

## SUPPLEMENTARY MATERIALS

**Supplementary Table 1.** Loneliness Item Results by HIV Status

| Loneliness Scale Item                     | HIV+ Mean (SD)           | HIV- Mean (SD)           | Wilcoxon Statistic | Two-Sided p-Value |
|---|--------------------------|--------------------------|--------------------|-------------------|
| I experience a general sense of emptiness | 2.2768362<br>(1.0374658) | 2.2031250<br>(0.9574129) | 33361.0000         | 0.5107            |
| I miss having people around               | 2.6779661<br>(1.1043408) | 2.7083333<br>(1.0626123) | 32427.5000         | 0.7441            |
| I feel like I don't have enough friends   | 2.4915254<br>(1.1337721) | 2.3906250<br>(1.0122370) | 33406.0000         | 0.4867            |
| I often feel abandoned                    | 2.2881356<br>(1.0721291) | 2.1250000<br>(0.8891434) | 33900.0000         | 0.2084            |
| I miss having a really good friend        | 2.8305085<br>(1.2498074) | 2.4895833<br>(1.0780513) | 35197.0000         | 0.0115            |

**Supplementary Table 2.** Loneliness Item Results by Race among HIV Positive

| Loneliness Scale Item                     | Black Mean (SD)          | White Mean (SD)          | Wilcoxon Statistic | Two-Sided p-Value |
|---|--------------------------|--------------------------|--------------------|-------------------|
| I experience a general sense of emptiness | 2.2903226<br>(1.0262743) | 2.2452830<br>(1.0724820) | 4599.5000          | 0.6866            |
| I miss having people around               | 2.6048387<br>(1.1029786) | 2.8490566<br>(1.0988845) | 5130.0000          | 0.1667            |
| I feel like I don't have enough friends   | 2.3467742<br>(1.0823368) | 2.8301887<br>(1.1886620) | 5487.5000          | 0.0098            |
| I often feel abandoned                    | 2.1935484<br>(1.0175486) | 2.5094340<br>(1.1705134) | 5207.0000          | 0.0927            |
| I miss having a really good friend        | 2.7741935<br>(1.2804897) | 2.9622642<br>(1.1760799) | 5027.0000          | 0.2992            |

**Supplementary Table 3.** Loneliness Item Results by Race among HIV Negative

| Loneliness Scale Item                     | Black Mean (SD)          | White Mean (SD)          | Wilcoxon Statistic | Two-Sided p-Value |
|---|--------------------------|--------------------------|--------------------|-------------------|
| I experience a general sense of emptiness | 2.2213740<br>(0.9550681) | 2.1639344<br>(0.9691977) | 5756.0000          | 0.6867            |
| I miss having people around               | 2.5648855<br>(1.0160197) | 3.0163934<br>(1.1029023) | 6839.0000          | 0.0054            |
| I feel like I don't have enough friends   | 2.2213740                | 2.7540984                | 6942.0000          | 0.0014            |

|                                    |                          |                          |           |        |
|------------------------------------|--------------------------|--------------------------|-----------|--------|
|                                    | (0.9054542)              | (1.1351320)              |           |        |
| I often feel abandoned             | 2.1450382<br>(0.8954770) | 2.0819672<br>(0.8811939) | 5740.5000 | 0.6354 |
| I miss having a really good friend | 2.3664122<br>(1.0243655) | 2.7540984<br>(1.1497208) | 6634.0000 | 0.0262 |

**Supplementary Table 4.** Cronbach Coefficient Alpha with Deleted Variable for Loneliness Measure

| <b>Cronbach Coefficient Alpha with Deleted Variable</b> |                               |              |                               |              |
|---|-------------------------------|--------------|-------------------------------|--------------|
| <b>Deleted Variable</b>                                 | <b>Raw Variables</b>          |              | <b>Standardized Variables</b> |              |
|   | <b>Correlation with Total</b> | <b>Alpha</b> | <b>Correlation with Total</b> | <b>Alpha</b> |
| Item 1  | 0.468377                      | 0.720682     | 0.473182                      | 0.721337     |
| Item 2  | 0.457602                      | 0.725446     | 0.456231                      | 0.727366     |
| Item 3  | 0.539615                      | 0.695135     | 0.535642                      | 0.698635     |
| Item 4  | 0.562663                      | 0.688886     | 0.564355                      | 0.687941     |
| Item 5  | 0.548997                      | 0.691953     | 0.548053                      | 0.694033     |

Item 1: I experience a general sense of emptiness. Item 2: I miss having people around. Item 3: I feel like I don't have enough friends. Item 4: I often feel abandoned. Item 5: I miss having a really good friend.

**Supplementary Table 5.** Pearson Correlation Coefficients for Loneliness Measure Items

| <b>r statistic (p-value)</b> | <b>Item 1</b> | <b>Item 2</b>            | <b>Item 3</b>            | <b>Item 4</b>            | <b>Item 5</b>            |
|------------------------------|---------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Item 1</b>                | -             | 0.32786<br>( $<0.0001$ ) | 0.29873<br>( $<0.0001$ ) | 0.45542<br>( $<0.0001$ ) | 0.31485<br>( $<0.0001$ ) |
| <b>Item 2</b>                |               | -                        | 0.36475<br>( $<0.0001$ ) | 0.30403<br>( $<0.0001$ ) | 0.35687<br>( $<0.0001$ ) |
| <b>Item 3</b>                |               |                          | -                        | 0.42043<br>( $<0.0001$ ) | 0.46879<br>( $<0.0001$ ) |
| <b>Item 4</b>                |               |                          |                          | -                        | 0.44244<br>( $<0.0001$ ) |
| <b>Item 5</b>                |               |                          |                          |                          | -                        |

**Supplementary Table 6.** Predictors of loneliness among participants without HIV (N=193)

| Variable                | Model 1                       | Model 2                  |
|-------------------------|-------------------------------|--------------------------|
| Adjusted R <sup>2</sup> | 0.0657                        | 0.0743                   |
|                         | <b><i>B</i> (SE, p-value)</b> |                          |
| Age                     | -0.0130 (0.0086, 0.1326)      | -0.0110 (0.0087, 0.2092) |
| Male Sex                | 0.2455 (0.1183, 0.0393)       | 0.2233 (0.1187, 0.0615)  |
| Education               | 0.0025 (0.0191, 0.8965)       | -0.0087 (0.0208, 0.6772) |
| Black Race              | -0.4217 (0.1245, 0.0009)      | -0.4652 (0.1265, 0.0003) |
| Global Cognition        | -0.1835 (0.0980, 0.0629)      | -0.2155 (0.0993, 0.0314) |
| Income                  |                               | 0.0122 (0.0220, 0.5789)  |

**Supplementary Table 7.** Associations of loneliness with global cognition, 193 participants without HIV

| Factor                  | Model 1                       | Model 2                  | Model 3                  |
|-------------------------|-------------------------------|--------------------------|--------------------------|
| Adjusted R <sup>2</sup> | 0.1346                        | 0.1518                   | 0.1823                   |
|                         | <b><i>B</i> (SE, p-value)</b> |                          |                          |
| Age                     | -0.0018 (0.0065, 0.7849)      | -0.0030 (0.0065, 0.6404) | 0.0013 (0.0068, 0.8426)  |
| Male Sex                | -0.1400 (0.0880, 0.1131)      | -0.1102 (0.0882, 0.2128) | -0.1299 (0.0949, 0.1727) |
| Education               | 0.0561 (0.0149, 0.0002)       | 0.0536 (0.0148, 0.0004)  | 0.0504 (0.0161, 0.0020)  |
| Income                  | -0.0276 (0.0163, 0.0916)      | -0.0254 (0.0161, 0.1165) | -0.0199 (0.0185, 0.2815) |
| Black Race              | -0.2457 (0.0926, 0.0087)      | -0.2942 (0.0944, 0.0021) | -0.2949 (0.1080, 0.0069) |
| Loneliness              |                               | -0.1176 (0.0542,         | -0.1554 (0.1493,         |

|                         |  |         |                             |
|-------------------------|--|---------|-----------------------------|
|                         |  | 0.0314) | 0.2995)                     |
| Loneliness by age       |  |         | -0.0253 (0.0097,<br>0.0101) |
| Loneliness by sex       |  |         | 0.1935 (0.1241,<br>0.1206)  |
| Loneliness by education |  |         | 0.0130 (0.0169,<br>0.4437)  |
| Loneliness by income    |  |         | -0.0136 (0.0182,<br>0.4541) |
| Loneliness by race      |  |         | -0.1421 (0.1318,<br>0.2823) |

**Supplementary Table 8.** Characteristics of the HIV positive CEDHA participants

| Factor                       | Black<br>(N=124) | White<br>(N=53) | <i>t</i> or $X^2$ | <i>p</i> -value |
|------------------------------|------------------|-----------------|-------------------|-----------------|
| Social Networks              | 4.1240 (3.8526)  | 4.7925 (4.4866) | 1.00              | 0.3183          |
| Number of Medical Conditions | 2.9435 (1.6094)  | 2.8491 (1.4331) | -0.37             | 0.7124          |

**Supplementary Table 9.** Predictors of loneliness among participants with HIV (N=177)

| Variable                | Model 1                        | Model 2                  |
|-------------------------|--------------------------------|--------------------------|
| Adjusted R <sup>2</sup> | 0.0349                         | 0.0386                   |
|                         | <i>B</i> (SE, <i>p</i> -value) |                          |
| Age                     | -0.0165 (0.0108, 0.1266)       | -0.0173 (0.0108, 0.1102) |
| Male Sex                | -0.1465 (0.1349, 0.2790)       | -0.1289 (0.1353, 0.3419) |

|                  |                          |                          |
|------------------|--------------------------|--------------------------|
| Black Race       | -0.3305 (0.1402, 0.0195) | -0.3283 (0.1399, 0.0201) |
| Global Cognition | -0.2154 (0.1198, 0.0739) | -0.2295 (0.1201, 0.0576) |

**Supplementary Table 10.** Associations of loneliness with global cognition, 177 participants with HIV

| Factor                  | Model 1                       | Model 2                      | Model 3                     |
|-------------------------|-------------------------------|------------------------------|-----------------------------|
| Adjusted R <sup>2</sup> | 0.1854                        | 0.1959                       | 0.2206                      |
|                         | <b><i>B</i> (SE, p-value)</b> |                              |                             |
| Age                     | -0.0054 (0.0068,<br>0.4342)   | -0.0067 (0.0068,<br>0.3294)  | -0.0117 (0.0080,<br>0.1463) |
| Male Sex                | 0.0515 (0.0857,<br>0.5490)    | 0.0379 (0.0855,<br>0.6582)   | -0.0568 (0.1138,<br>0.6186) |
| Black Race              | -0.5022 (0.0806,<br><0.0001)  | -0.5213 (0.0808,<br><0.0001) | -0.3456 (0.1022,<br>0.0009) |
| Loneliness              |                               | -0.0861 (0.0479,<br>0.0739)  | 0.0024 (0.1490,<br>0.9872)  |
| Loneliness by age       |                               |                              | 0.0025 (0.0087,<br>0.7713)  |
| Loneliness by sex       |                               |                              | 0.1120 (0.1312,<br>0.3945)  |
| Loneliness by race      |                               |                              | -0.2664 (0.1062,<br>0.0130) |

**Supplementary Table 11.** Associations of Race, Loneliness, HIV Status with Global Cognition

| Factor                  | Model 1                        | Model 2                        | Model 3                        | Model 4                        | Model 5                        | Model 6                        | Model 7                        |
|-------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Adjusted R <sup>2</sup> | 0.1318                         | 0.1491                         | 0.1589                         | 0.1479                         | 0.1539                         | 0.1519                         | 0.1633                         |
|                         | <b><i>B</i> (SE, p-value)</b>  |                                |                                |                                |                                |                                |                                |
| Age                     | -0.0044<br>(0.0045,<br>0.3304) | -0.0058<br>(0.0045,<br>0.1961) | -0.0062<br>(0.0045,<br>0.1709) | -0.0057<br>(0.0045,<br>0.2059) | -0.0034<br>(0.0047,<br>0.4774) | -0.0034<br>(0.0047,<br>0.4743) | -0.0047<br>(0.0047,<br>0.3239) |

|                     |                                |                                |                                |                                |                                |                                |                                |
|---------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Male Sex            | -0.0611<br>(0.0627,<br>0.3303) | -0.0539<br>(0.0621,<br>0.3859) | -0.0591<br>(0.0618,<br>0.3394) | -0.0485<br>(0.0626,<br>0.4396) | -0.0613<br>(0.0621,<br>0.3236) | -0.0578<br>(0.0627,<br>0.3578) | -0.0702<br>(0.0627,<br>0.2634) |
| Black Race          | -0.4004<br>(0.0597,<br>0.0000) | -0.4305<br>(0.0601,<br>0.0000) | -0.3383<br>(0.0721,<br>0.0000) | -0.4312<br>(0.0601,<br>0.0000) | -0.3226<br>(0.0862,<br>0.0002) | -0.3273<br>(0.0870,<br>0.0002) | -0.3078<br>(0.0997,<br>0.0022) |
| Loneliness          |                                | -0.1057<br>(0.0366,<br>0.0041) | 0.0108<br>(0.0626,<br>0.8631)  | -0.1314<br>(0.0521,<br>0.0121) | -0.1029<br>(0.0365,<br>0.0051) | -0.1186<br>(0.0526,<br>0.0247) | -0.0834<br>(0.0856,<br>0.3307) |
| HIV positive        | 0.2044<br>(0.0544,<br>0.0002)  | 0.2177<br>(0.0540,<br>0.0001)  | 0.2186<br>(0.0537,<br>0.0001)  | 0.1951<br>(0.0631,<br>0.0021)  | 0.3653<br>(0.1004,<br>0.0003)  | 0.3458<br>(0.1110,<br>0.0020)  | 0.2263<br>(0.1285,<br>0.0790)  |
| Race*Loneliness     |                                |                                | -0.1747<br>(0.0764,<br>0.0229) |                                |                                |                                | -0.0554<br>(0.1072,<br>0.6053) |
| HIV*Loneliness      |                                |                                |                                | 0.0502<br>(0.0724,<br>0.4882)  |                                | 0.0304<br>(0.0732,<br>0.6787)  | 0.1922<br>(0.1257,<br>0.1272)  |
| Race*HIV            |                                |                                |                                |                                | -0.2133<br>(0.1224,<br>0.0823) | -0.2048<br>(0.1243,<br>0.1002) | -0.0507<br>(0.1505,<br>0.7365) |
| Race*Loneliness*HIV |                                |                                |                                |                                |                                |                                | -0.2289<br>(0.1546,<br>0.1396) |