

SUPPLEMENTARY TABLES.

Supplementary Table 1. Comparison of characteristics of PWH sample by sex.

	Women with HIV (N=10)	Men with HIV (N=39)	Test Statistic, p- value
Demographics			
Age, <i>mean (SD)</i>	56.10 (5.04)	57.69 (5.06)	F(1,47)=0.79, p=.38
Education years, <i>mean (SD)</i>	11.60 (2.17)	13.00 (3.05)	F(1,43)=1.83, p=.18
Race/ethnicity			
White, N (%)	2 (20%)	26 (67%)	X ² =7.08, p=.008
Black, N (%)	5 (50%)	10 (26%)	X ² =2.22, p=.14
Hispanic, N (%)	3 (30%)	3 (8%)	X ² =3.69, p=.05
Other, N (%)	0 (0%)	0 (0%)	NA
APOE ε4 carrier, N (%)	2 (20.0%)	9 (24.0%)	X ² =0.05, p=.83
WRAT-3 Reading Subtest, <i>mean (SD)</i>	40.2 (9.3)	50.0 (8.6)	F(1,41)=9.50, p=.004
Antemortem Clinical Comorbidities			
History of alcohol use disorder, N (%)	6 (60%)	22 (61%)	X ² =0.004, p=.97
History of substance use disorder, N (%)	7 (70%)	23 (66%)	X ² =0.02, p=.88
Major depressive disorder, N (%)	8 (80%)	24 (67%)	X ² =0.20, p=.66
Hypertension, N (%)	3 (38%)	15 (54%)	X ² = 0.32, p=.57
Diabetes, N (%)	0 (0%)	5 (18%)	X ² = 1.43, p=.23
Hyperlipidemia, N (%)	0 (0%)	8 (30%)	X ² =2.37, p=.12
HIV Disease Characteristics			
Nadir CD4+ T-cell count (cells/μl), <i>mean (SD)</i>	100.29 (65.59)	97.17 (154.65)	F(1,29)=0.00, p=.96
Antemortem CD4+ T-cell count (cells/μl), <i>mean (SD)</i>	227.44 (260.02)	192.10 (230.46)	F(1,46)=0.16, p=0.69
Antemortem detectable plasma HIV-1 RNA load (>50 copies/mL), N (%)	6 (60.0%)	26 (66.7%)	X ² =0.16, p=.69
Duration of HIV disease, years, <i>mean (SD)</i>	12.60 (5.38)	15.32 (6.97)	F(1,46)=1.30, p=.26

Antemortem ART, N (% prescribed)	6 (86%)	28 (85%)	$X^2= 0.00$ $p=.98$
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Note. PWH = people with HIV. ART = antiretroviral therapy. *APOE* $\epsilon 4$ = apolipoprotein E $\epsilon 4$ allele. WRAT-3 = Wide Range Achievement Test-version 3. Sex differences in sample characteristics were tested using chi-square tests for categorical variables and univariate analyses of variance (ANOVA) for normally-distributed continuous variables.

Supplementary Table 2. Comparison of the Alzheimer's disease pathology positivity rates between women and men with HIV.

	Women with HIV	Men with HIV	Chi-square, p-value, effect size (ϕ)
Aβ positivity*, N (%)			
Frontal neocortex	3 of 10 (30.0%)	17 of 39 (43.6%)	$X^2=0.6$, $p=.43$, $\phi=0.11$
Basal temporal neocortex	5 of 8 (62.5%)	7 of 26 (26.9%)	$X^2=3.4$, $p=.07$, $\phi=-0.32$
Hippocampus	2 of 7 (28.6%)	4 of 25 (16.0%)	$X^2=0.6$, $p=.45$, $\phi=-0.13$
Any brain region	5 of 8 (62.8%)	18 of 31 (58.1%)	$X^2=.05$, $p=.82$, $\phi=-0.04$
Widespread A β (any brain region)	3 of 8 (37.5%)	9 of 28 (32.1%)	$X^2=.08$, $p=.78$, $\phi=-0.05$
P-Tau positivity*, N (%)			
Frontal neocortex	8 of 10 (80.0%)	22 of 39 (56.4%)	$X^2=1.9$, $p=.17$, $\phi=-0.20$
Basal temporal neocortex	6 of 8 (75.0%)	18 of 26 (69.2%)	$X^2=0.1$, $p=.75$, $\phi=-0.05$
Transentorhinal cortex	6 of 7 (85.7%)	16 of 23 (69.6%)	$X^2=0.7$, $p=.40$, $\phi=-0.15$
Entorhinal cortex	5 of 7 (71.4%)	9 of 23 (39.1%)	$X^2=2.2$, $p=.13$, $\phi=-0.13$
Hippocampus	6 of 7 (85.7%)	16 of 25 (64.0%)	$X^2=1.2$, $p=.27$, $\phi=-0.19$
Any brain region [‡]	9 of 9 (100%)	32 of 33 (96.9%)	$X^2=0.28$, $p=.60$, $\phi=-0.08$
Widespread p-tau (any brain region)	4 of 7 (57.1%)	11 of 24 (45.8%)	$X^2=1.2$, $p=.27$, $\phi=-0.10$

Note. *Pathology positive was defined as pathology grade ≥ 1 with the density of A β plaques graded as 0 (absent), 1 (focal), or 2 (widespread), and the density of p-Tau neuropil threads graded as 0 (absent), 1 (barely present at 100x magnification), 2 (easily noted at 100x magnification), or 3 (notable with naked eye inspection). [‡]Comparison is not possible as 100% of cases were p-tau positive in at-least one brain region. Effect size for differences in proportions is measured by the phi coefficient (ϕ): 0.1 = small, 0.3 = medium, 0.5 = large.

Supplementary Table 3. Comparison of memory performance (demographically-adjusted T-scores) between pathology positive (+) versus pathology negative (-) PWH in sex-stratified samples.

	Learning			Recall		
	Pathology+ Mean (SD)	Pathology- Mean (SD)	ANOVA results	Pathology+ Mean (SD)	Pathology- Mean (SD)	ANOVA results
Women						
Aβ						
Any brain region	38.6 (8.2)	47.2 (1.5)	F(1,6)=3.0, p=.13, d=1.46	40.3 (6.2)	47.7 (3.3)	F(1,6)=3.5, p=.11, d=1.49
Widespread A β (any brain region)	34.3 (8.1)	46.3 (1.6)	F(1,6)=11.4, p=.01, d=2.06	36.5 (4.8)	47.0 (2.5)	F(1,6)=3.1, p=.09, d=2.74
P-Tau						
Any brain region [‡]	NA	NA	NA	NA	NA	NA
Widespread p-tau (any brain region)	37.5 (9.0)	47.2 (1.5)	F(1,5)=3.2, p=.13, d=1.50	40.0 (7.1)	47.7 (3.3)	F(1,5)=2.9, p=.15, d=1.39
Men						
Aβ						
Any brain region	39.2 (7.1)	46.4 (11.8)	F(1,27)=4.1, p=.05, d=0.74	38.2 (9.8)	44.7 (10.7)	F(1,27)=2.9, p=.10, d=0.63
Widespread A β (any brain region)	38.8 (9.1)	44.5 (10.2)	F(1,24)=1.7, p=.21, d=0.59	35.6 (9.9)	43.5 (10.2)	F(1,24)=3.1, p=.09, d=0.79
P-Tau						
Any brain region [‡]	NA	NA	NA	NA	NA	NA
Widespread p-tau (any brain region)	41.9 (7.5)	44.9 (13.0)	F(1,21)=0.4, p=.52, d=0.28	40.7 (10.4)	43.4 (11.8)	F(1,21)=0.3, p=.56, d=0.24

Note. Means and standard deviations (SD) are from domain-specific, demographically-adjusted T-scores. Pathology positive was defined as pathology grade ≥ 1 with the density of A β plaques graded as 0 (absent), 1 (focal), or 2 (widespread), and the density of p-Tau neuropil threads graded as 0 (absent), 1 (barely present at 100x magnification), 2 (easily noted at 100x magnification), or 3 (notable with naked eye inspection). [‡]Comparison is not possible as 100% of cases were p-tau positive in at-least one brain region.

Supplementary Table 4. Comparison of performance in non-memory cognitive domains (demographically-adjusted domain T-scores) between pathology positive (+) versus pathology negative (-) PWH in sex-stratified samples.

	Executive Function			Speed of Information Processing			Attention/Working Memory			Verbal Fluency			Motor		
	Path- ology+ Mean (SD)	Path- ology- Mean (SD)	ANOVA results	Path- ology+ Mean (SD)	Path- ology- Mean (SD)	ANOVA results	Path- ology+ Mean (SD)	Path- ology- Mean (SD)	ANOVA results	Path- ology+ Mean (SD)	Path- ology- Mean (SD)	ANOVA results	Path- ology+ Mean (SD)	Path- ology- Mean (SD)	ANOVA results
Women															
Aβ															
Any brain region	47.7 (10.7)	56.8 (14.9)	F(1,6)=1.0, p=.35, d=0.70	46.3 (6.3)	42.9 (6.0)	F(1,6)=0.6, p=.48, d=0.55	49.5 (3.5)	44.8 (6.3)	F(1,6)=1.9, p=.22, d=0.92	51.4 (7.2)	53.0 (10.4)	F(1,6)=0.1, p=.80, d=0.18	45.2 (7.7)	50.7 (3.9)	F(1,5)=0.9, p=.40, d=0.90
Widespread A β (any brain region)	41.3 (5.5)	57.0 (11.5)	F(1,6)=4.6, p=.07, d=1.74	43.1 (5.4)	46.2 (6.6)	F(1,6)=0.5, p=.52, d=0.51	50.0 (1.0)	46.4 (6.0)	F(1,6)=1.1, p=.35, d=0.84	47.7 (7.2)	54.6 (7.7)	F(1,6)=1.6, p=.25, d=0.93	47.2 (8.5)	46.5 (7.1)	F(1,6)=0.01, p=.91, d=0.09
P-Tau															
Any brain region ^y	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Widespread p-tau (any brain region)	48.6 (12.1)	56.8 (14.9)	F(1,5)=0.7, p=.45, d=0.60	47.7 (6.3)	42.9 (5.9)	F(1,5)=1.0, p=.36, d=0.79	49.6 (4.0)	44.8 (6.3)	F(1,5)=1.5, p=.27, d=0.91	53.2 (6.8)	53.0 (10.4)	F(1,5)=0.0 01, p=.97, d=0.02	46.9 (7.8)	50.7 (3.9)	F(1,5)=0.4, p=.56, d=0.62
Men															
Aβ															
Any brain region	55.6 (12.7)	52.6 (12.0)	F(1,27)=0. 4, p=.51, d=0.24	44.2 (11.4)	50.7 (12.5)	F(1,25)=2. 0, p=.17, d=0.54	45.6 (10.6)	49.0 (7.2)	F(1,27)=1. 0, p=.33, d=0.38	46.2 (9.3)	54.5 (13.7)	F(1,27)=3. 7, p=.06, d=0.71	37.0 (8.8)	40.3 (9.6)	F(1,27)=0.9, p=.36, d=0.36
Widespread A β (any brain region)	57.2 (15.2)	53.1 (12.2)	F(1,24)=0. 5, p=.48, d=0.3	46.0 (8.7)	49.8 (11.7)	F(1,22)=0. 5, p=.48, d=0.37	39.8 (7.7)	49.8 (8.5)	F(1,24)=7. 4, p=.01, d=1.23	43.1 (9.8)	53.0 (12.7)	F(1,24)=3. 4, p=.08, d=0.87	35.7 (9.0)	39.9 (8.3)	F(1,24)=1.1, p=.32, d=0.49

brain region)																
P-Tau																
Any brain region [‡]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Widespread p-tau (any brain region)	52.7 (11.1)	54.4 (15.8)	F(1,21)=0. 1, p=.77, <i>d</i> =0.12	48.9 (9.3)	51.4 (12.7)	F(1,19)=0. 3, p=.61, <i>d</i> =0.22	48.3 (9.3)	47.4 (10.1)	F(1,21)=0. 05, p=.83, <i>d</i> =0.09	50.6 (8.3)	51.4 (16.4)	F(1,21)=0. 02, p=.88, <i>d</i> =0.06	39.7 (9.5)	40.0 (7.1)	F(1,21)=0.01 , p=.93, <i>d</i> =0.04	

Note. Means and standard deviations (SD) are from domain-specific, demographically-adjusted T-scores. Pathology positive was defined as pathology grade ≥ 1 with the density of A β plaques graded as 0 (absent), 1 (focal), or 2 (widespread), and the density of p-Tau neuropil threads graded as 0 (absent), 1 (barely present at 100x magnification), 2 (easily noted at 100x magnification), or 3 (notable with naked eye inspection). [‡] Comparison is not possible as 100% of cases were p-tau positive in at-least one brain region.

Supplementary Table 5. Summary of sex-stratified results examining relationships between A β and p-Tau positivity status and domain-specific cognitive function.

<u>Cognitive Domain</u>	<u>Aβ pathology (any brain region)</u> <u>effect size (statistical significance)</u>	<u>Wide-spread Aβ pathology (any brain region),</u> <u>effect size (statistical significance)</u>	<u>p-Tau pathology (any brain region)[‡],</u> <u>effect size (statistical significance)</u>	<u>Wide-spread p-Tau pathology (any brain region),</u> <u>effect size (statistical significance)</u>
<u>Women with HIV</u>				
<u>Learning</u>	<u>L (-)</u>	<u>L (+)</u>	<u>NA</u>	<u>L (-)</u>
<u>Recall</u>	<u>L (-)</u>	<u>L (T)</u>	<u>NA</u>	<u>L (-)</u>
<u>Executive Function</u>	<u>L (-)</u>	<u>L (T)</u>	<u>NA</u>	<u>M (-)</u>
<u>Speed of Information Processing</u>	<u>M (-)</u>	<u>M (-)</u>	<u>NA</u>	<u>L (-)</u>
<u>Attention/Working Memory</u>	<u>L (-)</u>	<u>L (-)</u>	<u>NA</u>	<u>L (-)</u>
<u>Verbal Fluency</u>	<u>S (-)</u>	<u>L (-)</u>	<u>NA</u>	<u>S (-)</u>
<u>Motor</u>	<u>L (-)</u>	<u>S (-)</u>	<u>NA</u>	<u>M (-)</u>
<u>Men with HIV</u>				
<u>Learning</u>	<u>L (+)</u>	<u>M (-)</u>	<u>NA</u>	<u>S (-)</u>
<u>Recall</u>	<u>M (T)</u>	<u>L (T)</u>	<u>NA</u>	<u>S (-)</u>
<u>Executive Function</u>	<u>S (-)</u>	<u>S (-)</u>	<u>NA</u>	<u>S (-)</u>
<u>Speed of Information Processing</u>	<u>M (-)</u>	<u>M (-)</u>	<u>NA</u>	<u>S (-)</u>
<u>Attention/Working Memory</u>	<u>M (-)</u>	<u>L (+)</u>	<u>NA</u>	<u>S (-)</u>
<u>Verbal Fluency</u>	<u>L (T)</u>	<u>L (T)</u>	<u>NA</u>	<u>S (-)</u>
<u>Motor</u>	<u>S (-)</u>	<u>M (-)</u>	<u>NA</u>	<u>S (-)</u>

Note. Cells represent Cohen's *d* effect size for relationships between pathology positivity status (yes/no) and domain-specific cognitive function: L= large effect size, M = moderate effect size, S = small effect size. Large (strong) relationships are bolded. Effect sizes are reported and guided the interpretation of results in the sex-stratified analyses due to the small sample size of women with HIV and the sample size disparity between men and women with HIV. (+) indicates a significant association at $p < .05$, (T) indicates a relationship that is a statistical trend, $p \leq .10$ and (-) indicates a relationship that is not significant or a trend. [‡] Comparison is not possible as 100% of cases were p-tau positive in at-least one brain region.