INTERNATIONAL WORKSHOP ON
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ABSTRACT BOOK

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International Workshop on HIV & Aging 2023

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Abstracts
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Strength and Lean Mass Responses to Exercise in Aging Adults with HIV: Descriptive Analysis

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Background: Exercise is one of the most effective interventions to attenuate sarcopenia and frailty, two highly prevalent conditions in people with HIV (PWH). However, there is significant heterogeneity in individual responses to exercise training. Identifying individuals who may have blunted exercise adaptations is imperative so that exercise programs can be modified or adjunct pharmacological therapies employed. This descriptive analysis sought to identify characteristics of individuals who had blunted strength and lean mass adaptations to supervised exercise training.

Materials and Methods: The Exercise for Healthy Aging Study enrolled sedentary older adults (50-75 years old) with and without HIV for a 24-week aerobic and resistance exercise program. All participants started with moderate-intensity aerobic exercise; at week 12, participants were randomized to continue or advance to high-intensity exercise (HIT). Responders demonstrated 1) upper extremity (UE): 20% increase on 1RM bench press and/or +2.7 kg grip strength and 2) lower extremity (LE): 15% increase on 1RM leg press and/or -3.1 sec on chair rise time during both intervention intervals (weeks 0-12 and 12-24). Non-responders were defined by not reaching the above thresholds in either intervention arm. Lean mass responders were defined as >2% increase over 24 weeks in total lean mass (LM) or appendicular LM normalized for height (ALM). LM non-responders were defined as <2% increase of LM and/or ALM; LM negative responders were defined as ≥2% decrease. Frailty was defined using Fried's criteria (weakness via handgrip strength, self-report exhaustion, slow walking speed, unintentional weight loss, sedentary) and sarcopenia by Baumgartner's criteria (ALM/m2 < 7.26 for men and < 5.45 for women). We explored differences in baseline characteristics among the responder groups.

Results: 32 PWH and 37 uninfected controls with a mean age of 58+6.4 years enrolled; 56 completed 24 weeks. 23 (41%) participants were UE and 12 (21%) participants were LE responders; 1 participant was a UE and 7 participants LE non-responders. UE and LE responders had lower baseline values on the respective strength measures compared to non-responders. The number of participants randomized to HIT were similar among strength responders and non-responders. Among 28 (51%) LM responders, 20 (71%) were frail and 4 (14%) had sarcopenia. Of 16 (29%) LM non-responders, 9 (56%) were frail and 1 (6%) had sarcopenia at baseline. LM responders had more visceral fat at baseline compared to non-responders (207.0 [78.6] cm2 vs.157.5 [53.6] cm2). 11 (20%) of the LM non-responders were also considered LM negative responders, with similar (63%) baseline frailty and the highest mean visceral fat (232 [85.8] cm2). 8 of these 11 participants (72%) were in the HIT group. The proportion of PWH was similar among all response groups (range 45-50%).

Conclusions: PWH and uninfected controls with the greatest increases in strength and LM tended to have lower baseline strength and higher frequency of sarcopenia and frailty.

2

Physical Activity and Exercise for Older People Living With HIV – The Perceptions of Health Care Professionals

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Background: The physical, cognitive, mental and social health challenges, coupled with uncertainty about future health, collectively contribute to greater prevalence of disability in older people living with HIV (OPLWH). As people age with HIV, the prescription of physical activity should be included as part of their comprehensive medical management. The higher prevalence of comorbidities, polypharmacy, drug interactions and end-stage complications in this specific population requires a multidisciplinary health care approach. This study drew on a set of community-based focus-group interviews with healthcare professionals in order to understand their perceptions of physical activity and exercise for OPLWH.

Methods: This study adopted a phenomenological, qualitative design, using a process of in-depth focus group interviews in order to understand the perceptions of healthcare workers regarding physical activity and exercise for OPLWH. The authors believed that by exploring the attitudes, and understanding the perceptions of healthcare professionals regarding physical activity and exercise, our understanding of physical activity and exercise prescpion interventions for OPLWH would be greater enhanced. Fifteen healthcare professionals (four doctors; four nurses; four physiotherapists; two occupational therapists; and one psychologist) who are actively involved in the daily treatment and care of OPLWH at a primary health care facility in KwaZulu-Natal, South Africa voluntarily participated in the study.

Results: Three overarching themes emerged from the discussions. In theme one, patient comorbidities, socio-economic status, and stigma, were identified as exercise-impeding factors that influence exercise adherence in OPLWH. In theme two, there was consensus that a multidisciplinary approach, suitable exercise environment, and the continuing assessment of participants, were serious issues that required further exploration to ensure the successful implementation of exercise interventions for OPLWH. In theme three, there was agreement that exercise prescription for OPLWH must be multimodal and should include components of endurance, strength, balance, and flexibility. Frequency and duration ranged from exercising two-to-three times per week, for anywhere between thirty minutes and an hour. All participants also advocated for supervised, structured group exercise.

Conclusion: Physical activity and exercise strategies tailored to OPLWH are essential in the current era of holistic HIV care. This paper highlights the importance of the multidisciplinary healthcare team who are at the forefront of care. Continuing assessment of OPLWH, and a suitably conducive environment, need to be taken into consideration when developing and implementing a suitable programme for exercise and physical activity for OPLWH. Challenges such as the stigma associated with HIV, and associated comorbidities related to ageing, need to be addressed when structuring an intervention programme that is sustainable in resource-poor communities.

3

An Integrated HIV-geriatric Clinic Model: Lessons from Newlands Clinic, Harare, Zimbabwe

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Background: Antiretroviral therapy (ART) has increased the life expectancy of people living with HIV (PLHIV). Due to chronic inflammation and premature ageing, growing old with HIV is associated with increased risk on non-communicable diseases (NCDs) and early onset and increased prevalence of geriatric syndromes such as falls and frailty. Differentiated care models for older PLHIV are necessary to address these challenges. We describe a new model of care which incorporates geriatric assessments into routine HIV care.

Material and Methods: In October 2022, Newlands Clinic (NC) in Harare, Zimbabwe designed a novel integrated HIV-geriatric clinic (IHGC) based on the World Health Organization's Integrated Care of Older People (ICOPE) guidelines. All NC clients ≥65 years receiving routine HIV-care were reviewed by a multidisciplinary team for a 90-minute comprehensive geriatric assessment (CGA). Validated screening tools and laboratory workup were used to assess cardiovascular risk, mental health, cognition, nutrition, osteoporotic fracture risk and geriatric syndromes like falls and frailty. Screening questions were embedded into a nurse–administered electronic wizard, each visit was then completed by a doctor including assessment of visual acuity, hearing, quality-of-life, cognition, and frailty. Referrals were made to the on-site mental-social health and dental departments and to external public health specialties when necessary. We present findings from the first 100 clients reviewed between October 2022 and June 2023. Data was analyzed using descriptive statistics and Stata BE 17 software.

Results: The median age of attendees of the IHGC was 69 years (IQR 67-72). 69% were female. Median BMI was 26.23 kg/m2 (IQR 23.25-29.92). HIV suppression rates were extremely high: 100% of attendees had a HIV viral load < 1000 copies/ml (94% <50 copies/ml). High prevalence of NCDs was noted; 80% hypertensive with 58/80 (73%) well controlled, 20% diabetic with 16/20 (80%) well controlled and 43% had chronic kidney disease with 23/43 (53%) at least stage 3A. Median number of comorbidities and comedications was 3 (IQR 2-4) and 4 (IQR 3-6) respectively. 86% of attendees received interventions as a result of the IHGC visit: 76% of all attendees received new diagnoses including cognitive impairment (21%), depression or anxiety (26%), osteoporosis (18%), vitamin B12 deficiency requiring treatment (55%) and prostate cancer in 3 men. A 10-year cardiovascular risk ≥15% was noted in 43% and statins commenced. 59% were assessed as being frail or pre-frail. Visual or hearing impairment was diagnosed in 31%. 10/87 (11%) admitted to not having come to terms with their HIV status. Referrals were made either to the onsite psychologist or to external specialists in 35% of cases, the majority were for hearing or visual assessments.

Conclusions: The high burden of multimorbidity described in our cohort highlights the need for differentiated care for older PLHIV which goes beyond dispensing ART and encompasses comprehensive assessment of geriatric domains. To our knowledge, this is the first report of CGA integrated into routine HIV care in the region, reconceptualizing integrated HIV and geriatric care in low-income countries is essential to improve health outcomes in older PLWHIV.

4

Implementation of a Multidisciplinary Approach to Care for People Living with HIV Aged over 80 years

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Background: People living with HIV (PLWH) are at risk of developing premature multimorbidity and ageing associated complications. Hence, we established multidisciplinary-team consultations with HIV-specialist pharmacists, geriatricians and HIV consultants to assess and manage frailty, using the principles of Comprehensive Geriatric Assessment (CGA) to advise on preventable or modifiable risk factors or conditions.

Materials and methods: All PLWH ≥80 years old were reviewed in a dedicated HIV/geriatric clinic at Chelsea and Westminster Hospital, London (UK) between December 2022-July 2023. Data including medical, physical, social, psychological and functional wellbeing in conjunction with pharmacy reconciliations were collected. Descriptive statistics were calculated.

Results: We reviewed 63 PLWH, 49 (78%) by telephone, 9 (14%) in-person and 5 (8%) virtually. The median age was 82 (IQR 80-86), 57 (88%) were men. Overall, median time from HIV diagnosis was 20.5 years (IQR 16.5–29), with 9 (14%) diagnosed in the last 15 years. All individuals had viral load <200 copies/mL (79% <20 copies/mL). The median number of co-morbidities was 5 (IQR 4-7), the most common were hypertension and cardiovascular disease. Polypharmacy was seen in 44 (70%) individuals, with a median of 6 (IQR 5-8) co-medications reported.

Concerns regarding memory were raised by 19 (20%) individuals but on objective screening, the median 4AT was 0 and this was seen in 33 (52%) individuals. Low mood or anxiety were reported by 19 (30%) and 37 (59%) complained of chronic pain. Nutrition-related concerns were present in 16 (23%) PLWH. Most patients had discussions around advance care planning 42 (67%).

The median CFS was 2 (IQR 2-5); 16 (25%) individuals had a frailty score >5 but only 4 (6%) were housebound. Although 4 (6%) PLWH were completely dependent for personal care, only 2 (3%) lived in care homes. 37 (59%) individuals required a walking aid and 13 (23%) reported at least one falls within the last year.

Medicine-reconciliation led to ARVs modernization in 20 (32%) individuals, co-medication changes, including de-prescribing were recommended in 39 (62%) patients. Investigations such as nutritional blood tests, computerised tomography, dual x-ray absorptiometry or coronary calcium scans were requested for 31 people (49%). Whilst 11 referrals were made (7 for a full geriatric assessment), 48 patients (76%) agreed to involve their GP to help with co-medications adjustments or continue advance care planning discussions in the community.

Conclusion: This is the first cross-sectional analysis describing a geriatric HIV population ≥80 years of age, showing that the majority of PLWH studied remained independent with a low CFS, despite multiple co-morbidities and polypharmacy. Although we identified new co-morbidities and modifiables that were not previously highlighted by primary care or routine HIV outpatient visits (e.g., malignancies, nutritional difficulties, drug-drug interactions, recurrent falls, deprescribing) with this new clinical pathway, we acknowledge a high level of functionality. It is thus imperative to integrate geriatric care using a CGA approach with PLWH to improve functional, social and medical care, and quality of life and liaise with primary care to implement specialist recommendations.

5

Engaging Global Stakeholders to Improve Care, Optimize Quality of Life and Foster Empowerment Among Older People Living with HIV

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The International Coalition of Older People with HIV (iCOPe HIV) is a new, grassroots network of people and organizations committed to improving care, optimizing quality of life, and fostering empowerment among older people living with HIV (OPLWH). It's founding members conducted a global stakeholder engagement survey (Feb/March 2023) collecting quantitative and qualitative data to document the unmet needs of OPLWH and those who support them, and identify the best ways to engage stakeholders. A web-based platform was used. Email invitations were sent to 400+ stakeholders who had previous contact with iCOPe HIV.

The survey received 192 responses; 177 were included in the analysis (response rate=41%). Two thirds of respondents were in high-income settings (n=117, 66%) but responses were collected from all global regions. Most respondents (n=109, 62%) identified as persons living with HIV, with front-line service providers in community-based organizations (n=64, 36%) and researchers (n=39, 22%) being next most likely to respond.

Survey results indicate that the unmet needs of OPLWH are never, rarely, or occasionally being discussed by OPLWH themselves (n=90, 51%), by healthcare providers (n=102, 58%), or by decision- and policy-makers (n=137, 78%) globally. While community and clinical conversations about these needs were more likely to be happening in high income settings, decision makers across all settings were equally disengaged. Over half of respondents disagreed that the health and psychosocial needs of OPLWH were being met where they live (n=98, 56%) while only a small proportion agreed (n=29, 17%).

Respondents identified the most significant unmet need facing OPLWH in their region with open-ended responses. Among the most common themes were prevention and management of comorbidities, and limited access to comprehensive and/or coordinated care. The importance of this theme was underscored by quantitative findings – respondents perceived that over 50% of people living with HIV in low- and middle-income countries and 30% of those in high income countries are unaware of their risk for developing health complications as they age. Other commonly described unmet needs related to social isolation and loneliness, stigma, and social determinants of health, including financial well-being, food security and housing, which were seen to impact OPLWH across global regions.

Respondents indicated that OPLWH need more education and information to live well and were asked to rate 16 topics as being high, moderate or low priority learning needs. The five topics rated as high priority by the greatest proportion of respondents were: mental/emotional well-being, aging-related comorbidities, loneliness and social isolation, advocacy and policy change, and cognitive health problems and management strategies. Live webinars were the preferred method of learning.

The results indicate that the needs of OPLWH are not being met or prioritized anywhere, reinforcing the importance of increasing the visibility of older persons within the global HIV response, and the need to foster inclusion of people living with HIV in aging initiatives. The value of establishing a community-driven network like iCOPe HIV that will advocate for the rights of OPLWH and offer educational opportunities tailored to meet their needs is evident.

6

Cognitive Frailty in People Living With HIV and Its Association With Geriatric Syndromes

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Objective: The objective of this study was to describe cognitive frailty (CF) in people living with HIV (PLWH) > 50 years, determine its risk factors and association with geriatric syndromes, namely falls, polypharmacy (PP), physical status evaluated with short performance physical battery (SPPB).

Methods: This was an observational study including ART-experienced PLWH attending Modena HIV Metabolic Clinic (MHMC) from 2016. Neurocognitive function was measured with Cogstate battery that comprises six domains: simple speed processing, complex speed processing, attention/working memory, visual learning memory, verbal learning and verbal memory. Each individual CogState raw score was transformed into z-score after correction for age and sex. Neurocognitive impairment was defined by total global deficit score >0.5. Frailty was assessed by 16-Item frailty index. Scores <0.36 were considered fit or >0.37 as frail. CF was defined as contemporary presence of neurocognitive impairment and frailty.

Results: 1812 PLWH were included, 1333 (73.6%) were males, mean age was 58 years, Mean body mass index was 25 (SD= 4) kg/m2, median time since HIV diagnosis was 25 (IQR: 12) years. Cognitive frailty was present in 247 (13.6%) and incidence was 4.5 x 100 persons/years. PLWH with cognitive frailty had higher prevalence of obesity (18% vs.10%; p<0.001) and higher levels of chronic inflammation, depicted by C-reactive protein (0.3 vs 0.2 mg/dl; p<0.001) and D-dimer (315 vs 270 ng/ml; p=0.008). Polypharmacy was also higher in this group (31% vs 16%; p<0.001). Regarding antiretroviral drugs, use of DTG was higher (40% vs 32%; p=0.03) in PLWH with cognitive frailty. In the multivariate logistic regression model, SPPB (OR=0.46, 0.30, 0.66 p<0.001) and polypharmacy (OR=4.75, 1.24, 18.9 p=0.023) were associated with higher risk of cognitive frailty.

Conclusion: CF was highly prevalent in PLWH >50 years, similarly to what was observed in the general population > 65 years, and it was associated with SPPB score and polypharmacy, but not with falls. Further studies are needed to explore CF in relation to HIV-related variables, inflammation, mortality and traditional geriatric outcomes, such as falls, disability.

7

Long-term Effect of Dolutegravir Use on More Depressive Symptoms Among Older People with HIV

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Background: Dolutegravir (DTG), an Integrase strand transfer inhibitor (InSTI), is a first-line therapy for people living with HIV (PWH) in the U.S. and most other countries. However, DTG has been linked to neuropsychiatric adverse events such as depression among PWH with concomitant influence of age and antidepressant use. The objective of this study was to determine the relationships between DTG use, aging, antidepressant use, and depressive symptoms in PWH.

Methods: A total of 280 participants were comprehensively assessed in the CHARTER Aging project; were taking cART that includes DTG; and had plasma HIV RNA ≤ 200 copies/mL. The project enrolled participants based on chronological age < or ≥ 60 years. The Beck Depression Inventory (BDI)-II and four subscales were compared to demographic characteristics, use of DTG and antidepressants, and clinical biomarkers in a cross-sectional design by multivariable linear regression, including backward selection by Akaike Information Criterion.

Results: Participant characteristics included a median age of 56 years (28.7% > 60), 18.3% female, 38.8% black, 71.7% AIDS, median CD4+ T-cells 625/μL, median duration of the current ART regimen 19.4 months, and 67.8% InSTI use. Overall, InSTI use was not associated with BDI-II but DTG use trended toward association with worse BDI-II scores (p=0.064). Multivariable analysis identified that non-black race (p=0.0033), DTG use (p=0.0042), female sex (p=0.011), antidepressant use (p=0.039), and age ≥ 60 (p=0.056) were associated with worse BDI-II scores. The effects of DTG were present in the Apathy (p=0.0027), Cognitive (p=0.019), and Somatic (p=0.020) BDI-II subscales. Interaction analyses identified that DTG was associated with worse BDI-II principally among those older than 60 years (interaction p=0.026, see Figure) and those who were not using antidepressants (interaction p=0.015).

Conclusions: The long-term use of DTG may increase depressive symptoms in older PWH and those who do not use an antidepressant. DTG did not affect the depressive symptoms in younger PWH who were on antidepressant medication. Even though DTG-associated neuropsychiatric adverse events were reported before, this is the first report to use a standardized depression assessment and to identify an interaction with antidepressants, which may provide clinical insights to develop improved care for older PWH with depressive symptoms.

8

Predictors of Cognitive Decline Over 10 Years Among Older Adults With Well-Controlled HIV From the Positive Brain Health Now Cohort

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Background: Correlates of cognitive impairment in adults with HIV (AWH) have been identified cross-sectionally, but much less is known about the predictors of cognitive decline over time among well-treated older AWH.

Material and Methods: The Positive Brain Health Now cohort study enrolled 856 individuals age 35 or older with HIV for ≥ 1 year from 5 HIV clinics in Canada between 2013-2016. Participants underwent comprehensive biopsychosocial characterization and were followed every 9-12 months. Global cognitive ability was measured with the B-CAM, a computerized cognitive test battery. Group-based trajectory analysis was applied to centered B-CAM data to identify distinct groups of individuals with a similar evolution over time. Univariable logistic regression models were used to screen for baseline variables associated with membership to a specific trajectory.

Results: The analysis included 741 cohort participants with baseline data, at least 2 B-CAM assessments and who were assigned to one of the two main trajectories of cognition that emerged: 83.4% were stable over the study period, while 14.5% were assigned to a trajectory with declining cognition. These participants were mostly men (85.7%), on average 53.2 years old (SD: 8.2), educated (70.5% post high-school education), predominantly aviremic (92.4%), had a mean B-CAM (scored on 100) at baseline of 57.3 (SD: 13.8) and were followed for up to 9.3 years (mean=3.8, SD=2.5). In the univariate analysis, baseline factors associated with cognitive decline were (OR, 95% CI, p-value): age: 3.49 (1.60 - 7.52 for ≥ 60 vs < 45 years, p < .0013); history of heart disease or angina: 2.13 (1.13 – 4.06, p: 0.0218); eGFR < 60mg/mmol vs ≥ 60: 2.05 (1.04 - 4.05, p=0.0383); VACS index 2.93 (1.56 - 5.50 for ≥17 vs < 17, p=0.0008); Framingham Risk Score 3rd (6-8) vs 1st quartile (0-2): 2.71 (1.29 - 5.65, p=0.0082); 4th (10-30) vs 1st quartile (0-2) : 3.19 (1.61 - 6.29, p=0.0008); CD4/CD8 ratio < median (0.78) vs ≥ median: 1.62 (1.07 - 2.44, p = 0.0227); an indicator of motivation, having plans and goals for the future, 'not at all' vs 'a lot': 2.14 (1.11 - 4.11, p: 0.0231) and self-reported history of learning disability or attention deficit disorder (2.39, 1.26 - 4.51, p=0.0074). Factors that were not predictive included nadir CD4+ T-cell count (p=0.0696), sex, hepatitis C infection, C-reactive protein, low density lipoprotein, body mass index, glycosylated hemoglobin, blood pressure, loneliness, depression, anxiety, sleep, and tobacco and alcohol use.

Conclusions: Longitudinal data from this cohort of well treated AWH were analyzed with a framework that was optimized to detect change in cognition and assess the influence of biopsychosocial variables. Cognition declined in about one in seven participants and was associated with older age and indicators of vascular disease. Vascular disease interventions might prevent or treat cognitive decline.

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Immunogenicity of High Dose Flu Vaccine in Aging PWH

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Background: People living with HIV (PWH) are at increased risk for complications from influenza and the antibody responses after influenza vaccination are lower in PWH than in general population. Our lab has previously reported on paradoxical aging in HIV: immune senescence of B Cells is most prominent in young age (Rinaldi S et al: Aging, 2017;9:1307-1325). High doses (HD) of influenza vaccine are being administered to people over age 65 to improve immunogenicity. In this study, we compared the standard dose (SD) and HD flu vaccine induced Ab responses in young Young ($\leq$40 yrs) and old ($\geq$ 60 yrs) PWH and people without HIV (PWoH) in a longitudinally followed FLORAH cohort.

Methods: Participants were divided into four groups based on age and HIV status as Young PWoH (YPWoH, n=53), Young PWH (YPWH, n=33), Old PWoH (OPWoH, n=57) and Old PWH (OPWH, n=51). All participants received SD vaccine in Year 1. A subset of participants, YPWoH n =12, YPWH n=8, OPWoH n=16 and OPWH n=23 received HD vaccine in the subsequent year. Hemagglutination inhibition (HAI) antibody responses specific to H1N1, H3N2, B1 (Washington/Michigan) and B2 (Phuket) lineages were measured at baseline (T0) and day 28 post-vaccination (T1). In a subset of participants (YPWoH n=7, YPWH n=5, OPWoH n=10, OPWH n=10) flu HA antigen-specific IgG antibody isotypes (Total IgG, IgG1, IgG2, IgG3, and IgG4) were measured by a bead-based multiplex assay. Data were compared using a two-tailed Kruskal Wallis test.

Results: Impaired HAI Ab response to SD vaccination was noted only for the group of YPWH for H3N2 and B2 antigens, that were collectively unaffected after HD vaccination. Baseline titers specific for each antigen or fold change in titers from baseline (FC) were similar for SD and HD vaccine groups. OPWH responded adequately to the SD vaccine and their response did not change after HD vaccination. Among IgG isotypes, no isotype was affected in either PWH or PWoH in young and old after SD vaccination and did not change after HD vaccination.

Conclusion: Our initial analysis concludes that HD vaccination did not significantly enhance the Ab responses in either young and old PWH and PWoH groups and increasing the antigen dose via HD vaccine resulted in increased FC of Ab in very few participants. A key observation was the weaker response to some antigens in YPWH, which supports the concept of premature immunosenescence. Further studies are warranted to understand the cell intrinsic T and B cell defects that could compromise the immunity in PWH.

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HIV-1 Soluble GP120 Is Associated With Immune Dysfunction and Inflammation in Individuals With Undetectable Viremia

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Background: Chronic inflammation persists in some people living with HIV, even during antiretroviral therapy, and is associated with premature aging. The gp120 subunit of the HIV-1 envelope glycoprotein can be shed from viral and cellular membranes, persists in plasma and tissues, and was suggested to exert immunomodulatory properties even in the absence of detectable viremia. We evaluated whether plasmatic soluble gp120 (sgp120) and a family of gp120-specific anti-cluster A antibodies, which were previously linked to CD4 depletion in vitro, could contribute to chronic inflammation, immune dysfunction, and sub-clinical cardiovascular disease in participants of the Canadian HIV and Aging cohort (CHACS) with undetectable viremia.

Methods: We performed a cross-sectional assessment of plasmatic sgp120 and anti-cluster A antibodies levels in individuals from CHACS. We evaluated their associations with immune parameters (CD4 levels, CD4:CD8 ratios) and IL-6 levels. In a subgroup participating in a cardiovascular imaging sub-study, we also studied the association between spg120, anti-cluster A antibodies, and sub-clinical cardiovascular disease, measured by computed tomography coronary angiography. Measures of association were obtained using linear regression models, adjusted for the following clinically-defined potential confounders: age, sex, smoking, low/high-density lipoproteins, diabetes and hypertension, nadir CD4, and duration of antiretroviral therapy.

Results: We included 386 participants for measurements of sgp120 and anti-cluster A antibodies, 157 of whom also had measurements of IL-6, and 145 of whom took part in the cardiovascular imaging sub-studies. The mean age of participants was 55.8, 90% were males, and 82% were Caucasian. The median duration of HIV infection was 18.3 years. Soluble gp120 was detected in plasma in 107/386 (28%). Levels of anti-cluster A antibodies were inversely associated with CD4 cell counts (adjusted beta -15.29 95%CI -26.74 to -3.84, p=0.009) and CD4:CD8 ratio (adjusted beta -0.055 95%CI -0.080 to -0.030, p=0.004). The strength of these associations was increased in the subset with high sgp120 levels. The presence of sgp120 was associated with increased plasma levels of IL-6. In participants with detectable atherosclerotic plaque and detectable sgp120, levels of sgp120, anti-cluster A antibodies, and their combination were associated with increased volume of atherosclerotic plaques (p=0.01, 0.018, and 0.006, respectively).

Conclusion: Soluble gp120 could act as a pan toxin, causing immune dysfunction and sustained inflammation in a subset of people living with HIV, contributing to the development of premature comorbidities. Soluble gp120 might represent a novel therapeutic target to reduce the incidence of inflammation-related comorbidities in this population. Limitations of this work include its cross-sectional nature and limited sample size.

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The CD38-NAD+ Axis: A Key Mediator of Inflammaging in HIV Infection

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Background: Antiretroviral therapy (ART) has increased the life expectancy of people with HIV (PWH), however, comorbidities are higher in PWH than HIV-negative individuals. This is partly due to accelerated cellular aging, a consequence of chronic inflammation secondary to the overactivation of CD4+ and CD8+ T lymphocytes. A hallmark of this immune hyperactivation is increased expression of CD38. We have previously shown that CD38 expression persists on CD4+ and CD8+ T cells in PWH, despite viral suppression with ART. However, the contribution of CD38 expression in the context of chronic HIV inflammation is not completely understood. Therefore, we sought to determine if there are differences in CD38 expression and inflammatory cytokine production in CD8+ T lymphocytes of male and female older (>50 years of age) and younger (<50 years of age) PWH and HIV-negative individuals.

Methods: The proportion of cytotoxic CD38+CD8+ T lymphocytes from peripheral blood mononuclear cells (PBMCs) of 20 PWH and 14 HIV negative-individuals was measured. Next, we measured intracellular NAD+ levels in CD38-expressing CD8+ T cells by chemiluminescence (Promega NAD/NADH-Glo™). We characterized the immune activation and exhaustion phenotypes of CD38+CD8+ T cells by staining with antibodies for CD38, HLA-DR, and exhaustion makers, including Programmed Cell Death Protein 1 (PD-1), using flow cytometry. Last, after CEFX peptides stimulation for 5 days, we measured Interferon-gamma (IFN-gamma) and Tumor Necrosis Factor-alpha (TNF-alpha) production (by flow cytometry) from CD38+CD8+ and CD38+HLADR+ (hyperactivated) T lymphocytes in a subset of PWH on ART. Differences in CD38 expression, intracellular NAD+ levels, expression of exhaustive phenotypes and inflammatory cytokine production were compared between males and females and younger and older PWH and HIV-negative individuals using Kruskal-Wallis test with post hoc-analysis.

Results: Regardless of age or gender, PWH virally-suppressed on ART had increased levels of CD38+ CD8+ T cells compared to HIV-negative individuals (P<0.05). PWH also had significantly reduced intracellular NAD+ levels compared to HIV-negative individuals (p<0.05). In older PWH, CD38+ CD8+ T cells exhibited a more exhaustive phenotype, determined by expression of PD-1 (p <0.05). After CEFX polyclonal peptide stimulation, there was expansion of the subset of CD38+ T cells co-expressing HLA-DR and higher levels of intracellular IFN-gamma+TNF-alpha+ (p<0.05) in older PWH compared to HIV-negative patients. There were no significant differences in markers of exhaustion and hyperactivation or inflammatory cytokine production between males and females.

Conclusions: CD38 expression, which persists in PWH despite viral suppression by ART, may be a critical driving factor for a chronic, inflammatory state, and this is enhanced in older PWH. In addition, CD38-induced reduction in intracellular NAD+ levels mediates the proinflammatory effect in older PWH. Therefore, the CD38-NAD+ axis critically associates with the risk of age-associated comorbidities and end organ damage, making this is a potential therapeutic target for aging PWH.

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Antiretroviral Therapy among US Medicare Enrollees with HIV

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Background: Combination antiretroviral therapy (ART) is crucial to maintaining viral suppression and reducing morbidity and mortality in people with HIV (PWH) and is recommended since 2012 for all PWH regardless of CD4+ T-cell count by the US Department of Health and Human Services. However, limited evidence from real-world practice reflects the implementation of this guideline. This study aims to assess the changes in the ART prescription rate over time and determine the disparity in the prescription rate by patient characteristics and chronic conditions among PWH receiving Medicare.

Material and Methods: We used 100% of Medicare beneficiaries with HIV diagnosis in 2007-2019 from all 50 US states and DC. All HIV cases and other conditions were identified by ICD-9-CM/ICD-10-CM diagnosis codes. We constructed successive cross-sectional HIV cohorts for each calendar year, including individuals ≥18 who met claims criteria in the year with fee-for-service and part D coverage. For each year, we calculated the percentage of PWH who received at least one ART prescription (ART%) by sex, current age, and original Medicare entitlement. Multivariable logistic regression was used to assess the association of ART prescription with demographics and chronic conditions, using 2019 data.

Results: We identified 249,643 PWH with an average of 5.2 years per individual contributing to the assessment of ART prescription. ART% increased over all years among all demographic subgroups and reached 80% except in a few older age groups (from 5-84% in 2007 to 49-95% in 2019). In 2019, ART% was highest among PWH aged 50-64 (males 95%, females 92%). Among those aged 65+, ART% decreased with increasing age. The lowest rate was 49% in females aged 80+ with old age as the original entitlement. Older PWH with more comorbidities received less ART. For example, the ART% ranged 39-81% for females and 63-88% for males with 7+ chronic conditions. Multivariable analysis showed females were less likely to receive ART (odds ratio [OR] 0.57, 95% confidence interval [CI] 0.52-0.64). Compared to PWH aged 65-69 years, older age groups received less ART (those 70-74: OR 0.79, 95% CI 0.70-0.88; those 75-79: OR 0.64, 95% CI 0.56-0.74; and those 80+: OR 0.35, 95% CI 0.30-0.41). The top 5 conditions associated with fewer ART prescriptions were Alzheimer's disease and related dementias (OR 0.48, 95% CI 0.43-0.54), alcohol use disorder (OR 0.60, 95% CI 0.50-0.72), anemia (OR 0.65, 95% CI 0.59-0.72), cardiovascular disease (OR 0.66, 95% CI 0.60-0.74) and epilepsy (OR 0.68, 95% CI 0.56-0.81). Other factors associated with fewer ART prescriptions included old age as original entitlement, a first HIV diagnosis, no part D subsidy, being White, and living in the Midwest region.

Conclusions: ART prescription rates increased over time among PWH in US with disparities between sociodemographic subgroups. Older PWH received less ART regardless of sex and original entitlement. More and certain comorbidities were associated with less ART prescription in older PWH. Further in-depth research is needed to determine the factors driving the disparity in ART prescriptions among older PWH.

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The Longitudinal Impact of Depressive Symptoms and Frailty on Social Support

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Background: People living with HIV have smaller social networks and less social support compared to peers without HIV. Among older adults living with HIV, depressive symptoms and frailty are risk factors for low social support. People with depressive symptoms may withdraw from social situations leading to weakened social connections over time. People who experience frailty may have physical limitations that prevent them from engaging fully in desired social activities. Understanding how depressive symptoms and frailty impact social support in a longitudinal manner is poorly understood.

Materials and Methods: We utilized longitudinal data from the Multi-Dimensional Successful Aging Among HIV-Infected Adults (mean age= 58.9, SD = 8.1; median age = 51; range = 36-65). Data were collected from 220 participants (people with HIV=122, people without HIV=98) at baseline and up to 4 additional annual visits. The outcome variable, social support, was measured using the Duke Social Support Index total score. Predictors included age (centered), depressive symptoms (Center for Epidemiological Studies Depression Scale [CES-D] total score), HIV status (HIV+/HIV-), and frailty (pre-frail or frail/not frail using the Fried Frailty Index). Depressive symptoms were centered to examine within-person changes in social support and averaged across visits per individual to examine between-person differences in social support. We analyzed the data using mixed effects models with person specific intercepts and random slopes for the effect of depressive symptoms on social support using maximum likelihood estimation. Sex, race/ethnicity, and education were not significantly associated with social support at baseline (p-values > 0.05) and were excluded as covariates from subsequent models. The first model included age, HIV status, and depressive symptoms as predictors and frailty was added to the second model.

Results: After adjusting for HIV status and age, having more depressive symptoms (B = -0.08, p < 0.001) was associated with lower levels of social support and predicted within-person declines in social support over time (B = -0.05, p < 0.001). At baseline, independent samples t-test showed that participants who were pre-frail or frail had lower social support than those who were not frail (t = -3.04, p < 0.003) and more people with HIV were frail compared to HIV-negative counterparts (62.5% v. 33.3%, Likelihood Ratio chi-square = 11.2, p < 0.001). However, frailty was not significant when added to the model (p=0.11), but depressive symptoms remained significant.

Conclusions: Above and beyond age and HIV status, depressive symptoms predicted changes in social support such that the presence of greater depression predicted declines in social support over time. Although pre-frailty/frailty was prevalent among participants, it was non-contributory in predicting social support in a model with depressive symptoms, which remained significant. These findings point to the salient role of depressive symptoms and suggest a trajectory of deterioration in social support in the presence of depressive symptoms. Findings reinforce the need for early identification and intervention on depression. This may be particularly critical for older adults living with HIV, as they already tend to have smaller social networks.

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Disparities in Depressive Symptoms Among People with HIV Diminish with Older Age

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Background: Depression is twice as prevalent in people with HIV (PWH) than in the general population. Although older adults are more likely to experience cognitive changes, somatic symptoms, and loss of interest, older age has been associated with lower rates of depression in the general population. In contrast, the relationship between age and depression among PWH has been mixed. Thus, we examined changes in domain-specific depressive symptoms by HIV status and age in a large U.S. sample.

Methods: PWH and HIV-negative participants across all HIV Neurobehavioral Research Center (HNRC) data collection sites in the U.S. completed the Beck Depression Inventory-II (BDI-II), a self-report questionnaire of depressive symptoms, as part of a comprehensive neuropsychiatric assessment. Analyses were conducted by three BDI-II subscales (cognitive, affective, somatic) and additional apathy and anhedonia subscales. HIV status, age, and their interaction (HIV x age) were primary predictors in multiple linear regression models. Covariate selection was theoretically driven based on historical differences between PWH and the general population. Covariates included in adjusted models were sex, race, a continuous measure of neurocognitive impairment (global deficit score), and lifetime substance use disorder.

Results: 3,848 participants (3,057 PWH: median age = 48, range = 18-87; 791 HIV-negative participants: median age = 48, range = 18-94) were included in analyses. Older age was related to fewer affective, cognitive, and apathy symptoms (all p-values < 0.05). PWH endorsed greater depressive symptoms than HIV-negative participants across all five BDI-II subscales (all p-values < 0.05). In unadjusted models, there was an HIV x age interaction on somatic symptoms (B = -0.03, p < 0.05) such that differences between PWH and HIV-negative counterparts narrowed with increasing age. This interaction effect became non-significant in the adjusted model. Lifetime history of substance use, being female, being White vs. Black race, and greater neurocognitive impairment were significantly associated with greater depressive symptoms across all five BDI-II subscales in the adjusted models.

Conclusions: PWH experience a disproportionately higher rate of depression, but these trends decrease with older age as in the general population. Older age was not related to fewer somatic and anhedonia symptoms, suggesting that specific symptoms of depression remain elevated in older adults. Depressive symptoms are more elevated among PWH who may have more recently been diagnosed with HIV and groups with specific risk factors (e.g., neurocognitive impairment). Interventions for depressed older PWH may want to focus on somatic and anhedonia symptoms, in addition to constructs related to depression that are elevated among older PWH, such as loneliness.

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Emotional, Not Social, Loneliness Is Related to Objective Cognitive Function in Older People With HIV

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Loneliness, defined as the feeling of being isolated from a perceived deficit in social connections, co-occurs and exacerbates cognitive function. Several longitudinal cohort studies in the general older adult population demonstrate that loneliness increases the risk for dementia. A rapidly growing population of individuals at higher risk for loneliness and cognitive impairment are older persons with HIV (OPWH ≥ aged 50 years). Many of the deleterious effects of loneliness parallel those associated with HIV and aging, underscoring the pressing need to investigate the effects of loneliness on cognitive function among OPWH. To understand which unfulfilled social relationships lead to loneliness, it is important to consider two distinct subtypes of loneliness: emotional and social loneliness. Assessing associations between emotional and social loneliness on cognitive function in OPWH can be valuable in understanding the etiology of loneliness and in designing targeted interventions. To test the relationship between emotional/social loneliness and cognition in virologically well-controlled OPWH, we integrated emotional/social loneliness (6-item De Jong-Gierveld Loneliness Scale-DJGL) on participants from the Johns Hopkins Center for Advancement of HIV Neurotherapeutics clinical cohort. Participants also completed a comprehensive neuropsychological (NP) test battery and subjective measures of cognitive function (Behavior Rating Inventory of Executive Function-BRIEF; Barrett Impulsivity Scale-BIS; Cognitive Failures Questionnaire-CFQ) as well as sociodemographic, mental health (Center for Epidemiological Studies Depression Scale-CES-D), behavioral, and clinical factors. A series of multivariable linear regression analyses were conducted to test associations between subtypes of loneliness (subscale correlation=0.19, P=0.23) and NP test outcomes. Initial analyses adjusted for age, sex, race, and education. Subsequent models added CES-D total score. To date, 42 OPWH (mean age=61.5 [SD=6.7]; 48% male; 74% Black, non-Hispanic; mean years of education=13.3 [SD=2.6]; mean CD4 count=687 [SD=331]) completed DJGL and NP assessments. The mean score on the total DJGL was 2.45 (SD=1.82); emotional and social loneliness subscales were 1.24 (SD=1.22) and 1.21 (SD=1.14), respectively. Prior to adjusting for CES-D scores, emotional, not social, loneliness was associated with poorer processing speed (Digit Symbol Modalities Test-DSST; β=-0.54, P=0.001; Trail Making Test-TMT-Part A; β=0.39, P=0.01; Stroop Trial 1; β=0.33, P=0.04), executive function (letter fluency; β=-0.36, P=0.03; TMT-Part B; β=0.37, P=0.02; Stroop interference Trial, β=0.33, P=0.04), motor skills (Grooved Pegboard-GPEG non-dominant hand; β=0.34, P=0.03). Emotional and social loneliness was also associated with most subjective cognitive outcomes (range β's 0.35 – 0.50, P's<0.05). After adjusting for CES-D scores, the relationship between emotional loneliness and NP test outcomes remained only in the domains of processing speed (DSST, Stroop Trial 1). However, the association between the loneliness subscales and subjective cognitive complaints was no longer statistically significant. Findings have potential clinical importance by informing interventions that target specific loneliness subtypes to prevent the worsening of processing speed.

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Cardiometabolic Disease Among Frailty Phenotype Clusters in Adults Aging with HIV

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Background: People living with HIV (PLWH) are at increased risk of frailty due to the intersection of accelerated physiologic aging and high comorbidity burden. Frailty states (pre-frail and frail) are defined by adding the total number of pathognomonic characteristics of physical decline among geriatric populations. Among PLWH, frailty presents at earlier ages via different pathways. To address frailty in PLWH requires an understanding of the clustering of frailty characteristics and their relationships to health outcomes. We sought to evaluate the prevalence of unique frailty clusters and their association with cardiometabolic diseases in Center for AIDS Research (CFAR) Network of Integrated Clinical Systems (CNICS).

Methods: This study includes all CNICS participants over age 50 with complete clinical assessment data between January 2011 and December 2021. Frailty was assessed using a self-reported modified phenotype that includes unintentional weight loss, fatigue, low physical activity, and low mobility. Individuals were categorized as frail, pre-frail, and robust/non-frail based on the presence of ≥3, 1-2, and 0 characteristics, respectively. Within the frailty and pre-frailty categories, the number of reported frailty characteristics were grouped into 0-, 1-, 2-, 3-, and 4-characteristic clusters, resulting in 16 total clusters. The prevalence of clusters and their association with cardiometabolic diseases (cerebrovascular disease, cardiovascular disease, diabetes mellitus, chronic kidney disease (CKD), hypertension, and dyslipidemia) were examined using an age- and sex-adjusted logistic regression.

Results: CNICS participants were included in this study (N=4,856). The median age of the participants was 60 years; 785 (16.1%) were female, and 1489 (30.7%) were Black/African American. Amongst frail participants (n=762, 15.7%), the most prevalent frailty cluster was the combination of fatigue, low mobility, and low physical activity (37.8%). Among pre-frail participants (n=2,163, 44.5%), the most prevalent cluster was low mobility (19.1%). Participants in the fatigue-low mobility-low physical activity cluster had greater odds of cardiovascular disease (aOR: 1.95 [95% CI: 1.23–3.10]), diabetes (2.16 [1.64–2.84]), CKD (1.63 [1.21–2.19]), hypertension (1.97 [1.43–2.72]), and obesity (1.72 [1.31–2.27]) compared with robust participants. Participants in the 4-characteristics cluster (fatigue, weight loss, low mobility, low physical activity) had greater odds off cardiovascular disease (2.87 [1.77–4.67]), diabetes (1.93 [1.38–2.70]), CKD (2.16 [1.54–3.04]), and hypertension (2.08 [1.40–3.09]) compared with robust participants. Pre-frail participants with only low mobility had greater odds of diabetes (1.51 [1.19–1.95]), CKD (1.40 [1.08–1.81]), hypertension (1.38 [1.07–1.80]), and obesity (1.57 [1.24–2.00]) compared with robust participants. Pre-frail participants in the low mobility-low physical activity cluster had greater odds of cerebrovascular disease (3.13 [1.75–5.60]), cardiovascular disease (2.90 [1.95–4.30]), diabetes (2.66 [2.05–3.45]), CKD (1.81 [1.37–2.40]), hypertension (2.66 [1.86–3.80]), dyslipidemia (1.47 [1.11–1.94]), and obesity (1.83 [1.40–2.39]) compared with robust participants.

Conclusion: In this cohort, associations between frailty characteristic clusters and cardiometabolic outcomes varied greatly among older adults with HIV. Implementing regular assessments of frailty into the HIV clinic and understanding frailty clusters and associated conditions may enable providers to prioritize co-morbidity management to prevent the progression of frailty in older adults with HIV.

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Plasma Proteomic Signatures Capture Unique Cardiovascular Risk Phenotypes Among Persons Living With and Without HIV in the United States

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Background: Persons living with HIV (PLWH) receiving combination antiretroviral therapy (cART) are at higher risk for cardiovascular disease (CVD) compared to persons without HIV (PWOH), including subclinical cardiac structural and functional abnormalities that often presage clinical disease such as heart failure. The biological mechanisms underlying the excess risk are incompletely understood and likely reflect complex interactions of risk factor exposures not easily captured by basic sociodemographic and clinical characteristics alone, limiting the ability to direct individualized care. Using a unique unsupervised approach, we aimed to identify subpopulations of PLWH and PWOH with distinct risk profiles based on their plasma proteome.

Materials and Methods: We performed proteomics (Olink Explore) on plasma obtained concurrently with cardiac magnetic resonance imaging among PLWH and PWOH in Baltimore/DC and Chicago enrolled in the Subclinical Myocardial Abnormalities in HIV (SMASH) study. We identified participant subpopulations based on overall plasma proteomic signatures using non-negative matrix factorization and explored relationships among proteins defining each subpopulation using annotated enrichment analysis with a false discovery rate of 5%. We compared sociodemographics, clinical characteristics, and markers of subclinical abnormalities in cardiac structure and function across subpopulations using univariable multinomial regression with a type I error rate of 5%.

Results: Among 352 participants (mean ±SD age 55 ±6 years; 25% female; 70% Black), 60% were PLWH (88% on cART; 73% with undetectable plasma HIV RNA; median [IQR] CD4+ cell count 605 [416] cells/μL). Three subpopulations were agnostically identified by plasma abundances of 2594 proteins. Subpopulation 2 (n=107, 72% PLWH) reflected a higher risk clinical phenotype manifest by significantly higher prevalence of subclinical myocardial abnormalities—specifically myocardial fibrosis/inflammation and both left atrial and left ventricular enlargement. Compared to subpopulations 1 and 3, participants in subpopulation 2 had significantly lower education and annual income levels, higher reported stimulant and opioid use in the prior 5 years, and higher prevalence of HIV and hepatitis C infection. Among PLWH, subpopulation 2 also had significantly poorer HIV control, including the lowest proportion on cART and the lowest current and nadir CD4+ cell counts. Of note, many traditional CVD risk factors did not differ between these three subpopulations, including age, body mass index, hypertension, dyslipidemia, and diabetes. This subpopulation was defined by a proteomic signature characterized by greater macrophage, T-cell, and B-cell activation; cytokine signaling—including IL-1, IL-10, TNF, and IFNγ; and markers of tissue homeostatic regulation—including Notch, IGF, and ERK/MAPK signaling.

Conclusion: We identified three distinct subpopulations of PLWH and PWOH agnostically defined by their plasma proteome, one of which was distinguished by significantly higher prevalence of non-traditional and HIV-associated CVD risk factors and evidence of adverse cardiac structural characteristics. Our results suggest the plasma proteome may capture complex combined exposures conferring risk for HIV-associated cardiac abnormalities not ascertainable by traditional CVD risk factors alone and may better reflect biologic heterogeneity in risk propensity for progression to clinical heart disease.

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Inverse Balance in Plasma Levels of the Endocannabinoids N-arachidonoylethanolamine and 2-arachidonoylglycerol and their Congeners in People with HIV with Subclinical Coronary Artery Disease: Results from the Canadian HIV and Aging Cohort Study

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Background: Despite the success of antiretroviral therapy (ART), people with HIV (PWH) suffer from accelerated cardiovascular diseases and notably coronary artery disease (CAD), due to the chronic systemic inflammation or "inflamm-aging". Lipid mediators from the expanded endocannabinoid system (endocannabinoidome) are key regulators of cardiovascular functions and inflammation and may be altered in chronic HIV infection. We thus aimed to profile plasma endocannabinoidome mediators (i.e. endocannabinoids and their congeners) in PWH with subclinical CAD.

Materials and Methods: A total of 208 individuals (175 males, median age 56) were enrolled in this study, including n=87 HIV+CAD+, n=69 HIV+CAD-, n=22 HIV-CAD+ and n=30 HIV-CAD-. The median of time from HIV diagnosis was 19 years and median duration of ART was 15 years. Cardiac computed tomography angiography was performed to determine the presence of CAD. Endocannabinoids and endocannabinoid-like lipids were quantified high-performance liquid chromatography coupled to tandem mass spectrometry (LC–MS/MS) on plasma of all study participants.

Results: The endocannabinoid N-arachidonoylethanolamine (AEA) (p=0.02), and its N-acylethanolamine (NAE) congeners N-eicosapentaenoylethanolamine (EPEA) (p<0.0001), N-linoleoylethanolamine (LEA) (p=0.02), N-docosahexaenoyl-ethanolamine (DHEA) (p=0.03), and N-docosapentaenoylethanolamine (DPA-EA(n-6)) (p=0.01), were significantly lower in PWH compared to HIV- participants. EPEA (p=0.04), DHEA (p=0.02) and N-palmitoylethanolamine (p=0.03) were significantly reduced in HIV+CAD+ compared to HIV+CAD- individuals, while HIV-CAD- individuals had higher plasma levels of AEA (p=0.02), EPEA (p<0.0001), LEA (p=0.02), DHEA (p=0.02), and DPA-EA(n-6) (p=0.02) than HIV+CAD+. Plasma levels of monoacylglycerols (MAG), including 2-eicosapentaenoylglycerol (p=0.015), 2-linoleoylglycerol (p=0.0004), 2-docosapentaenoylglycerol (p=0.0035), and 2-oleoylglycerol (2-OG) (p=0.0007), were significantly elevated in PWH compared to HIV-controls. Moreover, the endocannabinoid 2-arachidonoylglycerol (p=0.09), and 2-docosahexaenoylglycerol (p=0.08), tended to be higher in PWH compared to HIV negative controls. Only 2-OG (p=0.03) was significantly elevated in CAD+ compared to CAD- participants. Total cholesterol plasma levels were positively associated with LEA and N-stearidonoylethanolamine, triglycerides were positively associated with levels of MAGs.

Conclusions: Chronic HIV infection is associated with perturbed plasma levels of endocannabinoidome mediators. The opposite associations observed with NAEs or MAGs maybe predictive of subclinical CAD in PWH.

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Distal Sensory Polyneuropathy in HIV: The Role of Aging, Vascular Cell Adhesion Molecule and Tumor Necrosis Factor-alpha Receptor-II

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Background: Distal sensory polyneuropathy (DSP) continues to be an important neurological complication in people with HIV (PWH), increasing in frequency with advancing age. Inflammation and vascular compromise persist in PWH despite viral suppression, and previous studies have suggested that these factors may contribute to the pathogenesis of HIV-related DSP, but published reports are few in contemporary cohorts. We aimed to determine whether inflammation might mediate the increasing frequency of DSP in aging PWH.

Material and Methods: We enrolled PWH and people without HIV (PWoH) in this cross-sectional study at the UC San Diego HIV Neurobehavioral Research Program. DSP was defined as the presence of ≥2 of the following physical exam findings (signs): symmetric, bilateral, reduced distal vibratory and sharp sensation, and reduced ankle reflexes compared to knees. DSP symptoms were self-reported neuropathic pain, paresthesia (abnormal sensations like tingling or prickling), and loss of sensation. We measured 13 plasma biomarkers via immunoassays: monocyte chemoattractant protein type 1 (MCP-1), interferon gamma-induced protein type 10 (IP-10), interleukins 8 (IL-8) and 6 (IL-6), soluble tumor necrosis factor type II (sTNFR-II), d-dimer, vascular endothelial growth factor (VEGF), vascular cell adhesion molecule type 1 (VCAM-1), urokinase-type plasminogen activator receptor (uPAR), matrix metalloproteinases type 2 (MMP-2) and 7 (MMP-7), and tissue inhibitors of metalloproteinases types 1 (TIMP-1) and 2 (TIMP-2). Factor analyses were used to reduce the dimensionality of the biomarkers. We applied logistic regression to assess the associations between age, inflammatory biomarkers, and DSP signs/symptoms, controlling for age, sex, ethnicity, height, diabetes, lifetime and current alcohol abuse, metabolic syndrome, and Framingham CVD risk score in all subjects, as well as PWH and PWoH separately. Mediation analyses evaluated whether the effects of HIV serostatus on DSP signs and symptoms were mediated by inflammation and vascular compromise. Statistical analyses were done using SPSS ver 28.0.1.1 and JMP Pro version 16.0.0.

Results: Participants were 69 PWH and 74 PWoH, 33.6% Hispanic and 67.1% male, with a mean age of 44.3 ± 12.9 years. Among PWH 80.6% were virally suppressed. The frequency of DSP and its symptoms, including neuropathic pain, paresthesia, and loss of sensation, was significantly higher in PWH than in PWoH (ps<0.05). Multivariable logistic regression indicated that DSP was associated with older age and increased Factor 4 (MMP2)(p<0.001 and p=0.02, respectively). Older age and increased Factor 2 (sTNFRII and VCAM) were significantly associated with DSP in PWH but not PWoH (OR[95% CI]: 1.17[1.07–1.29] and 5.45[1.42–21.00], respectively). Mediation analyses indicated significant direct and indirect effects of HIV on the DSP symptoms of paresthesia and loss of sensation, and on the presence of any DSP symptoms via Factor 2; Factor 2 explained 18.8–20.0% of the association between HIV and DSP symptoms (ps<0.05). However, Factor 2 did not mediate the association between HIV and DSP signs.

Conclusions: Our study suggests that inflammation and compromised vascular integrity may mediate the association between HIV and DSP symptoms. It also highlights the potential of interventions targeting inflammatory biomarkers in reducing the risk of DSP among PWH.

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Epigenetic Age Acceleration is Associated with Lower CD4 T-cell Count, Increased Mortality Risk, and Frailty in Older Adults with HIV

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Background and Objectives: With advancements in antiretroviral therapy, people with HIV (PWH) are living longer lives and often aging into geriatric care. PWH are more likely to experience medical co-morbidities and geriatric syndromes including frailty as they age, and epigenetic studies indicate a trend towards epigenetic age acceleration in PWH. We aimed to investigate the association between epigenetic aging and phenotypic measures of frailty, as well as epigenetic methylation signatures associated with frailty, in a population of older PWH.

Methods: Adults aged 50 and older in clinical care for HIV management at Weill Cornell were randomly recruited to participate a detailed biopsychosocial survey, and those age 55 and older were invited to complete an in-person study visit which included blood sample collection, electronic medical record review, and physical function testing including grip strength and gait speed to calculate the Fried Frailty Index. The Veterans Aging Cohort Study Index (VACS) was used to calculate estimated mortality risk. Genome-wide DNA methylation was measured from dried blood spots using the Illumina MethylationEPIC platform and analyzed using 6 established epigenetic age algorithms including DNAm PhenoAge. The epigenetic frailty risk score (eFRS) was calculated based on characteristic methylation loci.

Results: A total of 164 participants enrolled in the study, and of those, 158 had a dried blood spot sample for analysis of DNA methylation. Median age was 60 years (IQR 56-64), 52 (33%) identified as female, and 76 (50%) identified as Black. Epigenetic analysis indicated the median PhenoAge was 66 years (IQR 62-71) for an average epigenetic "age acceleration" (EAA) of 5.4 years (SD 6.6).

EAA was inversely related to chronologic age (Beta = -0.31 [95%CI: -0.48, -0.14] (p<0.01)) and was associated with lower CD4 T-cell count (Beta = -0.84 [95% CI: -1.14, -0.53] for every 100 CD4+ T-cells (p<0.01)) and higher VACS index (Beta = 0.10 [95%CI: 0.05, 0.16] (p<0.01)) in unadjusted linear regression models. There was a trend towards higher EAA with more advanced frailty state by ANOVA (p= 0.13). In an ordinal logistic regression model that included EAA, age, sex and race, both age and EAA were associated with higher odds of more advanced Fried frailty category. EAA was associated with eFRS in a univariate linear regression model (p<0.01), but eFRS was not associated with frailty category in an ordinal logistic regression model (p=0.78).

Conclusion: In this study of older adults with HIV, the average epigenetic age acceleration was 5.4 years, as calculated by PhenoAge, and EAA was associated with lower CD4 T-cell counts and higher VACS indices. In a model that included age, sex and race, EAA was also associated with an epigenetic frailty risk score, frailty phenotype, and age. These results suggest epigenetic clocks are a valuable biomarker of aging-related pathologies including low T-cell count, frailty and mortality risk, and warrant further study.

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Frailty and the Area Deprivation Index as Indicator of Neighborhood Disadvantage among Older People with HIV in Colorado

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Background: Examining geographic neighborhood-level factors provides a critical framework for implementing HIV care. While social determinants of health (SDOH) have been highlighted as relevant for HIV care and frailty prevention, the specific impact of neighborhood disadvantage on frailty

remains poorly understood. This study aimed to examine the cross-sectional association between neighborhood disadvantages captured by the Area Deprivation Index [ADI] (used as an indicator of SDOH) and frailty among older people with HIV (PWH).

Materials & Methods: A secondary analysis of pooled cross-sectional data was conducted from 68 participants in the Exercise for Healthy Aging Study (n= 30; NCT02404792) and the High-Intensity Exercise to Attenuate Limitations and Train Habits in Older Adults With HIV (HEALTH; n= 38; NCT04550676). All participants were PWH aged 50 and older, sedentary, and living in the Denver metropolitan area.

The Fried frailty criteria were used to determine frailty status. An established population-independent cutoff to determine frailty status, including non-frail (scored as 0), pre-frail (scored 1-2), and frail (scored 3-5), was used. Frail status was defined when three or more of the following Fried criteria were present (weakness measured as grip strength, physical activity, weight loss, exhaustion, and slowness). We assessed neighborhood disadvantage using the ADI and U.S. Census data from 17 socioeconomic indicators of income, education, employment, and housing quality. ADIs are provided in national percentile rankings from 1 to 100. Similarly, ADI is also available in deciles from 1 to 10 for each individual state. A block group with a ranking of 1 indicates the lowest level of "disadvantage" within the nation/state, and an ADI with a ranking of 10 or 100 indicates the highest level of "disadvantage" within the state and nation, respectively. Mann-Whitney U tests were used to examine the association between the study variables. Medians and interquartile ranges are reported as median(IQR).

Results: Participants were 57.8±5.9 years old, 85.3% male (n= 58), 63.2% White (n= 43), 27.9% Black/African American (n= 19), and 13.2% Hispanics (n= 9). Most participants were prefrail (69.1%, n= 47), and few were frail (4.4%, n= 3). The median state ADI for frail/prefrail PWH was 7.0 (IQR=5.0-8.3) and 4.5 (IQR=2.8-7.3) for non-frail, with a statistically significant difference in mean ranks (p= .023). National ADI for frail/prefrail individuals was 35.0 (IQR=26.5-46.5) and 23.5 (IQR=14.5-39.5) for non-frail, with a statistically significant difference in mean ranks (p= .031). State and national ADI were associated with weakness among PWH (p= .002). No significant associations were found between state or national ADI and the other frailty criteria.

Conclusions: This study shows a cross-sectional association between ADI and frailty in older PWH. Differences in ADI state and national rankings indicate that frail/prefrail PWH live in more disadvantaged areas than non-frail PWH. Our findings highlight the need for a multilevel approach to the prevention of frailty. Further research on the links between these variables may assist in the development of interventions to decrease the incidence of frailty in PWH. Additionally, future work should explore associations within healthcare utilization and in larger samples.

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Prevalence and Correlates of Frailty among Older Persons with and without HIV in Rural Uganda.

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Background: Sub-Saharan Africa is home to the greatest number of older persons with HIV (PWH) worldwide. HIV has been associated with increased risk and earlier onset of frailty, a precursor of poor outcomes in the face of

stressors. Data on the relationship between HIV and frailty in rural Uganda are sparse.

Methods: We analysed data from the Quality of Life and Ageing with HIV in Rural Uganda cohort study to estimate the prevalence of frailty and its correlates among older persons in Uganda with and without HIV. We used a modified self-reported frailty phenotype consisting of four parameters: 1) shrinking (weight loss), 2) exhaustion, 3) low activity, and 4) slowness. We estimated the prevalence of pre-frailty (one or two parameters) and frailty (three or more parameters), and estimated correlates of frailty using logistic regression models, adjusting for age, sex, marital status, presence of depression, and presence of ≥1 comorbidities.

Results: We enrolled 599 participants with a mean age of 58 years (SD 7), of whom 49% were female. Persons with and without HIV were similar in sex and gender. PWH tended to be less likely than people without HIV to be frail (8.1% vs. 10.9%, P=0.24) and were less likely to be pre-frail (54.2% vs. 63.2%, P=0.034). In multivariable regression models, PWH were less likely to have a composite of frailty or pre-frailty (adjusted odds ratio [AOR] 0.69, 95%CI [0.47-0.99], P=0.045) while women (AOR 2.19, 95% CI [1.50, 3.21], P<0.001) and those with depression (AOR 4.63, 95%CI [2.97,7.22], P<0.001) were more likely to be frail or pre-frail.

Conclusion: Older PWH in rural Uganda are less likely to be frail or pre-frail than older people without HIV. These data suggest an apparent resilience of older PWH in sub-Saharan Africa and call for additional study of the factors that result in the robustness of older PWH in the region.

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HIV Physicians' Knowledge, Attitude, Practice and Barriers to Screening for Cognitive Impairment and The Role of Cognitive Rehabilitation Amongst People Living with HIV in Malaysia.

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Background: Cognitive impairment (CI) is a growing problem among older people living with HIV (PLWH). However, there is limited capacity to manage this, especially in resource-limited settings. Capacity building among HIV physicians can help address this gap. Our study aims to evaluate the HIV physicians' knowledge, attitude, practices and barriers to screening for cognitive impairment and the role of cognitive rehabilitation amongst PLWH in Malaysia.

Material and Methods: An online cross-sectional survey was performed from February-March 2023 using RedCap. Potential respondents were HIV Physicians who were contacted through the Malaysian Society for HIV Medicine(MASHM). The inclusion criteria were; proficient in English and a registered HIV physician or trainee. Surveys were distributed via email with three reminders. Respondents' knowledge (10-items) included assessments of estimated global prevalence of CI, mechanisms, domains and risk factors for CI, management of asymptomatic neurocognitive impairment (ANI) and the role of cognitive rehabilitation. Each correct answer was assigned a point and the total calculated (range 0–34). A 9-item questionnaire assessed attitudes towards screening for CI, role of rehabilitation and multidisciplinary team (MDT) Attitude scores were

calculated by assigning +1 for proper attitude, -1 for improper and 0 for unsure. Practices (10-items) covered frequencies for screening, tools used, referrals to MDT, use of over-the-counter drugs and brain exercises as interventions. Practices scores were calculated by assigning +1 for correct practices, 0 for incorrect and 0.5 for practicing correct practices sometimes. A knowledge, attitude and practice score of ≧80%, respectively was defined as good. Ten questions on barriers; tools, clinic setup, time and access to MDT were also assessed and all results were analysed using descriptive statistics.

Results: The survey was sent to 94 target respondents, 57 returned with 49 complete responses (response rate 52.1%). The average age of respondents was 44.4 years with an average 11.0 years in service (SD:5.5-20.0). 71.0% (n=35) had good knowledge. Despite good overall knowledge scores, 77.1% of respondents incorrectly estimated the global prevalence of CI amongst PLWH, 66.3.% did not know that ANI is reversible and 47.9% did not know that certain antiretroviral drugs are a risk factor for CI. Although 75.5% (n=37) had good attitude to cognitive screening/management, only 28.6% (n=14) had good practices with just 20.5% (n=10) routinely screen PLWH for CI. Barriers to cognitive screening were; 67.0% of respondents acknowledged they lack expertise in screening and diagnosing CI, 78% lacked expertise in the initial management and have limited time in the clinic to pursue screening and interventions for CI, 54.5% were not aware of options for interventions for CI in PLWH and 65% acknowledged lack of expertise in cognitive rehabilitation in their respective centres.

Conclusions: This study highlights significant gaps in the practices of HIV physicians in screening and managing CI in PLWH. Capacity building and development of simplified treatment algorithms may help improve the management of cognitive issues among PLWH in resource limited settings.

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The Forecasted Prevalence of Comorbidities and Multimorbidity in Persons Who Injected Drugs Receiving HIV Care in the United States

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Background: People with HIV (PWH) with injection drug use as their HIV acquisition risk factor (PWID) accessing antiretroviral therapy (ART) have poorer clinical outcomes compared to PWH who did not acquire HIV through injection drug use. As PWID live longer with HIV, the prevalence of mental and physical comorbidities, as well as multimorbidity (the occurrence of having ≥2 comorbidities in addition to HIV), remains uncertain.

Material and Methods: The PEARL model is an agent-based simulation of prominent mental and physical comorbidities among PWH receiving antiretroviral therapy (ART) in the United States (US). The model forecasts prevalence and incidence of depression, anxiety, treated hypertension, diabetes, hypercholesterolemia, chronic kidney disease (CKD), cancer, myocardial infarction (MI), and end-stage liver disease, within the context of relevant risk factors (i.e., smoking, Hepatitis C virus infection, and post-ART body mass index). Informed by data from the North American AIDS Cohort Collaboration on Research and Design (NA-ACCORD), the model produces sub-group specific forecasts, including those specific to White, Black and Hispanic Men and Women who inject drugs (MWID & WWID), to year 2030.

Results: Following projected trends in HIV diagnosis from 2010–2018, PEARL forecasts a gradual increase in population size and median age of PWID on ART in the US from 87,800 [95% Uncertainty Range: 86,000–89,700] persons (median age 55.4 years, 8% over 70 years old) in 2020 to 98,000 [90,100–106,000] persons (median age 60 years, 24% over 70 years old) in 2030. In 2030, the most prevalent physical comorbidities among PWID on ART are forecasted to be hypercholesterolemia (58% [57–60%]), hypertension (46% [45–47%]), and CKD (43% [42–

45%])–accompanied by a significant burden of anxiety (67% [66–68%]) and depression (58% [57–60%]). Among all comorbidities, the largest absolute increase in prevalence from 2020 to 2030 is forecasted for anxiety (19% [18–20%] increase) and CKD (12% [10–13%] increase), followed by diabetes and MI (both with 9% [8–10%] increase). These trends vary significantly by sex and race/ethnicity (e.g., the prevalence of hypercholesterolemia is forecasted to increase by 21% [17–26%] among Black WWID and to decease by 5% [2–7%] among Black MWID from 2020–2030). Subsequently, PEARL forecasts increasing multimorbidity among PWID on ART from 56% [55–56%] in 2020 to 62% [60–64%] in 2030. This is accompanied by a substantial increase in age-specific multimorbidity burden: comparing 76% [75–77%] of PWID on ART age 70+ living with multimorbidity in 2020 (n= 5,000 [49,00–52,00] persons) to 87% [87–88%] in 2030 (n=20,500 [20,100–20,900] persons). Sex and race/ethnicity–related disparities in multimorbidity burden expand over time, with the highest forecasted prevalence among Black WWID at 80% [75–85%] and the lowest among White MWID at 45% [46–52%].

Conclusions: Our findings confirm increasing multimorbidity among PWID on ART, with metabolic and psychological conditions being the most common comorbidities. Urgent implementation of multidisciplinary care models is essential to address the complex healthcare needs of PWID on ART in the US, particularly by prioritizing affordable access to mental healthcare.

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Incidence of non-AIDS Defining Comorbidities Among Young Adults With Perinatally-Acquired HIV in North America, 2000-2019

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Background: People with perinatally-acquired HIV (PHIV) may be at risk of earlier onset of non-AIDS defining comorbidities (NADC) due to decades-longer chronic HIV infection and lifetime antiretroviral therapy (ART) exposure. As survival of people with PHIV continues to improve with ART, characterizing their NADC burden reveals the natural history of these NADC and informs clinical guidelines for treatment and management. This study aims to describe the incidence of diabetes mellitus Type 2 (T2DM), hypercholesteremia, hypertriglyceridemia, hypertension, and stage ≥2 chronic kidney disease (CKD) among young adults aged 18 to 30 in North America with PHIV enrolling in adult HIV care from 2000 to 2019.

Materials and Methods: We examined young adults with PHIV enrolled in clinical cohorts contributing to the North American AIDS Cohort Collaboration on Research and Design (NA-ACCORD) between 2000-2019. T2DM was based on glycosylated hemoglobin > 6.5% or having a clinical diagnosis and medication use; hypercholesteremia was based on medication use or total cholesterol ≥ 200 mg/dL; hypertriglyceridemia was based on medication use or fasting triglyceride ≥ 150 mg/dL or non-fasting ≥ 200 mg/dL; hypertension was based on clinical diagnosis of hypertension; and stage ≥2 CKD was defined as having estimated glomerular filtration rate (eGFR) < 90 ml/min|1.73 m2 for ≥ 3 months. Cumulative incidence curves and model-based 95% confidence intervals (CI) were estimated using Nelson-Aalen estimation, and incidence rates and model-based 95% CI were estimated using quasi-Poisson regression models. Prevalence at study entry was also reported.

Results: Among 375 young adults with PHIV, the prevalence at study entry was 5 (1%) for T2DM, 62 (18%) for hypercholesteremia, 74 (21%) for hypertriglyceridemia, 19 (5%) for hypertension, and 9 (2%) for CKD. Cumulative incidences by age 30 were 29% (95% CI: 21%, 39%) for T2DM, 42% (95% CI: 32%, 54%) for hypercholesteremia, 52% (95% CI: 41%, 64%) for hypertriglyceridemia, 23% (95% CI: 15%, 35%) for hypertension, and 33% (95% CI: 24%, 45%) for CKD. Incidence rates per 100 person years from age 18 to 30 were 2.9 (95% CI: 2.0, 4.1) for T2DM, 4.6 (95% CI: 3.1, 6.5) for hypercholesteremia, 5.6 (95% CI: 3.7, 7.9) for hypertriglyceridemia, 2.0 (95% CI: 1.3, 3.0) for hypertension, and 3.3 (95% CI: 2.2, 4.8) for CKD.

Conclusions: People with PHIV in North America experience a high incidence of chronic yet

treatable NADCs in early adulthood. This is higher than incidence among people with HIV non-perinatally-acquired and the general population within this age group. By age 30, about one in three have T2DM, two in five have hypercholesteremia, one in two have hypertriglyceridemia, one in four have hypertension, and one in three have CKD. About one in five have hypercholesteremia and hypertriglyceridemia even before entering adult HIV care. Screening for these conditions in PHIV may need to occur at younger ages to ensure treatment and management are initiated in a timely way. Future work is planned to conduct sensitivity analyses of the comorbidity definitions.

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Tobacco Use in Older People with HIV: Cessation Status Associated with Greater Age and Co-Morbidities

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Background: People with HIV (PWH) are two to three times more likely to smoke than the general population. However, smoking in older PWH is understudied. Behavioral health outcomes including depression and loneliness may be higher in older PWH who use tobacco, which can have implications for HIV treatment and care. We hypothesized that tobacco exposure would be associated with greater depression and loneliness as well as more medical co-morbidities

Methods: PWH in clinical care, age 50 and older, were randomly selected to complete a biopsychosocial survey that included questions about nicotine/tobacco use history, cessation attitudes, and quit attempts. Self-reported measures of depression were collected with the CES-D 10, loneliness with the UCLA loneliness scale, and medical co-morbidities by self-report and analysis of the electronic medical record.

Results: Of 324 respondents, the mean age was 59 years (SD=6.4), 107 (33%) were female and 146 (48%) identified as Black/African American/Caribbean. Overall, 189 (58%) respondents indicated that they had used tobacco, and of those who had ever smoked, 76 (40%) actively used tobacco. ANOVA analysis showed that age differed between those who never used (mean 59.0 years (SD: 6.8)), quit (61.0 (SD:6.4)), and currently used tobacco (57.5 (SD: 5.0)) (p<0.01). In pairwise comparisons, those who quit tended to be older than never and current users (p=0.047, p=0<0.01, respectively). Of active tobacco users, 46 (64%) indicated high desire to quit, 65 (86%) had a discussion with their doctor about quitting, and 42 (60%) tried some form of nicotine replacement therapy in the past year.

The median CES-D 10 score was 9 (IQR= 5, 14). There was no difference in mean CES-D score between those who endorsed never using tobacco, quit, and current use by ANOVA (p=0.95). The median UCLA loneliness score was 23 (IQR= 16, 31) with no difference in mean UCLA loneliness screen score between groups by ANOVA (p=0.16). In a linear regression model, there was a trend towards current tobacco use being associated with lower mean UCLA loneliness scores compared to never smokers (B= -2.54, p=0.08) controlling for age, sex and racial group.

Respondents had, on average, 4 chronic medical conditions (SD= 2). There was a significant difference between groups by ANOVA (p=0.049), with a trend towards those who currently use tobacco having fewer medical conditions than those who had quit (p=0.052) in a pairwise comparison. A multivariable linear regression model did not demonstrate any difference in chronic conditions in those who had quit tobacco/nicotine compared to those who had never used, and age was associated with number of chronic conditions (B= 0.12 (p<0.01)).

Conclusions: There is a high level of tobacco exposure among older PWH, and those who had quit tobacco tended to be older and have more co-morbid medical conditions than those who never used or currently use tobacco. Depression and loneliness were highly prevalent, however there were no significant differences in depression or loneliness. Active tobacco users commonly indicated a desire to quit, with missed opportunities to discuss cessation with their doctor and to obtain connection to cessation resources.

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The Disconnect between ASCVD Scores and Cardiovascular Comorbidities in an Aging cohort of HIV-Positive Malaysian Women

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Background: The Atherosclerotic Cardiovascular Disease (ASCVD) scoring system is a widely used tool for predicting a person's 10-year risk for atherosclerotic cardiovascular events. However, there is little evidence of the value of this tool amongst women living with HIV (WLWH) in the Asia Pacific region. We sought to evaluate ASCVD scores and individual cardiovascular co-morbidities amongst Malaysian WLWH.

Material and Methods: We reviewed the medical records of all WLWH, aged ≥40 years who had ≥1 follow-up appointment at the Infectious Diseases Clinic, University Malaya Medical Centre. We collected demographics, HIV-related parameters, menopausal status and all parameters required to calculate ASCVD scores. For individual cardiovascular co-morbidities, we collected data to calculate body mass index (BMI), diagnosis of diabetes, hypertension and dyslipidaemia. We also included data on all medications prescribed. Clinical data were evaluated to determine control of comorbidities with targets defined by Malaysian Clinical Practice Guidelines. We provide descriptive statistics for each measure for these women.

Results: Data from 140 WLWH were collected. The median age was 52 years (Interquartile Range IQR: 47,58) and median duration living with HIV was 15 years (IQR 10,20). All participants received antiretroviral therapy with 68.6% (n=96) on an Efavirenz-based regimen. Viral load was undetectable in 95.7% (n=133). Menopause status was only recorded in 60.7% (n=85) of which 38.6% (n=54) were menopausal. Only 9 (6.4%) were active smokers. Among all the women (n=140), 82.1% (n=115) had at least one comorbidity. Dyslipidaemia was prevalent in 70.7% (n=99), with most (n=71, 73.1%) receiving lipid-lowering therapy and only 39% (39/99) achieving target LDL levels. Over half (56.1%) had increased BMI. Hypertension was observed in 30.7% (n=43), with the majority (86%, n=37/43) on medication but 55.8% (24/43) had uncontrolled blood pressure. Diabetes was identified in 22.1% (n=31), with 67.7% (n=21) on medication. However, at the last clinic visit, HbA1C, BP and LDL were not within the target range for diabetics in 42.3%, 71.4% and 38% respectively. Among women with comorbidities (n=115), 61.7% (71/115) were taking ≥3 medications including their antiretroviral therapy contributing to significant pill burden. The majority 76.2% (n=96) had low-risk ASCVD scores. However, the prevalence of cardiovascular comorbidities among WLWH with low-risk ASCVD scores were high: 64.6% had dyslipidaemia, 58.3% were overweight or obese (BMI>21kg/m2), 17.7% had hypertension and 11.5% had diabetes. Among these low-risk women (n=96), one-third had at least one co-morbidity (31.3%), while 33.3% had two and 14.6% had three or more.

Conclusion: Our study underscores the poor utility of ASCVD scores to determine CVD risk among Malaysian WLWH, and highlights the gaps in management of WLWH with cardiovascular co-morbidities. It is vital that physicians expand their focus beyond viral suppression to provide holistic care. There is also a need for more tailored, locally adapted, comprehensive cardiovascular risk assessments in this population.

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Cardiovascular Risk Evaluation in People Over 50 Years of Age Living With HIV and Submitted to Different Antiretroviral Therapies

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Background: Progress in antiretroviral therapy has increased the life expectancy of people living with the human immunodeficiency virus (HIV). Thus, the Acquired Immunodeficiency Syndrome (AIDS)

has become a chronic condition that, given aging, has been accompanied by more comorbidities, such as cardiovascular diseases (CVD). Cardiovascular events represent the major cause of death in patients with AIDS and some antiretroviral drugs have adverse effects associated with it. So, this study aims to evaluate several parameters related to increased CVD risk in people living with HIV submitted to different antiretroviral therapies (ART).

Material and Methods: This retrospective observational study was approved by the ethics committee (5.385.106, Federal Fluminense University) and embraced medical records analysis (Gaffrée and Guinle Hospital, Rio de Janeiro, Brazil). It included female and male patients over 50 years of age, without pre-existing CVD, treated with different ART for over 36 months (July 2017 to June 2020). Data encompassed anthropometric and laboratory parameters (lipid profile, blood glucose, viral load, CD4 levels), enabling the calculus of mean and standard deviation. The groups were compared using analysis of variance followed by Tukey Test. The relative frequency of different outcomes leading to cardiovascular events, such as Dyslipidemia, Systemic Arterial Hypertension and Diabetes Mellitus was registered and analyzed by Fisher's exact test. Data analysis was performed using Microsoft Excel software and significance accepted if $p<0.05$.

Results: Significant differences ($p=0.02061$) were observed regarding HDL cholesterol levels between Control (51.00 ± 9.78; n=15, patients without HIV/ART) and Atazanavir - ATV/RTV (40 ± 11.63; n=24) groups, as well as regarding triglyceride levels ($p=0.01892$) between Control (99 ± 21.79, n=15) and Dolutegravir + Darunavir/Ritonavir - DTG+DRV/RTV (183 ± 83.85; n=22) groups. The prevalence of dyslipidemia was higher in patients using DTG+ DRV/RTV (52%; n=22) compared to control group (13%; $p=0.0037937$) and to the users of DRV/RTV (6%; $p=0.0031436$; n=11) and ATV/RTV (11%; $p=0.00041794$; n=24). No significant differences were observed concerning systemic arterial hypertension (46% Control, n=15; 52% DTG+DRV/RTV, n=22; 33% DTG, n=12; 31% DRV/RTV, n=15; 33% ATV/RTV, n=24) nor diabetes mellitus (25% Control, n=15; 23% DTG+DRV/RTV, n=22; 20% DTG, n=12; 6% DRV/RTV, n=15; 17% ATV/RTV; n=24).

Conclusions: This study presents limitations related to the control group. It was composed by outpatients from the surgery clinic who, therefore,

have previous disturbances of their health status. Despite this, lipid profile suggests that the protease inhibitor ATV/RTV and the combination DTG+DRV/RTV may increase CVD risk. In addition, dyslipidemia incidence seems favored by DTG+DRVRTV.

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Comparative Effects of Efavirenz and Dolutegravir on Metabolomic Profiles, Cytokines and Platelet Activation of People Living with HIV

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Background: The introduction of combination antiretroviral treatments considerably reduced mortality and morbidity rates associated with human immunodeficiency virus (HIV). However, people living with HIV, receiving antiretroviral treatments, remain at a higher risk of developing diseases associated with cardiovascular disease. In 2019 the World Health Organisation recommended the transition from efavirenz-based antiretroviral treatments to those composed of dolutegravir. Limited data was available following the transition and as a result the study aimed to investigate the metabolic profiles, inflammatory response, and platelet activation of efavirenz-experiences people living with HIV before and six months after transitioning to dolutegravir.

Method: Plasma was isolated from whole blood samples from five adults living with HIV in Gauteng, South Africa. Participants were virally supressed, transitioning from efavirenz- to dolutegravir-based regimens. Sixteen healthy, HIV-uninfected individuals were included for comparison. Metabolites, cytokines, and platelet activation markers were identified and quantified before the transition and six months thereafter using untargeted nuclear magnetic resonance, multiplex bead-suspension immunoassays, and enzyme-linked immunosorbent assays, respectively.

Results: Paired analyses of metabolites indicated a two-fold increase in 3-hydroxybuyrate levels (p=0.0625) after six months of the dolutegravir-based treatment. No marked changes were observed in cytokine and platelet activation marker analysis before and after the transition. The efavirenz-based treated cohort had significantly altered levels in adenosine monophosphate, creatinine, formate, D-glucose, L-lactate, and urea compared to Controls. After the transition, significance was only observed in formate and urea levels. Changes were observed in granulocyte-monocyte colony stimulating factor (p = 0.0603), platelet derived growth factor-BB (p = 0.0638), soluble cluster of differentiation 40 ligand (p = 0.0294), and regulated upon activation, normal T-cell expressed and secreted (p = 0.0294) concentrations in the efavirenz-treated cohort compared to Controls. Six months of dolutegravir-treatment resulted in decreased concentrations of granulocyte-monocyte colony stimulating factor (p = 0.8158), platelet derived growth factor-BB (p = 0.8528), soluble cluster of differentiation 40 ligand (p = 8168) and regulated upon activation, normal T-cell expressed and secreted (p = 0.8168) to levels comparable to the Controls.

Conclusion: Therefore, the transition to the dolutegravir-based regimen improved energy metabolism, inflammatory responses, and platelet activation marker potentially associated with reduced risks of cardiovascular disease.

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Relationships Between Plasma Neurofilament Light Chain Protein, Cognition, and Brain Aging in People With HIV

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Background: Neurofilament light chain protein (NfL) is a marker of neuronal injury and neurodegeneration. Typically assessed in cerebral spinal fluid (CSF), recent advances have allowed this biomarker to be more easily measured in plasma. This study assesses plasma NfL in a cohort of virologically well-controlled people with HIV (PWH) compared to people without HIV (PWoH), as well as its relationship with cognitive impairment and a neuroimaging metric of brain aging.

Method: 104 PWH (HIV RNA <50 copies/mL) and 42 PWoH provided blood samples and completed neuroimaging and cognitive testing. Plasma NfL concentrations (Quanterix single molecule array) were compared between PWoH and PWH groups and assessed for relationships with age, HIV disease markers (CD4 T-cell count, CD8 T-cell count, CD4:CD8 ratio; PWH only) and cognition. A neuroimaging-derived measure of brain aging (brain-age gap; BAG) was compared with plasma NfL in both groups.

Results: Plasma NfL was not significantly different between PWoH and PWH. Higher NfL was associated with increasing age in both groups. Plasma NfL was not associated with typical HIV disease variables. Within PWH, plasma NfL was higher in cognitively impaired compared to cognitively normal individuals. A greater BAG, indicative of a predicted brain age higher than chronological age, was significantly associated with higher plasma NfL only within cognitively impaired PWH.

Conclusion: Virally-suppressed PWH who are cognitively normal likely do not have significant ongoing neurodegeneration, as evidenced by similar plasma NfL compared to PWoH. However, NfL may represent a biomarker of cognitive impairment and brain aging in PWH. Further research examining the relationships between NfL and longitudinal cognitive decline are needed to more fully understand this relationship.

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Using Network Analysis to Provide Evidence for Brain Health as a Unified Construct Relevant to Aging With HIV

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Introduction: Brain health is a dynamic state involving cognitive, emotional, and motor domains

underpinned by physiological processes and influenced by eco-biopsychosocial factors. Measuring brain health is challenge owing to the uncertainty as to whether it is one or many constructs. This study aimed to contribute evidence for brain health as a unified construct by estimating the strength of relationships between and among patient-reported items related to the brain health construct in a population with brain vulnerability owing to HIV.

Method: Data for this cross-sectional analysis came from a Canadian cohort of people aging with HIV. The sample included 707 men recruited between 2014 and 2016 from five Canadian cities. A network analysis was conducted with 30 relatively uncorrelated items selected from the brain related domains of fatigue, cognition, depression, sleep, anxiety, and motivation. Node centrality measures were used to determine the most critical items in the network, and a bootstrap approach was used to calculate 95% confidence intervals. All analyses were performed using R statistical software 3.6.1.

Results: The network showed showed small-world properties that is, most nodes can be reached from other nodes with few "hops" indicating strong connectivity. The most central symptoms were "How much do you enjoy life?" and "How often do you have negative feelings?" The correlation coefficients for network measures were assessed, and the coefficients for strength, closeness, and network edges were above 0.5, indicating stability. However, the betweenness coefficient was below 0.25, suggesting the network lacks stability.

Conclusion: The small-world properties of the network structure indicate that brain health items are interconnected and may be influenced by shared underlying factors. The centrality indices suggest that items related to enjoyment of life and negative feelings may be particularly important for understanding brain health in this population. The stability of the correlation coefficients for strength, closeness, and network edges indicates that these measures are reliable for assessing brain health in this population, but the lower stability of the betweenness coefficient suggests that this measure may be less reliable. Future research should aim to replicate these findings in larger and more diverse samples to confirm their robustness and generalizability.

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Identifying Subgroups of Intersectional Stigma, Discrimination, and the Association With Mental Health Outcomes Among Hiv-Positive Msm: Latent Class Analysis

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Background: This study aimed to identify latent classes of stigma and discrimination experiences among a racially and ethnically diverse group of men who have sex with men (MSM) living with HIV. It also sought to examine the associations between these classes and mental health outcomes and investigate the moderating effects of social support and resilience.

Materials and Methods: The study used the baseline (N = 224) and six month follow up data (N = 118) from a longitudinal cohort study on HIV and hypertension among African American and Asian Pacific American MSM in Hawai'i and Philadelphia from 2019 to 2023. Latent class analysis was conducted to characterize the patterns of stigma and discrimination experience among study participants. Multivariable regression was

conducted to examine the association between class membership and mental health outcomes, including depression, anxiety, anxiety severity and impairment, and perceived stress. Interaction terms were added to examine the moderation effects of social support and resilience on the association between discrimination class memberships and mental health outcomes.

Results: A five-class model of stigma and discrimination experiences was identified. These classes were: (1) high on internalized homophobia and low on all discrimination experience (Class 1, n = 17, 7.6%); (2) high on racial discrimination (Class 2, n = 31, 13.8%); (3) high on sexual identity discrimination (Class 3, n = 28, 12.5%); (4) low on all (internalized homophobia, discrimination due to race, sexual identity, and disability) (Class 1, n = 129, 57.6%); (5) high on physical disability discrimination and internalized homophobia (Class 5, n = 19, 8.5%). Class 5 consistently predicted worse mental health outcomes, compared to Class 4. The association between Class 2 (high racial discrimination) and depression was moderated by perceived social support (β = 2.74, 95% CI [0.27 − 5.21])

Conclusions: The study reveals diverse and complex experiences of stigma and discrimination among MSM living with HIV, with different profiles linked to various mental health outcomes. The findings highlight the need for further research on the intersecting effects of multiple disadvantages among aging sexual minorities and the role of social support and resilience in mitigating the mental health impacts of stigma and discrimination.

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Participation and Engagement in an Online Community-Based Exercise (CBE) Intervention among Adults Living with HIV

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Background: People ageing with HIV can experience health-related consequences of HIV and associated multimorbidity, known as disability. Physical activity can reduce symptom burden among older adults living with HIV. However, engagement in traditional forms of physical activity varies among adults living with HIV. Online forms of community-based exercise (CBE) may increase engagement and help to manage disability experienced by adults living with HIV. Our aim was to describe characteristics of adults living with HIV who engaged in a six-month online CBE intervention and their participation in the intervention.

Material and methods: We conducted a longitudinal intervention study with adults living with HIV in Toronto who considered themselves safe to engage in exercise between October 2021 and December 2022. Participants engaged in a 6-month online CBE intervention involving a) exercise thrice weekly, b) personalized online coaching sessions with a trainer biweekly, and c) online group educational sessions monthly, using d) home exercise equipment, e) an exercise app and f) wireless physical activity monitor. We documented loss to follow-up and reasons for withdrawal. We characterized participants using descriptive statistics. We assessed participation in biweekly coaching sessions and reasons for missed sessions using a trainer-completed log.

Results: Of 33 participants (22 men, 10 women, 1 non-binary) who enrolled in the study, 32 (97%) (22 men, 9 women, 1 non-binary) initiated the intervention. Participants had a median age of 53 years (interquartile range [IQR]:43,60), and a median of 3 concurrent health conditions in addition to HIV (IQR:1,7). Nineteen (58%) participants who enrolled in the online CBE intervention self-reported that they were engaged in at least some exercise at the time of enrollment; the majority of those (n=11/19) were not exercising regularly. Twenty-two (69%) participants (16 men, 5 women, 1 non-binary) completed the intervention. Reasons for non-completion (n=10) were: busy schedule (n=4); unknown (n=4); episodic health issues (n=1); and dissatisfaction with the study (n=1). At the end of the intervention (month 6), 13/21 (62%) reported

exercising ≥ 3 times per week compared to 11/32 (34%) at baseline. Participants (n=32) attended a median of 10 (77%, IQR:6,12) biweekly online coaching sessions over 25 weeks. Ten of the 32 participants (31%) extended their coaching sessions beyond 6 months. Reasons for not adhering to the intended coaching schedule and/or extending coaching sessions included scheduling issues (holiday break, trainer-participant scheduling conflicts)(n=6), and/or missed session(s) for unknown reasons (n=4), or for health reasons (n=2). Attendance at monthly online group educational sessions was variable (27-67%). Participants who attended group educational sessions engaged in group discussion and question/answer periods. Reasons for not attending monthly online group educational sessions included busy schedules and/or conflicts with work schedules.

Conclusions: Most (69%) participants who initiated completed the online CBE intervention. Participation in exercise during the intervention may have been positively influenced by most (58%) participants having engaged in exercise at enrollment. Future research may explore the role of gender, health status, and implementation factors for influencing engagement and participation in an online CBE intervention.

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Perceptions of Well-Being and Experience Accessing Services: A Qualitative Study Among People Aging with HIV in Santa Clara County, California

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Background: People aging with HIV experience unique health needs and challenges as a result of chronic HIV-related and social factors. Medical experts must consider patient mental health, geriatric syndromes, physical activity, and adverse effects of prolonged antiretroviral therapy in order to optimize care for people aging with HIV. Social factors that influence the quality of life among this population - such as age-related stigma, isolation, loneliness, and lack of social support - can prevent older adults from seeking or remaining in care. The purpose of this study was to understand the perspectives and experiences of people aging with HIV in Santa Clara County (SCC) with regard to their perceptions of aging and their experience accessing services. Results informed development of a local HIV & aging program to ensure the well-being and holistic health of this population.

Methods: This was a qualitative study conducted using semi-structured, key informant interviews between September and November 2022. Key informants who live or work in SCC, are 50 years of age or older, and who are diagnosed with HIV reflected on their wellbeing from the perspectives of: (1) length of life; (2) biological health; (3) mental health; (4) cognitive effectiveness; (5) social competence; (6) productivity; (7) personal control; and (8) life satisfaction. Participants were also asked to describe their experience with accessing the following services: (1) STI and HIV testing; (2) HIV treatment and care; (3) case management; (4) linkage to care; (5) telehealth; (6) mental health care; (7) dental, hearing and vision; and (8) support services. We performed thematic analysis using a deductive approach to identify emerging themes and subthemes.

Results: A total of 12 individuals participated in this study (mean age = 61 years) and 58% identified as male, 25% as transgender, and 17% as female. Most identified as gay (67%) and 50% identified as White. Half (50%) were currently employed and 75% were single. Three themes emerged: (1) perceptions of aging; (2) access to services; and (3) perceived gaps and barriers. Subthemes included feelings of isolation, both in terms of mental health and social competence, poor quality of case management services, and limited availability of specialty services. Participants also commented on a decline in social support activities compared to past years, long wait times in accessing services, and barriers receiving services through external referrals. Several participants highlighted their positive experiences receiving services through established care teams and via telehealth.

Conclusions: The aging population living with HIV is steadily rising and current HIV care models should align to better address the biopsychosocial needs of this population. Key programmatic implications include the expansion of clinical services for people aging with HIV such as increasing access to oral and vision services.

Results also underscore the need for a multidisciplinary and client-centered approach to health services as well as service integration to address the social determinants of health. These findings may inform programs serving this population and highlight opportunities to strengthen health care systems as well as mental health, social support and case management services.

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Clinical and Pharmacological Outcomes of Real-World Use of Long-Acting Cabotegravir and Rilpivirine in France; Efficacy and Tolerance during the First 72 Weeks

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Background: The first long-acting (LA) antiretroviral therapy (ART) regimen, represented by cabotegravir+rilpivirine (CAB+RPV) injection was approved by French authorities in January 2022 for efficiently treated treatment-experienced patients (Viral Load<50 copies/mL). Here we present data of clinical effectiveness of CAB+RPV LA in people living with HIV (PWH) during the first 18 months of utilisation in the European Hospital of Marseille, France.

Methods: From 1st of January 2022 until the 31st of May 2023, ART experienced PWH were treated using CAB+RPV and followed using clinical and electronic health record data. HIV-1 viral load (VL), CD4 T-cell count, and pharmacological monitoring were assessed from first injection till end of follow up or discontinuation.

Results: Of 142 participants prescribed CAB+RPV, 98.5% had undetectable VL during the switch. Five participants who were previously undetectable (<50 copies/mL) presented a low-level viremia (50-200 copies/mL) during the switch. 21.8% were women, the median age was 51 (IQR:22-79) years, the mean BMI was 24,41 (13.66; 38.5) and 11 (7.7%) participants had a BMI over 30. Last ART regimen is represented in the figure. At study end, 14 participants (9,8%) discontinued CAB+RPV: 11 had local Adverse Events (AE), 1 had psychiatric AE, and 1 had a virologic failure because of delayed injection. All 128 participants who remained on LA treatment had undetectable viremia. No BMI variation was observed during the study. 82 out of 142 participants had therapeutic drug monitoring; 56 (68%) of these had at least one drug concentration below alert threshold over the follow up period of whom 18 (32%) had recurrent suboptimal concentrations concerning mostly CAB. Thirty out of these 56 participants (54%) were at least 50 years old, and 39 out of 56 (70%) were at least 45 years old. Twelve out of these 30 participants over 50 were overweight (25<BMI<30) and only one was obese (BMI>30). There were 6 women among these 30 participants.

Conclusion: In this real-world cohort of PWH who received CAB+RPV LA injections in Marseille, observations suggest that this regimen is effective and well tolerated in virologically suppressed individuals, with adverse events consistent with clinical studies. Participants should be closely monitored, especially those aged more than 45 years, in order to maintain on-time injections.

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"I'm 62-Years-Old and I Still Have Sex. It's Not All the Time, but It's When I Want It!" Sexual Health, Wellness, and Aging With HIV: In Our Own Words.

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Background: The United States (US) will experience a transformative demographic shift in the 2030s, whereas; the population is expected to grow at a slower pace, age substantially, and become more racially and ethnically diverse. Factors that influence healthy aging have been described by researchers and practitioners as within reach, e.g., exercise, healthy diet, mental health, regular doctor visits. Yet, racial disparities persist in these areas, and sexual health remains an overlooked factor of influence in the discourse

of healthy aging, despite research suggesting that sexual activity is associated with greater enjoyment of life and well-being among older adults. Data shows the rate of sexually transmitted infections, including HIV, increasing in people 55 and older faster than among any other group. Despite these alarming increases in HIV and STI rates among older adults, data suggests that there are missed screening opportunities in medical and social service settings. These missed opportunities underscore the need for a broader discussion centered on sexual health in relation to healthy aging that acknowledges sexual intimacy across the life course, including among marginalized and oppressed groups. The question is, how might a health communication film, focused on HIV education and prevention among older adults, impact emerging and practicing health and social service providers roles and interactions with their older clients/patients?

Material and Methods: We conducted film screenings of a health communication film entitled, Even Me, to provide educational training in aging and sexuality for graduate level social work students, geriatric social work students, and clinical practitioners in hospital settings. A 9-item pre-and post-structured survey was administered before and after people viewed the film. A dependent-samples t test was used to evaluate whether the intervention had an effect on HIV knowledge. We also conducted thematic content analysis of the anonymous, written, open-ended responses from 193 film viewers who described what they learned about HIV after viewing the film.

Results: A dependent samples t test showed a significant increase in HIV knowledge score from pretest (M = 7.46, SD = 1.08) to postest (M = 8.04, SD = 0.76), t (174) = 6.78, p < .001; Cohen's d = 0.512. = .41, df = 59. p = .69). And three key themes emerged from the content analysis of anonymous, written, open-ended responses: (1) increased awareness of internalized ageism and stigma; and (2) improved motivation for changes in practice professionally behavioral change; and (3) awareness of the need for communicative skill development.

Conclusions: Our findings suggest that a health communication film can be used as a health communication tool to highlight older people living with HIV and provide educational opportunities among emerging and practicing clinicians. Even Me, a film focused on racial or ethnic minority older adults— a group disproportionately

impacted by HIV, effectively provided psychosocial learning opportunities outside of a therapeutic/ patient-provider relationship. Our mixed-methods approach has provided promising evidence that film-based interventions can increase HIV knowledge specific to older adults, motivate behavioral change in relation to structural barriers to care involving ageism, stigma, and patient-provider communication.

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HIV Provider Framings of Caring for Patients Aging with HIV

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Background: With treatment advancements, an estimated 70% of people living with HIV (PWH) in the US will be over 50 years by 2030. This population is experiencing co-occurring conditions and geriatrics syndromes at an earlier onset, and they have a high psychosocial burden compared to the general population. Geriatric assessments and services for aging PWH are well-suited to care for this population, but these approaches are newer within HIV settings. Further, HIV clinical settings have historically focused on the unique HIV-related dimensions of care. HIV providers' thinking or 'framings' about how HIV care is evolving as PWH age may influence how geriatric-oriented elements of care are incorporated. We sought to explore HIV providers' framings to identify strategies to advance geriatric approaches in HIV care.

Methods: We used a qualitative study design with semi-structured interviews to explore ideas about caring for aging PWH across four VA and non-VA HIV clinics in the Northeast US between February 2018 and July 2020. We analyzed the interviews thematically using a grounded and iteratively refined codebook comprising pre-conceived and emergent codes.

Results: Across interviews with physicians, psychologists, nurses, case managers, and administrators (N=17) we identified two central domains. Domain one comprises the complex set of norms clinicians applied in their clinical

management with older PWH, hinging on the prioritization of HIV in relation to other health needs. HIV was prioritized when it was not well managed or as a dynamic contributor to comorbidity management. HIV was de-prioritized in light of the challenges presented by both longstanding (substance use) and more recently acquired (cognitive impairment) comorbidities, which in turn required different responses. In their framings, providers moved from specific patient cases that highlighted the dynamic role of HIV to population-level understandings in which they presented patterns across clinical subpopulations, particularly to emphasize the decreasing importance of HIV in clinical management overall. A second domain highlights the importance of duration or 'living through' in framing clinical understandings of aging with HIV. To providers, patients' longitudinal social and medical experiences underscored different phases of an evolving, shifting epidemic. This manifested in several sub-themes including the importance of reduced HIV pill burden over time paired with increasingly complex non-HIV regimens, the cohorting or sorting of older from younger patients based not only on clinical issues but on patients' historic HIV experiences, and a deep sense of provider and patient processes of managing in-step. Years in HIV practice informed these understandings, with more recently trained providers focused on clinical aspects of HIV.

Conclusion: Providers caring for aging PWH have moved beyond HIV exceptionalism and towards a state of 'HIV conditionality,' in which complex contingent framings are applied to a range of patients and in which HIV, comorbidities and aging are dynamically interacting. These findings have implications for geriatrics approaches. Trainings for providers newer to the field on the importance of 'living through' is another important aspect as we advance models to care for older PWH.

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Integrated Care for Comorbidities in HIV Services: The Long and Bumpy Way to Respond to the Needs of an Aging Population.

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Background: The success of antiretroviral therapy (ART) has increased life expectancy of people living with HIV (PLHIV), leading to a rising trend of age-related diseases. The proportion of PLHIV over 50 years in both Cameroon and Senegal is nearly 25%. The management of comorbidities and functional limitations becomes paramount to avoid deterioration of health and quality of life. The integration of comorbidities care into HIV services seemed to be the obvious way to tackle this issue. In 2021 we presented the institutional barriers to integration, here we present the difficulties experienced in implementation in the clinics.

Methods: The VIHeillir project is implemented in Cameroon and Senegal. Five HIV services have been integrating screening, diagnosis and treatment for hypertension, diabetes, hepatitis B and C and cervical cancer during routine visits. Standard algorithms are available for health staff to manage in a simplified and less expensive way the targeted diseases. Staff has been trained for care, communication and adherence support on these conditions and point of care tests have been made available to screen on site with no need of further lab work up.

Results: Since June 2021, inclusion has been opened for enrollment of HIV positive people older than 50 years coming to the routine consultations in HIV clinics. Despite the fact that each patient should be seen at least once every 6 months, the project enrolled only 57% of the expected

population (1641/2884) in 24 months. If not seen by the physicians, patients do meet nurses, social workers or pharmacists to collect ART, but they are not referred for care, therefore loosing opportunities for an early diagnosis and treatment. The prevalence of the targeted diseases among included patients is similar to that of the general population, but the frequency of cardiovascular risk factors is very high, making educational activities key for prevention. However, despite the trainings and the availability of informational material, it is seldom that discussions about lifestyle and eating habits are brought up. Despite the availability on site of the two main drugs (amlodipine and metformine) at affordable prices (around 3euros/month), adherence to treatment remains low.

The screening for functional limitations is a totally new activity in HIV care. Despite using a simplified approach, conceived by WHO for community use (ICOPE), health staff hesitates to apply it in the absence of easy prevention and support interventions.

Finally, despite the availability in community-based organisations of free activities for education and prevention, clinical staff rarely refers patients who could benefit of anthropometric measures follow up, sport groups, nutritional workshops and leisure activities. Little is done to motivate patients to lose weight and apply healthy living.

Conclusions: The integration of comorbidities care and in particular, cardiometabolic diseases into HIV care demands a shift from routine activities to include new procedures and it may be perceived as extra work. The integration can take time in the absence of national policies and guidelines and needs an effort of mentorship and supervision which should be planned and budgeted for.

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Well Aging With HIV - 1 Year Experience of Patient-Reported Outcome Measures (PROMs) In HIV Consultation

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Introduction: Patient-reported outcome measures (PROMs) provide essential information about the challenges faced by people living with HIV (PLHIV) for the health care professionals and contribute to person-centered care for PLHIV. Evaluate the use of PROMs among PLHIV attended at the HIV consultation at Hospital de Cascais aged ≥ 70 years in terms of medication adherence, consumption habits, body mass index (BMI), ability to perform self-care and Instrumental Activities of Daily Living, sleep disorders, anxiety and depression, quality of life and linkage to care.

Materials and Methods: Validated questionnaires were applied to 71 PLHIV aged ≥ 70 years during the year 2022: Treatment Adherence Measure (MAT), Patient Health Questionnaire-9 (PHQ-9 - depression), Generalized Anxiety Disorder - 7 (GAD-7), Barthel Index for Activities of Daily Living (ADL), Lawton Instrumental Activities of Daily Living (AIVD) and World Health Organization Quality of Life – BREF (WHOQOL-BREF). The assessment of consumption habits, sleep alteration and attachment were carried out using a dichotomous scale.

Results: Of the 71 PLHIV who answered the questionnaires, 70% are from Portugal and 60% are male; 24% were aged ≥ 80 years, 25% between 75-79 and 51% between 70-74; in the performance of ADL 68% are independent, 13% with mild dependence, 10% with moderate dependence and 9% with severe dependence; 76% are independent in IADL and 24% are dependent. Adherence occurred in 100% of users; 3% of users with active consumption of tobacco and 3% of ethanol were identified; 18% reported having sleep disorders; 4% with depressive disorder and 4% with anxiety disorder. BMI was normal in 60%, with excess weight in 40%. At the end of the assessment, 92% were linked to care, 1% were not linked and there were 7% died. The WHOQoL-BREF questionnaire was answered by 63 PLHIV and 8 did not respond, overall quality of life was classified as very good in all physical, psychological, social relationships and environmental domains.

Conclusion: The analysis presented highlights the importance of using PROMs to gain a comprehensive understanding of PLHIV's experiences and needs. Integrating PROMs into clinical practice makes it possible to optimize person-centered care, with a view to ensuring personalized interventions, the demand for specialized support services and the promotion of targeted and tailored strategies for changing lifestyles and well aging. represents patient safety

care and quality support provided by an institution or healthcare professional. We consider these attitudes essential to provide an excellent experience for each patient. Preventive measures and risk management are measures covered by safety and quality of care. All this with a single objective: to deliver the best possible care to PLHIV.

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Navigating the Maze: Facilitators and Barriers to Community-Based Medication Adherence Support for Aging Individuals with HIV and Multimorbidity in Western Kenya.

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Background: The advent of antiretroviral therapy (ART) has remarkably improved the longevity and quality of life for people living with HIV (PLHIV). However, as PLHIV age, they often face the complex interplay of comorbidities, necessitating multiple medications. As a result, aging people with HIV and comorbidities are faced with an increased medication adherence challenge. Coupled with neurocognitive impairment and complex regimens with multiple prescribing physician, aging PLHIV may experience worse adherence and poor health outcomes. Patient-tailored community-based medication adherence programs have the potential to improve adherence in aging PLHIV. Here, we examined the facilitators and barriers influencing the implementation of a community health volunteer-led medication adherence support for aging PLHIV and comorbidities in western Kenya.

Material and Methods: This qualitative study conducted between November 2022 and February 2023 engaged 27 healthcare providers (HCPs) and 28 community health volunteers (CHVs) in focused group discussions, and 86 (30 in-depth interviews and 56 in FGD) older people (those aged 50 years and above) living with HIV. All our participants were affiliated with three Academic Model Providing Access to Healthcare (AMPATH) facilities in western Kenya, representing a rural, peri-urban and an urban facility. Recruitment of participants ensured equal representation of males and females. In-depth interviews and focus group discussions explored facilitators and barriers to CHV-led community-based medication adherence support for older adults living with HIV and comorbidities. Written consent was sought from participant and all sessions were audio-recorded and transcribed verbatim. Translation to English where necessary was done before analysis. NVivo software was used for coding and subsequent thematic analysis assessed facilitators and barriers influencing the implementation of such a community-based adherence support program.

Results: Identified barriers to implementation of a CHV-led community-based adherence support program included: fear of disclosure and the potential for increase stigma; cost and availability of non-communicable disease (NCD) medication; increased workload for the CHVs; limited medication literacy among CHVs; complex medication regimens; CHVs transportation challenges; and a siloed healthcare system that may result in inconsistent communication to patients. Despite these barriers, participants identified the following facilitators to implementing such a program: collaboration between HCPs and CHVs; trust between CHVs and older patients; patient empowerment; health insurance (affordability of medication); supportive supervision for CHVs; psychological support; equipment for routine monitoring of blood pressure and blood sugars; and use of pill boxes.

Conclusion: Though participants felt that a CHV-led community-based medication adherence support program was feasible, this study indicates that as we consider implementation of such a model we need to address the following issues – need to offer CHV's a tailored training on HIV and NCD medication, need for CHVs to build trust with the patients, and be supported with necessary resources such as transport and equipment (blood pressure cuffs and glucometers).

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Integration of Mental Health Services within HIV Care for Aging Men Living with HIV to Enhance Retention in HIV Care in Nairobi, Kenya

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Issues: Aging Men living with HIV face a multitude of challenges throughout their healthcare journey. One of these challenges includes the often unaddressed issue of mental health. Poor mental health can have a significant impact on an individual's ability to adhere to treatment and remain in HIV care, especially as they age. This abstract examines the importance of addressing mental health needs within the context of HIV care for ensuring optimal health outcomes and quality of life for aging PLHIV.

Description: We conducted a community dialogue with aging men living with HIV in Embakasi South, Nairobi aimed to highlight the barriers to accessing mental health services, including stigma, lack of awareness, and logistical challenges. The objective of the dialogue was to gain insight into the association between mental health disorders, such as depression and anxiety and decreased retention in HIV care among aging PLHIV.

Lessons Learned: Integration of mental health services within HIV care proved to be a promising approach to enhance retention in care for aging PLHIV. Collaborative care models, where HIV and mental health professionals work together, were effective in addressing the complex needs of this population. Stigma reduction campaigns and patient education initiatives were essential in normalizing mental health services utilization.

Next Steps: There is a need for more interventions to reduce mental health stigma in both the healthcare community and society. Also Destigmatizing mental health services could encourage more aging to seek help and engage in care. integrating mental health services within HIV care for aging PLHIV holds great promise in enhancing retention and overall health outcomes. By disseminating best practices through training programs, community dialogues and knowledge-sharing platforms can contribute to the widespread adoption of integrated mental health and HIV care.

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Menopause and You: A Knowledge Translation Project for Women Living with HIV Exploring Menopause

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Background: Women living with HIV who are experiencing hormonal changes at midlife report few menopausal care discussions, despite more frequent interactions with care providers. Reasons for this lack of discussion remain largely unexplored, however, during a series of focus groups of menopausal women living with HIV, we observed that women consistently reported concern over a lack of patient-specific resources for menopause in the context of HIV, leading to a reluctance to bring the topic forward to healthcare providers. Previous knowledge translation work has shown that the creation of patient-specific resources is most effective using an engaged scholarship process with integrated teams of researchers and those with lived experience. Therefore, to aid in menopause knowledge translation for women living with HIV, our team created an interactive, patient-centred pamphlet, using a process guided by community-based research principles.

Methods: At the onset of the project, a working group of menopausal women living with HIV and researchers met to discuss women's information needs, challenges, and preferences, and review what knowledge was missing from current patient resources. Team members reviewed transcripts of three focus groups of women living with HIV (n=14) on the topic of menopause to further identify women's information priorities. Based on this, a pamphlet was co-designed using iterative review cycles in partnership with women living with HIV to ensure optimal comprehension and engagement. The content was also reviewed by an interdisciplinary working group of providers including Infectious Disease specialists, Obstetricians/Gynecologists and a Pharmacist, with the final content reviewed by a multidisciplinary research team. Dissemination was conducted in partnership with a national HIV-related organization (Canadian AIDS Treatment Information Exchange [CATIE]) and through connections with AIDS service organizations, HIV clinics, and social media outlets.

Results: Based on feedback from the women's working group, two complementary patient-centred resources were created: one print-version pamphlet and an interactive, virtual PDF-based pamphlet. Important themes highlighted in our consultation process and included in our pamphlets were: the hormonal changes accompanying menopause, symptoms that may be experienced, the timing of menopause, and holistic lifestyle changes to help with symptoms. Sections on body map recognition, symptom tracking, and conversation starters were included as important tools to facilitate communication of menopause experiences between women and providers, as recommended by community women. Furthermore, community voices encouraged strengths-based messaging throughout the pamphlet, including themes of "menopause as a journey" and "menopause as a time of celebration."

Conclusion: Herein, we share our pamphlet on menopause for women living with HIV, a project co-created by clinical and community groups to address the unique information needs of women living with HIV experiencing menopause. Incorporating experiential knowledge from the onset of this project allowed the product to be a relevant and accessible knowledge translation resource. The integrated team approach used in creating this patient-facing resource highlights the value of engaging those with lived experience in all stages of knowledge translation work.

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"Pushed to the Back Burner": Exploring the Gap in Access to Menopausal Care for Women Living with HIV in Canada, a Preliminary Analysis

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Background: Access to effective antiretroviral treatments has narrowed the life expectancy gap between women living with and without HIV, increasing longevity for women with HIV. As a result, a rising number of women with HIV are now transitioning into menopause. Menopause and its symptoms can have a profound impact on women's quality of life, encompassing physical, psychological, and social well-being. Despite this, many women living with HIV report not receiving menopausal care, for reasons that are relatively unexplored. To address this gap, we conducted a qualitative study to identify barriers to menopausal care for midlife women with HIV.

Methods: Three focus groups were held with perimenopausal and menopausal women living with HIV, between January and March 2023 in British Columbia, Canada. Groups were co-facilitated by a community research associate and researcher. Women were interviewed about their individual perspectives on menopause, as well as their interactions with healthcare providers, and experiences with accessing resources related to menopausal care. Interviews were conducted virtually and in person, audio-recorded and transcribed. Preliminary analysis was conducted using thematic analysis.

Results: A total of thirteen women of median age 57 years (range 45-69) participated in the focus groups, including ten menopausal and two perimenopausal participants (one woman was

unsure of her menopause stage). Eight women identified as White, four as Indigenous, and one as having mixed ethnicity. All thirteen women had healthcare providers; seven were seeing an Infectious Diseases specialist, five a family physician, and one a nurse practitioner. Overall, a lack of menopause-related knowledge represented the main hindrance to menopausal care for all women with HIV. Women reported variable experiences in receiving care. Even among those who have discussed menopause with healthcare providers, many women still had ongoing informational needs, particularly about what to expect during menopause, available treatment options, and lifestyle strategies to manage symptoms. Women identified five barriers to engaging in menopause discussions: (1) women pushed menopause "to the back burner" due to their HIV care, with HIV management often overshadowing the specific needs associated with menopause, (2) issues related to women's health were often de-emphasized by providers, (3) women had a sense of uncertainty regarding the origin of their symptoms, specifically whether symptoms were attributable to HIV, age-related comorbidities, or substance use, (4) societal stigma around menopause and (5) prior negative healthcare experiences.

Conclusion: This study sheds light on the unmet menopause-related needs of women living with HIV, many of which stem from a deficit of information about, and preparation for, menopause. Our findings emphasize the need for providers to establish a safe and open environment for discussing menopause in clinical spaces, not only to address women's informational needs but also to de-stigmatize menopause. Moreover, our findings raise the question of whether menopausal education for women with HIV could benefit from conducting knowledge translation/transfer workshops through the involvement of peers. The latter could provide experiential knowledge and facilitate open discussions, potentially providing additional support for women around the menopausal transition.

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Caregiving by Older People Living with HIV

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Background: People living with HIV (PWH) are living longer and are more likely to face psychosocial stressors related to stigma, social isolation, cognitive loss, and fragile social networks earlier than the general population. In addition, PWH may also become caregivers (CG) for their older partners, spouses, other family members or friends. In the United States, more than 50% of PWH are older than 50 years and it is anticipated that the number of PWH who are CG will increase with advances of medical care. Little is known about caregiving by PWH, the extent to which they are able to fulfill their roles, and the support they receive while caregiving and managing their own medical challenges. The purpose of this study was to determine the characteristics of PWH who are CG, identify their care recipients, and examine factors associated with caregiving by PWH.

Methods: PWH aged 50 and older from a New York City Clinic were randomly selected to complete the Research on Older Adults with HIV (ROAH 2.0) survey. Depression was assessed using the Center of Epidemiologic Studies Depression Scale, 10-item (CES-D 10), loneliness using the UCLA loneliness scale, generativity using the short form Loyola scale, and HIV-related stigma using the Sowell Stigma scale. Chronic conditions were obtained through both self-report questionnaire and analysis of the electronic health record (EHR) and HIV variables were extracted from the EHR. In addition to using descriptive statistics, we conducted correlation and regression analyses.

Results: In this sample of 331 PWH aged 50 years and older, 43.2% of PWH reported being CG in the previous 5 years. Among PWH who were CG in this sample, 70.9% reported financial strain with a mean CDC Social Vulnerability Index of 0.714 (SD=0.275), and 45.5% had more than 5 chronic conditions; these factors were not significantly different from the non-caregiver group. The majority of PWH who were CG cared for other family members (47.6%) or for a friend (28.7%);

79.6% cared for 1 care recipient, 13.9% for 2 care recipients and 6.6% for 3+ care recipients. The regression analyses revealed that being older (b=0.484, SE=0.244, p=0.037), being a female (b=0.038, SE=0.018, p=0.047), and having a high generativity score (b=0.074, SE=0.031, p=0.008), were positively associated with caregiving in PWH. HIV-related variables were not significant in the model. Although caregiving was significantly associated with increased needs for support in instrumental activities of daily living (b=-0.246, SE=0.136, p=0.015) and for emotional support (b=-0.218, SE=0.127, p=0.045), there were no significant associations between caregiving and psychosocial determinants such as loneliness, depression, or HIV-related stigma.

Conclusions: As the well-known stressors of caregiving can negatively impact health and well-being, understanding caregiving in the context of living with HIV is fundamental in order to assess caregivers' needs and develop sensible interventions to promote feelings of generativity and reduce caregiver strain. Generativity might be a positive determinant of caregiving that could help mitigate caregiver burden, enhance meaning and purpose in life, and promote well-being.

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Utilization of Medical Case Manager Assessment for Older Adults with HIV and Long-Term Survivors of HIV to Enhance Quality of Life and Well-Being

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Background: Nearly half of Persons living with HIV (PLWH) are over the age of 50. In the beginning of the HIV epidemic, few could have imagined that terms such as longevity and chronicity would become associated with the disease. Due to advances in treatment, PLWH have been living longer than anyone would have anticipated. As PLWH live longer, the concept of aging successfully has become increasingly more important as today's older adults focus on Quality of Life (QOL) and reaching an overall sense of well-being.

Methods: In February 2023, the Mary Washington Wellness Program (MWWP) created a Medical Case Manager Assessment for Older Adults and Long-Term Survivors with HIV. The assessment encompasses QOL concepts, such as physical and mental health, safety, and belonging. Additionally, the 5 M's of Geriatric Care were incorporated into the assessment. These 5 M's are defined as Mind, Mobility, Medications, Multimorbidity, and What Matters Most. To achieve a truly comprehensive perspective of the needs of older clients, a focus on dental and vision needs, as well as preventative care measures are also included. Medical Case Managers complete the assessments with clients aged 50 and older, and clients who are perinatally infected, as MWWP found it important to include individuals who have been aging with HIV their entire life. The assessments are completed every six months.

Results: Currently, 50% of the HIV population the MWWP serves are 50 years of age and older. In the past six months, 10% of clients within the criteria have completed the assessment with a medical case manager. A small number of assessed clients (approximately 2%) have expressed concerns regarding their cognition or mobility, while a higher number reported a lack of social support and mental health concerns (40%). All the clients assessed were engaged in the assessment process and provided positive feedback regarding the focus on recognizing the needs for older adults living with HIV.

Conclusions: Overall, answers regarding what matters most have been particularly insightful. Clients shared concerns about the ability to live independently, but they also conveyed a concerted effort to remain actively involved in their care regimens. Most of the assessed clients also demonstrated high levels of health literacy regarding their medications and multimorbidities. As PLWHA continue to age, more research focusing on what it means to age successfully, and achieve quality of life, is needed.

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Wireless Physical Activity Monitor Use among Adults Aging with HIV in a Community-Based Exercise Intervention Study: A Quantitative Longitudinal Observational Study

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Background: Physical activity is an effective rehabilitation strategy that can mitigate disability and improve functional capacity, health outcomes and quality of life among adults aging with HIV. However, engagement in exercise varies in this population. Wireless physical activity monitors (WPAMs) can be used as a strategy to measure and promote physical activity in the context of HIV. However, the extent of WPAM use and the factors that influence their use to promote physical activity in this population is unclear.

Objectives: Our aim was to examine Wireless Physical Activity Monitor (WPAM) use and its associations with contextual factors (age, highest education level, social support, mental health) among adults aging with HIV engaged in a community-based exercise (CBE) intervention.

Methods: We conducted a quantitative longitudinal observational study using data from a community-based exercise (CBE) intervention study with adults aging with HIV in Toronto, Canada. Participants received a WPAM to track physical activity during a 25-week CBE intervention involving thrice-weekly exercise, supervised weekly (Phase 1) then a 32-week follow-up phase of independent exercise (Phase 2). Uptake was measured as participants who consented to WPAM use at initiation of the intervention. Usage was defined as the median proportion of days participants had greater than 0 steps out of the total number of days in the study. We measured contextual factors using a baseline demographic questionnaire (age, highest education level) and median scores from the Medical Outcomes Study Social Support Scale and Patient Health Questionnaire (mental health), where higher scores indicated greater social support and mental health concerns, respectively. We calculated Spearman correlations between WPAM usage and contextual factors defined as weak ($\rho \geq 0.2$), moderate ($\rho \geq 0.4$), strong ($\rho \geq 0.6$), or very strong ($\rho \geq 0.8$).

Results: Seventy-six of 80 participants (95%) consented to WPAM use; with a median age of 51 years (25th, 75th percentile: 44, 59). The majority of participants identified as men (89%) and 62% were living with a median of 2 or more concurrent health conditions in addition to HIV, of which joint pain (46%) was the most common, followed by mental health concerns (39%) and muscle pain (39%). In Phase 1, 66% of participants (n=76) and in Phase 2, 61% of participants (n=64) used the WPAM at least one day. In Phase 1, median WPAM usage was 50% (25th, 75th percentile: 0%, 87%; n=76) of days enrolled and in Phase 2, 23% (0%, 76%; n=64) of days. Correlation coefficients ranged from weak for age ($\rho=0.26$) and mental health scores ($\rho= -0.25$) to no correlation (highest education level, social support).

Conclusions: The majority of adults aging with HIV consented to WPAM use, however, usage declined over time from Phase 1 to Phase 2 of the CBE intervention. Future implementation of WPAMs should consider factors to promote sustained usage with adults aging with HIV over time.

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Gender and racial/ethnic differences in quality of life among elderly people living with HIV in Canada

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Background: The life expectancy of people living with HIV receiving effective combination

antiretroviral therapy is approaching that of the general population. In order to support healthy aging of this population, it is important to understand what impacts individual's quality of life (QoL) as they age with HIV. We set out to explore gender and racial/ethnic differences in general and health-related QoL (HRQoL) among people living with HIV who are 65 years and older.

Material and Methods: We performed a cross-sectional analysis using data from the Correlates of Healthy Aging in Geriatric HIV (CHANGE HIV) study, a Canadian cohort of people living with HIV age 65 and older. Study participants completed two Questions on Life Satisfaction questionnaire modules, the general life satisfaction and HRQoL. Scores were compared by gender and race/ethnicity using Wilcoxon rank-sum tests. Multivariable linear regression was employed to evaluate the impact of race/ethnicity on quality of life measures, while accounting for age, gender, highest level of education, household income, duration of HIV infection, nadir and current CD4 count.

Results: 402 individuals with a median age [IQR] of 69 [67,73] years were included in the analysis, 91% were men. A total of 79% of participants identified as White, 12% Black, 3% Asian, 3% Hispanic, 1% Indigenous and 21% as Other. Women had lower general QoL (total, mean 62.2 vs 74.8), and HRQoL scores (total, mean 80.6 vs 85.5), compared to men. White individuals had higher HRQoL scores (total, mean 75.2 vs 69.3) but lower general QoL scores (total, mean 84.1 vs 88.1) compared to other races/ethnicities. Asian individuals had the lowest QoL measures compared to all other races/ethnicities. After accounting for other covariables, race and gender were not associated with QoL measures.

Conclusions: We did not find gender or racial/ethnic differences in QoL measures among this cohort of aging persons living with HIV in Canada, after accounting for sociodemographic and HIV-related factors. Ongoing research is needed to identify modifiable factors that may improve or support the QoL of this growing population.

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Switching to a Fixed-Dose Combination of Bictegravir/Emtricitabine/Tenofovir Alafenamide (B/F/TAF) in Virologically Suppressed, Treatment-Experienced People with HIV (PWH) ≥ 65 Years Old

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Background: By 2030, it is estimated that more than 70% of PWH in the U.S. will be over 50 years old. Since the proportion of older PWH is increasing, to study long-term safety and efficacy of antiretroviral therapy (ART) in older individuals continues to be important. We conducted a Phase 4, single arm, open label, 24-week trial of B/F/TAF in virologically suppressed adults 65 years and older to evaluate efficacy, safety and treatment satisfaction. The study site is an area with the highest prevalence of male PWH >50 years old in the US. The county was identified as one of the 48 counties in the US with highest HIV infection burden in 2021 and the study site is located in the town with prevalence over 20 times higher than in all of California.

Methods: Virologically suppressed (HIV-1 RNA < 50 copies/mL) participants ≥ 65 years old who were currently receiving an ART regimen and had no INSTI resistance were switched to open-label B/F/TAF. Co-primary endpoints are treatment satisfaction and medication tolerability at W24; secondary endpoints are virological suppression < 50 c/mL at W24 as defined by the FDA Snapshot algorithm; incidence and severity of adverse events (AE) and laboratory abnormalities at W24 and finally reduction of medications and polypharmacy (Beer's criteria) at W24. Virological failure was defined as HIV-1 RNA > 200 c/ml. Treatment satisfaction was assessed using the HIVTSQs (range 0-66), HIVTSQc (range -33 to 33) and HIVDQoL instruments. Medication tolerability was patient reported during office visit.

Results: All 25 were male participants at a single site, mean age was 70 years (range 65-85) and 80% were White. Most common baseline ART regimens

were protease inhibitor & NRTI-based multi-tablet regimen in 64% of the cases. At W24, HIV RNA < 50 copies/mL was 95%; 3 participants had no virological data in window and there were no virological failures. Two participants experienced grade 3 study-drug related AEs; no grade 4 AEs were observed. No tolerance concerns or AEs led to premature study drug discontinuation. At W24, treatment satisfaction mean (SD) was 64.8 (2.6) with a mean improvement of 25.1 (12.1). There was no change from baseline in eGFR (median=0 mL/min). Mean weight change from baseline was 0 (4.3) kilograms. Mean reduction in PRN medications was -0.2 (2.3).

Conclusion: Through W24, in addition to improved treatment satisfaction and adequate medication tolerability, high rates of virological suppression were maintained in older participants who switched to B/F/TAF, with no increase in weight. The safety, efficacy and high treatment satisfaction results support the switch to B/F/TAF in virologically suppressed HIV-1 infected individuals aged ≥ 65.

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Low Bone Mineral Density in People Living with HIV and its correlation with Bone health quality of life - Observational study conducted by Treatment Adherence Advocacy and Literacy - TAAL+ Integrated Health Center and Community Pharmacy - A Peer Led Intervention

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Background: In India Antiretroviral Therapy (ART) Program has been launched in 2004, with over 14.6 lakhs PLHIV on Treatment. TAAL is a community-based Pharmacy serving PLHIV participants for ART from Private as well as Government sector (n=1859 On ART till Feb 22).

Treatment of HIV with ART is lifelong. Various studies proved that ageing may itself be accelerated by HIV infection, & complications associated with aging may be seen in younger age group in PLHIV Bone health & Noncommunicable diseases need to be integrated in the management of PLHIVs for better treatment outcomes.

Description: TAAL Pharmacy initiated a small study on Dexa scan to see the Bone Mineral density in total 160 participants, out of which 80(50%) were PLHIVs and 80(50%) were non-PLHIVs.

Findings: In general population, out of 80 participants 44(55%) found to be osteopenic & in PLHIV out of 80 participants 58(72%) found to be osteopenic. In general population, out of 80 participants 56(70%) found to be osteopenic and Osteoporotic and in PLHIV out of 80 participants 71(88%) found to be osteopenic and Osteoporotic. In age group of 20-40 years, out of 80 participants 25(31%) found to be osteopenic in general population and in PLHIV out of 80 participants 31(38%) found to be osteopenic. That means, PLHIVs are more prone for Osteopenia.

Lesson: PLHIVs are more prone to Osteopenia and Osteoporosis. PLHIV need additional supplementation.

Conclusion: Along with ART, Calcium and Vitamin D3 supplement should be a part of treatment to prevent Osteopenia and Osteoporosis

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Maltreatment, Abuse, and Neglect among Sexual and Gender Minorities and People Living with HIV: A Mixed-method Examination of Correlates and Improved Screening

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With U.S. aging populations growing at a high rate and a growing number of aging people who openly identify as sexual and gender minorities (SGM) healthy aging among SGM is of increasing public health importance. Subsequently, this also means a greater number of aging adults are members of sub-populations who have been or are currently at elevated risk for HIV through sexual transmission relative to the general population (e.g., men who have sex with men and transgender populations who have sex with men). Moreover, greater proportions of people living with HIV are 50 and older. By 2030 over 70% of people living with HIV will be over the age of 50. SGM and people living with HIV are particularly vulnerable to victimization such as intimate partner violence and stigma-motivated violence, which overlap with other forms of abuse, neglect, and maltreatment. Further, abuse, maltreatment, and neglect are associated with cognitive decline and negative mental health outcomes among general samples; however, these relationships are less understood in the context of SGM and people living with HIV. For instance, SGM are also more likely to have non-traditional family structures and both SGM and people living with HIV are more likely to experience isolation as they age. The present study uses mixed methods to validate a novel screening instrument for abuse, neglect, and maltreatment among aging SGM and explore the acceptability and feasibility of clinic-based screening and referral in two multi-site federally qualified healthcare centers (FQHC). To examine a survey sample of SGM aging adults (n=300), and qualitative interviews with healthcare workers (n=20) we use exploratory factory analysis and directed content analysis. Furthermore, we examine the relationship between abuse, neglect, and maltreatment with mental health and self-reported cognitive function with comparisons between SGM who are living with HIV, people who are at risk for contracting HIV, and people who are neither living with HIV nor at risk for HIV. Presentation of the findings will discuss the psychometric properties and domains of the novel measure (physical abuse, sexual abuse, emotional abuse, stigma, financial abuse, control & isolation, neglect, and self-neglect) as well as sources of maltreatment (e.g., romantic partners, family, friends, and community members) and correlates (sexual risk, HIV status, isolation, cognitive decline, and mental health). Thematic analysis will discuss provider perspectives on patient needs as well as the acceptability and feasibility of clinic-based

screening for elder abuse, neglect, and maltreatment among SGM. As part of their integrated approach to wellness care, FQHCs may consider screening for elder abuse, neglect, and maltreatment among SGM in range of care settings (e.g. primary care, HIV care, etc.) to reduce the detrimental effects on mental and physical health of aging populations.

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Qualitative Approach to People Living With HIV in the Third Age in DRC

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Background: In the Democratic Republic of Congo, nearly 25% of people with HIV under ARV treatment are over 50 years old. However, despite these efforts, the health system still has significant limitations, especially with regard to the quality management of morbidities due to the aging of the human body. In addition, the identification of elderly people with HIV as well as their biological follow-up remains a great challenge because of the institutional response for comorbidities related to advancing age.

Material and Methods: A study carried out in the DRC in 9 different provinces (PNLS, 2016) provided information based on a qualitative sample of elderly people with HIV from 50 to 75 years old by doing:

1. Identification of a diverse sample of participants who responded to the criterion of gender, socioeconomic status, different health care settings, or support system.

2. Data collection through individual interviews or group discussions to collect their personal stories,

experiences, opinions, and perceptions, as well as observation techniques.

3. Analysis, and transcription of collected data identifying recurring themes, patterns, and unique insights.

4. Interpreting and reporting the results of our analysis presented using appropriate qualitative methods such as thematic analysis or narrative descriptions.

5. Prioritizing ethical considerations such as obtaining informed consent, ensuring participant confidentiality, and involving local stakeholders or organizations familiar with HIV in the study design process.

Results: From the 100% of elderly people living with HIV in the 9 provinces included in our study, 61% of them have access to good health care and support. However, 21% are still victims of stigma and discrimination, leading to the deterioration of the quality of their life and well-being. Furthermore, 18% of the elderly are not even known to the health system and are still living in hiding.

Conclusion: The results of the survey carried out mainly inform that:

The efficacy of triple therapy and the undetectable viral load.

Thanks to the early initiation of antiretroviral therapy by the "Test-Treat" approach, there is a very significant reduction in the occurrence of opportunistic infections, thus making this infection like all other chronic pathologies.

The diagnosis and treatment of non-communicable pathologies, particularly those related to metabolic and neurological troubles, are still big challenges in the DRC;

Thus, efforts to address the impact of HIV on elderly people living with HIV in the DRC include increased access to HIV testing, treatment, and support services.

In addition, community based organizations and healthcare providers work to reduce stigma and discrimination, raise awareness, and provide appropriate care for elderly people with HIV.

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Using Participatory Approaches and Conceptual Analysis for the Development of a Community-Based Tablet/Hotspot Lending Program for Older Adults Living with HIV

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Starting in June 2023, CHN's Healthy Aging team is conducting a contextual analysis, focus groups, and key informant interviews with CHN staff and older clients to highlight internet connectivity and barriers relative to OALH in CHN's six regional offices. This analysis will inform the development of a manual of operation describing implementation guidelines for a lending program including: criteria (age, need), installation, lending periods, client/device usage assessment, and community outreach strategies. Through participatory quality improvement approaches, like NY HIV Clinic's Healthcare Stories Project framework, the team will evaluate how intended conceptualization and operationalization meet community needs and staff workflow. All steps will be conducted bilingually in Spanish and English to ensure language justice and bicultural nature of implementation. Implementing this program designed in collaboration with CHN's older clients inspires improvements in healthcare delivery and social connection needed to live a fulfilling life, regardless of location. This project will provide a valuable example for integrating peer leadership and centering lived experience in contextual analysis and design of community-based programs. Using collective frameworks, including Public Health Prevention and the Geriatric 5M's (Mobility, Mentation, Medication, Matters Most, Multicomplexity), CHN is upholding person-centered continuation of care for OALH, while also establishing a model for reducing health inequities. By integrating equitable approaches to program design, CHN shifts the perspective from 'If we build it, will they come?' to 'If they build it, will they use it?'. The intended future program will meet the needs of CHN clients by bridging the digital divide, providing internet options to those living in rural areas, and offering devices and

connectivity to low-income clients, to access valuable health information from home while connecting socially. Long-term outcomes of this program include: increased client involvement; decreased incidence of depression, social isolation, feelings of loneliness; increased ART adherence; and minimized cognitive decline.

LO #1: Apply an intersectional, person-centered approach to inform the development, implementation, and evaluation digital inclusion programs for rural OALH
LO #2: Recognize the importance of expand proven quality of life interventions through digital connectivity to maintain management of health-related needs, independence, and social connection for rural OALH
LO #3: Demonstrate how to value lived experience and peer leadership in the development and implementation of impactful aging programs that address health inequities and virtual access.

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Psychological Resilience Protects Against Cortical Thinning in the Default Mode Network in Older Adults Living With HIV

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Older adults living with HIV experience faster rates of cortical thinning. The purpose of the study was to understand the effects of psychological resilience on cortical thickness in a sample of aging persons living with HIV. Thirty-one older adults (mean age 62.7 years, SD = 4.4) completed a battery of psychosocial questionnaires as well as an MRI scan session that included a T1-weighted anatomical brain scan. Freesurfer™ software was used to reconstruct the brain images into MNI space based upon the Destrieux atlas. Following parcellation, images were smoothed for the left and right hemisphere separately using a 10 kernel. Next, a linear regression analysis was performed on left and right hemispheres separately using resilience (indexed by the Conner Davidson Resilience Scale) as a regressor. Using a threshold of p < .001 the regression analyses uncovered several cortical areas showing greater thickness as

a function of resilience. Greater resilience was associated with significantly greater volume of the left ventromedial prefrontal cortex, dorsolateral prefrontal cortex, fusiform gyrus, in addition to several regions within the left inferior and medial temporal gyrus. Greater resilience was also associated greater cortical thickness of the right anterior prefrontal cortex, temporal pole, and right visual association area. The current study suggests that greater psychological resilience is associated with greater cortical thickness in several brain regions within the ventral default mode network. Cortical thinning within the default mode network is a hallmark of cognitive aging. The current findings suggest that the resilience offers protection against cortical thinning in this network possibly through processes involving meaning making and increase self-referential processing, however, the mechanism whereby this psychological disposition provides protection in chronic HIV requires further investigation.

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Cognitive Performance is Similar in Older People With and Without HIV in Rural Uganda

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Background: Cognitive impairment is reported in approximately 50% of people with HIV (PWH) but has primarily been studied in the Global North. Recent US-based cohorts have suggested that HIV itself may not be the primary determinant of cognitive impairment in PWH on effective antiretroviral therapy (ART). However, less is

known about prevalence and determinants of cognitive impairment in PWH in sub-Saharan Africa, where the population of older (>50 years) PWH is rapidly growing.

Methods: We analyzed data from the Quality of Life and Ageing in HIV in Rural Uganda cohort, a study of community-dwelling older PWH on suppressive ART and sex-, age- and location-similar older people without HIV (PwoH). All participants underwent a cognitive battery testing gross motor (timed gait), fine motor (finger tapping, grooved pegboard), verbal learning and memory (WUAVLT learning trials and recall), executive and verbal fluency (animal naming, color trails 2), speed of information processing (symbol digit, color trails part 1), and attention and working memory (digit span forward and backward). Results from PwoH were utilized to develop regression-based norms for each test that were adjusted for age, sex and education. Domain scores were generated by averaging Z scores for each test within a cognitive domain. Continuous Z scores for each test and domain scores were compared by HIV status, sex, age (<60 vs >60 years) and education (<primary school education vs >some secondary school education) using t-tests.

Results: Of 575 participants, 49% (n=281) were PWH, 50% were female, 77% (n=442) had primary school education or less, and average age (+SD) was 59+6 years. PWH had lower Z scores for timed gait (-0.09+0.82 vs 0.04+0.70, p=0.047), and timed gait was also the only neurocognitive test within the gross motor domain. Otherwise, there were no significant differences in Z scores for any individual test or cognitive domain score by HIV status, age, sex, or education. Overall, rates of cognitive impairment were low, with each participant having a median of 1 (interquartile range (IQR) 0, 3) tests scoring at least 1 standard deviation (SD) below the mean and a median of 0 (IQR 0, 0) tests scoring at least 2 SD below the mean. Only 10% of participants had >1 test score at least 2 SD below the mean, and this did not differ by HIV status.

Conclusions: Using locally derived normative data from a well-matched cohort of older community-dwelling PwoH, PWH in rural Uganda performed well on cognitive testing overall with only timed gait differing by HIV status. Further work to understand risk factors for and the pathobiology of poor cognitive performance and cognitive resilience in this population could help identify high-risk populations and lead to the development

of interventions to promote cognitive health in rural Uganda and other similar settings.

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Peer-Led Screening of Neurocognitive and Mental Health in Older Adults Living With HIV at a Community Hospital in Thailand: An Implementation Study

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Background: Many Thai people living with HIV (PLHIV) are over 50 and stable on antiretroviral treatment (ART) but at increased risk for neurocognitive impairment (NCI) and mental health disorders compared to their HIV-negative, age-matched peers. These two factors could compromise ART adherence and overall health outcomes. There is limited data on NCI prevalence and mental health among aging Thai PLHIV since screening is not routinely conducted, largely due to time constraints and the lack of trained providers. Task-shifting to peer educators is an alternative option that has not been widely implemented in Thailand. We evaluated the feasibility and acceptability of peer-led NCI and mental health screening among PLHIV aged ≥50 in a community hospital setting.

Methods: We trained peer educators working in an HIV clinic in Chiang Mai, Thailand, to use four screening tools: 1) the International HIV-Dementia Scale (IHDS), 2) Trail-making test A, 3) General Practitioner Assessment of Cognition (GPCOG) for NCI, and 4) Patient Health Questionnaire (PHQ-9) for depression. They received brief training sessions about approaching PLHIV and conducting the screening. After a half-day workshop where they practiced using these tools, peer educators started screening PLHIV during a 4-week trial period with supervision from a senior nurse. PLHIV

aged ≥50 who attended the clinic and had no obvious signs, symptoms, or known diagnosis of NCI or depression were eligible for inclusion. Individual in-depth interviews with PLHIV, peer educators, and other providers were conducted and analyzed for descriptive purposes.

Results: From March to June 2023, peer educators approached 162 PLHIV who met eligibility criteria; 89% (n=144) agreed to be screened. Their median age was 59 years, and 59% were female. Reasons for declining screening were limited time (n=15), other health conditions (n=2), and inconvenience (n=1). Among those screened, 31% (n=44) met the criteria for at least one diagnosis; 73% (n=32) were linked to a psychologist on the same day, while the remainder were scheduled for evaluation at their next clinic visit. The preliminary same-day psychologist-provided diagnoses included mild cognitive impairment (n=20; 45%), dementia (n=1; 2.3%), and major depression (n=1; 2.3%); an additional 23% (n=10) were later diagnosed as having neither NCI nor depression.

Our qualitative findings showed that PLHIV were comfortable being approached, screened, and advised by peers. The peer educators felt comfortable approaching and screening PLHIV, which helped them fulfill a supportive role in the clinic. Nurses expressed a positive attitude toward peer-led screening, while psychologists were concerned about the accuracy and number of false-positive screenings. Psychologists proposed more intensive training for peer educators on the proper conduct and interpretation of test results. All providers suggested that peers be continuously evaluated to ensure fidelity.

Conclusions: Our study found that peer-led screening was feasible and acceptable in this Thai community hospital setting and led to rapid identification of PLHIV with NCI and/or depression who were subsequently linked to further evaluation and care. This saved time for nurses and psychologists and increased awareness among PLHIV and providers around NCI and mental health issues.

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Hepcidin Modifies the Relationship Between Age, Erythrocyte Indices, and Neurocognitive (NC) Performance in Virally Suppressed People With HIV (PWH)

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Background: NC impairment (NCI) in PWH is associated with abnormal erythrocyte indices that might result from inflammation, disturbed iron metabolism, and other factors. One of these indices mean corpuscular volume (MCV), measures the size and volume of erythrocytes and can help determine the etiology of anemia. Erythropoiesis requires iron, levels of which are regulated by a complex system of peptide hormones, including hepcidin, which is produced by the liver, is an acute-phase peptide, and reduces iron bioavailability and absorption.

Methods: Cross-sectional analyses of age, erythrocyte indices, iron-related biomarkers (hepcidin, erythropoietin, ferritin, erythroferrone, total iron binding capacity, soluble transferrin receptor), and NCI in 88 virally suppressed PWH taking antiretroviral therapy. Global and domain-specific NC performance was summarized by the deficit score method. Depressive symptoms were assessed with the Beck Depression Inventory-II. Associations were analyzed by linear regression. Distributions were transformed to reduce skewness. Multivariable regression was performed using the Akaike Information Criterion and backward selection.

Results: Participants were mostly middle-aged (mean 44.1 years), white (52.3%) men (84.1%) with AIDS (67.0%). Hepcidin was detectable (>1.0 ng/mL) in 42 (47.7%) and modified the relationship between Global Deficit Score (GDS) and age (interaction p=0.017), MCV (interaction p=0.0048), MCH (p=0.017), and possibly race (p=0.078) and nadir CD4+ T-cell count (p=0.088) For example,

older age was only associated with worse GDS when hepcidin was undetectable. Stratified analyses identified that, when hepcidin was undetectable, worse GDS was associated with older age (p=0.006), higher MCV (p=0.012), and lower MCH (p=0.079) (model R2=0.353, p=0.0003). When hepcidin was detectable, only lower hepcidin (p=0.0012) and AIDS (p=0.012) were associated with worse GDS (model R2=0.353, p=0.0003). Similar relationships were not present with depressive symptoms.

Conclusion: Overall, the findings support that a combination of iron-related (hepcidin, MCH) and iron-unrelated (age, macrocytosis) mechanisms contribute to cognitive health in virally suppressed PWH. Hepcidin substantially modified the relationships of NC performance with age and other characteristics. While these cross-sectional findings require confirmation, hepcidin may be a newly recognized cofactor that influences cognition in PWH.

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Forecasting the Effect of Hiv-Targeted Interventions on the Age Distribution of People Living With HIV: A Case Study From Kenya

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Background: The expansion of antiretroviral therapy (ART) and subsequent increases to life expectancy have led to an aging of the global population of people living with HIV (PLWH). With one of the largest HIV epidemics globally, Kenya faces a growing demand to meet the evolving care requirements of an aging HIV population. Decision makers can benefit from accurate estimates of population size and age distribution of PLWH to inform future policies; however, the impact of HIV-targeted interventions on demographic shifts among PLWH remains uncertain.

Methods: We developed a dynamic, compartmental model of HIV transmission in Kenya, representing key transitions along the cascade of HIV care and calibrated to historical estimates of HIV epidemiology from 1990 to 2021. We modeled a baseline scenario (representing the continuation of current trends in HIV epidemiology), compared against a broad scale-up of interventions to strengthen the cascade of HIV care. In line with global HIV targets, these interventions represent achieving a 75% annual HIV testing among those undiagnosed, as well as 90% annual engagement in HIV care, 90% retention on ART, 90% annual gain of viral suppression among those unsuppressed, and 90% annual maintenance of viral suppression among those already suppressed. Using this model, we forecasted changes in population size and age distribution of new HIV infections and PLWH under each scenario to 2040.

Results: Without additional intervention, total new infections were forecasted to fall from 34,104 per year in 2025 [95% credible interval: 27,598-41,044] to 28,793 in 2040 [14,862-57,001]. Despite reduction in frequency, the proportion of new infections occurring in people over age 30 increased from 33% in 2025 [20-50%] to 40% in 2040 [25-62%]. The population size of PLWH in Kenya was forecasted to decrease from 1.44 million in 2025 [1.39M-1.50M] to 1.38 million in 2040 [1.27M-1.65M] without additional intervention. This was accompanied by an increase in the median age of PLWH from 39 years in 2025 [38-40] to 43 years in 2040 [39-46], and an increase in the proportion of PLWH over age 50 from 26% [23-39%] to 34% [26-43%]. Additional interventions to strengthen the HIV care cascade resulted in a further reduction in new infections to 6,093 in 2040 [2,992-11,333], representing 79% fewer incident infections than in the baseline scenario [55-91%]. This was accompanied by an increase in the proportion of new infections occurring in people over age 30 to 52% [34-71%] in 2040, and an additional shift in the age structure of PLWH in Kenya (with a forecasted median age of 46 [44-49] and 41% [34-48%] of PLWH over age 50 in 2040). Across all scenarios, the age distribution among women was younger than that among men.

Conclusions: Kenya's HIV population is forecasted to age over the next 15 years, with further improvements to the HIV care cascade expected to contribute to the growing proportion of older individuals living with HIV. New HIV policy must address the needs of an aging HIV population including healthy aging and the burden of age-associated comorbidities among PLWH.

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Age and Sex-Based Discordance of Anthropometric Measures and Association With Metabolic Risk Factors Among Ugandans Living With HIV

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Background: Internationally advocated anthropometric cut-off points for diagnosing Metabolic Syndrome (MS) in African populations are based largely on data obtained from European populations. We examined the association of anthropometric measures and MS risk factors among PLH (People living with HIV) in Uganda, using International Diabetes Federation (IDF) criteria as a reference. The IDF definition for MS is obesity and ≥2 of the following; high blood pressure, high blood glucose and low HDL-cholesterol and high triglycerides.

Materials and Methods: We performed a cross-sectional analysis of PLH on antiretroviral therapy who were enrolled between June and November 2021 at the Makerere University Infectious Disease Institute in Kampala, Uganda. Data on basic demographics, anthropometry, clinical and blood samples were collected. Receiver Operating Curve analyses and the Youden's index were used to determine optimal anthropometric cut-off values for predicting ≥2 of the other MS risk factors (not including obesity).

Results: Of 550 participants aged 20-73 years, 353 (64.2%) were females and 197 (35.8%) were males. The median age (IQR) was 39 (33-46) years for females and 45 (39-50) years for males, median body mass index (BMI) was 26.0 (22.9-30.0) kg/m2 for females and 22.5 (20.1-25.3) kg/m2 for males, and for waist circumference (WC) was 87.0 (79.6-96.5) cm for females and 83.0 (76.5-93.0) cm for males.

The prevalence of MS, based on the IDF definition, was found to be 38.2% in females and 17.3% in males.

The optimal cut-offs for MS using BMI were 25.96 kg/m2 for females and 22.77 kg/m2 for males, using WC was 88.5 cm for females and 84.6 cm for males, using waist to hip ratio (WHR) was 0.84 for females and 0.91 for males, and using waist to height ratio (WHtR) was 0.56 for females and 0.51 for males.

Compared with the derived optimum cut-points, the IDF advocated WC threshold of 80 cm for women would overestimate MS prevalence by 10.2%, while WC cut-off of 94 cm in men would underestimate MS prevalence by 13.7%. The discrepancy was more pronounced among individuals aged ≥ 50 years, with a 14.8% overestimation in females and a 20.3% underestimation of MS in males. With regard to BMI, adopting the IDF advocated cut-off of ≥30 kg/m2 would lead to an underestimated prevalence of MS in both males and females, with this effect more pronounced among males (25.8% vs. 12.4%). This pattern was consistent across all age groups.

Conclusion: The optimal anthropometric cut-offs for metabolic syndrome in Ugandan PLH are markedly different from international guidance based on European general population data among African PLH, established international cut-points notably underestimates metabolic risk among men while overestimates risk among women. This effect is notably accentuated among older PLH. These findings warrant further examination of assessing metabolic risk using anthropometric criteria both for those aging with HIV and among African populations.

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Social Determinants of Falls Among Older Adults With and Without HIV in Rural Uganda

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Background: Falls pose significant risks for older adults, increasing the likelihood of disability, hospital admission, and mortality. In the global north, one in four older adults experience a fall annually. However, data are scarce regarding falls among older people with HIV (PWH), particularly in sub-Saharan Africa, where over half of the 25 million PWH will be over 50 years old in the next decade. PWH might be at higher risk of falls due to social factors associated with falls (e.g., reduced social support, isolation, and loneliness), which have been observed among PWH in the global North.

Methods: We analyzed data from the Quality of Life and Aging with HIV in Rural Uganda cohort study, which follows older PWH on suppressive Antiretroviral Therapy (ART) in ambulatory care and a sex- and age-similar comparison group of people without HIV (PWoH) recruited from the same catchment area. Our primary outcome was the number of falls reported in the last 12 months. Our primary explanatory variable was HIV serostatus. We also considered previously identified social determinants of falls, including the number of people living in the household, types and sources of physical and financial support, social integration (defined as participation in 10 different community groups), and loneliness. We used a generalized linear model with negative binomial distribution to estimate the associations between the number of falls and our explanatory variables, adjusting for age, sex, education, alcohol consumption, and comorbidities.

Results: Among the 571 study participants, PWoH and PWH were similar in terms of age (58.5 vs. 58.1 years), sex (female: 49.3% vs. 50.1%), educational attainment, and number of comorbidities, but PWH were less likely to be living with a spouse or partner (54.5% vs. 80.4%). Twenty-four percent (139/571) of participants experienced >1 fall in the past year, and 10% (55/571) experienced >2 falls. In multivariable models, the rate of falls in the past year was similar between PWH and PWoH (Adjusted Incidence Rate Ratio [aIRR]:0.82; 95%CI [0.57,1.17]). Those reporting loneliness had an increased likelihood of falls (aIRR: 1.15;

95%CI:[1.02,1.31]) and those with a larger household size had a lower frequency of falls (aIRR: 0.91 for each additional household member; 95%CI [0.84, 0.99]).

Conclusions: PWH experience falls at a similar rate as PWoH in Uganda. Nonetheless, falls are common among older people in Uganda, and are associated with loneliness and reduced household size. Future work should examine screening opportunities to identify those at risk for falls and explore interventions that build social support to reduce these risks.

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Prevalence and Determinants of Recent HIV Testing Among Older Persons in Rural Uganda: A Cross-Sectional Study

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Background: There is limited research on HIV testing among older persons in Uganda. The aim of this study was to investigate the socio-demographic determinants of recent HIV testing among older persons in selected rural districts in Uganda.

Methods: A cross-sectional survey of 649 older men and women age 50 years and older, from central (Masaka district) and western (Hoima district) Uganda was conducted. Frequency distributions, chi-square tests and multivariable logistic regressions were used to examine the association between recent HIV testing and selected explanatory variables.

Results: Nearly six in ten (58%) of older persons had primary education. About 60% of the respondents were in union and 13% of them had two or more spouses. Half of the older people (51%) had sex in the last twelve months. A quarter (25%) of older persons gave or received gifts in exchange for sex in their lifetime. Nearly a third (29%) reported sexually transmitted infections in the last 12 months. Prevalence of lifetime HIV testing was 82% and recent (last 12 months) HIV testing was 53%. HIV testing in the last 12 months was associated with age (OR = 0.50; 95% CI: 0.31-

0.79), self-reported sexually transmitted infections (OR = 1.59; 95% CI: 1.00-2.30), male circumcision (OR = 1.71; 95% CI: 1.0-2.93), and sexual activity in the last 12 months (OR = 2.89; 95% CI: 1.83-4.57).

Conclusion: Recent HIV testing among older persons was associated with younger age, self-reported STIs, male circumcision, and sexual activity among older persons in rural Uganda. HIV testing interventions need to target older persons who are 70 years and older, who were less likely to test.

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HIV/Aging in International Setting: Challenges and Opportunities

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As advancements in medical care continue to improve the longevity of people living with HIV, the global HIV/AIDS landscape is witnessing a significant demographic shift, characterized by an increasing population of aging individuals with HIV. This phenomenon presents unique challenges and opportunities in the international setting, necessitating a comprehensive understanding of the complex interplay between HIV and aging.

This article provides an in-depth exploration of the intersection between HIV and aging in the international context. It examines the physiological, psychosocial, and healthcare-related implications associated with the aging population living with HIV. Through an extensive review of existing literature, the article sheds light on the multifaceted factors contributing to the unique challenges faced by this population, while also highlighting potential avenues for improved care and support.

The physiological aspects of HIV and aging are explored, including the accelerated aging process observed in individuals with HIV, comorbidities, and the impact of long-term antiretroviral therapy. The psychosocial implications encompass issues such as mental health, stigma, social support, and quality of life. Additionally, the article delves into the healthcare challenges, including healthcare

access, specialized geriatric care, and the integration of HIV care with aging services.

Furthermore, the article emphasizes the need for a comprehensive and interdisciplinary approach to address the complex needs of older adults living with HIV. It calls for enhanced collaboration between healthcare providers, researchers, policymakers, and community organizations to develop tailored interventions and guidelines that address the unique challenges faced by this population.

Lastly, it highlights the potential opportunities presented by the increasing population of older adults living with HIV. It explores the contributions and resilience of this demographic, advocating for their inclusion in research, policy, and advocacy efforts. By recognizing and harnessing the strengths and experiences of older individuals living with HIV, society can foster an environment of support, empowerment, and improved healthcare outcomes.

In conclusion, the intersection of HIV and aging in the international setting poses both challenges and opportunities. This article aims to provide a comprehensive understanding of the multifaceted aspects associated with HIV/aging and serves as a call to action for researchers, policymakers, and healthcare providers to prioritize the needs of this growing population. By addressing the unique challenges and embracing the opportunities, we can work towards ensuring the well-being, dignity, and quality of life for older adults living with HIV worldwide.

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