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ORIGINAL ARTICLE

BARRIERS AND FACILITATORS TO PHYSICAL ACTIVITY PARTICIPATION IN OLDER ADULTS: A TÜRKİYE–USA COMPARISON

ABSTRACT

Introduction: Although physical activity is a key component of healthy aging, engagement levels among older adults are influenced by sociocultural, economic, and environmental factors that vary across countries. This study aimed to compare these barriers and facilitators of physical activity participation among American and Turkish older adults.

Materials and Method: Data were collected from 128 older adults (64 per country), aged ≥ 65 years and older, through structured interviews and surveys conducted in parks and senior activity centers in Türkiye, and Florida, United States. The San Diego Health and Exercise Questionnaire and the Structured Interview Questions on Physical Activity Participation Factors were utilized to assess participation patterns and influencing factors. A mixed-methods research design was employed; qualitative data from interviews were analyzed using content analysis, and cross-country differences in questionnaire responses were assessed using the chi-squared test.

Results: Turkish participants reported significantly higher psychological ($\chi^2 = 15.7-42.5$, $p < 0.001$), individual ($\chi^2 = 3.9-8.4$, $p < 0.05$), social ($\chi^2 = 20.2-52.5$, $p < 0.001$) and environmental ($\chi^2 = 27.2-34.2$, $p < 0.001$) barriers compared to their American older adults. Structured interviews result further showed that social pressure ($\chi^2 = 8.5-39.2$, $p < 0.001$), gender influence ($\chi^2 = 7.3-66.0$, $p < 0.05$) had more pronounced effects on Turkish older adults. Additionally, Turkish participants reported limited access to exercise facilities and insufficient support ($p < 0.05$).

Conclusion: Older adults in Türkiye face more pronounced sociocultural and infrastructural barriers to physical activity compared with their counterparts in the United States. Addressing these challenges requires comprehensive reforms in education, economic investment, and cultural awareness. Without targeted and sustainable interventions, opportunities for active aging will remain limited. Culturally informed strategies are essential to promote equitable access to physical activity and to enhance the overall health and well-being of older adults in Türkiye.

Keywords: Aging; Exercise; Social Support; Environment; Culture; Motivation.



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INTRODUCTION

Physical activity and exercise are essential for maintaining both physical and cognitive health in later life (1). Regular physical activity improves muscle endurance, strength, and cardiovascular health, thereby delaying age-related decline in physical and mental functioning. Conversely, physical inactivity is a notable risk factor that negatively affects cognitive function, physical ability, and quality of life (2,3,4,5).

The World Health Organization has set a global target to reduce physical inactivity by 15% by 2030. Nevertheless, the increase in sedentary behavior following the COVID-19 pandemic has led to mental and physical health problems (6,7). In Türkiye, the ratio of the population aged over 65 years to the general population has increased by 2.3 times compared to the 1935 data. According to TÜİK (2024) data, the ratio of the older population to the general population is expected to be 12.9% in 2030, 16.3% in 2040, 22.6% in 2060, and 25.6% in 2080. Along with the increasing older population, sedentary lifestyles are also growing rapidly in Türkiye (8). National reports indicate that many older adults avoid sports or regular exercise despite the well-documented health benefits of physical activity.

In older adults, physical activity levels are influenced by disease, motivation, environment, economic conditions, and socialization (9-13). Previous studies have identified numerous barriers to regular physical activity, including limited time, poor or variable health status, fear of injury, accessibility and safety concerns, cost, lack of information, and low self-discipline or motivation. These barriers significantly reduce participation in exercise, which is essential for maintaining health and preventing disease (14,15,16). Moreover, the design of facilities and the surrounding environment plays a critical role in shaping daily activity patterns among older adults and must be designed to facilitate social interaction, accessibility, and adaptation to physical limitations (16). Factors that motivate participation in regular physical activity include healthcare

provider recommendations, intergenerational and family support, evidence of contribution to physical or motor skill development, health benefits, group interaction, and psychosocial factors, such as enjoyment of being with friends (17,18).

However, efforts to identify motivating factors and to improve facilities, conditions, and organizational structure that support physical activity remain limited in Türkiye. Understanding these factors and comparing them with other societies exhibiting higher physical activity may provide new insights for developing effective strategies to enhance participation among Turkish older adults.

In the present study, we conducted a direct comparison between Turkish and American older adults to identify key determinants of physical activity participation. The research aimed to clearly distinguish quantitative and qualitative findings to capture the diversity of cross-cultural facilitators and barriers. Additionally, the study sought to examine the sociocultural, economic, and environmental factors contributing to low physical activity participation among older adults in Türkiye and to contrast these with the factors associated with a higher participation rate in United States.

MATERIALS AND METHOD

Study Population and Ethical Considerations

Study Sample: This study was conducted in collaboration with the School of Aging Studies, University of South Florida which was selected as the comparison group due to the higher physical activity levels among older adults and its well-established support systems. Florida was selected because of its substantial older population, providing an ideal setting for recruiting participants aged 65 and older. As of 2023, Florida had approximately 5 million residents aged 65 and over, representing about 21.7% of its population, the second highest number of older adults among the United States (U.S. Census, 2024). In 2024, 10.6% of the population in Türkiye was aged 65 years and over.

Participants: The study included sixty-four volunteers aged 65 years and over from each country. Participants were community-dwelling, without physical disabilities, and of any gender or ethnicity, and with or without chronic diseases. Participants were selected through convenience sampling, a non-probability method based on accessibility, geographical proximity, availability, and willingness to participate. This approach enabled the inclusion of participants who met pre-determined criteria relevant to this study. Data collection continued until interviews provided no new information, indicating a sufficient sample size.

Ethics: The study protocol was reviewed and approved by the University of South Florida Institutional Review Board (IRB#STUDY007071, date: 30.04.2024). All participants were fully informed about the purpose, procedures, and benefits of the study. The participating organizations provided verbal assent or written permission. Verbal informed consent was obtained before interviews. To maintain anonymity, no personal identifying information was collected, and all responses were treated confidentially. The study was conducted in accordance with the principles of the Declaration of Helsinki and relevant national regulations regarding research with human subjects.

Data Collection

This study was conducted using mixed methods (quantitative and qualitative).

Interview method: A Structured interview was conducted, with validity confirmed through consultation with experts in Gerontology and Sports Sciences. The "Structured Interview Questions on Physical Activity Participation Factors" were designed to comprehensively address all dimensions of the research topic and maintain logical relationships and integrity with each other and the study objectives as "Always vs Never". Open-ended questions were also included to capture participants' perceptions, including positive, negative, advantageous, and disadvantageous aspects.

Survey method: The San Diego Health on Exercise Questionnaire (SDHEQ) was used to determine participants' attitudes toward physical activity. The questionnaire consists of 16 items focused on perceived barriers to exercise, such as individual factors, social pressure, and family responsibility (19). The questionnaire was translated into Turkish for Turkish participants. Although the Turkish version of the SDHEQ has been translated, it has not undergone formal psychometric validation.

Statistical Analysis

SDHEQ and Structured interview responses were analyzed using chi-square tests for "Always and Never" responses. Open-ended responses were analyzed via inductive content analysis. Chi-squared analyses were conducted without adjustment for potential confounding variables due to the exploratory nature of the study and limited sample size. The content analysis followed an inductive approach, meaning that codes and themes were derived directly from raw data without imposing pre-existing categories. First, the researcher reviewed all transcripts to ensure content familiarity. Repeated words, phrases, and meaningful expressions were manually identified and coded. These codes were not predefined; instead, they emerged naturally from participants' language and experiences. A second independent coder was used in the coding process to enhance the reliability of the analysis. Both coders independently analyzed the same dataset using a pre-determined coding framework. Inter-coder agreement, assessed using Cohen's kappa coefficient (0.41-0.60), indicated a moderate level of agreement, supporting the acceptability of the analytical procedure. Given the manageable size of the dataset, coding and theme generation were conducted manually, which allowed close engagement with the data. The process was systematic and transparent, and involved repeated cycles of reading, coding, clustering, and interpretation. Statistical analyses were conducted



using SPSS version 26.0 (IBM Corp., Armonk, NY, USA), with significance set at $p < 0.05$.

RESULTS

Although demographic characteristics revealed similar ages and distributions across both groups, notable disparities were observed in the educational level and prevalence of chronic diseases. Notably, 70% of Turkish participants reported having at least one noncommunicable chronic disease, compared with 41% of American participants.

Nearly all-American participants (98%) had a university education, whereas only 16 Turkish participants reported the same, with a considerable proportion having only middle or high school education (Table 1).

Sociocultural and Psychological Barriers in Turkish Older Adults

Significant differences were observed between the groups regarding barriers to physical activity,

with Turkish older adults consistently reporting higher levels of psychological, individual, social, and environmental barriers than their American counterparts (all $p < 0.001$). Turkish participants reported significantly more psychological barriers, including self-consciousness about appearance, discouragement, and lack of enjoyment ($\chi^2 > 15$, $p < 0.001$). Turkish participants also experienced more individual constraints, such as a lack of discipline, time, and energy (Table 2).

Environmental limitations, such as a lack of facilities and equipment, were a major concern among Turkish participants ($p < 0.001$). Socially, Turkish participants reported high levels of isolation, citing lack of company, skills, and knowledge as substantial deterrents to exercise participation.

Cultural Norms, Social Pressure, and Gender: Major Determinants in Türkiye

Table 3 highlights further disparities from the Structured Interview Questions on Physical Activity

Table 1. Distribution of Participants

Categories		American (n=64)	Turkish (n=64)
Ages (n)	65-69	10	12
	70-74	21	25
	75-79	18	24
	80-86	15	3
Gender	Men	12 (19%)	15 (23%)
	Women	52 (81%)	49 (77%)
Noncommunicable chronic disease	No	38 (59%)	19 (30%)
	Yes	26 (41%)	45 (70%)
Education level	No	-	3 (5%)
	Elementary	-	5 (7%)
	Middle school	-	16 (25%)
	High school	1 (2%)	30 (47%)
	University and post	63 (98%)	10 (16%)
Marital status	Single	21 (33%)	1 (1%)
	Married	25 (39%)	33 (52%)
	Other (divorced, widow)	18 (28%)	30 (47%)

Table 2. The Differences of SDHEQ Answers between American and Turkish Older Adults

Questions Groups	Barrier Questions	χ^2 Value	p-value
Psychological Barriers	Self-consciousness about looks	15.719	< 0.001
	Discouragement	21.888	< 0.001
	Lack of enjoyment	42.535	< 0.001
Individual Barriers	Lack of self-discipline	4.613	< 0.05
	Lack of time	8.402	< 0.05
	Lack of energy	3.896	< 0.05
Environmental Barriers	Lack of equipment	34.218	< 0.001
	Lack of facilities	27.236	< 0.001
Social Barriers	Lack of company	52.509	< 0.001
	Lack of skills	29.452	< 0.001
	Lack of knowledge	20.167	< 0.001

Table 3. Differences in Structured Interview Questions on Physical Activity Participation Factors Answers between American and Turkish Older Adults

Question Groups	Barrier Questions	χ^2 Value	p-value
Social Pressure	Does social pressure keep you from exercising?	39.237	<0.001
	Do your social responsibilities prevent you from exercising?	33.655	<0.001
	Would you give up exercise for your family responsibilities?	8.533	<0.05
Gender Influence	Does your gender keep you from exercising?	46.298	<0.001
Judgment and Support	Do people around you judge you for exercising?	19.661	<0.001
	Do people around you support you in exercising?	16.633	<0.001
Facilities and Accessibility	Do local governments organize campaigns to encourage you to exercise?	5.314	<0.05
	Are you supported by your family to exercise with your peers?	4.571	<0.05
	Are you supported by your relatives in transportation to exercise?	4.068	<0.05
Family Influence and approval	Does your family keep you from exercising?	12.302	<0.001
	Do you think you have the courage to start a physical activity program?	14.582	<0.001
	Do you feel that you have to get the approval of your family members to start the exercise program?	51.139	<0.001
	If your family members do not approve, would you stop participating in the exercise program?	36.009	<0.001
Societal Encouragement and Community Norms	Do you feel like your society encourages you to exercise?	7.334	<0.05
	Is there an exercise place close to your home for older adults?	25.530	<0.001
	Is it commonplace in your community to go to the gym?	66.005	<0.001
	Do your relatives and friends have regular exercise?	21.312	<0.001
	Do relatives support each other in exercising?	25.393	<0.001
Government and Policy	Do you feel that the administration of your country supports your efforts in physical activity?	12.955	<0.001



Participation Factors. Turkish older adults reported higher perceived social pressure ($p < 0.001$), family-related obligations, and gender-based limitations hindering their participation in physical activity. The question “Does your gender keep you from exercising?” showed an alarming discrepancy ($\chi^2 = 46.298$, $p < 0.001$), emphasizing the cultural impact of gender roles in Türkiye. Family influence emerged as a critical barrier, with Turkish participants significantly more likely to feel the need for family approval before initiating a physical activity program ($p < 0.001$), and a significant portion reported they would quit if their family disapproved. These findings strongly suggest that Turkish older adults do not perceive exercise as an autonomous decision. One of the most striking statements during the interviews came from a 72-year-old woman from Türkiye, who stated, “My son says it’s shameful for a woman of my age to go to the park alone.” This statement underscores the strong social restrictions and family pressures that serve as considerable cultural barriers to physical activity among older Turkish women.

Institutional and Environmental Barriers

Another key finding was the limited institutional and infrastructural support perceived by Turkish older adults, who reported significantly less government, local, and community support for physical activity initiatives ($p < 0.001$). Access to exercise-friendly environments and local campaigns was also rated markedly lower than in the United States, highlighting an important policy and planning gap. Additionally, societal norms regarding frequent exercise and group behaviors differed considerably. Turkish participants were much less likely to report that their peers or relatives engaged in regular exercise ($p < 0.001$), indicating a broader cultural disconnect from active aging norms.

DISCUSSION

This study identified five key areas for improvement: motivation, environment, economic conditions, and sociocultural issues.

Motivation and Intrinsic Factors

Intrinsic motivation is a key factor in older adults’ participation in physical activity (11), as reflected by the high levels observed among older adults in the United States, particularly in Tampa (Table 2). Institutional efforts to promote an active lifestyle through programs designed to enhance both individual and social motivation. These programs encourage older adults to remain physically to preserve their health, improve their quality of life, and engage in social activities (Tables 2 and 3). Program directors and community committees organized promotional events and meetings to maximize engagement and sustain participation. In contrast, physical activity programs for older adults in Türkiye are generally irregular and lack consistency, accessibility, and long-term sustainability. Initiating and maintaining participation remains a major challenge due to low motivation, limited resources, and insufficient organizational support. Furthermore, there no currently institutions offering ongoing, structured, or unstructured exercise programs specifically designed for older adults. Turkish participants reported significantly higher levels of psychological barriers, such as self-consciousness, discouragement, and lack of enjoyment, than their American counterparts ($p < 0.001$, Table 2). They also exhibited higher levels of individual barriers, including difficulties with discipline, time management, and energy ($p < 0.05$).

Environmental and Infrastructural Disparities

Older adults in Türkiye reported significantly fewer and less accessible opportunities for physical activity compared with their American counterparts ($p < 0.05$, Table 3). Although some urban areas offer parks and recreational spaces, these often lack age-friendly infrastructure, including proper walking paths, safe sidewalks, and accessible facilities. Participation in social and physical activities is frequently limited by their declining health, financial insecurity, and limited transportation options (11,20). Structured interventions have been shown to substantially

enhance engagement levels and health outcomes in this population (12). In Tampa, collaborations between municipal authorities, community organizations, and educational institutions have led to the implementation of well-designed exercise programs and professional training initiatives that effectively increase participation. Community-based programs that incorporate structure, accountability, and opportunities for social interaction have been particularly effective in motivating individuals with limited mobility (21). Moreover, neighborhood design and access to local facilities have been shown to reduce barriers to participation (22,23). However, the lack of senior centers and supportive environments in Türkiye further restricts opportunities for regular physical activity ($p<0.001$, Table 2). Addressing these challenges requires local governments to prioritize the development of inclusive, sustainable physical activity programs and to invest in accessible, affordable senior centers.

Economic and Educational Barriers

In Tampa, personal financial status generally does not constrain participation in physical activity, as retirement income enable older adults to prioritize their health and quality of life. Many older adults are aware of the long-term health and cost-saving benefits of maintaining an active lifestyle. In contrast, older adults in Türkiye encounter more pronounced financial constraints that often limit engagement in regular physical activity. The lack of disposable income, coupled with insufficient access to low-cost or free exercise programs, represents a significant barrier to participation. Educational attainment was also higher among American older adults than their Turkish counterparts (Table 1), potentially exacerbating disparities in health literacy and motivation (24). The combination of financial insecurity and lower education levels in Türkiye appears to substantially hinder both intrinsic motivation and the adoption of health-promoting behaviors.

Sociocultural Norms and Gender Dynamics

The physical activity is widely regarded as a routine and integral component of daily life for older adults in U.S. Participation in exercise programs is socially accepted, and individuals rarely encounter judgment from family members or peers (Table 3). This normative cultural attitude supports a more active and autonomous lifestyle in later life. In contrast, sociocultural perceptions in Türkiye present substantial barriers to physical activity. Exercise is often perceived as optional or even inappropriate, particularly for older women, as social restrictions, fear of judgment, and limited societal acceptance frequently discourage their participation (Table 3). Although family members in Turkish society are generally caring and involved, they might unintentionally restrict older adults' independence by making health decisions on their behalf or by underestimating the value of regular exercise. Turkish older adults also reported lower self-esteem and greater hesitation to engage in physical activity than their American counterparts (Table 2). Addressing these barriers requires culturally sensitive public education campaigns and inclusive community-based initiatives aimed at reframing physical activity as a normative and essential aspect of aging. Healthcare professionals and community service providers should prioritize the development of both gender-neutral and responsive programs to promote equitable participation (25).

Institutional Support and Interdisciplinary Collaboration

Interview data confirmed that fitness trainers, along with professional and motivational support, played a key role in promoting participation in physical activity. In the present study, American older adults perceived significantly greater governmental and administrative support for engagement in physical activity ($p<0.001$, Table 3). In Türkiye, the absence of a systematic collaboration between health professionals and exercise specialists represents a



barrier to widespread participation. Strengthening connections among healthcare services, social care systems, and community programs has the potential to substantially enhance physical activity rates among older Turkish adults.

Cross- Cultural Measurement Considerations

It is important to interpret cross-cultural comparisons with caution. Although the instruments employed in this study provided valuable insight, they were not specifically developed or culturally validated for Turkish older adults. To the best of our knowledge, no existing scale provides a fully standardized, culturally sensitive assessment of physical activity barriers and facilitators across both Türkiye and the United States. Consequently, Therefore, some of the observed differences between the two countries may partly reflect measurement limitations rather than purely socio-cultural factors.

Limitations

This study has several methodological limitations that should be considered when interpreting the findings. First, the sample was small and selected via convenience sampling from urban parks and senior centers, which may limit the generalizability of the results. Second, chi-squared analyses were conducted without adjustment for potential confounders due to the exploratory nature of the study and limited statistical power, which should be considered when interpreting the quantitative results. Third, although qualitative data were analyzed systematically and coding and integration within the mixed-methods design were somewhat limited, and inter-coder agreement was assessed using Cohen's kappa, multiple rounds of independent coding and consensus discussions were not performed. This may slightly limit reproducibility; however, the detailed coding process provides reasonable confidence in the qualitative findings. Finally, the cross-sectional design precludes causal inference, and

potential confounders such as health status, family responsibilities, and access to healthcare could not be fully controlled. Future studies employing larger, representative samples, culturally validated instruments, and multivariate analyses to strengthen conclusions and enhance cross-cultural comparability.

CONCLUSIONS

Older adults' participation in physical activity is influenced by environmental access, institutional support, and cultural attitudes. Enhancing participation in Türkiye requires investment in inclusive public spaces, sustainable programs, and culturally sensitive interventions, particularly for older women. Promoting active aging is both a health objective and a societal responsibility, requiring coordinated action across multiple sectors.

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REFERENCES

1. Rhodes RE, Janssen I, Bredin SS, et al. Physical activity: Health impact, prevalence, correlates and interventions. *Psychology & Health*, 2017; 32(8), 942-975. doi: 10.1080/08870446.2017.1325486.
2. Bull FC, Al-Ansari SS, Biddle S, et al. World Health Organization 2020 guidelines on physical activity and sedentary behavior. *Br J Sports Med*. 2020 Dec;54(24):1451-1462. doi:10.1136/bjsports-2020-102955.

3. Szychowska A, Drygas W. Physical activity as a determinant of successful aging: a narrative review article. *Aging clinical and experimental research*, 2022;34(6),1209-1214. doi:10.1007/s40520-021-02037-0.
4. Izquierdo-Gomez R, Martínez-Gómez D, Shields N, et al. The role of physical activity in the association between disability and mortality among US older adults: a nationwide prospective cohort study. *GeroScience*, 2024; 46(3),3275-3285.doi:10.1007/s11357-024-01072-9.
5. Hämäläinen O, Tirkkonen A, Savikangas T, et al. Low physical activity is a risk factor for sarcopenia: a cross-sectional analysis of two exercise trials on community-dwelling older adults. *BMC Geriatrics*, 2024; 24(1), 212. doi:10.1186/s12877-024-04764-1.
6. İlgili Ö, Kutsal YG. Impact of COVID-19 among the elderly population. *Turkish Journal of Geriatrics*, 2020. 23(4), 419-423. doi:10.31086/tjgeri.2020.179
7. Stockwell S, Trott M, Tully M, et al. Changes in physical activity and sedentary behaviors from before to during the COVID-19 pandemic lockdown: A Systematic Review, *BMJ Open Sport Exerc Med* 2021; 7,1-8. doi:10.1136/bmjsem-2020-000960.
8. Ozmete E. (2016). Türkiye Active and Healthy Aging Research. 2016. Republic of Turkey, Ministry of Health, General Directorate of Health Promotion. e-book. Available from:https://yasam.ankara.edu.tr/wpcontent/uploads/sites/259/2019/05/turkiye_aktif_ve_saglikli_yaslanma_arastirmasi-
9. Spiteri K, Broom D, Bekhet AH, et al. Barriers and motivators of physical activity participation in middle-aged and older adults a systematic review. *Journal of Aging and Physical Activity*, 2019;27(6), 929-944. doi:10.1123/japa.2018-0343.
10. Schmidt LL, Johnson S, Genoe MR, et al. Social interaction and physical activity among rural older adults: a scoping review. *Journal of Aging and Physical Activity*, 2021; 30(3),495-509. doi:10.1123/japa.2021-0046.
11. Townsend BG, Che JT, Wuthrich VM. Barriers and facilitators to social participation in older adults: a systematic literature review. *Clinical Gerontologist*, 2021;44(4), 359-380. doi:10.1080/07317115.2020.1863890.
12. Meredith SJ, Cox NJ, Ibrahim K, et al. Factors that influence older adults' participation in physical activity: a systematic review of qualitative studies. *Age and Ageing*,2023; 52(8), 1-15. doi:10.1093/ageing/afad145.
13. Chen Y, Hou L, Li Y, et al. Barriers and motivators to promotion of physical activity participation for older adults with mild cognitive impairment or dementia: an umbrella review. *International Journal of Nursing Studies*, 2023;143,104493. doi: 10.1016/j.ijnurstu.2023.104493.
14. Aslan D, Özcebe H, Temel F, et al. What influences physical activity among elders? A Turkish experience from Ankara, Turkey. *Arch Gerontol Geriatr*, 2008; 46, 79-88. doi:10.1016/j.archger.2007.03.001.
15. Yen IH, Anderson LA. Built environment and mobility of older adults: important policy and practice efforts, *J Am Geriatr Soc*, 2012;(60)951-56.doi:10.1111/j.1532-5415.2012.03949.x.
16. Haselwandter EM, Corcoran MP, Folta SC, et al.The built environment, physical activity, and aging in the United States: A state of the science review, *J Aging Phys Act*, 2015; 23(2),323-29. doi:10.1123/japa.2013-0151.
17. Costello E, Kafchinski M, Vrazel J, et al. Motivators, Barriers, and Beliefs Regarding Physical Activity in an Older Adult Population. *Journal of Geriatric Physical Therapy*, 2011; 34(3):138-147.doi:10.1519/JPT.0b013e31820e0e71.
18. Gothe NP, Kendall BJ. Barriers, motivations, and preferences for physical activity among female African American older adults. *Gerontol Geriatr Med*, 2016; 2.1-8. doi: 10.1177/2333721416677399.
19. Mouton CP, Calmbach WL, Dhanda R, et al. Barriers and benefits to leisure-time physical activity among older Mexican Americans. *Arch Fam Med*, 2000;9(9):892-7. doi:10.1001/archfami.9.9.892.
20. Willie-Tyndale D,Holder-Nevins D,Mitchell-Fearon K, et al. Participation in social activities and the association with socio-demographic and health-related factors among community-dwelling older adults in Jamaica. *Journal of Cross-Cultural Gerontology*, 2016; 31(4),427-447. doi:10.1007/s10823-016-9297-x.
21. Kokorelias KM, Ripat J, Barclay R, et al. A park-based group mobility program for older adults with difficulty walking outdoors: a qualitative process evaluation of the Getting Older Adults Outdoors(GO-OUT) randomized controlled trial. *BMC Geriatrics*, 2025; 25(1),16. doi:10.1186/s12877-024-05611-z.
22. Lai DW L, Li J, Lee VWP, Dong X. Environmental Factors Associated with Chinese Older Immigrants' Social Engagement. *Journal of the American Geriatrics Society*, 2019;67(3),571-576.doi:10.1111/jgs.15899.



23. Li X, Zhang W, Zhang W, et al. Level of physical activity among middle-aged and older Chinese people: evidence from the China health and retirement longitudinal study. *BMC Public Health*, 2020; 20,1682.doi:10.1186/s12889-020-09671-9.
24. Kilgour AH, Rutherford M, Higson J, et al. Barriers and motivators to undertaking physical activity in adults over 70 a systematic review of the quantitative literature. *Age and Ageing*, 2024; 53(4).doi:10.1093/ageing/afae080.
25. Ong CH, Pham BL, Levasseur M, et al. Sex and gender differences in social participation among community-dwelling older adults: a systematic review. *Frontiers in Public Health*, 2024;12,1335692. doi:10.3389/fpubh.2024.1335692.