Supplementary materials

| Proportion of VPA to MVPA | PHQ-9≥10 | Odds Ratio | OR(95%CI) | E-value |
|--------------------------|----------|------------|-----------|---------|
| ≥0.0 and <33.3(%)        | 491      | 6630       | 1.00(ref) | NA      |
| >33.3 and ≤66.7(%)       | 84       | 1762       | 0.76(0.55,1.05) | 1.96   |
| >66.7 and ≤100.0(%)      | 173      | 3739       | 0.70(0.50,0.99) | 2.21   |

Abbreviations: VPA, vigorous physical activity; MVPA, moderate-to-vigorous physical activity; PHQ-9, Patient Health Questionnaire-9; OR, odds ratio; CI, confidence interval; NA, no applicable.

Fig. S1. E-value for correlation between the proportion of VPA to MVPA and the risk for depression. E-value means the minimum strength of correlation, on the risk ratio scale, that an unmeasured confounder would need to have with both the treatment and outcome, conditional on the measured covariates, to fully explain away a specific treatment–outcome correlation.

Abbreviations: VPA, vigorous physical activity; MVPA, moderate-to-vigorous physical activity; PHQ-9, Patient Health Questionnaire-9; OR, odds ratio; CI, confidence interval

Fig. S2. Correlation between proportion of VPA to MVPA and the risk for depression based on multiple imputed data.