



Nonpharmacologic interventions to improve quality of life of older adults with HIV

Carmen M. Cano de Luque^a, Matilde Sánchez-Conde^{a,b}
and Fátima Brañas^{c,d}

Purpose of review

Ensuring optimal quality of life (QOL) in older adults with HIV (OAWH) should be a priority. Comprehensive strategies are needed not only to assess QOL but also to implement targeted interventions that enhance it across multiple dimensions. This review aims to examine the robust scientific evidence supporting the effectiveness of nonpharmacological interventions, such as exercise, socialization, and psychological support.

Recent findings

Physical activity and structured exercise programs have been shown to improve functional capacity, reduce frailty, alleviate depressive symptoms, and enhance psychological well being in OAWH. Studies indicate that interventions such as home-based exercise programs, community-based support, and digital health initiatives can help mitigate isolation, reduce depressive symptoms, and improve socialization.

Summary

There remains a gap between the scientific evidence demonstrating the benefits of nonpharmacological interventions and their implementation in clinical practice. A shift from disease-centered to person-centered medicine is necessary to adequately address the real needs of OAWH. From a healthcare policy perspective, a fundamental change in approach is essential, with greater investment in evidence-based strategies – such as exercise, socialization, and psychological support – even if it requires rethinking the current care model.

Keywords

exercise, older adults with HIV, psychological well being, quality of life, socialization

INTRODUCTION

Thanks to highly active antiretroviral therapy, the primary goal for people with HIV (PWH), once viral load suppression is achieved and maintained, is to ensure the best possible quality of life (QOL). QOL refers to subjective well being and an individual's overall satisfaction with life. At all stages of life, but especially in older adulthood, this perception of well being is closely linked to maintaining good functional capacity – that is, possessing the attributes that enable individuals to engage in meaningful activities and fulfill their personal goals. In other words, it involves experiencing healthy aging, which, according to the WHO, is defined as the process of promoting and maintaining the functional capacity that enables well being in old age [1].

Aging encompasses not only physical changes but also psychosocial aspects that can affect QOL, adherence to medical care, and disease progression in older adults with HIV (OAWH) [2]. Several studies conducted among OAWH across different regions of

the world have identified psychosocial issues as a major concern, ranking them as the second most significant source of distress [3]. These issues include fatigue, depression, loneliness, memory problems, and challenges in maintaining an active social and sexual life [4]. Additionally, OAWH often experience stigma related to their HIV status, age, and identities as part of sexual and gender minorities [5]. In response, several interventions have been developed to improve their QOL.

^aDepartment of Infectious Diseases, Hospital Universitario Ramón y Cajal, IRYCIS, Department of Medicine, Universidad de Alcalá de Henares, Madrid, ^bCIBERINFEC, Instituto de Salud Carlos III, ^cDepartment of Geriatric Medicine, Hospital Universitario Infanta Leonor and ^dDepartment of Medicine, Universidad Complutense, Madrid, Spain

Correspondence to Fátima Brañas, Department of Geriatric Medicine, Hospital Universitario Infanta Leonor, Avda Gran Vía del Este 30, Madrid 28031, Spain. Tel: +34 638210621; e-mail: fbranas@gmail.com

Curr Opin HIV AIDS 2025, 20:000–000

DOI:10.1097/COH.0000000000000937

KEY POINTS

- This review highlights the critical role of nonpharmacological interventions – such as exercise, socialization, and psychological support – in improving quality of life for older adults with HIV.
- Scientific evidence demonstrates that physical activity and structured exercise programs enhance functional capacity, reduce frailty, and alleviate depressive symptoms in OAWH.
- Community-based support, home-based exercise programs, and digital health initiatives are effective in mitigating isolation and promoting social engagement.
- Despite strong evidence, a gap remains between research findings and clinical practice, underscoring the need for a shift toward person-centered care.
- Healthcare policies must prioritize evidence-based nonpharmacological interventions to enhance the well being of OAWH, even if it requires rethinking the current care model.

Assessing QOL should be an integral part of the comprehensive care approach for OAWH. However, more important than the assessment itself is the development of intervention plans based on available scientific evidence to address factors that negatively impact well being in any of its dimensions. Efforts have been made across various domains to implement initiatives that tackle these challenges, which we will briefly discuss below.

EXERCISE

As previously mentioned, QOL is a multidimensional concept that extends beyond disease. However, age-related chronic diseases, through their symptoms, signs, and concomitant treatments, can significantly compromise QOL. Regular exercise is proposed as the most effective ‘polypill’ for addressing multiple age-related diseases [6]. It has been shown to prevent and provide therapeutic benefits for obesity, type 2 diabetes mellitus, cardiovascular disease (CVD), and certain cancers, such as breast and colorectal cancer. Currently, CVD is the leading cause of death among PWH and tends to occur years earlier in this population compared to the general population. There is no solid evidence demonstrating the benefits of exercise specifically for these diseases in PWH. Therefore, until such evidence becomes available, the recommendations for the general population should be applied [7].

The relationship between exercise and QOL has been well documented in PWH. Two Korean researchers recently published the results of an observational

pilot study including 22 individuals with HIV, 59% of whom were over 50 years old. The study aimed to evaluate functional aspects and QOL in relation to physical activity [8]. To achieve this goal, physical activity levels were measured using monitoring devices over 2 weeks, and participants completed preintervention and postintervention questionnaires, including the WHOQOL-HIV-BREF to assess their perceived QOL. Individuals with higher physical activity levels reported a better perception of QOL and more effective stress management than those with lower physical activity levels. The authors concluded that daily physical activity positively impacts the physical and mental well being of PWH. Building upon this proof of concept, the researchers designed a randomized controlled trial (RCT) involving 25 sedentary men with HIV (mean age: 52 years). Participants were randomly assigned to either an intervention group or a control group. Those in the intervention group engaged in 45 min of exercise (at 60–80% of their maximum heart rate) four times per week for 4 weeks. The exercise consisted of brisk walking or running, while the control group maintained their usual lifestyle [9^{***}]. QOL, among other parameters, was assessed before and after the exercise program. The study concluded that a 4-week intervention involving both diet and exercise led to a notable improvement in physical satisfaction, a subcomponent of QOL, as well as enhancements in physical fitness. These findings align with those of a previous RCT, which demonstrated that exercise training positively impacts psychological well being, personal independence, and social-relational satisfaction [10].

Physical activity and exercise should be incorporated into daily routines to establish long-term habits, as maintaining regular exercise is crucial for sustaining its beneficial effects. While certain complex and highly supervised exercise programs have demonstrated efficacy in research settings, their practical implementation in real-world scenarios – particularly among OAWH – remains challenging. In this context, a 2024 meta-analysis is of great interest, as it evaluates the effectiveness of minimally supervised home and community-based exercise (HCE) programs in PWH [11^{***}]. The meta-analysis included 13 studies – 11 of which were randomized controlled trials – with a total of 857 participants aged 29–56 years. Findings suggest that prescribing HCE with minimal or no supervision can enhance physical activity levels, QOL, and various physical and psychological health parameters. Brisk walking emerged as a feasible exercise option, and digital delivery methods for HCE interventions were also found to be effective.

Functional decline directly impacts QOL, as well as the number of years lived free of disability. Therefore, promoting and maintaining functional capacity

to support the well being of OAWH should be a priority. The *MOVING* study, published in 2024, aimed to assess the effectiveness of a personalized multicomponent exercise program (MEP) under real-life conditions in sedentary adults aged 50 years or older, with and without HIV [12²²]. The study focused on frailty, physical performance, and QOL, among other outcomes. To achieve this goal, the authors designed a longitudinal, prospective, controlled, and multicenter study with both short-term and long-term follow-up. The median age of participants was 56.5 years, 23.3% were women, and half lived alone. The 12-week MEP significantly improved frailty and physical performance, increasing upper and lower body strength as well as aerobic endurance. A significant improvement in QOL was also observed, though it was limited to the physical health domain of the WHOQOL-HIV-BREF questionnaire. Notably, significant improvements in physical performance and reductions in anxiety and depression symptoms were observed only in participants with an adherence rate of at least 50% to the MEP, regardless of their HIV status. Unpublished results suggest that continuing the MEP beyond the initial 12 weeks, for up to 1 year, yields even greater improvements in physical function and performance [13]. It is important to emphasize that when the goal is to maintain, restore, or improve physical function in older adults, the recommended approach is strength training, integrated into a MEP that also includes aerobic training, balance exercises, and flexibility training [14²³]. The WHO recommends that adults aged 65 and older engage in at least 150–300 min of moderate-intensity aerobic physical activity per week, along with strength training at least twice per week. However, the latest WHO guidelines emphasize that ‘all activities count’, highlighting the health benefits of even brief physical activity sessions lasting less than 10 min [15]. Additionally, incorporating two to three short bouts of higher intensity physical activity into daily activities, even outside a structured exercise program, has been shown to provide health benefits, reinforcing the importance of integrating physical activity into everyday routines [16].

Maintaining good functional capacity to promote well being in old age encompasses not only physical function but also cognitive function. Exercise has demonstrated global benefits in QOL and specific improvements in symptoms among PWH and cognitive impairment. A RCT investigating an aerobic exercise program – consisting of cycle ergometer sessions three times per week for 12 weeks – found that participants with HIV and cognitive impairment experienced significantly higher physical and overall QOL scores compared to the control group. Furthermore, the intervention group showed

a significant reduction in depressive symptoms, with these benefits persisting for up to 3 months following the intervention [17]. A recent systematic review highlights exercise as a fundamental non-pharmacological intervention for managing individuals with HIV and cognitive impairment. Higher physical activity levels are associated with a reduced rate of cognitive decline, as well as improvements in QOL, alleviation of depressive symptoms, and enhanced adherence to treatment [18²⁴]. The characteristics of the main physical exercise programs with demonstrated benefits for the QOL of OAWH are summarized in Table 1.

It is important to consider the barriers that OAWH may face when being encouraged to exercise, which can be both intrinsic (self-efficacy) and extrinsic such as challenges with transportation, flexibility in scheduling appointments, and ensuring privacy for individuals who may prefer to avoid clinic visits due to HIV-related stigma [19]. Exercise self-efficacy (ESE) plays a crucial role in both the initiation and maintenance of exercise. ESE before starting exercise has been shown to be lower among PWH compared to the general population [20]. Therefore, measuring it can help identify barriers to physical activity.

PSYCHOSOCIAL INTERVENTIONS

We emphasize the importance of social support in achieving QOL, particularly for OAWH, whether through virtual or in-person support groups [21]. The *Golden Compass* program in San Francisco serves as a successful example of an in-person intervention in this regard. Through memory and cognition classes, participants were able to build social networks with other members and share similar experiences. A program component called *Telling Your Story* helped patients reduce feelings of isolation and stigma. The program’s effectiveness was evaluated among OAWH and healthcare providers using satisfaction surveys, revealing that over 90% of participants were satisfied with and accepted the intervention [22].

The COVID-19 pandemic highlighted the importance of virtual spaces in combating loneliness and isolation. One example is the *Virtual Village*, an online community that promotes social interaction among members and offers various classes, including meditation and physical exercise [23²⁵]. This study was conducted in three US regions with a sample of 20 OAWH aged over 50, over a 4-week period. A Discord platform was used to provide multiple themed channels, including a voice channel, event announcements, subcommunities based on specific interests, and resource-sharing on various topics. Participants completed surveys before and after the

Table 1. Physical exercise programs with demonstrated benefits for the quality of life of older adults with HIV

Location	Korea	Korea	Five studies in North America; three in Africa; two in Europe; two in Asia; one in Australia	The MOVING study. Madrid (Spain)	Pretoria (South Africa)	Ten studies in the USA; one in Italy; one in Iran; one in Canada; one in Nigeria
Study design	Observational Pilot Study	Randomized controlled trial	Systematic review and meta-analysis (13 studies)	A longitudinal, prospective, controlled, and multicenter study with short-term and long-term follow-up	Randomized controlled trial	Systematic review (14 studies)
Participants	22 PWH (59% ≥50)	25 men with HIV (mean age 52 years)	857 PWH (29 to 56 years)	60 sedentary participants ≥ 50 years (40 HIV+; 20 HIV-)	73 PWH and HAND	589 PWH with CI (mean age 52.2 years)
Objective	To evaluate functional aspects and QOL in relation to physical activity	To analyze the effects of exercise and dietary intervention on physical fitness and QOL	To evaluate the effectiveness of minimally supervised home and community-based exercise (HCE) programs in PWH in physical activity and QOL	To assess the effectiveness of a MEP on frailty, physical performance, and QOL.	To determine the effects of a 12-week aerobic exercise programme on HAND	To describe the types of and evidence relating to nonpharmaceutical interventions in PWH with CI
Type of exercise	Usual physical activity	Aerobic exercise (brisk walking or running) + dietary intervention	Home and community-based exercise (HCE)	A personalized multicomponent exercise program (MEP) under real-life conditions	Aerobic exercise program	Aerobic exercise program
Intervention	PA levels were measured using monitoring devices over 2 weeks Preintervention and postintervention questionnaires, including the WHOQOL-HIV-BREF to assess their perceived QOL	Intervention group: 45 min of exercise (at 60–80% of their maximum heart rate) four times per week for 4 weeks. Control group: usual lifestyle	Different interventions regarding: -types of exercises -PA alone or combined with other strategies -Exercise at home or outdoors All of them with minimally supervision	Personalized multicomponent exercise program (MEP): aerobic training, balance exercises, and flexibility training. Follow-up: 12, 24, and 48 weeks	Intervention group: moderate-intensity aerobic exercise (cycle ergometer), 20–60 min per session, three times per week, for 12 weeks. Control group: exercise education	Different nonpharmacological interventions: - Computerized cognitive training, - Exercise - Diet
Results	Individuals with higher PA levels reported a better perception of QOL and more effective stress management than those with lower PA levels	A 4-week intervention involving both diet and exercise led to a notable improvement in physical satisfaction, a subcomponent of QOL, as well as enhancements in physical fitness	Prescribing HCE with minimal or no supervision can enhance PA levels, QOL, and various physical and psychological health parameters	The 12-week MEP significantly improved: -frailty -physical performance, increasing upper and lower body strength as well as aerobic endurance. -QOL (physical health domain) -reductions in anxiety and depression symptoms (participants with an adherence rate of ≥50% to the MEP)	Participants with HIV and CI experienced: -significantly higher physical and overall QOL scores compared to the control group. - a significant reduction in depressive symptoms Benefits persist for up to 3 months following the intervention	Higher PA levels are associated with a reduced rate of cognitive decline, as well as improvements in QOL, alleviation of depressive symptoms, and enhanced adherence to treatment
References	Kim <i>et al.</i> [8]	Qin <i>et al.</i> [9 [■]]	Aminde <i>et al.</i> [11 [■]]	Brañas <i>et al.</i> [12 [■]]	Nweke <i>et al.</i> [17]	Stuart <i>et al.</i> [18 [■]]

CI, cognitive impairment; HAND, HIV-associated neurocognitive disorder; MEP, multicomponent exercise program; OAWH, older adults with HIV; PA, physical activity; PWH, people with HIV; QOL, quality of life.

intervention. Following the intervention, a significant decrease in mean negative emotion scores and an increase in socialization scores were observed. Other virtual interventions have demonstrated benefits, particularly in rural or socially dispersed areas where isolation and loneliness are highly prevalent [24[■],25[■]]. However, virtual and online interventions also present challenges, including technological barriers, digital literacy limitations, concerns about security and privacy, internet access issues, and potential costs [26–28]. Additionally, many older adults prefer face-to-face interactions.

Although literature on virtual interventions for this population is limited, a meta-analysis by Zhang *et al.* [29] analyzing nine randomized controlled trials found that e-health interventions significantly reduced QOL and stigma.

Peer support for PWH has gained prominence in recent years. Emotional and social support provided by peers living with HIV fosters an environment of mutual understanding [30]. A recent study conducted in Nigeria, where HIV-related stigma is widespread, demonstrated that peer support can effectively improve adherence to healthcare and

ART while reducing HIV-related stigma [31]. Evaluating peer support among OAWH is crucial for assessing its impact on this population with its distinct characteristics.

Mental health has become a key component in addressing the needs of OAWH. In a systematic review by Bhochhibhoya *et al.* [21], the authors analyzed studies conducted in the USA that implemented nonpharmacological psychosocial interventions for OAWH. Individuals at risk of depression were screened using scales such as the Epidemiologic Studies Depression Scale and the Geriatric Depression Scale and were reassessed weekly. These interventions were conducted over a period of 8–12 weeks, except for one study that lasted 24 weeks. The interventions included teleconference or home-based group sessions ranging from 30 to 90 min, held weekly. Depending on the study, some interventions focused on providing emotional support, identifying stressors, offering emotional coping strategies, and/or maintaining social support when necessary. The systematic review demonstrated a statistically significant decrease in depressive symptoms.

A systematic review by Zhao *et al.* [32] examined the most effective nonpharmacological treatments for depression in PWH and those with the highest patient acceptability. A total of 53 randomized clinical trials were analyzed, comparing various non-drug therapies with standard care or other psychotherapies in the HIV population. The analysis indicated that mind–body therapy, interpersonal psychotherapy, cognitive–behavioral therapy, and supportive therapy were among the most statistically significant and effective treatments for depression in this population. At this point, it is worth highlighting the study conducted by Breslow *et al.* [33], which focused on women over 55 years of age with HIV and depression. An online teletherapy group (e-SMART/EST) was developed, featuring weekly group sessions facilitated by a psychologist and a credentialed peer counselor. Women were assessed for depressive symptoms and HIV-related QOL before and after the intervention. Acceptance rates were high, with nearly 90% adherence to visits and strong participant engagement. Although efficacy evaluation revealed no statistically significant results, there was a decrease in depressive symptoms and an improvement in QOL.

Cognitive and memory impairments are significant sources of stress in OAWH. One of the principal nonpharmacological treatments is Computerized Cognitive Training (CCT), a cognitive rehabilitation technique that utilizes computerized training and exercise programs to enhance specific cognitive function domains [34–36]. A recent review of non-pharmacological interventions for people living

with HIV with cognitive impairment identified CCT as one of the primary interventions studied, followed by exercise and diet [18²²]. The findings suggest that CCT may provide benefits across various cognitive domains, including depression. However, studies with larger sample sizes are needed to further explore these effects, particularly in the HIV population, where CCT has not been extensively examined. The characteristics of all the initiatives mentioned to promote socialization and psychological support among OAWH are summarized in Table 2. Therapies that have been effective in the general population could also benefit this group. These include occupational therapy, cognitive training, and multimodal therapy, which integrates physical and cognitive rehabilitation. All of these approaches have demonstrated efficacy in improving cognitive health [37,38]. Clinical guidelines vary in their recommendations for screening cognitive impairment. The European AIDS Clinical Society (EACS) guidelines recommend using specific screening questions to identify affected patients [39]. In contrast, the Infectious Diseases Society of America (IDSA) guidelines do not provide explicit screening recommendations but highlight the potential emergence of cognitive issues and emphasize the importance of physicians remaining vigilant to their onset [40,41].

The most significant limitations of the studies presented are the small sample sizes and short-term follow-up. Other measures, such as self-management support, may improve the QOL of OAWH through skills training programs or technology-assisted interventions that provide reminders, access to healthcare resources, and symptom tracking [42]. Further robust scientific evidence is needed to investigate the social and psychological needs of OAWH and to design future interventions in this field.

CONCLUSION

In summary, ensuring optimal QOL in OAWH should be a priority. Comprehensive strategies that not only assess QOL but also implement targeted interventions to enhance it across multiple dimensions are needed. Moreover, there is strong scientific evidence supporting the effectiveness of nonpharmacological measures, such as exercise, socialization, and psychological support. Research has consistently shown that regular exercise improves both physical and mental health, fostering better mobility, reducing the risk of chronic diseases, and alleviating symptoms of anxiety and depression. Similarly, social engagement plays a crucial role in emotional well being, helping to mitigate feelings of

Table 2. Initiatives to promote socialization and psychological support among older adults with HIV

Program	The Golden Compass Program	Virtual Village	Teletherapy Group (e-SMART/EST study)	Computerized Cognitive Training (CCT)
Location	San Francisco (USA)	Florida and California (USA)	New York (USA)	Alabama (USA)
Participants	198 OAWH (≥50)	20 OAWH (≥50)	8 women OWH (≥55) with depressive symptoms.	109 adults (≥ 40) diagnosed with HIV for >1 year diagnosed with a neuro medical condition that impairs cognition
In-person/virtual	In-person	Virtual Online platform	Virtual via Zoom	In-person
model of care	Multidisciplinary and holistic care model	Support groups to reduce the risk of social isolation.	Focused on mental health Depression and HIV-related QOL.	Focused on reversing HIV-associated neurocognitive disorder.
Intervention	On-site evaluations by cardiologists and geriatricians. - Evaluation of geriatric syndromes: frailty, falls risk, osteoporosis... - Memory and cognition classes, along with physical therapy. - Community-based social support groups. - Dental, vision, and hearing services assessment.	Channels in the Discord Platform: - Social channel for discussions on various topics - Presentations by experts on diverse subjects (addiction, long-term HIV, etc.) - Resources for national mental health services and specific areas of interest (pets, gardening, food, etc.) - Mindful meditation sessions conducted on Zoom.	Eight weekly sessions led by a psychologist and a peer counselor incorporating mindfulness-based stress reduction (MBSR) techniques and meditation exercises	Individualized cognitive training based on their baseline cognitive performance over 1.5 h (20 h total)
Effectiveness among patients	Surveys of participants: - Only 20% responded - The overall satisfaction and acceptability rates for programmatic components were high (>90%)	Surveys conducted before and after the intervention: - Significant increases in social engagement and a decrease in negative affect.	Preintervention and postintervention surveys using depression scales (Beck Depression Inventory) and QOL measures (Condensed version of the Medical Outcomes Study-HIV Health Survey). - Decrease in the mean depression score and an increase in quality of life that were not statistically significant.	Significant improvement in processing speed measured with Medication Adherence Visual Analogue Scale and Timed Instrumental Activities of Daily Living Test
References	Tan <i>et al.</i> [22]	Polonijo <i>et al.</i> [23 [■]] Kokorelias K, <i>et al.</i> [25 [■]]	Breslow <i>et al.</i> [33]	Vance <i>et al.</i> [34] Wei J, <i>et al.</i> [35]

OAWH, older adults with HIV; QOL, quality of life.

isolation and loneliness while promoting cognitive resilience. Additionally, psychological support has been demonstrated to enhance overall mental health.

There is a significant gap between the scientific evidence demonstrating the benefits of nonpharmacological measures and actual clinical practice. Disease-centered medicine must give way to person-centered medicine to adequately address the real needs of OAWH. From a healthcare policy perspective, a radical shift in approach is essential, investing in proven beneficial strategies, even if it requires rethinking the current care model.

Acknowledgements

None.

Financial support and sponsorship

No funding concerning this article. Fátima Brañas and Matilde Sánchez-Conde have been supported by Instituto de Salud Carlos III (MOVihNG study: PI20/01078 and PI20/01079); (FUNCFRAIL PI17/00859); (MOVihNG PLUS study PI23/00320 and PI23/0127), co-funded by European Regional Development Fund/European Social Fund 'A way to make Europe'/'Investing in your future'; and partially supported by an Investigator Studies Program (MISP) research grant from Merck Sharp &Dohme Corp (IISP57179).

Conflicts of interest

There are no conflicts of interest.

REFERENCES AND RECOMMENDED READING

Papers of particular interest, published within the annual period of review, have been highlighted as:

- of special interest
- of outstanding interest

- World Health Organization. World Report on Aging and Health. 2015. Available at: https://iris.who.int/bitstream/handle/10665/186463/9789240694811_eng.pdf?sequence=1. [Accessed 11 March 2025].
- Yigit I, Turan B, Kurt G, *et al.* Longitudinal associations of experienced and perceived community stigma with antiretroviral therapy adherence and viral suppression in new-to-care people with HIV: mediating roles of internalized stigma and depression symptoms. *J Acquir Immune Defic Syndr* 2024; 95:231–237.
- Pollak C, Cotton K, Winter J, Blumen H. Health outcomes associated with loneliness and social isolation in older adults living with HIV: a systematic review. *AIDS Behav* 2025; 29:166–186.
- Carlsson Lalloo E, Acuña Mora M, Sundler A. Patient reported experiences in older adults living with HIV – a scoping review. *AIDS Care* 2025; 37:1–11.
- Mbalinda S, Lusota D, Muddu M, Nyashanu M. Ageing with HIV: challenges and coping mechanisms of older adults 50 years and above living with HIV in Uganda. *BMC Geriatr* 2024; 24:95.
- Qiu Y, Fernandez-Garcia B, Lehmann HI, *et al.* Exercise sustains the hallmarks of health. *J Sport Health Sci* 2023; 12:8–35.
- Jones R, Robinson AT, Beach LB, *et al.* Exercise to prevent accelerated vascular aging in people living with HIV. *Circ Res* 2024; 134:1607–1635.
- Kim SH, Joo CH. Effects of physical activity level on quality of life, stress, and dietary behavior in people living with HIV/AIDS: a pilot study. *Medicine (Baltimore)* 2023; 102:e33460.
- Qin XM, Allan R, Park JY, *et al.* Impact of exercise training and diet therapy on ■ the physical fitness, quality of life, and immune response of people living with HIV/AIDS: a randomized controlled trial. *BMC Public Health* 2024; 24:730.

This is the first randomized controlled trial designed to examine the impact of exercise and diet in PWH.

10. Oliveira VHF, Rosa FT, Santos JC, *et al.* Effects of a combined exercise training program on health indicators and quality of life of people living with HIV: a randomized clinical trial. *AIDS Behav* 2020; 24:1531–1541.
11. Aminde JAA, Burton NW, Thng C, Clancy K. A systematic review and meta-analysis evaluating the effectiveness of minimally supervised home and community exercise interventions in improving physical activity, body adiposity and quality of life in adults living with HIV. *Prev Med* 2024; 189:108144.

This meta-analysis demonstrates the effectiveness of minimally supervised home and community exercise interventions in OAWH across different dimensions, thereby helping to bridge the gap between scientific evidence and clinical practice.

12. Branas F, Diaz-Alvarez J, Fernandez-Luna J, *et al.* A 12-week multicomponent exercise program enhances frailty by increasing robustness, improves physical performance, and preserves muscle mass in older adults with HIV: MOVHNG study. *Front Public Health* 2024; 12:1373910.

This study demonstrates the benefits of a multicomponent exercise program conducted in real-life conditions for older adults with and without HIV, providing a useful, accessible, and easily replicable tool for clinical practice.

13. Sánchez-Conde M, Díaz-Alvarez J, García-Molina R, *et al.* Optimizing long-term exercise benefits for older adults with HIV. The MOVHNG Study. In *CROI*. Denver, Colorado. 2024. p. 838.
14. Izquierdo M, de Souto Barreto P, Arai H, *et al.* Global consensus on optimal exercise recommendations for enhancing healthy longevity in older adults (ICFSR). *J Nutr Health Aging* 2025; 29:100401.

This work is highly relevant, as it represents an international consensus on exercise focused on older adults. It delves into the different types of exercises and their benefits, how to prescribe exercise, and how to implement programs in clinical practice.

15. World Health Organization. WHO guidelines on physical activity and sedentary behaviour. 2020. Available at: <https://iris.who.int/bitstream/handle/10665/336656/9789240015128-eng.pdf?sequence=1>. [Accessed 11 March 2025].
16. Stamatakis E, Ahmadi MN, Gill JMR, *et al.* Association of wearable device-measured vigorous intermittent lifestyle physical activity with mortality. *Nat Med* 2022; 28:2521–2529.

17. Nweke M, Nombeko M, Govender N, *et al.* Aerobic exercise for HIV-associated neurocognitive disorders in individuals on antiretroviral therapy: a randomised controlled trial. *Clin Rehabil* 2022; 36:1601–1612.

18. Stuart L, Alford K, Vera JH. Nonpharmaceutical interventions for people living with HIV with cognitive impairment: a scoping review. *PLoS One* 2024; 19:e0314185.

This review summarizes recent evidence on nonpharmacological interventions for cognitive impairment in individuals living with HIV. Despite study heterogeneity, CCT appears to offer potential benefits for this population.

19. Smith E, Badowski ME. Telemedicine for HIV care: current status and future prospects. *HIV AIDS (Auckl)* 2021; 13:651–656.
20. Wilson MP, Jankowski CM, Cook PF, *et al.* Effect of a supervised exercise program on exercise self-efficacy in aging adults with and without HIV: a secondary analysis of the exercise for healthy aging study. *AIDS Behav* 2025; 29:535–545.

21. Bhochhibhoya A, Harrison S, Yonce S, *et al.* A systematic review of psychosocial interventions for older adults living with HIV. *AIDS Care* 2021; 33:971–982.

22. Tan JY, Greene M, Blat C, *et al.* Examining the impact of the golden compass clinical care program for older people with HIV: a qualitative study. *AIDS Behav* 2022; 26:1562–1571.

23. Polonijo AN, Nguyen AL, Greene KY, *et al.* Brief virtual intervention associated with increased social engagement and decreased negative affect among people aging with HIV. *AIDS Care* 2024; 36:1102–1110.

This study demonstrates the effectiveness of a brief virtual intervention in reducing loneliness and social isolation among older adults with HIV, leading to improved overall well being.

24. Walsh JL, Quinn KG, Hirshfield S, *et al.* Acceptability, feasibility, and preliminary impact of 4 remotely-delivered interventions for rural older adults living with HIV. *AIDS Behav* 2024; 28:1401–1414.

This study evaluates four remotely delivered interventions for older adults with HIV in rural settings, reporting high acceptability, feasibility, and promising outcomes in treatment adherence, depressive symptoms, and QOL.

25. Kokorelias KM, Valentine D, Dove EM, *et al.* Exploring the perspectives of older adults living with HIV on virtual care: qualitative study. *JMIR Aging* 2024; 7:e65730.

This study highlights the importance of understanding the perspectives of older adults with HIV regarding the initiatives implemented to improve their socialization and wellbeing.

26. Baim-Lance A, Angulo M, Chiasson MA, *et al.* Challenges and opportunities of telehealth digital equity to manage HIV and comorbidities for older persons living with HIV in New York State. *BMC Health Serv Res* 2022; 22:609.

27. Reyes E, Silvís J, Gandhi M, *et al.* Telehealth access and experiences of older adults with HIV during the COVID-19 pandemic: lessons for the future. *J Am Geriatr Soc* 2024; 72:2816–2824.

28. Nguyen AL, Polonijo AN, Galea JT, *et al.* A community-academic partnered approach to designing a Virtual Village to address the needs of older adults living with HIV. *AIDS Care* 2024; 36:1626–1634.

29. Zhang L, Ni Z, Liu Y, Chen H. The effectiveness of e-health on reducing stigma, improving social support and quality of life among people living with HIV: a systematic review and meta-analysis of randomized controlled trials. *Int J Nurs Stud* 2023; 148:104606.

30. Berg RC, Page S, Ogard-Repal A. The effectiveness of peer-support for people living with HIV: a systematic review and meta-analysis. *PLoS One* 2021; 16:e0252623.

31. Verinumbe T, Katomski AS, Turpin G, *et al.* Characterizing the relationship between HIV peer support groups and internalized stigma among people living with HIV in Nigeria. *AIDS Behav* 2024; 28:1068–1076.

32. Zhao T, Tang C, Yan H, *et al.* Comparative efficacy and acceptability of nonpharmacological interventions for depression in people living with HIV: a systematic review and network meta-analysis. *Int J Nurs Stud* 2023; 140:104452.

33. Breslow AS, Lopez M, Warren B, *et al.* Lessons learned from a community-led, pilot teletherapy group for older women living with depression and HIV. *AIDS Behav* 2024; 28:4079–4093.

34. Vance D, Fazeli P, Azuero A, *et al.* Can individualized-targeted computerized cognitive training improve everyday functioning in adults with HIV-associated neurocognitive disorder? *Appl Neuropsychol Adult* 2023; 30:8–19.

35. Wei J, Hou J, Mu T, *et al.* Evaluation of computerized cognitive training and cognitive and daily function in patients living with HIV: a meta-analysis. *JAMA Netw Open* 2022; 5:e220970.

36. Alford K, O'Brien C, Banerjee S, *et al.* Managing cognitive impairment in people with HIV. *Curr Opin Infect Dis* 2025; 38:1–9.

37. Oberlin LE, Jaywant A, Wolff A, Gunning FM. Strategies to promote cognitive health in aging: recent evidence and innovations. *Curr Psychiatry Rep* 2022; 24:441–450.

38. Venegas-Sanabria LC, Caverio-Redondo I, Lorenzo-García P, *et al.* Efficacy of nonpharmacological interventions in cognitive impairment: systematic review and network meta-analysis. *Am J Geriatr Psychiatry* 2024; 32:1443–1465.

39. [Internet]. EACSEEACGE. 2024 [cited 16 February 2025]. Available at: <https://eacs.sanfordguide.com/>.

40. Horberg M, Thompson M, Agwu A, *et al.* Primary care guidance for providers of care for persons with human immunodeficiency virus: 2024 Update by the HIV Medicine Association of the Infectious Diseases Society of America. *Clin Infect Dis* 2024; ciae479; doi: 10.1093/cid/ciae479. [Online ahead of print]

41. Winston A, Spudich S. Cognitive disorders in people living with HIV. *Lancet HIV* 2020; 7:e504–e513.

42. Huang H, Xie M, Yang Z, Wang A. Enhancing HIV cognitive abilities and self-management through information technology-assisted interventions: scoping review. *J Med Internet Res* 2025; 27:e57363.