



Physical Activity and Music Therapy as a Cornerstone of Dementia Care and Healthy Aging in Integrative Medicine

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Abstract

Aging has become a crucial concern associated with dementia, mild cognitive impairment (MCI), and behavioral and psychological symptoms of dementia (BPSD). Problems among older adults encompass four major domains: physical, psychological, behavioral, and social. Recent topics include music therapy, sound therapy, art therapy, and appropriate physical activity (PA). PA is a crucial modifiable factor in dementia prevention, as reported by the 2024 Lancet Standing Commission on Dementia Prevention, Intervention, and Care. In the Western Pacific Region (WPR), weighted population attributable fractions (PAFs) are important. As populations continue to age worldwide, promoting individualized physical activity should become an integral component of comprehensive dementia prevention and person-centered care.

Keywords

Dementia, Mild Cognitive Impairment, Behavioral and Psychological Symptoms of Dementia, Population Attributable Fractions, Physical Activity

Abbreviations

ADL: Activities of Daily Living; BDNF: Brain-Derived Neurotrophic Factor; BPSD: Behavioral and Psychological Symptoms of Dementia; CGA: Comprehensive Geriatric Assessment; HDL-C: High-Density Lipoprotein Cholesterol; LDL-C: Low-Density Lipoprotein Cholesterol; MCI: Mild Cognitive Impairment; PA: Physical Activity; PAFs: Population Attributable Fractions; QOL: Quality of Life; WHO: World Health Organization; WPR: Western Pacific Region.

Commentary

Population aging has become one of the greatest healthcare challenges worldwide. As life expectancy increases, the prevalence of frailty, dementia, mild cognitive impairment (MCI), and behavioral and

psychological symptoms of dementia (BPSD) continues to rise, creating substantial medical, social, and economic burdens [1]. Comprehensive geriatric assessment (CGA) has traditionally categorized problems in older adults into four major domains:

physical, psychological, behavioral, and social (Table-1). Although abundant evidence exists for each individual domain, translating these findings directly into daily clinical practice is often challenging because older adults are not a homogeneous population. Older adults with dementia or MCI tend to enter a vicious circle (Fig-1). Unlike experimental models, each individual possesses unique psychological characteristics, cultural backgrounds, educational experiences, personal preferences, artistic interests, and life histories that cannot be adequately represented by numerical indicators alone. Therefore, individualized and person-centered interventions are essential in geriatric medicine.

Table-1: Categorized Problems for Older Adults

Category	Some Factors
Physical	Dysphagia Appetite loss Various types of pain
Psychological	Depression Loss of motivation Agitation
Behavioral	Refusal Forgetting to eat Inadequate activity
Social	Isolation Cooking burden Lack of cooperation

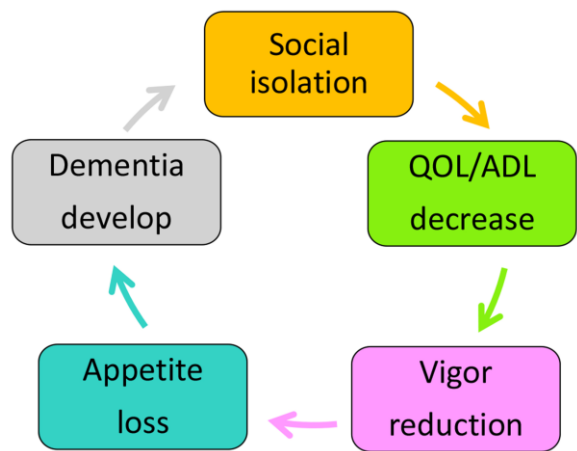


Fig-1: The Vicious Circle for Older Adults with Dementia and Mild Cognitive Impairment (MCI)

In recent years, appropriate treatments for dementia and MCI have become particularly important. Rather

than relying solely on medication, non-pharmacological treatments, such as music therapy, sound therapy, art therapy, and physical therapy, are receiving increasing attention. The authors have long been engaged in clinical practice and research in these fields [2]. This article discusses these various therapeutic approaches. Among these non-pharmacological interventions, appropriate physical activity has consistently demonstrated beneficial effects across multiple domains of health. The concept itself is not new. More than 2,300 years ago, Aristotle stated that "moderate exercise produces health, preserves it, and prolongs it," emphasizing that physical activity contributes not merely to physical fitness but to overall well-being [3]. Modern scientific evidence has remarkably supported this ancient observation.

A landmark epidemiological investigation by Morris and colleagues in London provided one of the earliest demonstrations of the relationship between habitual physical activity and cardiovascular health [4]. They compared sedentary double-decker bus drivers with conductors who repeatedly climbed stairs during working hours and found substantially lower rates of coronary heart disease among the physically active conductors. This classic study established daily physical activity as a major determinant of cardiovascular health and became a foundation for modern preventive medicine. Recent evidence further strengthens the importance of habitual movement. A large systematic review and dose-response meta-analysis published in 2025 demonstrated that increasing daily step counts is associated with progressive reductions in all-cause mortality, cardiovascular disease, type 2 diabetes, and several other major health outcomes [5]. Importantly, the benefits were observed even at moderate activity levels. These findings indicate that relatively small increases in daily walking may provide clinically meaningful protection against chronic diseases.

Physical activity has also emerged as an important modifiable factor in dementia prevention. The 2024 Lancet Standing Commission on Dementia Prevention, Intervention, and Care identified 14 modifiable risk factors accounting for nearly half of dementia cases worldwide. Physical inactivity contributed approximately 2% of the global population-attributable

fraction, whereas hearing loss and elevated low-density lipoprotein cholesterol (LDL-C) each accounted for 7%, diabetes for 2%, and several other vascular and lifestyle factors further contributed to dementia risk. These findings emphasize that maintaining an active lifestyle throughout adulthood should be regarded as a fundamental component of brain health rather than merely a strategy for preserving physical function [6] (Table-2).

Interestingly, regional differences also exist in the data presented above. A recent Japanese analysis published in *The Lancet Regional Health - Western Pacific* estimated that, among modifiable risk factors, hearing loss accounted for approximately 6.7%, physical inactivity for 6.0%, elevated LDL-C for 4.5%, and diabetes for approximately 3% of dementia cases. These findings suggest that insufficient physical activity may play an even greater role in dementia prevention in Japan than estimated globally, highlighting the importance of culturally appropriate exercise promotion among older Japanese adults [7].

From an international perspective, one-third of global cases occur in the Western Pacific Region (WPR), which is characterized by significant socioeconomic and cultural diversity. Weighted population attributable fractions (PAFs) for nine modifiable factors were calculated across 32 countries [8]. The results showed substantial international variation in weighted PAFs. Factors exhibiting the greatest variation were low education (0.0-7.3%) and obesity (0.2-5.9%). Conversely, factors with less variation included hypertension (0.9-2.2%) and alcohol consumption (0.0-0.5%). Combined weighted PAFs ranged from 20.1% in Singapore to 34.7% in Papua New Guinea. Regarding income-related trends, low education was the largest contributor to the dementia burden in low- and middle-income countries. In contrast, diabetes and depression were major contributors in upper-middle- and high-income countries. Based on these findings, eliminating seven modifiable risk factors may prevent or reduce 20-35% of dementia cases across the WPR.

Table-2: Population Attributable Fractions of Potentially Modifiable Risk Factors

Life Stage	Various Factors	Japan, 2026 (%)	World, 2024 (%)
Early life	Lower educational attainment	1.5	5
Midlife	Hearing loss	6.7	7
	Physical inactivity	6	2
	High LDL-C	4.5	7
	Diabetes	3	2
	Hypertension	2.9	2
	Depression	2.6	3
	Smoking	2.2	2
	Excessive alcohol	1.3	1
	Traumatic brain injury	0.8	3
	Obesity	0.7	1
Late life	Social isolation	3.5	5
	Air pollution	2.5	3
	Untreated visual loss	0.6	2
Total	Total potentially modifiable	38.9	45
Reference	Recent reports on PAFs in Japan and the WPR	Lancet Reg Health West Pac, 2026	Lancet Commission, 2024

A recent report in *The Lancet Regional Health - Western Pacific* described dementia risk factors in the WPR [9]. Owing to limited educational opportunities, 20% of children <10 years of age in the WPR cannot read or comprehend basic text. Overweight or obesity was observed in >60% of people in the Pacific Islands and Australasia. Entirely sedentary lifestyles were observed in 41-62% of people in the Pacific Islands. According to Global Burden of Disease studies, substantial variation exists in the projected increase in the number of dementia cases among WPR countries [10]. Japan appears to show the smallest increase, 27% from 2019 to 2050, whereas Mongolia appears to show the largest increase, 389%. The World Health Organization (WHO) reported 16 million cases in the WPR in 2016, and this number was projected to double by 2040 in >10 WPR countries.

In the 2024 update of the Lancet Commission report, risk factors involving LDL-C and visual loss were added. Previously, high-density lipoprotein cholesterol (HDL-C) showed the largest increase from 1980 to 2018 in some WPR countries. This phenomenon underscores the need for a better understanding of dementia risk factors; however, current understanding remains insufficient [6]. Strong national action plans addressing dementia have been established in some WPR countries. Thus far, only Japan, South Korea, Australia, and Aotearoa New Zealand have such plans in place [9].

The biological mechanisms underlying these benefits are multifactorial. Exercise improves cerebral blood flow, enhances endothelial function, promotes neurogenesis, and increases the expression of brain-derived neurotrophic factor (BDNF) [11]. Furthermore, exercise interventions have shown favorable effects on neuropsychiatric symptoms, including anxiety, depression, apathy, agitation, and sleep disturbances. From the perspective of behavioral medicine, daily movement through activities such as walking, dancing, tai chi, gardening, household activities, or group recreational activities may collectively contribute to maintaining cognitive reserve while simultaneously enhancing social engagement and psychological well-being. Combining these activities with music, rhythm, nature exposure, or meaningful social interaction may

improve adherence while simultaneously addressing BPSD and quality of life (QOL).

In conclusion, appropriate physical activity represents one of the most effective, safest, and least expensive interventions available for healthy aging and dementia care. As populations continue to age worldwide, promoting individualized physical activity should become an integral component of comprehensive dementia prevention and person-centered care.

Conflict of Interest

The authors have read and approved the final version of the manuscript. The authors declare no conflicts of interest.

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