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Possibilities of using non-pharmacological methods for wandering behavior in people with cognitive disabilities

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Abstract

Introduction. *Cognitive impairment in older adults is frequently accompanied by behavioral disturbances such as wandering, which negatively affect patients' quality of life and increase burden on caregivers.* **Aim.** *The aim of this study was to review the effectiveness of non-pharmacological interventions in reducing wandering behaviors among older adults with cognitive impairment.* **Material and methods.** *A systematic review of the literature was conducted, including 12 studies focused on non-pharmacological strategies aimed at managing wandering behaviors.* **Results**. *Person-centred interventions proved to be the most effective, particularly physical activity programs and interventions specifically designed to reduce wandering, such as Tailored Activity Programs (TAp, TAP-O). Additional beneficial effects were observed for activity-based interventions, doll therapy, scheduled walks, Montessori-based interventions, reminiscence therapy, music therapy, physical exercise, and light therapy.* **Conclusions.** *Personalized and structured non-pharmacological interventions can effectively reduce wandering behaviors in cognitively impaired older adults. Further research and increased caregiver education are essential to optimize the implementation of these strategies in daily care. (Gerontol Pol 2026; 34; 12-18) doi: 10.53139/GP.20263405*

Keywords: *wandering, cognitive impairment, older adults, non-pharmacological interventions, dementia care*

Introduction

Wandering behavior is a demonstration of an unmet need that people with cognitive disability have and may be unable to satisfy and regulate on their own. Due to its demanding character (it requires a lot of carers' attention, empathy and reactiveness) it is usually described as one of the most challenging behaviors that carers of people with cognitive disability have to face [1].

The phenomenon is characterised by superficially aimless, repetitive movement and is a relatively common behavior – even up to 60% people with cognitive disability or community dwelling seniors may be taking on this challenge [2].

The need to move is often seen as problematic, particularly in terms of the risk of falling, getting lost or even disappearing. Therefore throughout the years many strategies have been developed to manage and decrease numbers of people affected by the untamed need to walk [1]. Mainly strategies have been divided into: pharmacological (e.g. neuroleptic drugs) and non-pharmacological (e.g. trackers, art therapy, restrains) [3]. It is important to note that non-pharmacological interventions may be both accepted by the senior (like music therapy) or not accepted and raising ethical concerns like physical restraints [3]. Whilst choosing an intervention it is important to note, that walking in itself is not negative and can have benefits such as improved physical fitness, stress reduction, reactive behavior's improvement and cognitive stimulation. Effective support for walking is the key to improving the quality of life of older people with cognitive impairment without pharmacological interventions only.

A pharmacological approach can be used to reduce the frequency and intensity of wandering by affecting the nervous system. However, their use carries the risk

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of side effects such as sedation, balance disturbances, and other serious health issues, which limits their long--term effectiveness and acceptability. Non-pharmacological interventions offer alternative approaches that may be more acceptable and ethical, especially in the context of long-term care. According to a review by Fleming and Purandare [4], appropriate environmental adaptation provides a safe space for movement, where the risk of getting lost is minimized. Artistic activities engage the mind and body, promoting creativity and emotional expression, which can help reduce the need for aimless wandering. Alternative physical activities can be an effective way to manage wandering.

Researchers suggest that positive and meaningful non--pharmacological approaches engage elderly people in meaningful activities with purpose and meaning, thereby reducing the frequency and intensity of wandering. Dimitriou et al. presented non-pharmacological interventions managing wandering in people with cognitive disabilities, including occupational therapies, environmental adaptations and physical activities [5-7].

Table I. Types of interventions based on Dimitriou et al. classification [6]

Interaction	Example	Effect
Adaptation of the environment	properly secured gardens and clearly marked corridors	improve spatial orientation and reduce disorientation
Art therapy	music, art activities	offer sensory and emotional stimulation
Substitute physical activity	tai chi and group walks	improve physical health and promote social interaction

Environmental adaptations, such as sheltered gardens and clearly marked corridors, improve spatial orientation and reduce disorientation, all result in less wandering. Appropriately introduced music therapy and art activities engage people and provide sensory and emotional stimulation [5]. Physical activities such as Tai Chi and group walks improve physical health and promote social interaction [7]. In the study of MacAndrew et al, supervised walking programmes reduce stress and agitation and improve overall wellbeing and physical health in the elderly with cognitive impairment [8].

Montessori-based volunteer visits in Canadian long--term care homes reduce wandering behavior [9]. The authors highlight the potential of Montessori methods to reduce the negative aspects of wandering and promote positive outcomes by focusing on individual abilities and interests. In addition, cognitive and behavioral techniques, such as reminiscence therapy, have been shown to be effective in reducing arousal and indirectly decrease the tendency to wander [10]. Environmental adaptations, such as safe, enclosed spaces with visual cues, provide a safe circumstances for wandering with supported spatial orientation and reduced disorientation. Technology, such as GPS monitoring systems and motion sensors support carers in tracking the movements of people with dementia, ensuring their safety without restricting their freedom [11]**.** Training carers in communication techniques and the recognition of wandering signals improves the quality of care and reduces stress for both patients and carers [12].

Non-pharmacological interventions for the management of wandering in people with cognitive disabilities offer a wide range of strategies to maintain benefits for patients. The introduction of therapeutic programmes, environmental adaptations, carer education and other interventions provide a comprehensive approach to improving the quality of life of people with cognitive disabilities.

As there has been no review of non-pharmacological interventions to modify wandering behavior.

Method

Three databases (PubMed, Embase, Google Scholar) were searched systematically in December 2023 using the key: ‘wandering’ AND “dementia”. The time frame was set from 2014 to 2023. The search was conducted in accordance with PRISMA guidelines [13].

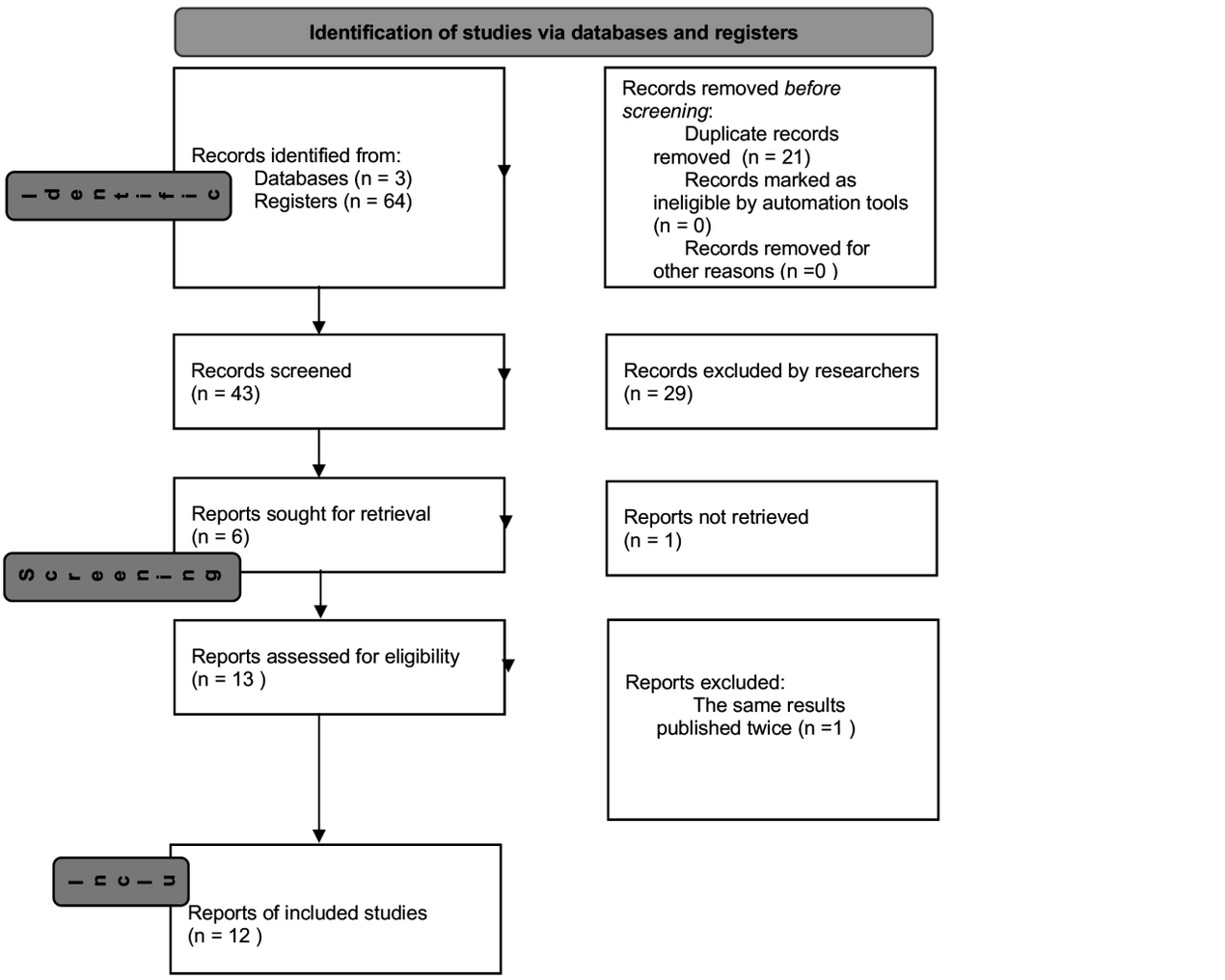
Screening

The screening of the identified publications was completed by three independent researchers G.P, N.S, J.D. and their decisions were blinded using Rayyan tool. Detailed decision process can be found in table II.

Table II. Inclusion Criteria

Variable	Inclusion criteria	Exclusion criteria
Population	Patients diagnosed with dementia.	Diagnosis other than dementia.
Variable	The impact of interactions on wandering.	Absence of a detailed account regarding specific influences on patients’ wandering behavior.
Publication type	Research article.	Case study, review, conference abstract.
Publication date	From 2014 to 2023.	Before 2014.

After screening of 12 articles (≈20% of all screened checked articles) were included in this article. One artic-



*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).

**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

Source: Page MJ, et al. BMJ 2021;372:n71. doi: 10.1136/bmj.n71.
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Figure 1. Decision process diagram

le was excluded whose results overlapped with a text by these authors published earlier.

Discussion

The presented studies illustrate a variety of interventions aimed at reducing wandering tendencies and enhancing the well-being of seniors with cognitive decline in different settings, primarily nursing homes and residential environments. The programme aimed at modifying wandering behavior such as TAP-O – at TAP on different groups will significantly reduce aberrant motor behavior [19,21]. It appears that also interventions not directly aimed at improving wandering behavior, such as puppet therapies, can significantly reduce wandering difficulties among population of seniors with moderate to severe cognitive decline [14]. Simple interventions involving scheduled walks both in the morning and evening have also been useful [16]. Montessori-Based Interventions [9,17] and Environmental Modifications) [15] were found to be meaningful and effective in reducing wandering episodes and improving the overall environment for both seniors and staff. Multisensory and Structured Activities [6,19,22] significantly reduced motor disturbances, wandering behaviours, and caregiver burden. These interventions included reminiscence therapy, music therapy, physical exercise, tailored activity programs, and

Table III. Studies details

Nr	Authors	Participants	Age of participants	Interventions	Length of the intervention	Place of intervention	Findings
1.	Santagata, Massaia & D'Amelio, 2021 [14]	N: 26 (DT), 26 (ST)	DT: 87 ± 7 ST: 86 ± 6	Doll therapy – seniors were asked to take care of "empathy doll".	90 days	nursing home	Significant findings: DT was more effective than ST in reducing wandering tendencies among population of seniors with moderate to severe cognitive decline.
2.	MacAndrew, et. al, 2019 [8]	N: 7	ND	Inviting participants for a 30-min supervised walk outside of the facility, 30 min before individual peak walking activity periods.	3 weeks	nursing home	Findings: 1. care staff reported positive outcomes for both seniors and professionals. 2. proposed activities were both acceptable and enjoyable for seniors.
3.	Hunter et. al, 2020 [9]	N: 21 staff interviews	ND	Montessori-based interventions.	ND	nursing home	Findings: intervention was meaningful to both seniors and staff.
4.	Dimitriou et. al, 2022 [6]	N: 60 (36F, 24M) divided into 10 groups of 6	73,40 ±8,86	Interventions included: reminiscence therapy (RT), music therapy (MT), physical exercise (PE).	5 days of every intervention, 2 days break	home	Significant findings: 1. PE was successful in reducing wandering. 2. MT (p = 0.018) following PE, further reduced the tendencies. 3. RT following MT reduced wandering even more (p = 0.034). 4. the same positive effect was also found for reducing the caregivers' burden; PE (p = 0.004), MT (p = 0.036), RT (p = 0.039). 5. reduction of wandering tendencies was found in all stages and types of cognitive disability. The most efficient order was PH-MT-RT.
5.	Bautrant et. al, 2019 [15]	N: 19	> 65	Rearrangement of the environment – "skylike ceiling tiles in part of the shared premises, progressive decrease of the illuminance at night together with soothing streaming music, reinforcement of the illuminance during the day, walls painted in light beige, oversized clocks in corridors, and night team clothes color (dark blue) different from that of the day team (sky blue)" (Bautrant et. al, 2019) [15]	ND	nursing home	Significant findings: 1.wandering itself was limited and the mean duration of wandering episodes were shorter (p = .002, .026 respectively) decreased over 24 hours after environmental arrangements. 2.reduction in the number and mean duration of wandering occurred during the late hours (P = .031 and .007, respectively).
6.	Shih et. al, 2019 [16]	N: 60 (divided into 3 groups)	ND	Seniors in 2 experimental groups were invited to take walks in the morning or in the evening. The average time of walks summed up to 120 minutes per week up to 24 weeks.	24 weeks	nursing home	Significant findings: 1. decrease of wandering tendencies within the morning walk group (p = 0.48) across the full study period. 2. decrease of wandering tendencies within the afternoon walk group (p = 0.001) after 16 weeks of walking.

7.	Bautrant et. al, 2022 [17]	Retrospective cohort study. 84 seniors	ND	Analysis of different therapeutic approaches.	ND	clinical setting	Significant findings: Montessori-based approaches and multisensory stimulation reduced wandering (p<001).
8.	Gaugler et. al, 2019 [18]	Carers and people living with ARD. numbers: 64 in treatment group, 68 - usual care	ND	remote activity monitoring (RAM).	6 months	home	No statistically significant findings. Possible moderators form qualitative analysis: 1. cognitive state of the person who is being taken care of, 2. difficulty in navigating around the house.
9	Oliveira et. al, 2021 [19]	N: 54 dyads (senior and caregiver) divided into two groups (experimental n=28, control n=26)	77.4 ± 7.5	Tailored Activity Program (TAP) and psychoeducation. "Implementation of three activities, including the provision of strategies to simplify communication and adapt activities based on the patient's cognitive and functional profile to facilitate engagement" (Oliveira et. al, 2021) [19] and generalization of those activities and techniques.	ND	home and hospital	Significant findings: 1. reduction of motor disturbances (p<0.01) 2. reduction of caregivers burden (p<0.01) (Zarit burden scale).
10.	Vaccaro et. al, 2022 [20]	N: 134 enrolled, 129 completed the study, intervention group (n=64), control group (n=65)	86,9 (experimental group); 88,4 (control group)	Doll therapy – seniors were asked to take care of a doll that was recognised as a real baby.	ND	nursing home	Significant findings: 1.higher decrease on NPI-NH scores (total and distress) among experimental group in comparison to the control group.
11.	Oliveira et. al, 2018 [21]	N: 21 dyads (senior and caregiver)	ND	TAP-O – TAP intervention for outpatients - tailored activities prescribed by occupational therapist to implement in daily routine.	ND	home and hospital	Significant findings: 1.less aberrant motor behavior (p = 0.02), 2.lower caregiver burden (p<0.01) (Zarit burden scale)
12.	Figueiro et. al, 2019 [22]	N: 46 (30F, 16M)	85.1	"Participants were exposed to 2 daytime lighting conditions: (1) an active lighting intervention that provided high circa- dian stimulus (CS) and (2) a control intervention that provided low CS (ie, below the threshold for activation of the circadian system), with the light delivery method varying depending on where the participant spent most of his/her day" [22]	14 weeks	nursing home	Significant findings (p<0.05) in active intervention: 1.improved PSQI, 2. improved CSDD scores, 3. greater differences in CMAI scores

F- female, M- male, DT - doll therapy, ST - standard treatment, ND - no data, NPI-NH -Neuropsychiatric Inventory Nursing Home Version, RT - reminiscence therapy, MT - music therapy, PE - physical exercise, RAM - remote activity monitoring, PSQI - Pittsburgh Sleep Quality Index, CSDD - Cornell Scale for Depression in Dementia, CMAI - Cohen-Mansfield Agitation Inventory.

light interventions. Remote Activity Monitoring (RAM) [18] did not show statistically significant findings but indicated potential moderators affecting outcomes. It should be noted that the majority of interventions (8) were implemented in care homes. It seems reasonable to extend the research also to family homes, where the problem of wandering is also present and affects the daily functioning of families. It may also be relevant that only some of the interventions [6,18] took place over a specific longer period (6 months).

Conclusion

Current reports indicate that non-pharmacological interventions can be useful in modifying the tendency to wander among elderly with cognitive disabilities. It seems necessary, to compare similar methods in elderly people groups living in their own home and in a nursing home. The researcher could focus on developing adequate methods of wandering management. Caregivers should also be intensively educated about the advantages of non-pharmacological interventions, because they can benefit also due to proven interventions. The personalized and structured interventions in managing wandering tendencies among seniors with cognitive impairments may reduce caregiver burden. Further research are needed to better explore the efficacy and application of these methods in various care settings. A new line of research is focusing on impacts distinct from the restriction of wandering. Innovative direction is emerging to encourage hiking while maintaining safety and potential benefits for the individual and the carer [23].

Conflict of interest
None

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