ORIGINAL ARTICLE

Improving Exercise Interventions for Older Adults with Dementia: A Qualitative Exploration of Physiotherapists' Knowledge, Attitudes, and Practices

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ABSTRACT

INTRODUCTION: Dementia creates significant challenges to physical activity management in older adults due to progressive cognitive and behavioural impairments. Physiotherapists serve a critical role in designing exercise interventions. However, the lack of standardized dementia-specific training compromises the efficacy of care. Despite evidence on the benefits of physical activity for older adults with dementia (OAwD), the physiotherapists' knowledge, attitude, and practices (KAP) to meet these specific needs remains unclear. This qualitative study explores the physiotherapists' KAP in exercise prescription, aiming to identify unmet training needs and inform targeted strategies to optimize therapeutic outcomes for OAwD. **MATERIALS AND METHODS:** A qualitative approach was used, employing semi structured interviews with 9 physiotherapists experienced in dementia care. Participants were selected through purposive sampling to capture diverse expertise. Data was analysed through thematic analysis uncovering patterns and insights related to KAP and its impact on care delivery. **RESULTS:** Four central themes emerged: Knowledge (theme 1), attitudes (theme 2), and practices (theme 3 and theme 4). Firstly, physiotherapists emphasized the importance of comprehensive assessments, utilizing tools such as the 'Timed Up and Go test' and 'Montreal Cognitive Assessment'. Secondly, patience and adaptability were highlighted as essential due to cognitive decline associated with dementia. Thirdly, caregiver involvement and education were essential. Fourthly, goal oriented and functional exercises were prioritized. **CONCLUSION:** Physiotherapists showed a strong understanding of dementia care but highlighted the need for enhanced, specialized training. Addressing these gaps could improve exercise interventions and foster better health outcomes for OAwD.

Keywords
Attitude, dementia, exercise, knowledge, practice

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INTRODUCTION

Dementia, a group of disorders characterized by cognitive decline, increasingly impacts the health and daily functioning of older adults.[1] Cognitive impairment in dementia increases fall risk due to postural instability, reduces individual's attention to balance and gait, reduces ability to adapt towards environment obstacles, muscle weakness, and functional limitations, compounding the challenges of physical activity engagement.[2,3] These physical deficits, combined with behavioural changes and emotional challenges, often interfere with the ability to participate in structured exercise, further exacerbating health decline in individuals with dementia.[3,4] Falls and their associated consequences lead to substantial healthcare costs, impacting families and national economies alike.[5] Current projections estimate the global number of older adults with dementia (OAwD) to surge from 57.4 million in 2019 to 152.8 million by 2050, signalling a pressing need for effective healthcare interventions.[6] In Malaysia, the prevalence of dementia among those aged 60 years old and above is estimated between 8.5%-14.3%, with expectations of continued growth.[7,8] Given this rising prevalence, enhancing healthcare services to address dementia-specific needs has become an urgent priority.

Physical exercise, an intervention with established benefits for muscle strength, balance, mobility, and endurance, is essential in promoting health and functional independence among OAwD.[9,10] Systematic reviews affirm that exercise can mitigate fall risk when tailored to individual's capabilities and interests, promoting engagement and adherence.[11] According to WHO guidelines, older adults should engage in at least 150 minutes of physical activity per week to achieve optimal health outcomes.[12] However, adherence to these recommendations can be challenging for OAwD, due to limited awareness of the benefits of physical activity, cognitive and behavioural barriers, and the difficulty of sustaining engagement in structured programs.[13]

Physiotherapists, as frontline healthcare providers, play a critical role in designing and implementing exercise programs for OAwD, yet there are notable gaps in dementia-specific training and confidence in handling behavioural and cognitive symptoms.[14,15] Previous studies highlight a need for physiotherapists to receive training tailored to the unique challenges of dementia care, as limited knowledge and skills can compromise the quality of care.[14,16] While some research has explored the general management of OAwD, there is limited focus on the specific knowledge, attitudes, and practices (KAP) of physiotherapists regarding exercise prescription for this population. This gap in the literature underscores the need for further investigation into how physiotherapists approach exercise prescription for OAwD, and how these approaches might be refined to enhance patient outcomes.

The current study aimed to address this knowledge gap by using a qualitative approach to explore the knowledge, attitudes, and practices of physiotherapists in exercise prescription for OAwD. Through in-depth interviews and thematic analysis, this study sought to identify key areas where physiotherapists excel and areas where additional support or training may be beneficial. Findings from this research are expected to contribute valuable insights into enhancing the quality of physiotherapy care for OAwD, ultimately informing more effective interventions that can improve patient engagement, safety, and functional outcomes.

MATERIALS AND METHODS

Study design

This study employed a qualitative research design, specifically a descriptive approach, to explore KAP of physiotherapists in prescribing exercise for OAwD. Qualitative methods were chosen to gain an in-depth understanding of the nuanced perspectives and practices of physiotherapists in dementia care. The study was conducted as part of a broader mixed-methods project focusing on exercise interventions for OAwD, with ethical approval granted by the Universiti Kebangsaan Malaysia Research Ethics Committee (JEP-2021-899).

Theoretical framework

The study applied the KAP model as a guiding framework.[17] This model posits that knowledge informs attitudes, which subsequently shape practices, making it well-suited for exploring how physiotherapists approach exercise prescription for OAwD. To capture the complexity of their behaviours, a qualitative approach was adopted to move beyond the limitations of traditional KAP surveys and allow for a more detailed exploration of the emotional and contextual factors influencing exercise prescription.

Participant selection

Purposive sampling was used to recruit physiotherapists with relevant experience in dementia care, aiming for diverse perspectives within the sample. Inclusion criteria required participants to hold a Bachelor's Degree in Physiotherapy which is verified by their workplace Human Resources Department, possess a minimum of two years of clinical experience in geriatric care and other clinical areas, as well as have direct experience in exercise interventions for OAwD. Physiotherapists were recruited through the alumni network of the Universiti Kebangsaan Malaysia, ensuring a selection of individuals with specialized expertise. Of the 20 individuals contacted, 12 expressed interests, and 9 were ultimately interviewed to achieve data saturation, indicated by a less than 5% threshold for new information in the final interviews.[18]

Data collection

Prior to data collection, written informed consent was obtained, with participants retaining a copy. For virtual interviews, e-consent forms were signed electronically. Data was collected through semi-structured, in-depth interviews conducted between January-March 2024. A semi-structured interview guide was designed to align with the study objectives, focusing on key areas of knowledge, attitudes, and practices in exercise prescription for OAwD. The guide included open-ended questions and follow-up prompts were used (such as *'Can you elaborate on that? Can you explain further? How did you feel about that? Can you give an example?*') that encouraged participants to elaborate on their perspectives in greater depth. Key questions asked were: (i) *What is your opinion on the knowledge of physiotherapists in prescribing exercise for OAwD?,* (ii) *What is your opinion on the attitudes of physiotherapists in prescribing exercise for OAwD?,* and (iii) *What is your opinion on the practices of physiotherapists in prescribing exercise for OAwD?*. The interview guide was piloted with two physiotherapists, who were excluded from this study, and refined for clarity. The questionnaires were confirmed through discussion among three research members which were guided by previous studies.

Two trained researchers (N.I. and N.M.) jointly conducted the interviews in either Malay or English, based on the participants' language preference to ensure their comfort and facilitate the accurate expression of nuanced perspectives. Both researchers received joint training using a standardized interview guide. Initially, N.M. led the interviews while N.I. observed, until N.I. gained sufficient confidence and competence to conduct the interviews independently. For participants practicing outside the Hospital Canselor Tuanku Muhriz (HCTM), virtual interviews were held via online platform namely Google Meet or Zoom. In-person interviews were conducted at HCTM for available participants. Each session, lasted 30-45 minutes, was audio-recorded with the consent of the participants to ensure accurate data capture.

Data analysis

A deductive thematic analysis approach was employed to analyse the qualitative data, following Braun and Clarke's six-phase framework.[19] Recorded interviews, conducted in both Malay and English were transcribed verbatim to preserve the richness of narratives of the participants. Thematic analysis was performed using the original transcripts in their respective languages. Researchers (N.I. and N.M.) began by familiarizing themselves with the transcripts in their original languages, conducting multiple readings to identify initial patterns and themes. Coding was performed iteratively, with codes grouped into categories that captured core insights into physiotherapists' KAP in exercise prescription. Through a reflexive and iterative process, broader themes were generated, representing commonalities and nuanced perspectives. Regular team discussions were held to compare and refine emerging themes, ensuring conceptual alignment regardless of language structure. This process helped to minimize the risk of language-based discrepancies and ensured that the themes reflected equivalent meanings and interpretations in both Malay and English. To enhance rigor, bilingual researchers (N.M., N.A.A., and M.A.A.) independently reviewed coded data and emergent themes, refining the findings to ensure validity and credibility. All relevant quotes originally in Malay were translated into English by bilingual researchers (N.M., N.A.A., and M.A.A.), and then back-translated to ensure accuracy and preserved both linguistic and contextual consistency. In addition, to establish trustworthiness, several methodological strategies were employed. Member checking was conducted, allowing participants to validate and clarify key interpretations, thus enhancing the credibility of the findings. Participants were provided with summaries of their interview transcripts and preliminary themes for feedback. No changes were made to the interpretation of the data. Additionally, the use of peer debriefing among researchers contributed to consistency and reduced researcher bias. Through ATLAS.ti software is often recommended for managing qualitative data, manual

analysis was preferred due to the manageable size of transcripts, enabling a more immersive engagement with the data. Analysis occurred iteratively, preliminary coding after each interview, with full thematic development after all 9 interviews were completed.

RESULTS

The study included 9 physiotherapists (5 females, 4 males) with experience working with OAwD. Of the 20 alumni contacted, 12 responded, and data saturation was achieved after 9 interviews. Participants were primarily Malay (6 Malays, 3 Chinese), aged between 27-39 years old. All held Bachelor's Degrees in Physiotherapy, areas of practice include: musculoskeletal (n=6), neurology (n=5), geriatric (n=4), and cardiorespiratory (n=2). They were employed in hospitals across Kuala Lumpur (n=5), Selangor (n=1), Kedah (n=1), Kelantan (n=1), and Melaka (n=1), with experience ranging from 3-14 years (Table I).

Four main themes emerged from the analysis of the physiotherapists' perspectives on exercise prescription for OAwD: (1) comprehensive assessment and safety considerations, (2) patience, adaptability, and communication, (3) caregiver involvement and support, and (4) goal-oriented and functional exercises. These themes reflect the knowledge (theme 1), attitudes (theme 2), and (theme 3 and theme 4) practices of physiotherapists in dementia care, highlighting both strengths and challenges in their approaches.

Knowledge

Theme 1: Comprehensive assessment and safety considerations

Physiotherapists emphasized the need for dementia-specific assessments to ensure safety and effectiveness in exercise interventions for OAwD. Recognizing that cognitive impairments and psychological challenges, including memory loss, depression, and aggression significantly impact physical abilities, physiotherapists reported the importance of conducting thorough evaluations to inform exercise plans. Several physiotherapists expressed the need for *"evaluating cognitive function using tools like the Montreal Cognitive Assessment (MoCA)"* to understand the cognitive level and tailor interventions accordingly (P3). The 'Timed Up and Go' (TUG) test was frequently used to assess balance, functional status, and fall risk, with physiotherapists noting its usefulness in guiding safe exercise intensity and progression.

Patient safety was a consistent focus, with participants reporting high vigilance in monitoring patients' medical histories, including hypertension, diabetes, and mobility limitations, as these could increase the risk of falls. Physiotherapists stressed the importance of assessing vital signs and preparing necessary support measures, such as mobility aids and seating arrangements, to reduce risks. One participant highlighted, *"We prepare chairs for resting, have walking aids available, and ensure that at least two physiotherapists are on standby in case of a fall,"* showing the collaborative safety protocols involved in managing OAwD (P6).

Attitudes

Theme 2: Patience, adaptability, and communication

Effective exercise prescription for OAwD required physiotherapists to be patient, adaptable, and skilled in varied communication techniques. Cognitive challenges among patients often necessitated repeated instructions, with some physiotherapists noting that *"repeating exercises multiple times was essential for memory retention and engagement"* (P1). The need for adaptive strategies was evident, as participants described frequently adjusting their communication styles, using a combination of verbal cues, demonstrations, and non-verbal methods such as touch, to enhance understanding and cooperation.

Physiotherapists also relied on flexibility in exercise routines, adapting methods based on patients' responses and levels of engagement. If a patient was resistant or unresponsive, physiotherapists would *"let go of rigid expectations and find alternative ways to facilitate participation"* (P7). This flexible approach allowed physiotherapists to maintain a supportive environment while reducing frustration for both patients and themselves. Participants indicated that collaboration with caregivers was valuable in extending this adaptability, as caregivers could reinforce exercises at home, promoting long-term engagement and continuity.

Table I: Demographic profile of the participants

Participant	Age	Gender	Ethnicity	Education	Areas of practice	Workplace	Years in service
P1	39	Male	Malay	Bachelor's Degree	Musculoskeletal	Kuala Lumpur	14 years
P2	35	Female	Malay	Bachelor's Degree	Cardiorespiratory	Kuala Lumpur	10 years
P3	29	Male	Malay	Bachelor's Degree	Neurology	Kuala Lumpur	4 years
P4	27	Male	Malay	Bachelor's Degree	Musculoskeletal	Kuala Lumpur	3 years
P5	32	Male	Chinese	Bachelor's Degree	Musculoskeletal; Neurology; Geriatric	Kuala Lumpur	7 years
P6	29	Female	Malay	Bachelor's Degree	Musculoskeletal; Neurology; Geriatric	Kedah	4 years
P7	30	Female	Malay	Bachelor's Degree	Musculoskeletal	Kelantan	5 years
P8	27	Female	Chinese	Bachelor's Degree	Musculoskeletal; Neurology; Cardiorespiratory; Geriatric	Selangor	3 years
P9	32	Female	Chinese	Bachelor's Degree	Neurology; Geriatric	Melaka	7 years

Practices

Theme 3: Caregiver involvement and support

Caregiver involvement emerged as essential in supporting exercise adherence and continuity for OAwD. Physiotherapists consistently involved caregivers during sessions, educating them on exercises to reinforce routines at home and ensure safety. This involvement was viewed as crucial for the patient's progress and well-being, with caregivers providing motivation and support beyond the clinical setting. One physiotherapist explained, *"Caregivers should be involved so they can understand how to assist with exercises at home,"* illustrating the collaborative approach needed in dementia care (P4).

In addition, physiotherapists emphasized educating caregivers not only on the exercises themselves but also on strategies to motivate and support the patient regularly. Frequent reminders and encouragement were necessary to counter patients' memory impairments, which often made it difficult for them to maintain exercise routines independently. Equipping caregivers with these tools ensured that patients could benefit from consistency in care and engagement even outside of therapy sessions.

Theme 4: Goal-oriented and functional exercises

Physiotherapists stressed the importance of goal-oriented and functional exercises to enhance both physical and cognitive engagement in OAwD. Rather than focusing on isolated strength training, exercises were integrated into daily routines, emphasizing practical, functional movements such as standing up from a chair or reaching for familiar objects. This alignment with real-life activities was found to increase patient engagement, as it provided relevance and familiarity, helping patients connect exercises to their daily needs. One participant shared, *"For dementia, we focus on functional exercises instead, as these are more relevant and easier for patients to engage with"* (P9). Setting specific, goal-oriented tasks also supported patient motivation by giving them a clear purpose for each exercise. For example, physiotherapists structured exercises around meaningful objectives, such as *"walking toward a target"* or *"reaching for an object,"* which helped patients grasp the purpose of their movements (P8). This approach fostered a sense of achievement and encouraged compliance with the exercise regimen, as patients could better understand and relate to the goals.

Participants also recognized the role of familiar environments and routines in overcoming cognitive challenges. Engaging in exercises within well-known settings helped reduce the cognitive load for patients, making it easier for them to participate effectively. One physiotherapist noted, *"If we bring the patient near a familiar area, it prompts recognition, and they can engage more easily"* (P9). By embedding exercises in familiar contexts, physiotherapists created a patient-centred approach that supported sustained engagement and functional improvement for OAwD. Common exercise prescription practices among participants for OAwD are summarized in Table II.

Table II: Physiotherapist exercise prescription practices for older adults with dementia (extracted from the interview)

	Type of exercise	Duration	Frequency	Intensity	Diversity of exercises
P1	Balance, strength, cardiovascular, functional activities of daily living	45min or 20-30min	1x/day or 2x/day	Low - moderate	Image illustration
P2	Cardiovascular	5-15min/exercise, 30min cardio,	150min/week,	Moderate	Home exercise, group exercise, community programs
P3	Balance, strength, cardiovascular, flexibility, mobility	30min	1x/day or 150min/week	Low	Based on interests, dyadic exercise, play exercise, gardening
P4	Balance and coordination, strength	40-45min	2x/week	Moderate	Visual cues, cognitive exercises
P5	Balance, strength, flexibility, mobility, functional activities based on daily	60min (10min/exercise)	1x/day or 3x/week	Low – moderate (Dependent on frequency)	Video exercises, fall prevention education
P6	Balance, strength, mobility, functional activities of daily living	30min,	3-5x/week	Moderate	Cognitive exercises
P7	Balance, strength	30-50min (10min rest)	3-5x/week	Low - moderate	Simple exercise
P8	Functional activities of daily living	30-45min	3-4x/week (with physio) or 1x/day (with caregiver)	Depending on the ability	Group play exercises (according to creativity)
P9	Balance, strength, mobility, and functional activities of daily living	60min (15min/exercise)	Depending on the caregiver's readiness	Low – moderate	Short and enjoyable exercises

DISCUSSION

This study aimed to explore physiotherapists' KAP regarding exercise prescription for OAwD. Through thematic analysis of in-depth interviews, 4 primary themes were identified: Knowledge theme was (1) comprehensive assessment and safety considerations, Attitude theme was (2) patience, adaptability, and communication, and Practices theme was (3) caregiver involvement and support, and (4) goal-oriented and functional exercises. These findings provided insights into the roles and challenges faced by physiotherapists in managing exercise interventions for OAwD.

The results underscore that while physiotherapists possess a foundational understanding of dementia, there is a clear need for additional dementia-specific training to enhance the quality of care. The physiotherapists in this study recognized the cognitive and physical challenges associated with dementia, yet frequently highlighted limitations in specialized knowledge and skills for effectively managing these challenges. For instance, P2 stated *"Not all physiotherapists can handle this population. So, if you really want to do it properly, you need to specialize in geriatrics and you [must] have in-depth knowledge of the psychology of geriatric and dementia patients"*. This aligns with previous research indicating that healthcare providers often lack sufficient dementia-specific education, which can hinder effective treatment.[14,15] The findings here emphasize that comprehensive training programs focused on dementia could empower physiotherapists to deliver safer, more effective, and individualized care to OAwD.

The emphasis on comprehensive assessment and safety considerations in this study supported existing literature on the importance of multi-faceted evaluations in dementia care. Participants frequently highlighted the importance of cognitive assessments, such as the MoCA, alongside physical evaluations like the TUG test to assess balance and mobility.[11] These tools provide critical insights that allow physiotherapists to tailor exercise programs according to patients' specific cognitive and physical abilities. Furthermore, physiotherapists demonstrated awareness of potential health risks, including fall risks, that may arise from the interaction of cognitive decline and physical impairment. Safety-focused strategies, such as preparing adaptive equipment and monitoring vital signs, are essential to minimize risks, a need consistently highlighted across dementia care research.[20,21] Physiotherapists' attentiveness to these considerations reflects a patient-centred approach that prioritizes both safety and therapeutic effectiveness.

The findings related to patience, adaptability, and communication revealed the complexity of engaging OAwD in exercise routines. Physiotherapists described the need for patience and flexible approaches, especially given the cognitive limitations that will make it difficult

for patients to retain instructions and follow routines independently. Participants in the current study noted that repeated instructions and creative adaptations were essential to sustaining patient engagement. Flexibility in exercise methods helped alleviate frustration for both physiotherapists and patients, fostering a supportive atmosphere that encourages participation. The need for collaborative, adaptive approaches in dementia care is well-documented, as healthcare providers often benefit from adjusting interventions based on patient responses.[22]

Caregiver involvement was also a prominent theme, underscoring its significance in facilitating effective exercise interventions. Involving caregivers not only enhances adherence but also supports the continuity of care beyond the clinical setting. Physiotherapists in this study emphasized the necessity of caregiver education, highlighting the importance of teaching the caregivers practical strategies to motivate and guide patients in maintaining their exercise routines. This aligns with findings from Marulappa[23] and Kuluski[24], who stressed that caregivers play an integral role in reinforcing exercise adherence and supporting patients with dementia in managing their daily activities.[23,24] By integrating caregivers into the exercise regimen, physiotherapists foster an environment conducive to sustained engagement, helping to ensure that exercise remains a consistent aspect of OAwD care.

The theme of goal-oriented and functional exercises underscores the value of meaningful, daily-life-based activities in dementia care. Physiotherapists in this study frequently tailored exercises to mirror routine tasks, such as standing from a chair or reaching for familiar objects, to provide patients with a sense of purpose and relevance. This finding resonates with existing literature, which suggests that exercises connected to real-life activities enhance engagement and compliance among patients with cognitive impairments.[10,11] Participants noted that goal-oriented exercises not only motivate patients but also foster a sense of accomplishment, supporting both physical and cognitive well-being. By structuring exercises around familiar tasks, physiotherapists enable patients to draw connections between therapy and their everyday experiences, making interventions more accessible and meaningful.

However, this study has several limitations that may impact the generalizability of the findings. First, the sample size was limited, and participants were selected from specific geographic locations, which may not fully represent the diversity of practices across broader regions or healthcare settings. Additionally, the qualitative design of the study limits the ability to establish causal relationships between physiotherapists' knowledge, attitudes, and practices and the effectiveness of their exercise interventions for OAwD. The reliance on self-reported data may also introduce social desirability bias, as participants may have presented idealized versions of their knowledge and practices. Future studies with larger, more diverse samples and the inclusion of quantitative measures could provide a more comprehensive understanding of physiotherapists' approaches to dementia care.

CONCLUSION

In conclusion, this study sheds light on the critical role of physiotherapists in promoting exercise for OAwD. Physiotherapists demonstrated robust knowledge in safety assessments but expressed gaps in dementia-specific skills (Knowledge). The findings suggested that physiotherapists bring valuable knowledge and adaptive strategies to dementia care, but there remains a need for specialized training to further enhance their effectiveness. By addressing these training gaps, healthcare providers and policymakers could improve the quality of exercise interventions for OAwD, fostering patient engagement, safety, and overall well-being. Physiotherapy attitudes emphasized the critical role of patience, adaptability, and effective communication in facilitating exercise engagement among older adults with dementia, emphasizing the importance of flexible, collaborative approaches tailored to individual needs within physiotherapy practice. Whereas the practices on patient-centred, functional exercises and caregiver involvement highlights the potential for more targeted, supportive interventions in dementia care, contributing to improved health outcomes and quality of life for this growing population.

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CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

INSTITUTIONAL REVIEW BOARD (ETHIC COMMITTEE)

Ethical approval granted by the Universiti Kebangsaan Malaysia Research Ethics Committee (JEP-2021-899).

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