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From Eyesight to Insight: Addressing Barriers and Facilitators of Physical Activity Among Indian Elders

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Abstract

Background: Physical inactivity among Indian elders represents a significant public health challenge, influenced by diverse barriers such as fear of falls, limited social support, and environmental constraints. This article aims to explore the interplay of these barriers and facilitators, advocating for a paradigm shift from focusing solely on functional limitations to addressing psychological, social, and environmental determinants of physical activity.

Methods: This narrative review analyzes barriers and facilitators to physical activity among elderly populations in India, using literature from 2004 to 2024. A search of databases like PubMed, Google Scholar, and Web of Science identified 30 relevant articles. Findings reveal physical, psychological, social, and environmental factors affecting activity levels in older adults, focusing on themes relating to obstacles, supportive elements, and strategies to enhance physical activity in this demographic.

Results: The review highlights barriers to physical activity in older adults, including physiological changes from aging, environmental factors such as poor infrastructure, social determinants like changing family structures, and gender disparities. Conversely, facilitators such as community programs, exercise interventions, better infrastructure, and caregiver support are noted. Physical activity is shown to enhance cognitive function, mental health, cardiovascular health, muscle strength, balance, and overall quality of life, while also lowering risks of falls, depression, and chronic diseases.

Conclusion: Integrating geriatric health, urban planning, and behavioral sciences, the article emphasizes culturally tailored interventions for Indian elders. It recommends community programs, inclusive urban designs, and caregiver involvement to improve quality of life and tackle non-communicable diseases in aging populations.

Keywords: Aged, Caregivers, Chronic disease, City planning, Cognition, Depression, Exercise, Exercise therapy, Family structure, Mental Health, Muscle strength, Quality of life, Sedentary behavior

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Introduction

Background and Rationale

Physical inactivity among older adults has emerged as one of the most pressing public health concerns globally, with particularly severe implications in rapidly ageing societies like India (1). By 2050, India is projected to have over 300 million people aged 60 years and above, representing approximately 20% of the total population. This demographic transition necessitates urgent attention to strategies that promote healthy ageing, with physical activity serving as a cornerstone intervention.

Novelty and necessity of this review

While numerous studies have documented the benefits of physical activity for older adults in Western contexts, there exists a significant knowledge gap regarding the unique barriers and facilitators experienced by Indian elders. The Indian context presents distinct challenges: rapid urbanization, changing family structures from joint to nuclear households, cultural attitudes towards ageing, gender-specific constraints, and wide variations in built environments across urban and rural settings (2,3).

Previous reviews have predominantly focused on either clinical benefit of exercise or individual-level barriers, without adequately addressing the multi-dimensional nature of physical inactivity among Indian elders. This viewpoint article fills that gap by:

- Synthesizing evidence on physical, psychological, social, and environmental barriers specific to Indian elders
- Examining the interplay between traditional cultural values and modern urbanization in shaping activity patterns
- Proposing a comprehensive framework that moves beyond functional limitations ("eyesight") to holistic determinants ("insight")
- Highlighting culturally appropriate intervention strategies that acknowledge India's diversity.

Purpose and scope

This narrative review aims to critically examine the barriers and facilitators of physical activity among Indian elders and propose evidence-based, culturally sensitive interventions. The "eyesight to insight" framework represents a paradigm shift from viewing physical limitations as the sole determinant of inactivity to recognizing the complex interplay of psychological, social, environmental, and policy-level factors.

The critical importance of physical activity in ageing

Physical activity plays a crucial role in maintaining health and well-being for the elderly population. Regular physical activities and exercise have significant benefits on both physical and cognitive functioning among healthy older adults (4). Physical activity is essential for maintaining functional independence as individuals age, improving muscle strength, cardiovascular and muscular endurance, balance, and flexibility (5).

Interestingly, the impact of physical activity extends beyond just physical health. It strongly affects mental health and can alleviate psychological problems in older adults (6). Moreover, physical exercise interventions have been shown to improve cognitive performance and overall quality of life for older adults without physical and cognitive health complaints (7). Engaging in regular physical activity is crucial for healthy ageing. The benefits of physical activity are wide range, from improving cardiometabolic health and physical fitness to enhancing mental health outcomes. Therefore, promoting physical activity among older adults should be a priority in health promotion efforts (8).

Physiological context of ageing

The ageing process is associated with changes in multiple physiological systems, including mitochondrial dysfunction, cellular senescence, autophagy, epigenetic alterations, and microbiome disturbances (9). These changes can lead to reduced functional capacity, increased susceptibility to chronic diseases, and the development of geriatric syndromes such as frailty, falls, and cognitive decline (10).

Exercise therapy is often recommended as an effective intervention for maintaining mental health and combating challenges associated with sedentary lifestyles (11). However, the overall evidence supports that the risk-to-benefit ratio generally favours continuing regular aerobic exercise (12). Regular physical activity and exercise are powerful lifestyle

strategies that can mitigate the risk of developing various chronic conditions, including breast cancer and its recurrence (13). It improves cardiovascular health, preserves muscle mass and strength, enhances bone density, supports brain health, and alleviates symptoms of depression and anxiety. The benefits extend to older adults, improving their quality of life by enhancing cardiovascular and musculoskeletal health, cognitive function, and mental well-being (14).

Hence, regular physical activity is essential for enhancing and maintaining both physical and mental health across the lifespan (15). Engaging in physical activity plays a crucial role in promoting healthy ageing by supporting cognitive health, alleviating depression, and fostering social interactions among older adults. Consistent participation in exercise has been linked to improvements in memory, attention, and executive functioning, which may help prevent or delay cognitive decline (16). Furthermore, staying physically active contributes to better mental well-being by alleviating symptoms of depression and enhancing emotional resilience (17).

Furthermore, engagement in physical activity programs can foster social connections and build community relationships, addressing the risk of social isolation often faced by older adults (18). Interestingly, stereotypes about physical ageing can influence older adults' engagement in moderate intensity activity (19). This suggests that addressing negative stereotypes could potentially increase participation in physical activity among older adults. Additionally, the built environment plays a crucial role in supporting or impeding older adults' physical and social engagement, highlighting the importance of designing supportive environments to facilitate activity (20).

Materials and Methods

Study design

This manuscript presents a narrative review synthesizing current evidence on barriers and facilitators of physical activity among Indian elderly populations. Unlike systematic reviews that employ exhaustive search strategies and meta-analytical techniques, narrative reviews provide a flexible yet rigorous approach to synthesize diverse literature, offering interpretation and critical analysis of what is known on a topic.

Literature search strategy

A comprehensive search of peer-reviewed literature was conducted across multiple electronic databases including PubMed/MEDLINE, Google Scholar, Web of Science, and Scopus. The search covered publications from January 2004 to October 2024 to capture two decades of evolving research on physical activity in ageing populations.

Search terms and combinations

The following search terms were used individually and in combination using Boolean operators (AND, OR):

- Population terms: "elderly", "older adults", "senior citizens", "ageing", "geriatric", "Indian elders"
- Exposure terms: "physical activity", "exercise", "physical fitness", "sedentary behaviour", "active living"
- Outcome terms: "barriers", "facilitators", "enablers", "constraints", "determinants", "predictors"
- Context terms: "India", "South Asia", "urban planning", "built environment", "cultural factors"

Inclusion and exclusion criteria

Inclusion criteria

- Studies focusing on adults aged 60 years and above
- Research addressing barriers and/or facilitators of physical activity
- Studies examining physical, psychological, social, or environmental determinants
- Publications in English language
- Peer-reviewed journal articles, systematic reviews, and meta-analyses
- Studies with relevance to Indian or similar socio-cultural contexts

Exclusion criteria

- Studies focusing exclusively on clinical populations with specific diseases requiring specialized rehabilitation
- Conference abstracts without full-text availability
- Studies with insufficient methodological detail
- Duplicate publications.

Study selection process

The initial search yielded 487 articles. After removing duplicates (n=156), 331 articles underwent title and abstract screening. Following this initial screening, 89 articles were selected for full-text review. After critical appraisal for relevance, methodological quality, and applicability to the Indian context, 30 articles were included in the final narrative synthesis.

Data extraction and synthesis

Data extraction focused on

- Study characteristics (author, year, country, study design, sample size)
- Types of barriers identified (physical, psychological, social, environmental)
- Types of facilitators identified
- Intervention strategies and their outcomes
- Cultural and contextual factors relevant to Indian populations

Thematic analysis approach

The selected literature was critically analyzed using thematic synthesis methodology. Studies were grouped according to emerging themes including: 1) barriers to physical activity, 2) facilitators and enablers, 3) intervention strategies, 4) gender disparities, and 5) environmental and policy considerations. Within each theme, sub-themes were identified to capture the complexity and multi-dimensional nature of physical activity determinants among Indian elders.

Quality assessment

While formal quality assessment tools were not uniformly applied (as is characteristic of narrative reviews), preference was given to peer-reviewed studies with robust methodologies, adequate sample sizes, and clear reporting of findings. Consideration was also given to the recency of publications to ensure current relevance.

Limitations of the review method

As a narrative review, this synthesis does not claim to be exhaustive or systematic in nature. The selection of studies involved interpretive decisions by the authors based on relevance and quality. However, this approach allows for a more flexible and comprehensive exploration of the topic, incorporating diverse types of evidence including quantitative studies, qualitative research, and mixed-methods investigations. The narrative approach is particularly suited for emerging topics where the evidence base is heterogeneous and where contextual interpretation is essential.

Results and Discussion

Barriers to motion: what's holding Indian elders back?

Despite the numerous benefits of physical activity, older adults face several barriers to engaging in such activities. These include transportation constraints, time limitations, inadequate exercise facilities (21), and environmental barriers (22).

Social and family structure barriers

Indian elders face various stereotypes and barriers that significantly impact their quality of life and social inclusion. The built environment plays a crucial role in shaping these experiences, particularly in terms of physical activity and mobility. One of the primary barriers faced by Indian elders is the changing family structure. The shift towards nuclear families has led to increased isolation and a lack of support for the elderly. This change has resulted in economic, social, and political challenges, including physical, psychological, and emotional violence, as well as financial insecurity. The traditional reverence for elders in Indian culture is being eroded, leading to a need for protective legislation and social welfare measures (23).

Environmental and infrastructural barriers

The lack of indoor facilities and variable climatic conditions serve as significant barriers to physical activity (24). These environmental factors contribute to the isolation and reduced mobility of elderly individuals. The stereotypes and barriers faced by Indian elders are multifaceted, encompassing social, economic, and environmental factors. Concurrently, the built environment plays a crucial role in either enabling or hindering their physical activity and social engagement.

The built environment significantly influences the walkability and physical activity of senior citizens in India. A study in Triplicane, Chennai, found that pedestrian safety infrastructure, physical barriers in

the neighbourhood, and aesthetics have a high impact on walkability among senior citizens (25).

From isolation to inclusion: enabling active lifestyles

Addressing these issues requires a comprehensive approach that includes legislative measures, social welfare programs, and improvements in the built environment to enhance the quality of life for Indian elders.

Online and offline physical activity programs

Online and offline physical activity programs can be game changers for Indian elders by addressing their unique needs and overcoming barriers to exercise participation. Physical activity programs, both online and offline, can significantly improve the health and well-being of older adults in India. These programs can help reduce the risk of falls, improve cardiovascular health, muscle strength, flexibility, and balance. They can also enhance quality of life, alleviate depression and anxiety, and boost self-esteem among Indian elders (26).

Innovative approaches like exergames, such as the Pressure-Ball game, can increase confidence in fitness levels and reduce fear of injuries, potentially leading to more sustainable and transferable active lifestyles (27).

Implementation challenges and solutions

It is important to note that there may be challenges in implementing these programs. For instance, approximately one-fourth of older adults may not participate in remote exercise activities due to a lack of electronic devices, internet access, or interest in remote activity formats (28). This digital divide could be particularly pronounced in rural Indian communities.

Additionally, the lack of indoor facilities and extreme climatic conditions in some areas may serve as significant barriers to physical activity (24). For online physical activity programs, challenges include limited awareness and accessibility, difficulties in assessing performance, a lack of social component, and technological issues (21). Addressing these barriers through targeted interventions, such as community-based programs and virtual reality-based exercise (29), could potentially increase physical activity participation among older adults, leading to improved cognitive function, reduced depression risk, and enhanced social engagement.

Reimagining elderly fitness: challenges as catalysts for change

To maximize the impact of physical activity programs for Indian elders, a multi-faceted approach is necessary. This could include combining online and offline options to cater to different preferences and capabilities. Home-based video exercise programs have shown positive effects on balance and strength (30), which could be particularly beneficial for those with limited mobility or access to facilities.

Community-based programs, like the Southeast Senior Physical Activity Network (SESPAN), could be adapted to the Indian context to create sustainable walking and exercise programs in underserved communities (31). Furthermore, addressing socioeconomic factors, health status, and depression, which affect exercise adherence in older adults, will be crucial for the success of these programs (32).

Gender disparities in physical activity

A significant finding from the literature review concerns gender disparities in physical activity levels. A study published in The Lancet by Guthold *et al* (33) underlines those women were significantly less physically active than men, with 31.7% of women and 23.4% of men engaging in insufficient activity. The gender gap was most notable in Central Asia, the Middle East, North Africa, high-income western countries, and South Asia. High-income western countries had the highest inactivity rates, exceeding 40%. Promoting safe, accessible leisure activities for women could help reduce this gap.

Overcoming cultural and social barriers, such as traditional gender roles and a lack of support, is essential for encouraging participation among Indian elderly women. Health policies should be culturally sensitive to drive effective behavioural changes.

Culturally tailored interventions

By tailoring these approaches to the specific needs and cultural context of Indian elders, physical activity programs can indeed be game changers in promoting healthy ageing in India. Tailored physical activity programs for Indian elders can improve health, reduce

healthcare costs, and enhance quality of life.

Health policies and health promotion programs should consider these factors and be culturally sensitive to effectively promoting healthy behavioral changes. These interventions could ultimately contribute to a more active, socially connected, and healthier ageing population in India.

Conclusion

This narrative review has synthesized evidence demonstrating that physical inactivity among Indian elders is a complex, multi-dimensional challenge requiring interventions that extend far beyond individual functional capacity. The "eyesight to insight" paradigm shift emphasizes the need to address not just physical limitations but the broader ecosystem of psychological, social, environmental, and policy-level determinants.

Key findings summary

- Multiple interconnected barriers impede physical activity among Indian elders, including physiological changes of ageing, environmental constraints, evolving family structures, gender disparities, and inadequate infrastructure
- Effective facilitators include community-based programs, technology-enabled interventions, improved urban design, and culturally sensitive approaches
- Significant gender disparities exist, with Indian elderly women facing additional cultural and social constraints
- The built environment plays a crucial role in enabling or hindering physical activity participation

Implications for policy and practice

Urban planning integration: City planners and policymakers must prioritize age-friendly infrastructure including safe pedestrian pathways, adequate lighting, and accessible public spaces

Multi-sectoral approach: Collaboration between health departments, urban planning authorities, social welfare organizations, and community groups is essential

Gender-sensitive programming: Targeted interven-tions addressing cultural constraints faced by elderly women should be developed and implemented

Technology integration: Both online and offline programs should be made available to accommodate varying levels of digital literacy and access

Community engagement: Leveraging existing community structures and cultural practices can enhance program uptake and sustainability

Recommendations for future research

Future research should focus on

- Longitudinal studies examining sustained participation in physical activity programs among Indian elders
- Intervention studies comparing culturally adapted versus standard physical activity programs
- Economic analyses demonstrating cost-effectiveness of physical activity interventions in reducing healthcare burden
- Qualitative research exploring lived experiences and preferences of diverse elderly populations across urban and rural India
- Development and validation of culturally appropriate assessment tools for measuring physical activity in Indian contexts

Concluding remarks

A holistic approach is crucial to empower Indian elders, improve their quality of life, and mitigate the burden of non-communicable diseases in ageing populations. By moving from "eyesight to insight"—from viewing ageing solely through the lens of physical decline to understanding the complex interplay of factors affecting active ageing—we can develop more effective, culturally sensitive, and sustainable interventions. The time for action is now, as India stands at the cusp of a demographic transition that will fundamentally reshape healthcare priorities and social support systems for decades to come.

Ethical considerations

This narrative review article is based on previously published literature and does not involve primary data collection from human or animal subjects. Therefore, ethical approval from an institutional review board was not required. All cited studies that involved human participants had obtained appropriate ethical approvals from their respective institutional ethics committees as reported in the original publications.

This review adheres to principles of academic integrity, proper attribution of sources, and ethical scholarly conduct.

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Conflict of Interest

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