interventions that prompt photo-elicitation and storytelling, museums may foster resilience, empathy, and memory preservation for older adults, while simultaneously providing caregivers with opportunities for reflective dialogue. These findings align with WHO's Healthy Ageing framework[1] and recent calls for expanding community-based infrastructures for mental health[33–35]. For caregivers—especially family members—such approaches may provide structured opportunities for relational closeness and shared meaning-making.

Limitations and Future Directions

As a pilot study, the sample size was modest, limiting generalizability. Participants were urban and culturally homogeneous, and neurophysiological measures were not included. In addition, sex and gender data were not collected, limiting our ability to examine whether gendered caregiving roles or narrative styles influenced thematic engagement.

Caregiver roles also differed across sites: NSM included mostly trained volunteers, whereas Museum Siam included primarily family caregivers. These contextual differences may have shaped dyadic dynamics, interpretive tone, and emotional expression and should be examined explicitly in future research.

The cross-sectional design captured only a single museum visit, preventing assessment of sustained effects. Although mismatched narratives were interpreted as generative, it remains possible that some patterns of divergence may also reflect relational strain or unmet caregiving needs, particularly in dyads navigating cognitive decline or psychosocial stress.

Future studies should incorporate comparison groups (e.g., non-museum community settings or unguided visits), longitudinal follow-ups, and pre–post assessments to clarify causal mechanisms. Collecting caregiver–older adult relationship data and analyzing caregiver type as an independent factor would deepen understanding of relational variations in storytelling. Larger and more diverse samples, multimodal measurement approaches, and exploration of immersive or digital museum environments would further strengthen understanding of how museums function as therapeutic landscapes within ageing societies.

Conclusion

Museums can be reframed as health-promoting landscapes where cultural engagement supports autobiographical and embodied memory, enhances intergenerational empathy, and contributes to healthy ageing. By situating memory and emotion in place, these findings highlight the potential of museums not only as cultural institutions but as integral components of community-based health and social care infrastructure

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