The Health Academy Program in the quality of life of women in social vulnerability

El Programa Academia de la Salud en la calidad de vida de mujeres en condiciones de vulnerabilidad social

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Abstract

Introduction: Quality of life is closely linked to factors such as social determinants of health and physical activity. The Health Academy Program aims to promote physical activity as a strategy to improve the population's quality of life.
Objective: This study aimed to evaluate the quality of life of physically active women participating in the Health Academy Program compared to insufficiently active women, who do not participate in the program, in an area of high social vulnerability in Belo Horizonte, Minas Gerais, Brazil.
Method: A cross-sectional study was conducted with 100 women aged 40 to 59 years, residing in this region. The World Health Organization's Quality of Life Questionnaire (WHOQOL-bref) and the International Physical Activity Questionnaire (IPAQ) were used to assess quality of life and physical activity levels, respectively. Statistical analysis was performed using the Mann-Whitney U test.
Results: Results indicate that physically active women had significantly higher scores in the physical, psychological, social, and environmental domains of quality of life compared to insufficiently active women ($p < .001$).
Conclusions: It is concluded that regular physical activity, within the context of the Health Academy Program, is associated with improved quality of life, particularly in socially vulnerable populations.

Keywords

Social determinants of health; health promotion; social vulnerability; public policies; social inequality.

Resumen

Introducción: La calidad de vida está relacionada con factores como los determinantes sociales de la salud y la práctica de la actividad física. El Programa Academia de la Salud busca promover la actividad física como estrategia para mejorar la calidad de vida de la población.
Objetivo: Este estudio tuvo como objetivo comparar la calidad de vida de mujeres físicamente activas, participantes del Programa Academia de la Salud, con la de mujeres insuficientemente activas, que no participan del programa, en una zona de alta vulnerabilidad social en Belo Horizonte, Minas Gerais, Brasil.
Método: Se realizó un estudio transversal con 100 mujeres de entre 40 y 59 años, residentes en esta región. Se utilizaron el cuestionario de la Organización Mundial de la Salud para la evaluación de la calidad de vida (WHOQOL-bref) y el Cuestionario Internacional de Actividad Física (IPAQ) para medir el nivel de actividad física. El análisis estadístico se realizó mediante la prueba U de Mann-Whitney.
Resultados: Los resultados indican que las mujeres físicamente activas presentaron puntuaciones significativamente más altas en los dominios físico, psicológico, social y ambiental de la calidad de vida en comparación con las mujeres insuficientemente activas ($p < .001$).
Conclusiones: Se concluye que la práctica regular de actividad física, en el contexto del Programa Academia de la Salud, está asociada a una mejora en la calidad de vida, especialmente en poblaciones socialmente vulnerables.

Palabras clave

Determinantes sociales de la salud; promoción de la salud; vulnerabilidad social; políticas públicas; desigualdad social.

Introduction

Quality of life is a central indicator of social and human development and has been widely used in public health research to assess population well-being. It is a multidimensional and polysemic construct encompassing physical, psychological, social, and environmental domains (Harlow et al., 2023; Kharroubi & Elbarazi, 2023). According to the World Health Organization (WHO, 2024a), quality of life refers to an individual's perception of their position in life within their cultural context and value systems, considering personal expectations, goals, and concerns. This definition emphasizes the subjective and contextual nature of quality of life and reinforces the need for analytical approaches that extend beyond strictly biomedical indicators.

From this perspective, quality of life cannot be understood solely through material or clinical conditions, as it is strongly shaped by broader social and contextual factors. Consequently, its analysis requires a multifactorial framework in which social determinants of health play a central role (Dahlgren & Whitehead, 1991). Social determinants of health refer to the social, economic, cultural, and environmental conditions that influence health outcomes and life opportunities (WHO, 2024b).

These determinants are unevenly distributed across social groups, generating health inequities that disproportionately affect populations living in contexts of social vulnerability. Recent systematic evidence indicates that multiple social determinants, such as education, income, and social support, are consistently associated with health-related quality of life outcomes, particularly among socially disadvantaged groups (Kangas et al., 2025). Contemporary evidence further demonstrates that such inequities follow a social gradient, reflecting structural disadvantages that accumulate across the life course and directly affect health and quality-of-life outcomes (WHO, 2025). Improving quality of life in these settings therefore requires integrated and intersectoral public policies capable of addressing the structural roots of inequality.

In Brazil, one of the main instruments used to identify and monitor social inequalities is the Social Vulnerability Index, which aggregates socioeconomic indicators related to income, education, housing conditions, and access to public services (Funari et al., 2024). In the municipality of Belo Horizonte, this index supports territorial health planning by identifying areas with higher social risk. Territories classified as highly vulnerable often present precarious urban infrastructure, public safety issues, and limited access to recreational spaces - conditions that negatively affect health and quality of life and restrict opportunities for leisure and physical activity (Funari et al., 2024).

Studies conducted in different social contexts have shown that women living in situations of socioeconomic disadvantage face additional barriers to engaging in physical activity, shaped by territorial constraints, gender roles, and social inequalities (Freidin et al., 2021; Kreiml et al., 2024). Empirical research has also demonstrated that adverse social determinants are associated with poorer health-related quality of life among socially disadvantaged populations, including evidence from studies conducted with COVID-19 survivors in a predominantly Latino population (Case et al., 2022).

Regular physical activity is widely recognized as one of the most effective strategies for promoting quality of life, as it contributes to physical health, psychological well-being, and social participation, while reducing the risk of non-communicable diseases (Brazil, 2021; WHO, 2022a). Recent studies have reinforced the relevance of physical activity for women's health, demonstrating benefits across physical and psychological dimensions, including improvements in mental health indicators such as anxiety and emotional well-being (Guachi Loma et al., 2024; Rahmadhani et al., 2026). Acknowledging these benefits, the Brazilian National Health Promotion Policy incorporated physical activity as a strategic axis in 2006 (Malta et al., 2016; Dias et al., 2026).

Within this policy framework, the Health Academy Program, implemented nationwide in 2011, was designed to promote health through supervised physical activity and multidisciplinary actions integrated into Primary Health Care (Brazil, 2026). As part of the Unified Health System, the program prioritizes territories with higher social vulnerability, aiming to reduce inequities in access to health promotion initiatives. Beyond encouraging physical activity, the Health Academy Program is characterized by its multidisciplinary and intersectoral approach, involving professionals from physical education, nutri-

tion, psychology, social work, nursing, and medicine (Brazil, 2023c; Brazil, 2023d). This structure enables the program to address not only physical health but also psychosocial dimensions of well-being, which are particularly relevant in socially vulnerable areas.

Assessing quality of life in this context requires validated and multidimensional instruments. The WHOQOL-Bref has been widely used in studies evaluating quality of life among women in different social and health contexts, demonstrating sensitivity across physical, psychological, social, and environmental domains and the ability to discriminate differences according to levels of physical activity (Almarabheh et al., 2023; Rondung et al., 2023). Its use allows for a comprehensive evaluation of quality of life that is consistent with the conceptual framework of social determinants of health.

Despite advances in public policies and the growing body of literature on physical activity and women's health, there remains a gap regarding direct comparisons of quality of life between physically active and insufficiently active women living in the same context of high social vulnerability, particularly using standardized multidimensional instruments. Addressing this gap is essential to better understand how engagement in physical activity may be associated with different quality of life domains within socially constrained territories.

Accordingly, the research question guiding this study was: Does regular physical activity contribute to differences in quality of life across physical, psychological, social, and environmental domains among women living in conditions of social vulnerability? The objective of this study was to compare the quality of life of physically active women participating in the Health Academy Program with that of insufficiently active women who do not participate in the program, all residing in a high social vulnerability area in the city of Belo Horizonte, Brazil.

Method

This is a quantitative, cross-sectional, exploratory study with a comparative design, comparing two independent groups. The sample was defined by convenience and non-probabilistic sampling, considering the feasibility of recruiting participants who met the inclusion criteria within a territory classified as having very high social vulnerability. Given the exploratory nature of the study and its comparative objective, a total sample of 100 women, distributed into physically active women (n = 50, mean age 44.8 ± 13.8 years) and insufficiently active women (n = 50, mean age 41.1 ± 14.5 years) groups, was considered appropriate for examining differences in quality-of-life domains between two independent groups, in line with observational studies that assess quality of life and physical activity in similar contexts. The total sample size was determined by considering data from the social domain variables of previous research (which had the smallest effect size among the other domains: physical, psychological and environmental) and using GPower software version 3.1.9.7 with the following information: Wilcoxon- Mann-Whitney test (two groups), with two tails, with an effect size of 0.75, alpha error of 0.05, power of 0.95 and allocation ratio N2/N1 of one. Based on these calculations, 100 volunteers were suggested a priori (50 for each group).

Participants

Participants were required to reside in the Nossa Senhora de Fátima neighborhood, located in the Central-South region of Belo Horizonte, Minas Gerais, an area under the jurisdiction of the São Miguel Arcanjo Health Center. According to the Social Vulnerability Index, this area is classified as "very high"; be a woman aged 40 to 59 years; and not have self-reported clinical restrictions for physical activity.

Procedure

Physically active women were required to have been participating in the Health Academy Program for at least six months, attending a minimum of three sessions per week, with each session lasting one hour. Physically insufficiently active women were not participants of the program, could not have engaged in regular physical activity, or performed less than 150 minutes of physical activity per week.

Exclusion criteria included: having severe incapacitating diseases, lacking cognitive capacity to respond to questionnaires, or refusal to participate in the study. The threshold for physical activity was set according to the World Health Organization (WHO, 2022b) recommendation of a minimum of 150 minutes of moderate and/or vigorous physical activity per week.

Instrument

To select the physically active women, attendance at the Health Academy Program sessions was monitored by professionals and physical education interns through daily roll calls, which were used to identify eligible participants. The program professionals informed all user groups about the research.

Subsequently, the most convenient day and time were scheduled for the volunteers to respond to the questionnaires, which were administered by a trained intern.

The physically insufficiently active women were approached by the program interns at high-traffic locations in the Nossa Senhora de Fátima neighborhood during the morning. The interns identified women matching the study profile, explained the research objectives and procedures, and later scheduled a time for them to respond to the questionnaires. The first 50 women who met the inclusion criteria were invited to participate in the study. All participants were informed and signed the Free and Informed Consent Form. This study was approved by the Research Ethics Committee of the Municipal Health Department of Belo Horizonte (protocol 10370000410-11).

Quality of life was assessed using the WHOQOL-bref (World Health Organization Quality of Life Questionnaire), a shortened version translated into Portuguese (Fleck et al., 2000). The questionnaire comprises 26 questions and evaluates quality of life across four domains: physical, psychological, social, and environmental. Responses follow a Likert scale from 1 to 5, measuring intensity, capacity, frequency, and evaluation. Higher scores indicate a better perception of quality of life.

Physical activity assessment

The level of physical activity was assessed using the short version of the International Physical Activity Questionnaire (IPAQ) (Pardini et al., 2001), which measures the frequency and duration of physical activity performed in recent weeks, including moderate, vigorous activities, and transport activities such as walking or cycling. Participants reported the number of days per week and the duration of their physical activity. The IPAQ, widely used in epidemiological studies, allows for comparisons across different contexts and populations. The questionnaire was also self-administered, allowing participants to respond based on their perceptions and recollections of recent physical activity.

To ensure the cognitive capacity of participants to comprehend and adequately respond to the questionnaires, the Mini-Mental State Examination (MMSE) was administered (Chaves, 2008). This brief cognitive assessment (5–10 minutes) evaluates various cognitive domains: temporal and spatial orientation, working and immediate memory, attention and calculation, object naming, phrase repetition, following commands, understanding and executing writing tasks, comprehension and execution of verbal tasks, and planning and praxis. In each item, correct answers receive one point, and incorrect answers receive zero. The maximum score is 30, and the minimum is zero. Lower scores indicate greater cognitive impairment.

Participants scoring below the minimum threshold of 10 points, indicating severe cognitive impairment requiring immediate evaluation, were excluded due to the risk of cognitive deficits affecting response quality. This instrument was administered by a trained interviewer, ensuring the correct application and recording of responses.

Data analysis

Data were organized and analyzed using SPSS® software version 17.0. Descriptive statistics (mean, standard deviation, and frequencies) were used to describe the sample and the scores in the quality of life domains. To compare the scores between physically active and insufficiently active women in the WHOQOL-bref domains, the non-parametric Mann-Whitney U test was applied due to the non-normal distribution of the data. The significance level adopted was $p < .05$.

Results

The data analysis revealed significant differences in quality of life between physically active and insufficiently active women. Table 1 presents the mean scores and standard deviations for each WHOQOL-bref domain, showing that physically active women scored higher across all domains compared to insufficiently active women: physical, psychological, social, and environmental.

Table 1. Quality of life scores for physically active and insufficiently active women

		Physically active women n = 50		Insufficiently active women n = 50		General n = 100	
		Mean	SD	Mean	SD	Mean	SD
WHOQOL-Bref	Physical	88.93	8.63	62.57	14.52	75.75	17.79
	Psychological	85.83	10.31	61.74	12.92	73.79	16.78
	Social	82.83	12.97	67.66	16.63	75.25	16.68
	Environmental	67.81	9.13	43.75	11.43	55.78	15.88

Note: n - sample. Values represented by mean, SD - standard deviation. Prepared by the authors with survey data.

Table 2 shows statistically significant differences ($p < .001$) across all WHOQOL-bref domains between physically active and insufficiently active women. The largest difference was observed in the physical domain, followed by the psychological, environmental, and social domains.

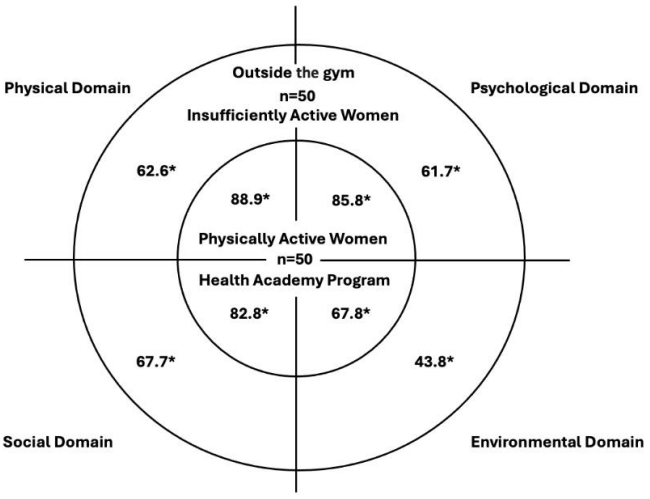
Table 2. Comparison of the quality of life domains between physically and insufficiently active women

Domains	Mann-Whitney U Test	Z	p-value
Physical	125	-7.785	< .001
Psychological	182	-7.395	< .001
Social	591.5	-4.639	< .001
Environmental	127	-7.761	< .001

Note: p – probability, z - z-score and through Mann-Whitney U Test. All comparisons were statistically significant ($p < .001$). Prepared by the authors with survey data.

Figure 1 illustrates the distribution of responses between the groups, highlighting the disparities identified across all WHOQOL-bref domains.

Figure 1. Distribution of responses of physically and insufficiently active women, using the Mann-Whitney U test



Note: Comparison between women in the Health Academy Program and women outside the Program. n - sample. Values represented by mean, standard deviation, * - $p < .05$ and through Mann-Whitney U Test. Prepared by the authors with survey data.

Discussion

The results of this study highlight the significant impact of regular physical activity on the quality of life of women living in socially vulnerable conditions. Participants of the Health Academy Program consistently showed higher scores across all quality of life domains evaluated by the WHOQOL-bref, aligning with previous studies that demonstrate the multidimensional benefits of physical activity (Pucci et al., 2012). Recent evidence focusing on women's health has reinforced these associations, indicating consistent physical, psychological, and social benefits of regular physical activity across different contexts (Guachi Loma et al., 2024).

In the physical domain, physically active women demonstrated significantly higher scores, reinforcing the crucial role of physical activity in improving physical fitness and functional capacity. These factors, in turn, enhance the ability to perform daily tasks and reduce long-term functional dependency. This finding is consistent with the literature, which emphasizes the benefits of physical activity in preventing and managing non-communicable chronic diseases, especially relevant in low-income populations (Warburton & Bredin, 2017). More recent studies have also highlighted the relevance of regular physical activity for maintaining physical health and functional autonomy among women in midlife and later adulthood (Guachi Loma et al., 2024). By providing free and guided access to physical activity, the Health Academy Program helps to overcome socioeconomic barriers that often hinder the adoption of active lifestyles in vulnerable communities (Caram et al., 2021). In this sense, public policies should strengthen and expand the presence of these professionals in similar programs.

The psychological domain also showed marked differences, with program participants exhibiting better mental health indicators. This result supports studies that associate regular physical activity with the reduction of anxiety and depression symptoms, improved mood, and increased emotional resilience (Schuch et al., 2018). Recent research has further confirmed the positive effects of physical activity and structured exercise programs on anxiety reduction and psychological well-being among women, including evidence from studies conducted in community and public health settings (Kreiml et al., 2024; Rahmadhani et al., 2026). Physical activity promotes the release of neurotransmitters such as endorphins and serotonin, which regulate mood and alleviate stress, contributing to the reduction of depressive and anxious symptoms, particularly in middle-aged women (Park et al., 2023).

The presence of psychology professionals in the Health Academy Program, alongside the social support found in group activities, strengthens the sense of belonging and emotional well-being by creating a welcoming and emotionally supportive environment. These activities promote mental health and help participants develop strategies for coping with stress and adopting a more positive outlook on life's challenges, especially in socially vulnerable contexts.

In the social domain, the higher scores among physically active women reflect the potential of the Health Academy Program as a catalyst for positive social interactions and the strengthening of community networks. This aspect is particularly relevant in socially vulnerable contexts, where isolation and lack of support can exacerbate physical and mental health issues (Ferreira et al., 2020). Studies conducted with women from socioeconomically disadvantaged groups have similarly emphasized the role of physical activity programs in promoting social participation, empowerment, and the strengthening of social ties (Freidin et al., 2021; Perrino Peña & Fernández Díaz, 2024). Group activities not only encourage physical exercise but also create opportunities for the development of social capital, a crucial element for community resilience (Mendoza-Vasconez et al., 2016).

The playful, educational, and recreational activities offered by the Health Academy Program play an important role in creating a healthy social space where women can interact, support one another, and build friendships, further enhancing the social domain of their quality of life.

Although the environmental domain showed lower scores in both groups, significant differences were still found in favor of physically active women. This result suggests that, even in the face of common environmental challenges in areas of high social vulnerability, participation in the Health Academy Program can positively influence the perception of the environment. However, the relatively low scores in this domain highlight the need for broader interventions addressing social determinants of health, such as improvements in urban infrastructure, public safety, and access to essential services (Mendoza-

Vasconez et al., 2016). These factors limit participants' ability to fully enjoy their environment, contributing to a negative perception of this domain.

Improving the environmental domain requires broader intersectoral actions that address the structural inequities faced by vulnerable populations. This includes investment in urban infrastructure, improvements in public transportation, and the creation of safe and accessible public spaces for physical activity, as well as housing and public safety policies that ensure better living conditions for these populations.

Another important aspect to highlight is the relevance of the multidisciplinary intervention in the Health Academy Program (Brazil, 2023b). The joint work of professionals from various health fields promotes a comprehensive approach to health. Nutritional support, for instance, contributes to the adoption of healthy eating habits; psychological support helps address emotional problems common in socially vulnerable contexts; physical therapists contribute to users' functional recovery; occupational therapists, in turn, promote social participation and the inclusion of users and their families in the community. This holistic approach of the Health Academy Program is fundamental to the overall improvement of the participants' quality of life, as it addresses multiple dimensions of well-being in an integrated manner.

Moreover, the intersectoral nature of the Health Academy Program (Brazil, 2019, 2023a) allows it to collaborate with other public policies, such as social assistance programs and urban infrastructure improvements, creating a more conducive environment for health promotion. The coordination between the sectors of health, education, social assistance, and urban planning is essential to tackle the social determinants of health that negatively affect the quality of life in vulnerable populations. This approach aligns with the World Health Organization's recommendations for health promotion in vulnerable communities, emphasizing the importance of multilevel interventions that simultaneously address individual and environmental factors (WHO, 2025).

In summary, the results of this study reinforce the importance of regular physical activity, promoted by the Health Academy Program, in improving the quality of life of women in socially vulnerable situations. The program's multidisciplinary and intersectoral approach proves effective in promoting more comprehensive health and in reducing some of the constraints imposed by social determinants of health.

However, improvements in the environmental domain depend on a more robust intersectoral effort aimed at overcoming the structural inequalities that affect these populations. This study contributes to the understanding that public health interventions that integrate multiple sectors and professionals have the potential to promote health equity and improve the quality of life in socially vulnerable populations.

Conclusions

This study compared the quality of life of physically active women participating in the Health Academy Program with that of insufficiently active women living in a context of high social vulnerability in Belo Horizonte. The findings indicate that regular physical activity is associated with a more positive perception of quality of life, particularly in the physical, psychological, and social domains, highlighting its relevance as a key component of health promotion among vulnerable populations. In contrast, lower scores in the environmental domain across both groups underscore the persistent influence of structural and territorial constraints on quality of life. From a practical perspective, the results reinforce the effectiveness of the Health Academy Program as a public health strategy that promotes holistic health through a multidisciplinary and intersectoral approach, contributing to the reduction of constraints to physical activity and supporting physical, mental, and social well-being. These findings support the maintenance and expansion of similar programs, particularly in socially vulnerable territories, alongside broader intersectoral policies aimed at improving environmental conditions. Regarding future research, the study's cross-sectional design and convenience sampling limit causal inference and generalizability. Longitudinal studies are recommended to examine long-term effects of participation in the program, as well as investigations in different urban and regional contexts to assess the replicability of the Health Academy Program model and the influence of contextual factors on quality of life outcomes.

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