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Role Of Public Health Nurses In Promoting Physical Activity Among Older Adults Through Community Recreation Centers

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Abstract

The global population is experiencing a significant demographic shift, with a growing number of older adults. As life expectancy rises, physical inactivity has become a major public health issue for this age group. It contributes to more chronic diseases, falls, and a lower quality of life. This review looked at the health effects of physical inactivity in older adults and pointed out the important physical, mental, and social benefits of regular exercise. Key barriers include mobility issues, fear of injury, and limited access to suitable facilities. Facilitators, like social support, organized programs, and positive attitudes toward exercise, are also discussed. The vital role of public health nurses in promoting and maintaining physical activity through customized interventions and health education is highlighted. Moreover, the use of digital technologies, such as wearable devices and telehealth platforms, is examined as a promising way to boost engagement and adherence among older adults. A community-based approach that focuses on personalized care and involves healthcare professionals is crucial for encouraging healthy aging and tackling the issues related to physical inactivity in later life.

Keywords

Aging population; Physical inactivity; Older adults; Physical activity promotion; Fall prevention.

Introduction

The global demographic landscape is changing significantly. There is an unprecedented rise in life expectancy and a growing number of elderly individuals in the population (Tcymbal et al., 2022). In 2020, an estimated 727 million people were aged 65 or older. Projections suggest this number will more than double by 2050, reaching over 1.5 billion ("World Population Ageing 2020: Highlights," 2021). This demographic shift occurs alongside broader social and economic changes. These include declining fertility rates, changing patterns of marriage and cohabitation, and higher educational levels among younger generations ("World Population Ageing 2020: Highlights," 2021). Among the aging population, physical inactivity is a major public health concern. It significantly affects individual well-being and the sustainability of healthcare systems. The combination of these demographic and behavioral trends presents both challenges and opportunities for societies around the world (Marzo et al., 2023).

The World Health Organization estimates that the global population of adults aged 60 and over will increase from 600 million in 2000 to 2 billion by 2050 (Shiraishi et al., 2022). By 2050, the number of individuals aged 65 or older is expected to reach 1.6 billion. Some countries, like Japan and Singapore, predict that this age group will make up over 40% of their total population (Keohane et al., 2018). In developed countries, the aging trend often coincides with a drop in the working-age population. This can negatively affect economic growth and social support systems (World Economic Forum, 2025). Additionally, as populations age, there is a rise in age-related health issues. These include cardiovascular diseases, neurodegenerative disorders, and musculoskeletal conditions. They place substantial burdens on healthcare systems and reduce the quality of life for older adults (Moeteke, 2022).

Emphasize the importance of community-based strategies for health promotion

As populations age, it is crucial to ensure fair access to disease prevention, treatment, and rehabilitation at every stage of life. This highlights the need for integrated care that helps older adults maintain their ability to live independently in familiar settings. ("World Population Ageing 2020: Highlights," 2021). We must recognize the various ways older individuals contribute to families, communities, and societies. This is especially true in situations like skip-generation households, where older women often act as primary caregivers for their grandchildren. This situation requires policy changes to ease the burdens on older adults, who frequently use limited resources to support their family members. Such support can increase their own risk of poverty later on ("World Population Ageing 2020: Highlights," 2021).

It is also important to consider how social environments affect health. Factors like income inequality, social exclusion, and access to essential services play a significant role in well-being and social participation. With the rising number of older people, addressing physical inactivity is vital due to its strong link to chronic diseases and overall death rates (King & King, 2010). Therefore, community-based approaches are necessary to encourage healthy aging. These methods provide personalized support and address the unique needs and preferences of older adults (Fulmer et al., 2021; Kalache & Sen, 2017). Such initiatives can help older adults maintain their independence, improve their physical and mental health, and take part in community life, which fosters a sense of connection and purpose. Community-based programs can reach a broader group of people, including those who might not have access to traditional healthcare facilities. They can do this by making use of existing social networks, community centers, and recreational facilities (Kalache & Sen, 2017).

Benefits of Physical Activity for Older Adults

Physical activity is well-known to improve mental and physical well-being in older adults (Palmer, 2020). Promoting physical activity may lower the risk of developing non-communicable diseases and reduce healthcare costs. It can also enhance satisfaction with life and the aging process (Moreno-Agostino et al., 2020). Regular exercise provides significant benefits for healthy aging. It lowers the chances of all-cause mortality, chronic diseases, and premature death (Mora & Valencia, 2017). Staying active is crucial for maintaining health and normal functioning of the body throughout life (Bangsbo et al., 2019). Exercise programs have yielded positive results, reducing falls, pain, muscle loss, osteoporosis, and cognitive decline (Eckstrom et al., 2020). Furthermore, regular physical activity can

boost cognitive function and mental health, improving the overall quality of life (Thornton et al., 2025). Older adults who consistently engage in physical activity enjoy various physiological, psychological, and social benefits (JUMARANG et al., 2025).

Physiological benefits include better cardiovascular health (Ang et al., 2022), increased muscle strength and endurance, improved bone density, and a lower risk of falls. Psychological benefits include improved mood, less stress and anxiety, better cognitive function, and higher self-esteem. Social benefits involve more chances for social interaction, decreased social isolation, and better community involvement (Rajpoot & Sharma, 2025). As overall life expectancy rises, more research is needed on exercise's role in the elderly (Parnicka, 2018). Lower physical fitness and inactivity in seniors can lead to falls and injuries. Physical activity is vital for maintaining independence and preventing falls, which are a major cause of injury and disability in older adults (Thornton et al., 2025). Exercise-based programs that address physical, cognitive, and psychological aspects show promise in building muscle strength, improving balance, and enhancing cognitive skills such as attention and spatial awareness (Zhong et al., 2024). Regular physical activity is a changeable lifestyle factor that can significantly affect cognitive decline as people age (Klímová & Dostálová, 2020).

Exercise lowers the risk of chronic diseases like cardiovascular disease, type 2 diabetes, and some cancers. These conditions place a heavy burden on healthcare systems and diminish quality of life. Physical activity programs have shown positive results in reducing fall risks and related injuries among older adults (Gerards et al., 2017; Pereira et al., 2008). Structured programs that include balance and strength exercises can significantly lower fall risk. This emphasizes the need for focused exercise interventions for older adults at a higher risk of falling (Greenwood-Hickman et al., 2015). However, aside from balance training, evidence on exercise and fall prevention is mixed (Unsworth & Mode, 2003). Studies have shown that exercise programs with adequate doses of moderate- to high-balance challenges can improve these physical deficits (Jefferis et al., 2015). Such programs have proven effective in decreasing fall rates among older adults living in the community. They should emphasize strength and balance exercises for over three hours per week (Martins et al., 2018).

A multiple-risk-factor strategy that includes balance considerations, activity levels, strategies to reduce fear of falling, and medication supervision will greatly lower fall risks among elderly individuals (Larson & Bergmann, 2008). This approach will need collaboration between healthcare providers and therapists (Martins et al., 2018). Structured exercise programs, such as the Otago Exercise Program, have shown success in improving balance and strength in older adults (Martins et al., 2018). Perturbation-based balance training may be especially effective, as it directly works on the recovery steps needed to prevent falls (Gerards et al., 2017; Martin, 2011; Park & Chang, 2016). Although promising, the brain processes through which the Otago Exercise Program prevents falls are still not fully understood (Yang et al., 2022).

Barriers and Facilitators to Physical Activity Participation

Older adults face several challenges when it comes to regular physical activity. These include mobility issues, fear of injury, social isolation, limited access to suitable facilities, and ongoing health conditions. Such obstacles can greatly affect their ability to lead an active lifestyle (Stanforth et al., 2015). The barriers can be physical, mental, or social, and they often interact in complex ways that influence activity levels (Secretariat, 2008). Older adults often worry about falling and dealing with physical limitations from chronic illnesses. These concerns reduce their ability to exercise. Many older people struggle with mobility issues that make it hard to engage in regular physical activity. These issues may include arthritis, joint pain, and balance problems (Shubert, 2011). The fear of falling can also be a significant barrier. It can lead to less participation in physical activity and further declines in physical health (Hamm et al., 2016; Gerards et al., 2017).

To overcome these obstacles, we need strategies tailored to individual needs and circumstances. This includes accessible exercise programs, safe environments, and support networks. Motivation is another major issue since some older adults may feel less excited about daily tasks that require balance and strength. Feelings of loneliness and lack of social support can also make older individuals less likely to

participate in activities that need a community or group setting. Psychological factors, such as depression, anxiety, and fear of falling, can significantly reduce physical activity levels in older adults (Deshpande et al., 2008; Zhang et al., 2019). Facilitators that encourage physical activity include supportive environments, structured programs, transportation access, social support, and positive attitudes toward exercise. Supportive environments are those that provide safe and accessible areas for exercise, like parks, walking trails, and community centers. Additionally, structured programs that meet the specific needs and preferences of older adults can boost motivation and adherence (Cress et al., 2005).

Transportation access can help older adults overcome geographical barriers and participate in physical activities. Social support networks—comprising friends, family, and healthcare providers—are essential for promoting both the starting and ongoing adherence to physical activity routines. These networks offer vital emotional support, practical help, and a sense of belonging that can significantly enhance a person's commitment to an active lifestyle (Johnson et al., 2007). Older individuals are more likely to maintain active lifestyles if they have a positive view of exercise and understand its many health benefits. Encouragement, guidance, and feedback can motivate elderly people in nursing homes to stay active (Chen & Li, 2014). Positive attitudes toward exercise are crucial; older adults who recognize the benefits of physical activity are more likely to engage in it regularly.

Public Health Nurses as Key Facilitators

Public health nurses play an important role in promoting physical activity among older adults through health education, motivational support, and program implementation. They are well-equipped to support older individuals because they have extensive experience in health education, preventive care, and community health (Goodman et al., 2011). To help seniors overcome challenges and stick to exercise routines, nurses can offer personalized counseling, assist with goal setting, and provide strategies for managing difficulties. They can also assess the physical and functional abilities of older adults to design exercise programs tailored to their specific needs and limitations. To create environments that encourage older adults to be more active, nurses work with local organizations, senior centers, and healthcare providers. They can develop and implement community-based initiatives that promote physical activity and make it more accessible (Hickerson et al., 2008). Nurses play a key role in educating older adults about the health benefits of physical activity, covering areas like cardiovascular health, cognitive function, and musculoskeletal health. They also share strategies for safe and effective exercise (Bakhshi et al., 2015). Additionally, they can provide information about local resources and programs, along with tips for overcoming barriers to physical activity.

Effectiveness of tailored interventions in promoting physical activity

Tailored interventions that fit individual needs and preferences are very effective in promoting physical activity among older adults. They address specific barriers and maximize engagement (Cunningham & O'Sullivan, 2021). Interventions that consider a person's fitness level, health condition, and personal likes are more likely to encourage long-term behavior changes. These interventions can be adjusted to account for various factors like cultural background, socioeconomic status, and health literacy to improve their impact. Nurses can conduct thorough evaluations to identify each patient's unique needs and challenges, then create individualized exercise plans that are both safe and effective. They can provide practical advice and support to help older individuals overcome challenges such as transportation issues, social isolation, or lack of confidence. By specifically addressing the unique needs and preferences of each person, tailored interventions not only improve initial engagement but also promote sustained adherence, maximizing the chances of maintaining a physically active lifestyle (Stewart, 2001).

Regular physical exercise, getting enough sleep, eating well, and having free time are examples of self-care activities that can reduce fatigue and prevent burnout (JUMARANG et al., 2025). A team approach to program delivery is essential for providing comprehensive and tailored interventions that meet the diverse needs of older adults. Nurses can work with physiotherapists to develop individualized exercise routines that address specific musculoskeletal issues or mobility limitations. Fitness trainers can share knowledge about exercise methods and safety guidelines, while program coordinators can assist with

scheduling, logistics, and resource management. Nurses can also encourage physical activity by educating older individuals about its benefits, such as better cardiovascular health and improved cognitive function (Zaleski et al., 2016).

Table 1: Key themes, interventions, and outcomes in promoting physical activity among older adults.

Theme	Purpose/Problem	Intervention/Approach	Outcome/Impact	References
Aging Population Trends	Rising proportion of adults 65+ leading to healthcare burden	Demographic tracking & global policy planning	Need for age-sensitive interventions and economic adjustment	Tcymbal et al., 2022; World Population Ageing, 2021; Keohane et al., 2018
Physical Inactivity Risk	Sedentary behavior increases chronic illness and mortality in older adults	Emphasis on prevention and health promotion	Increased demand on health services if unaddressed	King & King, 2010; Moreno-Agostino et al., 2020
Health Benefits of Physical Activity	Reduce NCDs, improve mental and musculoskeletal health	Moderate–vigorous regular exercise	Decreased mortality, falls, improved QOL and independence	Mora & Valencia, 2017; Eckstrom et al., 2020; Rajpoot & Sharma, 2025
Fall Prevention through Exercise	Falls are a leading cause of injury and hospitalization in seniors	Otago program, strength and balance training	Reduced fall risk, improved postural stability	Martins et al., 2018; Gerards et al., 2017; Jefferis et al., 2015
Barriers to Activity	Fear of injury, isolation, chronic disease, facility access	Identify individualized needs and environmental redesign	Higher engagement with personalized support	Shubert, 2011; Hamm et al., 2016; Zhang et al., 2019
Facilitators of Activity	Need for motivation, support, safe spaces	Social support, group exercise, transportation aid	Improved adherence and health outcomes	Cress et al., 2005; Johnson et al., 2007; Chen & Li, 2014
Role of Nurses	Older adults need guidance for lifestyle adoption	Education, counselling, collaboration with community	Increased participation and behavioral change	Bakhshi et al., 2015; Goodman et al., 2011
Tailored Programs	Generic interventions lack adherence	Culturally and medically personalized exercise plans	Greater long-term adoption and satisfaction	Stewart, 2001; Cunningham &

				O'Sullivan, 2021
Digital Tools & Telehealth	Mobility/access challenges limit program reach	Wearables, apps, remote coaching	Real-time monitoring and support improve outcomes	Ghanvatkar et al., 2018; Villa-García et al., 2023
Nurses in the Digital Future	Digital shift in health delivery demands new skills	Training in telehealth, data tools, digital literacy	Efficient, personalized care with technology integration	Booth et al., 2021; Livesay et al., 2023; Isidori et al., 2022

To provide complete care and support, effective communication and teamwork among members are vital. Healthcare providers are crucial in checking adherence to treatment plans, especially for managing chronic conditions and polypharmacy. The interdisciplinary team should be trained to meet the needs of older adults (Fairhall et al., 2011; Uchmanowicz et al., 2018). Through collaboration, healthcare professionals can make sure older individuals get thorough support and guidance. This helps with initial engagement and ongoing commitment to physical activity programs, increasing the chances of better health outcomes and improved quality of life. Nurses can successfully include physical activity into clinical practice, especially with the help of wearable technology. This approach counters the rise in health issues related to sedentary lifestyles (Carter & Ford, 2023). It is important to educate healthcare providers on how to promote physical activity and inform them about the latest guidelines (Bakhshi et al., 2015).

Nurses can develop personalized exercise programs tailored to each patient's needs and limitations by evaluating their physical and functional abilities (Hell-Cromwijk et al., 2021). They work with local organizations, senior centers, and healthcare providers to foster environments that encourage older adults to be more active. Nurses can design and implement community-based initiatives that promote and facilitate physical activity. Custom interventions that consider a person's fitness level, health conditions, and personal preferences are more likely to succeed in promoting lasting behavioral changes. These interventions can be adjusted for various factors, such as cultural background, socioeconomic status, and health literacy, to maximize their effectiveness. Nurses can conduct detailed assessments to determine each patient's unique needs and challenges, creating safe and effective personalized exercise plans. By focusing on the specific needs and preferences of each individual, these tailored interventions enhance initial engagement and promote sustained adherence, thus increasing the likelihood of a long-term active lifestyle. Nurses can assist patients in overcoming barriers to physical activity, like incorporating exercise into their daily schedules and tracking their progress (Förster et al., 2020).

Technology is key in encouraging physical activity among older adults. It provides innovative tools for monitoring, feedback, and motivation, which improve engagement and adherence to exercise programs (Haan et al., 2021). Wearable fitness trackers, smartphone apps, and telehealth platforms offer older adults' convenient ways to monitor their activity levels, set personal goals, and receive real-time updates on their progress (Ghanvatkar et al., 2018). Nurses can effectively blend technology into their work by first assessing the individual's comfort and experience with tech and then customizing the intervention accordingly. Digital tools, such as smartphone apps and wearables, can educate, monitor, or motivate physical activity (Rossen et al., 2020). Nurses can inform older adults about the benefits of using technology to meet their physical activity goals and guide them on how to use these tools effectively. They can also use telehealth platforms to deliver remote exercise sessions, provide virtual coaching, and monitor patients' progress from afar. This approach helps overcome barriers like transportation issues or mobility restrictions (Villa-García et al., 2023). Wearable technology has shown promise in increasing activity levels and improving health in adults and older populations with chronic conditions (Jasmin et al., 2021). Additionally, nurses can foster social support and peer connections among older

adults by creating online communities or virtual exercise groups where individuals can interact, share experiences, and inspire each other (Lindeman, 2017).

Nurses play a crucial role in promoting health and well-being in communities (Flaubert et al., 2021). Through outreach, education, and advocacy, nurses can empower individuals to make informed health decisions and access resources that support their well-being. They can effectively integrate technology-based interventions into their practice by staying updated on the latest digital health developments, participating in professional training, and collaborating with interdisciplinary teams to provide thorough care. Ultimately, while technology holds great promise for promoting physical activity among older adults, it requires careful planning, education, and support from healthcare professionals for successful and sustainable use. Nursing practice is currently undergoing a major change due to rapid advancements in digital technologies and the need to tackle complex global health issues (Booth et al., 2021). Nurses can promote health, prevent illness and injury, and protect community and population health. The introduction of telehealth, remote monitoring devices, predictive analytics, and AI-powered chatbots has become more common in nursing.

These tools enable nurses to deliver more efficient, personalized, and accessible care (Logsdon, 2022). To thrive in this digital future, the nursing profession must focus on developing leadership skills, investing in technology resources, and enhancing digital literacy among nurses (Booth et al., 2021). Nurses need to be part of implementing and evaluating digital health technologies to use them properly and ensure high-quality, safe care (Livesay et al., 2023). Beyond technical skills, nurses must also improve their soft skills, communication strategies, and management abilities to navigate telemedicine successfully and maintain strong relationships with patients (Isidori et al., 2022). Training programs aimed at boosting nurses' digital skills are vital for helping them effectively use digital health technologies in their daily tasks (Kulju et al., 2024). Additionally, nursing leaders must push for policies that support the fair and ethical use of technology in healthcare. This ensures that digital solutions uphold patient autonomy, privacy, and access to care (Isidori et al., 2022; Tsarfati & Cojocaru, 2023).

Conclusion

The growing number of older people and the rise in physical inactivity create a major global health issue with serious social and economic effects. This review highlights that promoting physical activity among older adults is not only possible but essential for improving longevity, independence, and quality of life. To overcome barriers to participation, we need a well-rounded approach that includes personalized interventions, support from the environment, and ongoing motivation. Public health nurses can play a key role in this work by providing education, counseling, and program coordination that meet the needs of older adults. Additionally, using digital technologies can help reach more people and make physical activity programs more effective, particularly for those with limited mobility or who cannot access in-person services.

Conflict of Interest

The authors declare they don’t have any conflict of interest.

Author contributions

The first drafts of the work are written by the first author and the cross-ponding author's supervisor. Each author wrote a portion of the manuscript, collected data, edited it, created tables, and was given permission to submit it to a journal for publication.

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Ethical Approval

Not Applicable

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