TABLE 1: Baseline Demographic and Clinical Characteristics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **All**  **N=761** | **Normal Weight**  **N=359** | **Underweight**  **N=118** | **Overweight**  **N=284** | **P** |
| **Age (years), Median (IQR)** | 35 (9) | 35 (9) | 33.5 (7) | 36 (9) | 0.001K |
| **Gender, Female n (%)** | 318 (41.8) | 125 (34.8) | 44 (37.3) | 149 (52.5) | <0.001F |
| **Education (years), Median (IQR)** | 9 (5) | 9 (4) | 9 (3) | 9 (6) | 0.058K |
| **Hypertension, n (%)** | 102 (13.6) | 36 (10.2) | 5 (4.3) | 61 (21.6) | <0.001F |
| **Diabetes Mellitus, n (%)** | 11 (1.5) | 6 (1.7) | 0 (0) | 5 (1.8) | 0.460F |
| **\*Nadir CD4 cell count/μL, Median (IQR)** | 285 (275) | 263 (273) | 212.5 (304.5) | 293.5 (253) | 0.048K |
| **Hemoglobin g/dl** | 12.9 (2.8) | 13.3 (2.6) | 11.7 (2.4) | 13.1 (2.6) | <0.001K |
| **Log10 Plasma HIV RNA copies/ml, Mean (SD)** | 3.88 (1.27) | 3.81 (1.28) | 4.24 (1.13) | 3.74 (1.3) | 0.002A |
| **Beck's Depression Score, Median (IQR)** | 9 (14) | 11 (16) | 10 (13) | 7 (13) | 0.001K |
| **Global cognitive Impairment, n (%)** |  |  |  |  |  |
| **Overall** | 211 (27.7) | 87 (24.2) | 33 (28) | 91 (32) | 0.093F |
| **China** | 115 (28.5) | 59 (24.9) | 8 (18.6) | 48 (38.7) | 0.008F |
| **India** | 52 ( 26.0) | 19 (22.4) | 22 (33.9) | 11 (22) | 0.233F |
| **Nigeria** | 44 (28.0) | 9 (24.3) | 3 (30) | 32 (29.1) | 0.827F |
| **Domain Impairment, n (%)** |  |  |  |  |  |
| **Speed of Information Processing** | 130 (17.1) | 57 (15.9) | 18 (15.3) | 55 (19.4) | 0.457F |
| **Attention/Working Memory** | 119 (15.6) | 56 (15.6) | 17 (14.4) | 46 (16.2) | 0.927F |
| **Executive Function** | 117 (15.4) | 48 (13.4) | 19 (16.1) | 50 (17.6) | 0.315F |
| **Learning** | 132 (17.4) | 60 (16.7) | 26 (22) | 46 (16.2) | 0.345F |
| **Memory** | 148 (19.5) | 69 (19.2) | 30 (25.4) | 49 (17.3) | 0.169F |
| **Verbal Fluency** | 124 (16.3) | 55 (15.3) | 26 (22.4) | 43 (15.1) | 0.175F |
| **Motor Speed and dexterity** | 131 (17.2) | 64 (17.9) | 20 (17) | 47 (16.6) | 0.916F |
| **Antiretroviral Treatment, n (%)** |  |  |  |  |  |
| **Visit 1** | 208 (27.3) | 117 (32.6) | 15 (12.7) | 76 (26.8) | <0.001F |
| **Visit 2** | 401 (59.4) | 189 (58.9) | 49 (58.3) | 163 (60.4) | 0.915F |
| **Visit 3** | 431 (65.6) | 200 (65.8) | 65 (69.9) | 166 (63.9) | 0.584F |
| **Visit 4** | 398 (74.7) | 201 (78.2) | 51 (77.3) | 146 (69.5) | 0.089F |
| **Visit 5** | 192 (85.3) | 88 (87.1) | 16 (94.1) | 88 (82.2) | 0.393F |
| **Study Population, n (%)** |  |  |  |  |  |
| **China** | 404 (53.1) | 237 (66) | 43 (36.4) | 124 (43.7) | <0.001F |
| **India** | 200 (26.3) | 85 (23.7) | 65 (55.1) | 50 (17.6) |  |
| **Nigeria** | 157 (20.6) | 37 (10.3) | 10 (8.5) | 110 (38.7) |  |
| **Missing visit, n (%)** |  |  |  |  |  |
| **Visit 2** | 121 (15.9) | 48 (13.4) | 18 (15.3) | 55 (19.4) | 0.121F |
| **Visit 3** | 136 (17.9) | 70 (19.5) | 19 (16.1) | 47 (16.6) | 0.563F |
| **Visit 4** | 242 (31.8) | 110 (30.6) | 34 (28.8) | 98 (34.5) | 0.440F |
| **Visit 5** | 355 (58.8) | 203 (63) | 83 (76.9) | 69 (39.7) | <0.001F |
| KKruskal-Wallis FFisher's test AANOVA |  |  |  |  |  |
| IQR: interquartile range; SD: standard deviation; N: number of participants; \*Baseline CD4 (Nigeria cohort) | | | | | |

**TABLE 2: Univariable and Multivariable Logistic Regression Analyses for Longitudinal Association of Global and Domain Cognitive Impairment with Body Mass Index Categories**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | **Univariable** |  |  | **\*Multivariable** |  |
|  |  | **N** | **OR** | **95%CI** | **P** | **OR** | **95%CI** | **P** |
| **Global** | Normal weight | 359 | Ref |  |  | Ref |  |  |
|  | Underweight | 118 | 1.38 | 1.05, 1.81 | 0.023 | 1.39 | 1.03, 1.87 | 0.029 |
|  | Overweight | 284 | 1.38 | 1.14, 1.68 | 0.002 | 1.38 | 1.1, 1.72 | 0.005 |
| **Speed of Information Processing** | Normal weight | 359 | Ref |  |  | Ref |  |  |
| Underweight | 118 | 1.11 | 0.78, 1.57 | 0.561 | 1.01 | 0.7, 1.44 | 0.980 |
| Overweight | 284 | 1.07 | 0.85, 1.33 | 0.577 | 1.15 | 0.89, 1.5 | 0.289 |
|  |  |  |  |  |  |  |  |  |
| **Attention/Working Memory** | Normal weight | 359 | Ref |  |  | Ref |  |  |
| Underweight | 118 | 1.52 | 1.08, 2.13 | 0.015 | 1.47 | 1.04, 2.09 | 0.031 |
| Overweight | 284 | 1.17 | 0.92, 1.5 | 0.208 | 1.29 | 0.96, 1.74 | 0.095 |
|  |  |  |  |  |  |  |  |  |
| **Executive Function** | Normal weight | 359 | Ref |  |  | Ref |  |  |
| Underweight | 118 | 1.33 | 0.94, 1.9 | 0.111 | 1.45 | 0.98, 2.13 | 0.061 |
| Overweight | 284 | 1.25 | 0.98, 1.61 | 0.078 | 1.22 | 0.92, 1.61 | 0.168 |
|  |  |  |  |  |  |  |  |  |
| **Learning** | Normal weight | 359 | Ref |  |  | Ref |  |  |
| Underweight | 118 | 1.15 | 0.84, 1.58 | 0.376 | 1.22 | 0.87, 1.71 | 0.245 |
| Overweight | 284 | 1.12 | 0.87, 1.44 | 0.376 | 1.1 | 0.83, 1.46 | 0.515 |
|  |  |  |  |  |  |  |  |  |
| **Memory** | Normal weight | 359 | Ref |  |  | Ref |  |  |
| Underweight | 118 | 1.4 | 1.01, 1.94 | 0.046 | 1.49 | 1.05, 2.11 | 0.026 |
| Overweight | 284 | 1.07 | 0.85, 1.35 | 0.574 | 1.15 | 0.88, 1.5 | 0.309 |
|  |  |  |  |  |  |  |  |  |
| **Verbal Fluency** | Normal weight | 359 | Ref |  |  | Ref |  |  |
| Underweight | 118 | 1.16 | 0.85, 1.59 | 0.345 | 1.05 | 0.75, 1.45 | 0.795 |
| Overweight | 284 | 0.99 | 0.79, 1.25 | 0.957 | 1.01 | 0.78, 1.3 | 0.960 |
|  |  |  |  |  |  |  |  |  |
| **Motor Speed and Dexterity** | Normal weight | 359 | Ref |  |  | Ref |  |  |
| Underweight | 118 | 1.21 | 0.85, 1.73 | 0.298 | 1.11 | 0.77, 1.61 | 0.585 |
| Overweight | 284 | 1.02 | 0.79, 1.32 | 0.881 | 1.14 | 0.86, 1.51 | 0.378 |
| \*Adjusted for Plasma HIV RNA, Nadir/baseline CD4 Count, Beck's depression score, years of education, age, gender, antiretroviral treatment status, hypertension, diabetes mellitus, IV drug use, study population | | | | | | | |  |

OR: odds ratio; CI: confidence interval; N: number of participants

TABLE 3: Univariable and Multivariable Conditional Logistic Regression Analyses

for within Person Association of Global Cognitive Impairment with Body Mass Index Categories

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | **Univariable** |  |  | **\*Multivariable** | | |  |
|  |  | **N** | **OR** | **95%CI** | **P** | **OR** | **95%CI** | | | **P** |
| Global | Normal weight | 103 | Ref |  |  | Ref |  | | |  |
|  | Underweight | 29 | 2.91 | 1.38, 6.12 | 0.005 | 2.57 | 1.2, 5.53 | | | 0.016 |
|  | Overweight | 91 | 1.94 | 1.11, 3.38 | 0.020 | 2.05 | 1.09, 3.86 | | | 0.025 |
| \*Adjusted for plasma HIV RNA, nadir/baseline CD4 count, Beck's depression score, age, gender, years of education, and antiretroviral treatment status, hypertension, diabetes mellitus, IV drug use | | | | | | | | | | |
| OR: odds ratio; CI: confidence interval; N: number of participants | | | | | | | |  |  | |  |