**Supplementary Table 2.** **Prevalence and change in PHES and Stroop in each group at baseline, 4 weeks, and 8 weeks**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Control group** | | |  | **Low-dose rifaximin group** | | |  | **High-dose rifaximin group** | | |
|  | **Baseline** | **4 weeks** | **8 weeks** | **Baseline** | **4 weeks** | **8 weeks** | **Baseline** | **4 weeks** | 8 weeks |
| Z-score | −9.71±3.17a | −7.00±4.29d | −8.36±3.67g |  | −10.00±2.73b | −6.45±5.85e | −5.08±5.57h |  | −9.57±2.82c | −6.41±4.59f | −4.36±3.39i |
| Stroop | 397.33±316.49j | 395.14±335.91m | 374.89±327.78p |  | 310.24±147.27kk | 273.32±126.66n | 254.42±113.54q |  | 402.09±97.65l | 258.59±93.26o | 248.64±88.88r |
| ΔZ-score | Ref. | 2.71±3.75s | 1.36±3.32v |  | Ref. | 3.25±3.69t | 4.92±4.32w |  | Ref. | 3.54±3.66v | 4.71±3.65x |
| ΔStroop | Ref. | −2.18±98.30y | −22.44±72.64β |  | Ref. | −58.91±93.50z | −42.21±89.44γ |  | Ref. | −24.29±81.62α | −52.38±123.16θ |

mZ-score, mean Z-score; ΔmZ-score, change in mean Z-score; Data are mean±standard deviation.

Intergroup comparisons:

Baseline mZ-score: abc *p=*0.698, ab *p=*0.802, ac *p=*0.558, bc *p=*0.417; 4 weeks: def *p=*0.791, de *p=*0.774, df *p=*0.498, ef *p=*0.725; 8 weeks: ghi *p=*0.041, gh *p=*0.057, gi *p=*0.017, hi *p=*0.666;

Baseline Stroop: jkl *p=*0.450, jk *p=*0.300, jl *p=*0.263, kl *p=*0.0.952; 4 weeks mno *p=*0.216, mn *p=*0.176, mo *p=*0.107, no *p=*0.866; 8 weeks pqr *p=*0.261, pq *p=*0.207, pr *p=*0.130, qr *p=*0.822;

ΔmZ-score at 4 weeks stu *p=*0.842, st *p=*0.715, su *p=*0.567, tu *p=*0.847; 8 weeks vwx *p=*0.030, vw *p=*0.021, vx *p=*0.023, wx *p=*0.892;

ΔStroop at 4 weeks yzα *p=*0.297, yz *p=*0.123, yα *p=*0.526, zα *p=*0.341; 8 weeks βγθ *p=*0.715, βγ *p=*0.610, βθ *p=*0.423, γθ *p=*0.793.

Intragroup comparsions:

Control group mZ-score: adg *p=*0.172ad *p=*0.062, ag *p=*0.343, dg *p=*0.343; Low-dose group beh *p=*0.054 be *p=*0.110, bh *p=*0.018, eh *p=*0.406; High-dose group cfi *p=*0.002 cf *p=*0.015, ci *p=*0.001, fi *p=*0.273;

Control group Stroop: jmp *p=*0.0.980 jm *p=*0.986, jp *p=*0.857, mp *p=*0.871; Low-dose group knq *p=*0.880 kn *p=*0.679, kq *p=*0.933, nq *p=*0.662; High-dose group lor *p=*0.238 lo *p=*0.187, lr *p=*0.114, or *p=*0.763.