**Supplementary Table S1.** General characteristics of the participants

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| State | No. of  schools | No. of students\* | % of girls | Students' mean age (standard deviation) | |
| Boys | Girls |
| Blue Nile | 68 | 3,879 | 42.7 | 11.07(2.37) | 11.01(2.29) |
| Al Gazeira | 106 | 6,307 | 46.2 | 10.59(2.26) | 10.19(2.06) |
| Central Darfur | 74 | 4,409 | 47.8 | 11.71(2.69) | 11.30(2.44) |
| East Darfur | 75 | 4,705 | 45.4 | 11.60(2.42) | 11.25(2.24) |
| El Gadaref | 103 | 5,204 | 50.7 | 11.33(2.43) | 10.79(2.22) |
| Al Khartum | 95 | 6,041 | 39.5 | 11.33(2.97) | 9.88(1.94) |
| North Kordofan | 62 | 3,640 | 40.7 | 11.12(2.28) | 10.54(2.13) |
| Northern | 65 | 3,840 | 51.2 | 10.55(2.11) | 10.08(1.93) |
| West Darfur | 72 | 4,299 | 44.8 | 11.53(2.26) | 11.17(2.35) |
| West Kordofan | 183 | 10,625 | 41.1 | 11.31(2.43) | 10.88(2.27) |
| Kassala | 60 | 3,595 | 39.2 | 11.02(2.54) | 10.43(2.09) |
| North Darfur | 116 | 6,795 | 43.3 | 11.09(2.42) | 10.78(2.29) |
| Red Sea | 55 | 3,340 | 42.5 | 10.01(2.27) | 10.08(2.08) |
| River Nile | 58 | 3,695 | 43.8 | 10.42(2.06) | 10.12(2.02) |
| Sinnar | 51 | 3,065 | 45.0 | 10.84(2.10) | 10.53(2.00) |
| South Darfur | 247 | 14,705 | 43.8 | 11.42(2.35) | 11.24(2.28) |
| South Kordofan | 161 | 9,461 | 48.8 | 10.92(2.24) | 10.65(2.12) |
| White Nile | 121 | 7,562 | 50.3 | 10.76(2.13) | 10.43(1.95) |
| Total | 1,772 | 105,167 | 44.9 | 11.10(2.41) | 10.70(2.21) |

\*The number of participants was different from that of those who provided stool samples.