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The development of a harmony multisensory space based on reminiscence therapy to improve quality of life for older adults with dementia: A qualitative study

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ABSTRACT

Introduction: Dementia significantly impacts elderly quality of life, necessitating innovative non-pharmacological approaches. This study aimed to identify key design elements for multisensory environments integrated with reminiscence therapy in Indonesian contexts.

Methods: This qualitative study used an exploratory descriptive design through focus group discussions with 10 elderly participants, 2 family caregivers, and 5 healthcare professionals. Participants were selected through purposive sampling based on inclusion criteria established for this research protocol. Data were analyzed using Braun and Clarke's six-phase thematic analysis framework to identify key patterns related to the development of multisensory environments.

Results: This study revealed five main themes from a comprehensive data analysis of therapeutic environments for the Indonesian population. These themes are: 1) the importance of positive reminiscence triggers to effectively stimulate memory, 2) the personal space requirements for comfort and safety as essential environmental design considerations, 3) the need for multisensory integration as a critical component of therapeutic environmental interventions, 4) the vital role of family support and communication strategies in a comprehensive care approach, and 5) the relevance of cultural and spiritual considerations in design to provide contextual meaning.

Conclusion: The development of Harmony multisensory spaces should integrate reminiscence therapy principles with personalized design elements, emphasizing safety parameters, comfort metrics, and cultural sensitivity to effectively improve the quality of life for elderly individuals with dementia. Implementation requires multidisciplinary collaboration between healthcare professionals, designers, and family caregivers to ensure optimal therapeutic outcomes.

Keywords: dementia, elderly, multisensory environment, reminiscence therapy, quality of life, qualitative research.
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INTRODUCTION

Aging introduces biological, psychological, and social changes that profoundly impact the functional capacity and mental well-being of older adults.[1] Dementia is a chronic and progressive condition that impairs memory, cognition, and social functioning.[2] Dementia, a progressive neurocognitive disorder primarily affecting older adults, is an escalating global concern, with early-onset cases (before age 65) drawing increasing attention and warranting further research. Each year, approximately 10 million new cases are diagnosed with dementia worldwide, equivalent to one every three seconds. In 2020, over 55 million people were living with dementia, and this number is projected to nearly double every two decades, reaching about 78 million by 2030 and 139 million by 2050.[3,4]

Traditional pharmacological interventions offer limited benefits in addressing the complex symptoms of dementia, driving greater interest in non-pharmacological strategies, particularly environment-based and sensory interventions for geriatric populations.[5] Reminiscence therapy, which involves the structured recall of past experiences, serves as a systematic approach to stimulate cognitive function, enhance mood regulation, and promote social interaction by engaging individuals in meaningful conversations about their personal history. Research demonstrates that reminiscence therapy significantly improves cognitive performance, reduces behavioral and psychological symptoms, and enhances overall quality of life among elderly individuals with dementia across various care settings.[6,7]

Multisensory environments deliver controlled stimulation through visual, auditory, tactile, and olfactory modalities, serving as established therapeutic interventions. These environments help reduce agitation, enhance mood, and promote social interaction by creating calming, engaging spaces that evoke

positive memories and emotions in elderly patients with cognitive decline.[8] Structured multisensory interventions represent an evidence-based approach to dementia management strategies.[9] Implementing multisensory interventions in the early stages of dementia may help preserve neural pathways before severe cognitive decline and sensory impairments occur.[10,11]

Integrating reminiscence therapy with multisensory environments offers an innovative approach to dementia care, addressing both cognitive and emotional needs. Recent studies demonstrate that combining multiple therapeutic modalities can significantly enhance functional mobility and psychological well-being, underscoring the effectiveness of integrated interventions in geriatric healthcare.[12,13]

Despite growing evidence supporting reminiscence therapy and multisensory environments individually, significant gaps remain regarding their integration, particularly in non-Western contexts. Limited research addresses the specific design requirements, implementation strategies, and cultural adaptations needed for such integrated therapeutic spaces in Indonesia, where cultural and social factors strongly influence intervention effectiveness. This study contributes by identifying culturally specific design elements essential for implementing combined reminiscence–multisensory environments in Indonesian healthcare settings.

Healthcare professionals highlight the importance of close collaboration between healthcare workers, institutions, and multidisciplinary teams to ensure comprehensive assessment, effective intervention, and optimal patient outcomes. Such collaborative approaches are fundamental for establishing effective dementia care programs in institutional settings. This study aimed to identify key components and design principles for developing culturally appropriate multisensory environments integrated with reminiscence therapy to enhance the quality of life of elderly individuals with dementia in Indonesia. It specifically explored the preferences, needs, and experiences of elderly individuals, caregivers, and healthcare professionals to inform the development of the Harmony multisensory space.

METHODS

This qualitative study employed an exploratory descriptive design using focus group discussions (FGDs) to gain comprehensive insights from stakeholders involved in dementia care. The methodology followed established qualitative research protocols to explore healthcare experiences and preferences within specific populations.[14]

Participants were recruited through purposive sampling based on predefined inclusion criteria and divided into three groups: (1) elderly participants (n=10), aged 56–79 years, community-dwelling with varying levels of cognitive impairment, recruited via standardized screening procedures at local health centers; (2) family caregivers (n=2), comprising primary caregivers such as spouses and adult children with extensive dementia caregiving experience; and (3) healthcare professionals (n=5), a multidisciplinary team including nurses, architects, interior designers, and community health workers specializing in elderly care environments. Exclusion criteria included severe cognitive impairment (mini-mental state examination score <10), serious psychiatric conditions requiring specialized care, significant communication barriers, and inability to provide informed consent.

A single FGD was conducted on July 3, 2025, lasting approximately three hours under standardized conditions. The discussion, facilitated by the principal investigator, used a semi-structured interview guide covering topics such as personal experiences, environmental preferences, behavioral challenges, social interaction patterns, therapeutic needs, and design considerations for specialized care. To accommodate participants with cognitive impairments, the guide was pilot-tested with three elderly individuals with mild impairment and refined by simplifying language, incorporating visual prompts, allowing extended response times, and conducting regular comprehension checks. A clinical psychologist specializing in geriatric communication reviewed and validated the final guide.

The session was audio-recorded with participant consent using high-quality digital devices and transcribed verbatim within 48 hours to ensure accuracy. Strategies to ensure balanced participation included targeted questioning to engage quieter participants, structured turn-taking, use of non-verbal communication techniques, and dividing participants into smaller groups to minimize dominance by more vocal individuals. A participant tracking sheet monitored contribution frequency.

Data were analyzed using thematic analysis based on Braun and Clarke's six-phase framework: (1) familiarization with data through repeated transcript review and reflective note-taking, (2) inductive coding to identify key concepts, (3) clustering related codes to develop potential themes, (4) reviewing themes for internal consistency and external validity, (5) refining and naming themes, and (6) producing a comprehensive report of findings. Coding reliability was ensured through independent coding by two researchers, achieving high inter-coder agreement. Data triangulation across participant groups (elderly, caregivers, healthcare professionals) and researcher triangulation enhanced validity. An audit trail documented the entire research process, and participants engaged in member-checking to verify interpretations of findings.

Ethical approval was obtained from the Health Research Ethics Committee of Universitas Karya Husada Semarang (157/KEP/UNKAHA/SLE/VI/2025) prior to recruitment. Written informed consent was obtained from all participants after a detailed explanation of the study. Anonymity and confidentiality were maintained using standardized data protection protocols, including data de-identification. All digital data, including transcripts and audio recordings, were stored on encrypted servers with access restricted to the research team.

RESULTS

The study involved elderly participants aged 56–79 years from diverse urban and rural areas of Indonesia, most of whom reported memory difficulties beginning between ages 55 and 60. Family

caregivers included one spouse and one adult child, each with over five years of caregiving experience, while healthcare professionals came from multidisciplinary fields, nursing, architecture, interior design, and community health, providing comprehensive perspectives on dementia care environments.

Data analysis revealed five key themes with interrelated subthemes, shaping the development of multisensory therapeutic environments for elderly individuals with dementia. The first theme emphasized positive reminiscence triggers, as participants highlighted the therapeutic value of recalling childhood memories and significant life events, such as traditional games, religious celebrations, and village activities. One participant reflected, "Playing with friends, swimming in the river, looking for grasshoppers, these childhood memories bring the most joy."

The second theme focused on personalized spaces that foster comfort, familiarity, and safety. Participants preferred naturally lit rooms, calming earth-toned colors, private bedrooms with attached bathrooms, good ventilation, temperature control, and familiar objects for orientation. As one participant described, an ideal setting would be "a small house, private room with bathroom inside, calm colors, with music."

The third theme highlighted the importance of multisensory integration to enhance cognitive and emotional well-being. Participants valued auditory stimulation through traditional and spiritual music, visual cues from family photographs and familiar colors, tactile comfort from soft textures, olfactory input via eucalyptus oil, and kinesthetic activities enabling safe movement. These elements were closely linked to positive emotional responses and therapeutic benefits.

The fourth theme underscored the role of family support and communication strategies. Caregivers emphasized patience, empathy, and active family involvement. Effective strategies included warm greetings, active listening, positive reinforcement, maintaining routines, and adapting communication for hearing impairments. One caregiver stressed the importance of "patience from all family members" and noted the benefit of "motivating eating with positive pressure."

Finally, the fifth theme addressed cultural and spiritual considerations in designing therapeutic environments. Participants expressed a need for spaces that accommodate religious practices, traditional design elements, and culturally familiar activities to stimulate cognition. Architecture experts highlighted the importance of tailoring spaces to individual needs while integrating cultural and spiritual aspects as foundational principles. In Indonesia's multicultural context, cultural sensitivity emerged as essential for achieving effective and meaningful interventions.

DISCUSSION

This study offers valuable insights into developing multisensory therapeutic spaces for elderly individuals with dementia in the Indonesian cultural context. The findings highlight intricate links between personal history, environmental preferences, and therapeutic needs in designing effective, evidence-based dementia care environments. The focus on positive memories and personal experiences underscores the importance of integrating reminiscence therapy principles to optimize therapeutic outcomes.

Participants' vivid recollections of childhood activities, family celebrations, and meaningful life events provide valuable material for structured therapeutic programming. Analysis revealed consistent patterns within these narratives, informing the development of targeted interventions. This aligns with previous research demonstrating that personalized reminiscence approaches yield better outcomes than generic dementia care strategies.[15] Healthcare professionals also recognized reminiscence therapy as effective in enhancing mood and cognitive function, consistent with studies reporting reduced depressive symptoms and improved life satisfaction among dementia patients.[16,17]

Participants' multisensory preferences highlight the critical role of comprehensive sensory engagement in therapeutic environments grounded in neurological principles. Integrating music, visual cues, aromas, and tactile experiences activates multiple memory pathways and enhances emotional regulation. The findings reveal strong connections between sensory modalities and emotional responses, emphasizing the need for an integrated environmental design. Consistent with prior research, combining multisensory stimulation with reminiscence-based physical activities can significantly improve functional mobility and psychological well-being in elderly individuals with cognitive impairments.[18] Experts also recommend incorporating nostalgic songs, spiritual music, and aromatherapy to create holistic sensory experiences, as multisensory interventions effectively reduce behavioral symptoms in dementia.[19]

The nine design principles identified by the interior design expert offer a comprehensive framework for creating dementia-friendly environments that prioritize safety, navigation, and emotional well-being. These principles align with international best practices while incorporating cultural considerations relevant to Indonesian populations.[20] The findings show that the principles are interdependent and most effective when implemented collectively, requiring specialized lighting, color-coded cues, and safety adaptations tailored to cognitive impairments. Personalization and cultural sensitivity are essential to delivering individualized dementia care that honors personal histories and cultural values. In culturally diverse contexts where traditional practices differ from Western models, adapting therapeutic environments to local settings is crucial for achieving optimal outcomes.[21]

Family involvement plays a pivotal role in dementia care design.[22] Caregivers provided key insights into communication strategies and support needs, highlighting the importance of family participation within collectivist cultural frameworks that prioritize shared healthcare decisions. The findings reveal a strong link between family engagement and patient well-being, emphasizing the necessity of a family-centered approach for effective interventions. Collaboration among families and healthcare providers is critical for meeting the needs of older individuals. Recovery-based mental health care focuses on family involvement and the utilization of their strengths and

resources. Healthcare experts emphasize the necessity of collaboration across families, institutions, and providers, echoing Park et al.'s call for integrated support models in dementia care.[23,24]

Clinically, the findings emphasize important implications for designing therapeutic environments for elderly individuals with dementia. Healthcare providers should incorporate personal history, preferences, and cultural background when tailoring interventions. Therapeutic spaces should integrate multiple sensory modalities to enhance engagement and outcomes, guided by sensory integration principles.[11] Active involvement of family caregivers is crucial for ensuring continuity of care, while interventions must remain culturally adaptive to maximize acceptance and effectiveness across diverse populations.[25]

Several limitations should be noted. The small, geographically restricted sample limits the generalizability of findings to broader Indonesian contexts. The use of focus groups may have introduced social desirability bias, particularly among elderly participants reluctant to express dissenting views. Additionally, relying on a single data collection session provides only a cross-sectional snapshot, limiting insights into changing preferences over time. The cultural specificity of the findings also requires careful adaptation before applying them in non-Indonesian settings. Future research should evaluate the proposed Harmony space design through controlled trials with objective outcomes, assess its cost-effectiveness relative to standard care, and examine its long-term effects on cognitive decline via prospective studies. Furthermore, culturally adapted versions of the Harmony concept should be tested across diverse ethnic groups within Indonesia and internationally. Employing mixed-methods research that integrates quantitative measures with qualitative insights would further strengthen implementation strategies and outcomes.

CONCLUSION

This study emphasizes that creating effective multisensory environments for elderly individuals with dementia requires integrating five key components: positive reminiscence triggers, personalized design elements, multisensory integration, family support strategies, and cultural considerations. The proposed Harmony Space concept provides a practical framework for applying these principles in both clinical and community settings to enhance quality of life. The findings reveal complex interrelationships among these themes, strengthening the validity of the results and their relevance for developing targeted interventions. Furthermore, the study contributes to the growing evidence supporting non-pharmacological approaches to dementia care and offers actionable insights for healthcare providers, designers, and policymakers to improve care environments within the Indonesian healthcare system.

ETHICAL APPROVAL

This study was approved by the Health Research Ethics Committee of Universitas Karya Husada Semarang (157/KEP/UNKAHA/SLE/VI/2025) before participant recruitment.

CONFLICT OF INTEREST

The authors declare no conflicts of interest related to this research.

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AUTHOR CONTRIBUTIONS

FAMM designed the research, collected the data, performed the statistical analysis, and wrote the manuscript. DIW contributed to data curation, formal analysis, and manuscript editing. IW participated in the investigation, resource acquisition, and manuscript review. HE contributed to the research methodology, instrument validation, and data interpretation. KS provided supervision, validation, and a critical review of the final manuscript.

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