

# Comparative prevalence of mild cognitive impairment of Alzheimer's Disease sub-type in Adult Ugandans living with HIV and demographically matched HIV-negative controls

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## Abstract

**Background:** Prevalence rate of mild cognitive impairment (MCI) and Alzheimer's dementia (AD) in cART treated people living with HIV (PWH) is unknown.

**Method:** 277 PWH and 189 HIV-negative Ugandan adults matched by age, sex, and residence were neuropsychologically evaluated. Impairment in seven domains - including immediate recall, memory and learning (delayed recall, recognition) and others, were defined. Cognitive status - i.e., not impaired, asymptomatic impairment (ANI), minor neurocognitive disorder (MND) or HIV-associated dementia (i.e., HAD, if HIV+), was defined according to Frascati criteria. Cognitive dysfunction of the AD subtype was defined per Bondi et al. (2014); MCI included moderate (i.e.  $\geq 1$  SD worse in  $\geq 2$  tests) or pronounced (i.e.  $> 2.0$  SD worse in  $\geq 1$  tests) cognitive impairments without functional limitation. AD - i.e.,  $\geq 1$  pronounced impairment in recognition/delayed recall accompanied with functional limitation. Differences in MCI and AD by HIV status and odds ratios with 95% confidence intervals (CI) were calculated stratified by age ( $< 60$  vs.  $\geq 60$  years).

**Result:** Among adults cognitively unimpaired (26.1%) or with ANI (27.8%), amnesic MCI rate was 28.9% (60/204) among PWH and 14.7% (21/133) among HIV- controls (OR = 2.18, 95%CI:1.25, 3.84). Similarly, among adults with MND/HAD, prevalent AD was 38.7% (29/75) among PWH and 23% (14/61) among HIV- controls (OR = 2.11, 95%CI:0.99, 4.50). Among cognitively unimpaired/ANI affected individuals  $< 60$  years old, amnesic MCI prevalence was 16.2% for community controls and 30.3% for PWH (OR = 1.9, 95%CI:1.02, 3.60). Among individuals classified as MND or HAD, prevalent AD was 16.3% for HIV- controls vs. 38.6% for PWH (OR = 3.23, 95% CI: 1.23, 8.52). Among adults 60+ years old with ANI/no impairment, prevalent amnesic MCI was 14.7% for community controls and 41.9% for PWH (OR = 4.04, 95%CI:1.23, 13.40) but the prevalence of AD was identical at 38.9% each for HIV+ and for HIV- controls 60+ years old with MND/HAD.

**Conclusion:** Ugandan PWH are at increased risk for being diagnosed with MCI/AD, and they may be diagnosed at a younger age than HIV-negative Ugandans. These data highlight the importance of MCI/AD screening in PWH and the need to avail PWH with interventions to mitigate MCI/AD risk.