

## Additional File 2: Sensitivity and subgroup analyses

Figure S1: Forest plot of the sensitivity analysis restricted to high-quality studies.

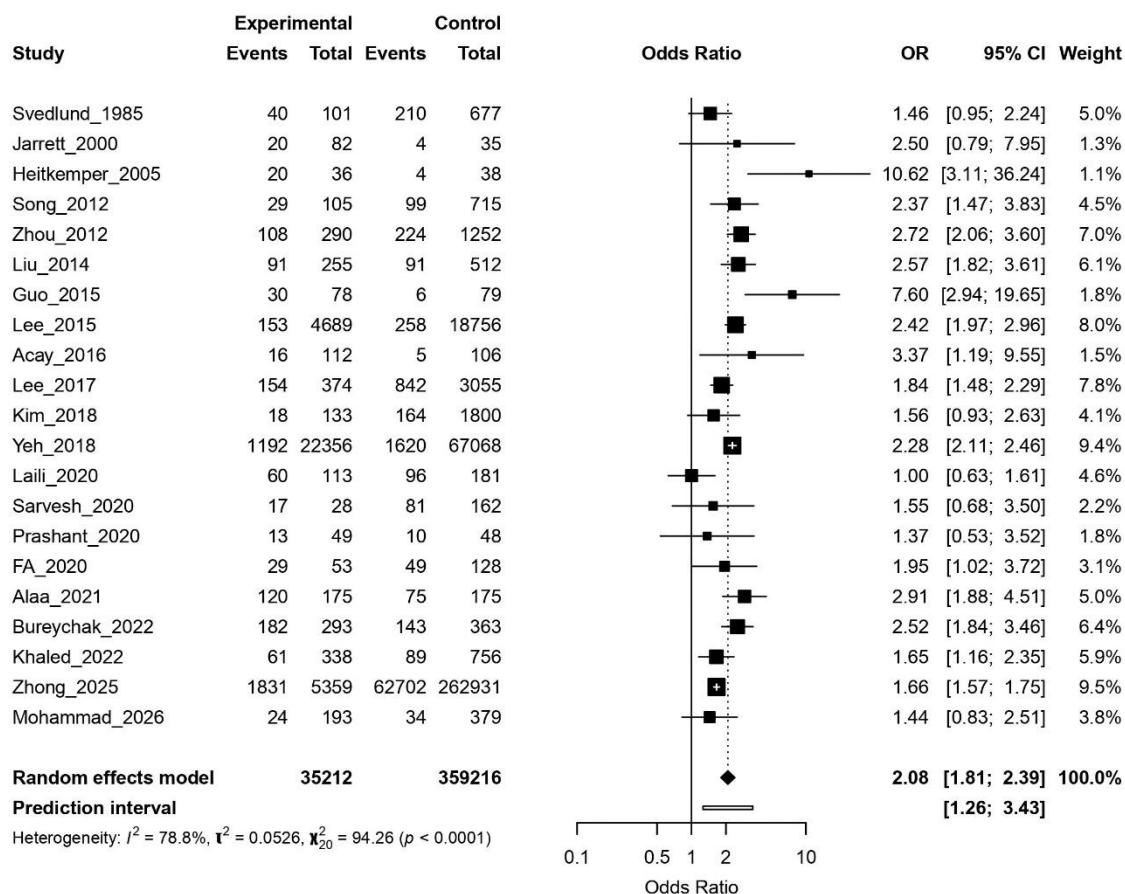


**Figure S2: Forest plot of the sensitivity analysis restricted to pure cross-sectional studies.**

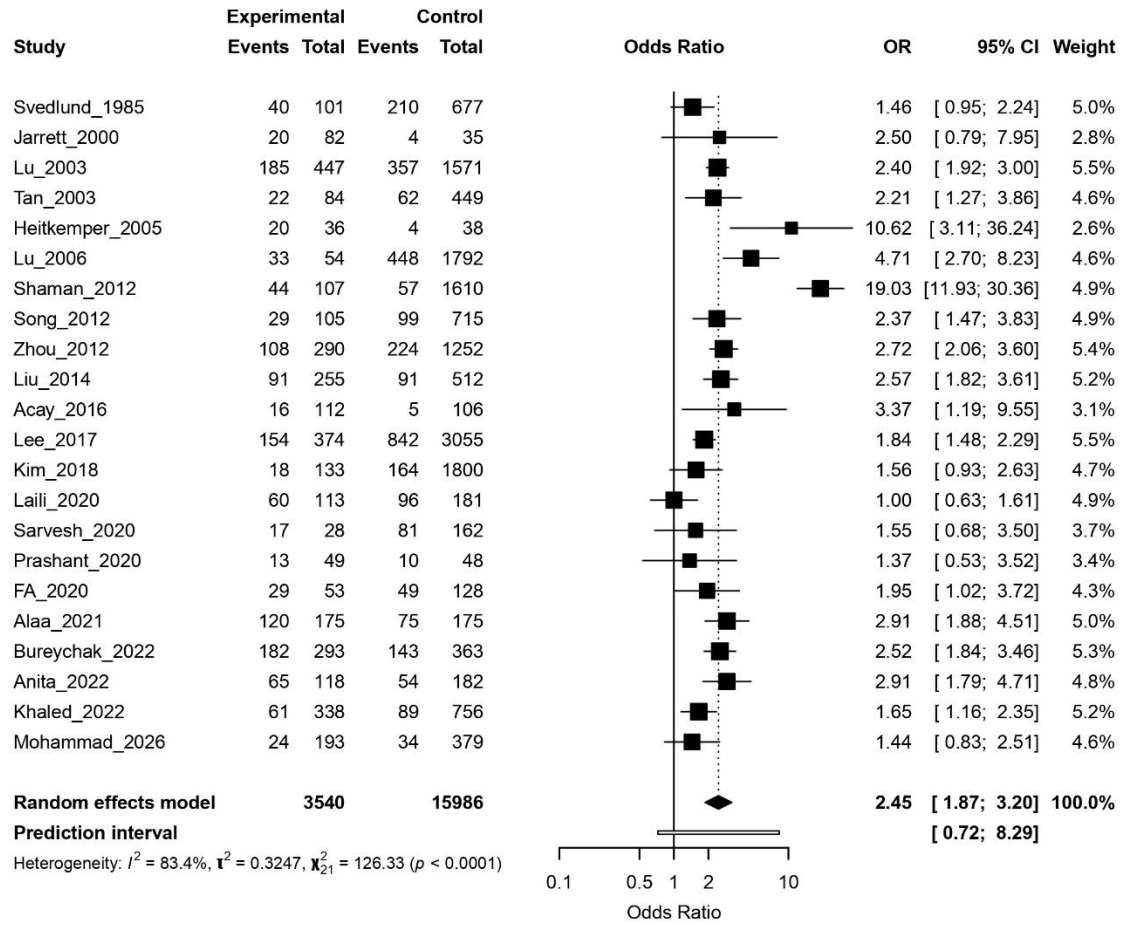


**Figure S3: Forest plot of the sensitivity analysis excluding Lee\_2015**

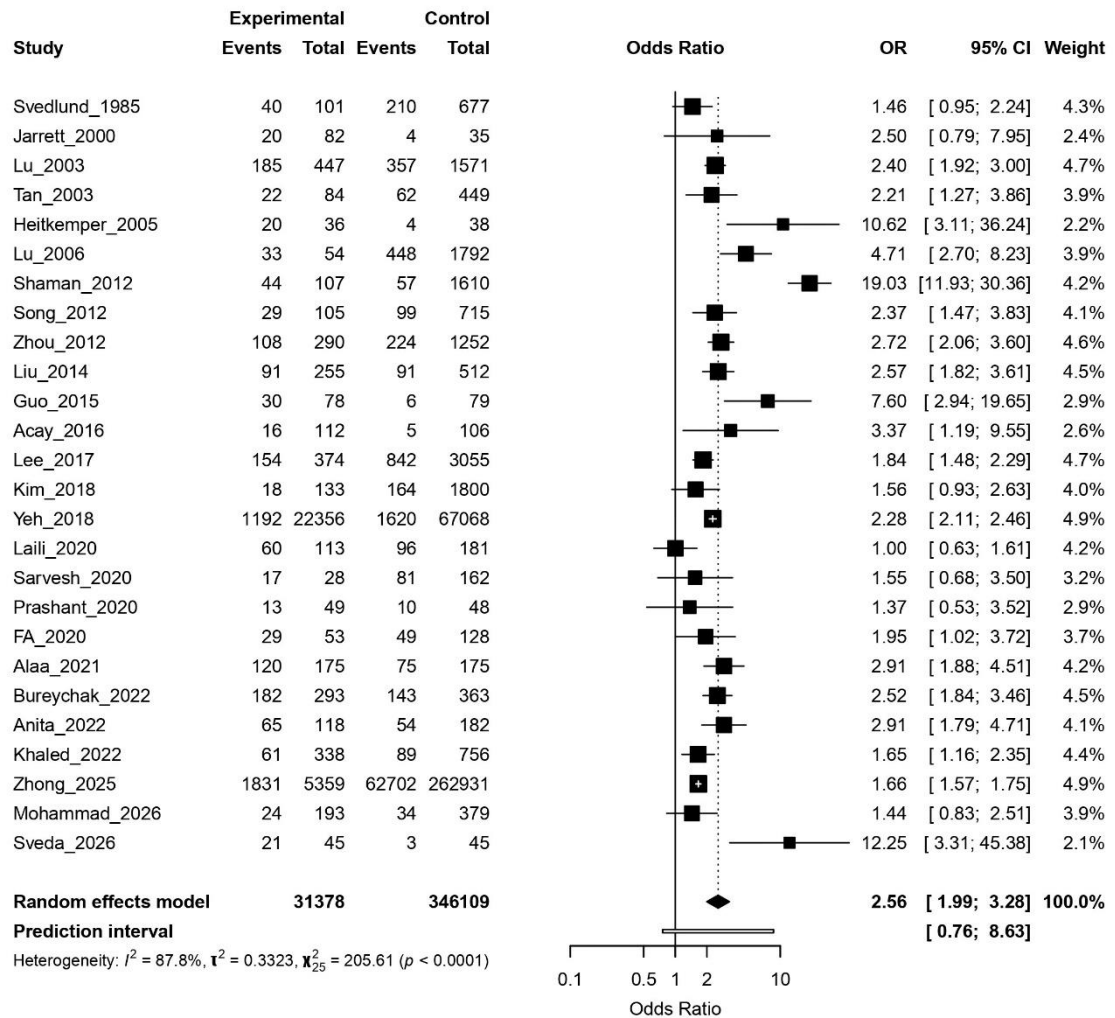


**Figure S4:** Trim-and-fill funnel plot for the pooled odds ratio of sleep disturbance in patients with irritable bowel syndrome versus controls.

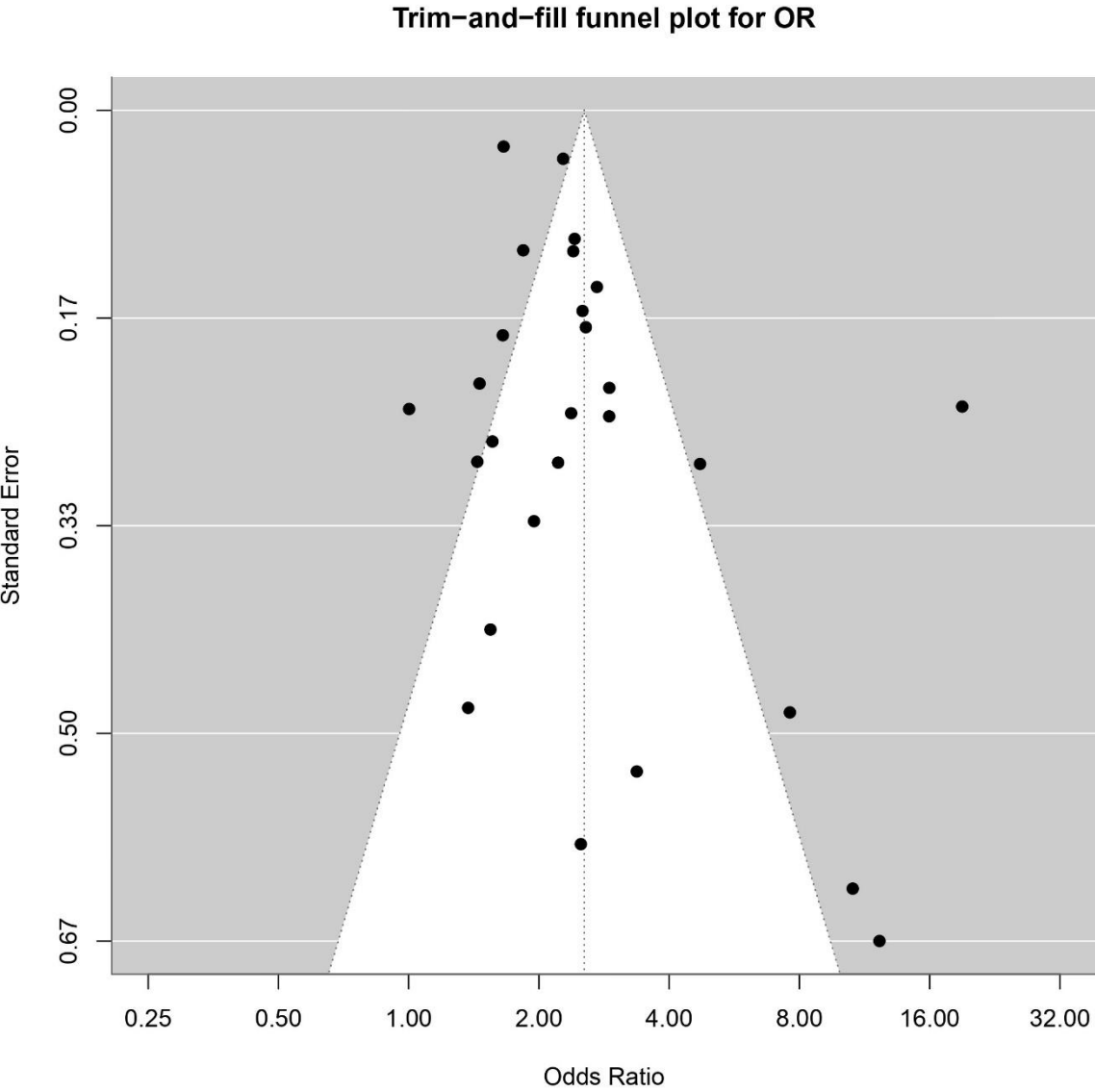


**Figure S5: Trim-and-fill adjusted forest plot for the pooled odds ratio of sleep disturbance in patients with irritable bowel syndrome versus controls.**

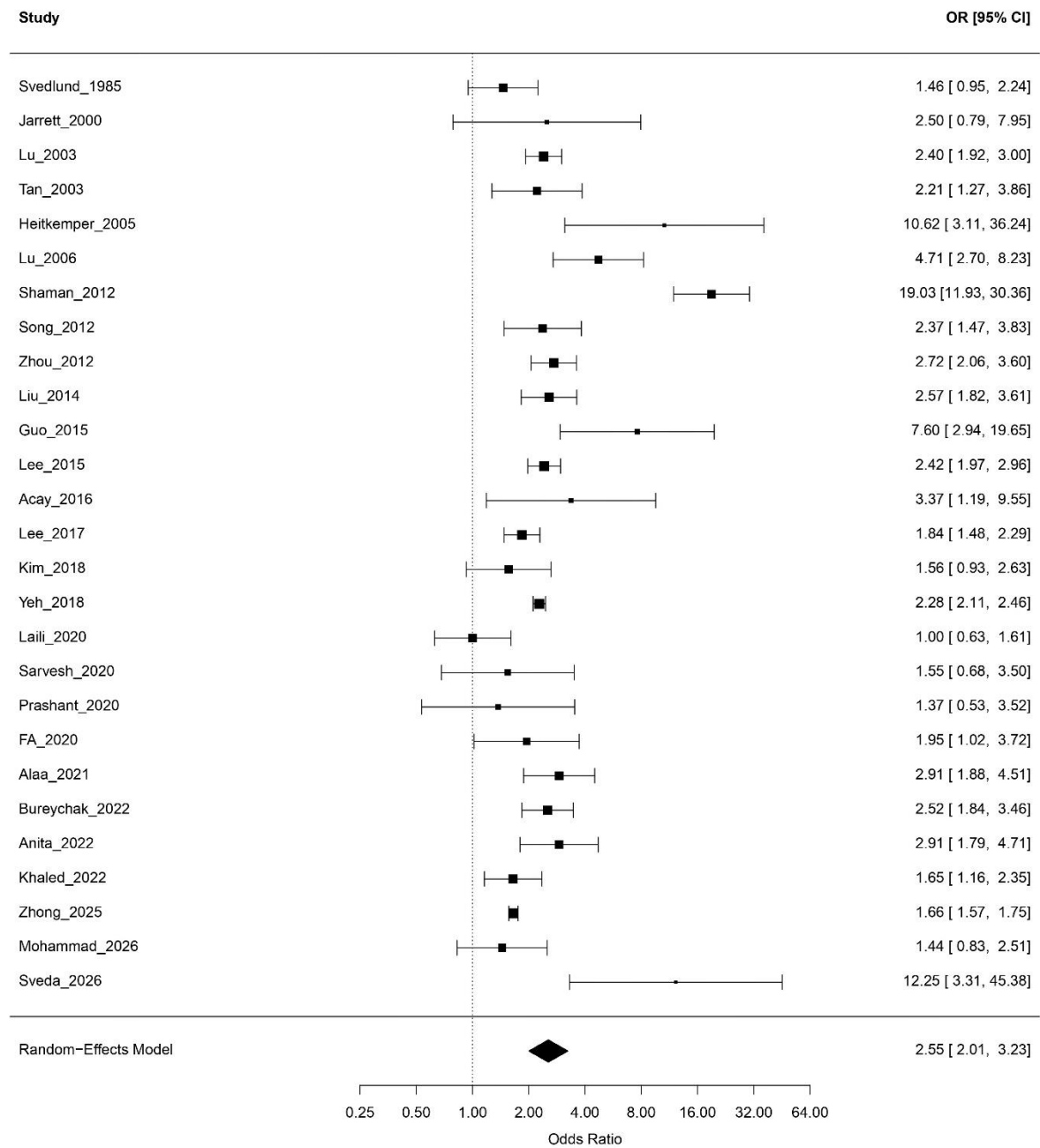
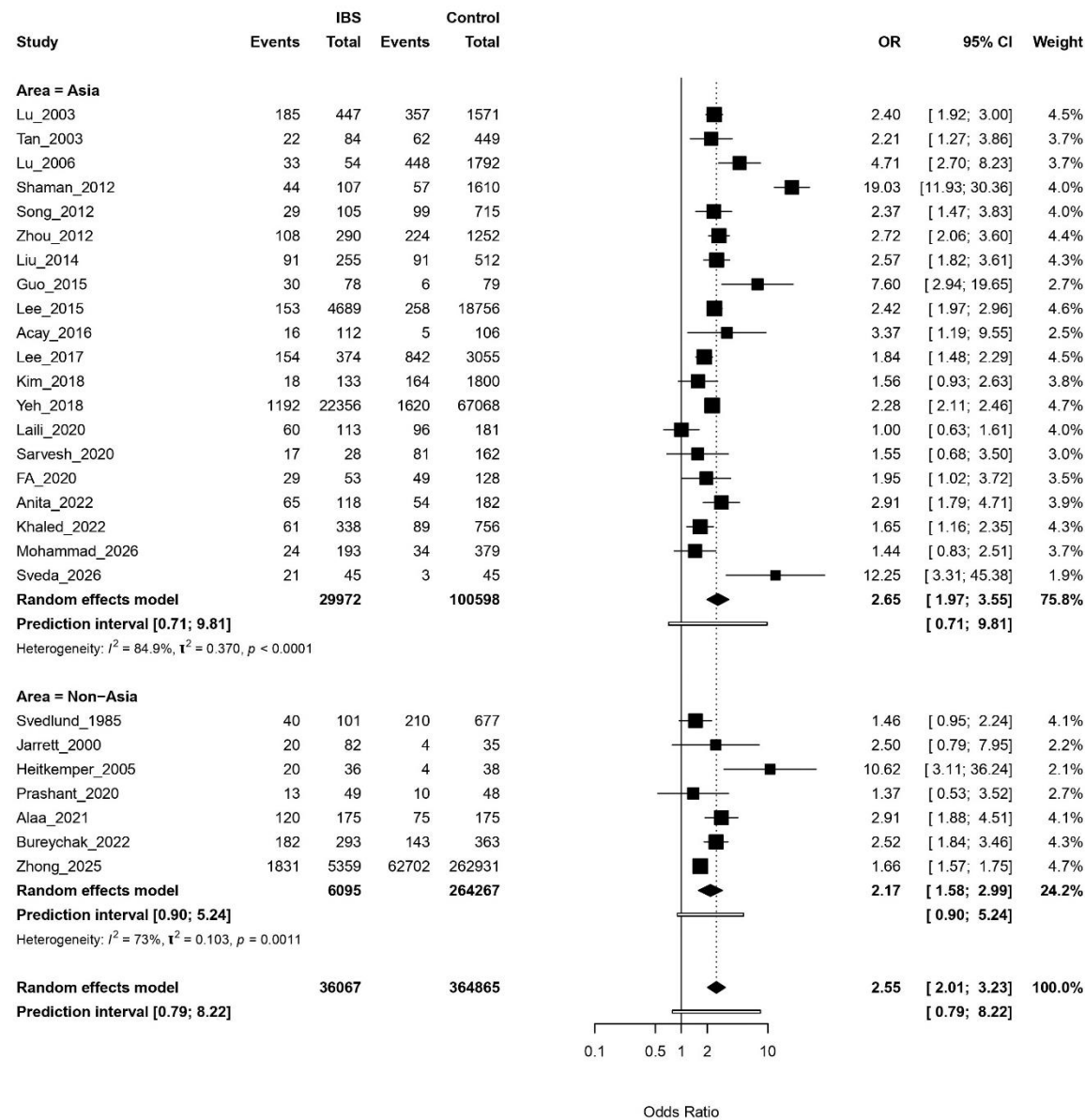
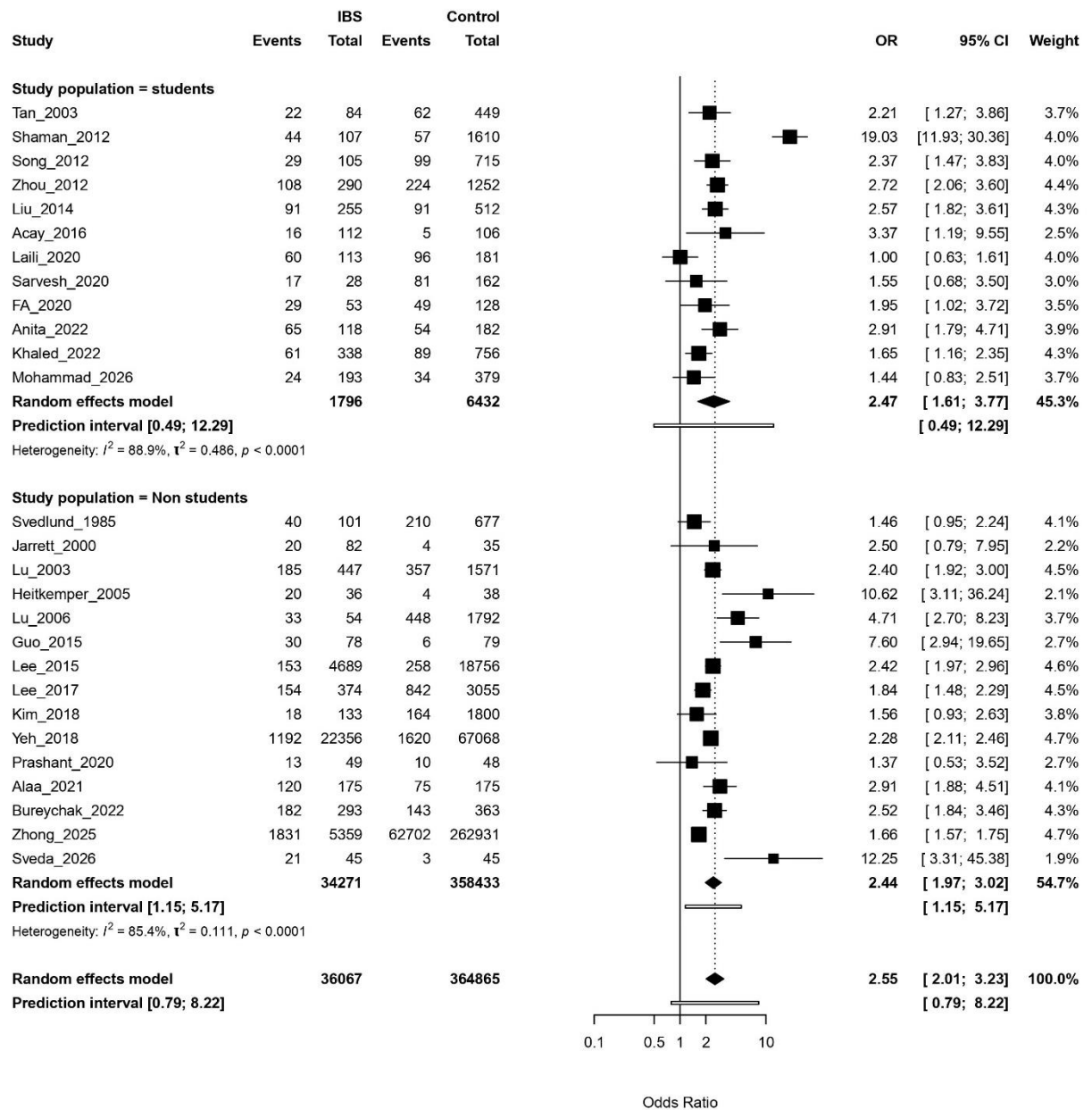


Figure S6: Subgroup analysis based on Area



Heterogeneity:  $I^2 = 87.6\%$ ,  $\tau^2 = 0.311$ ,  $p < 0.0001$   
Test for subgroup differences:  $\chi^2_1 = 0.80$ ,  $df = 1$  ( $p = 0.3705$ )

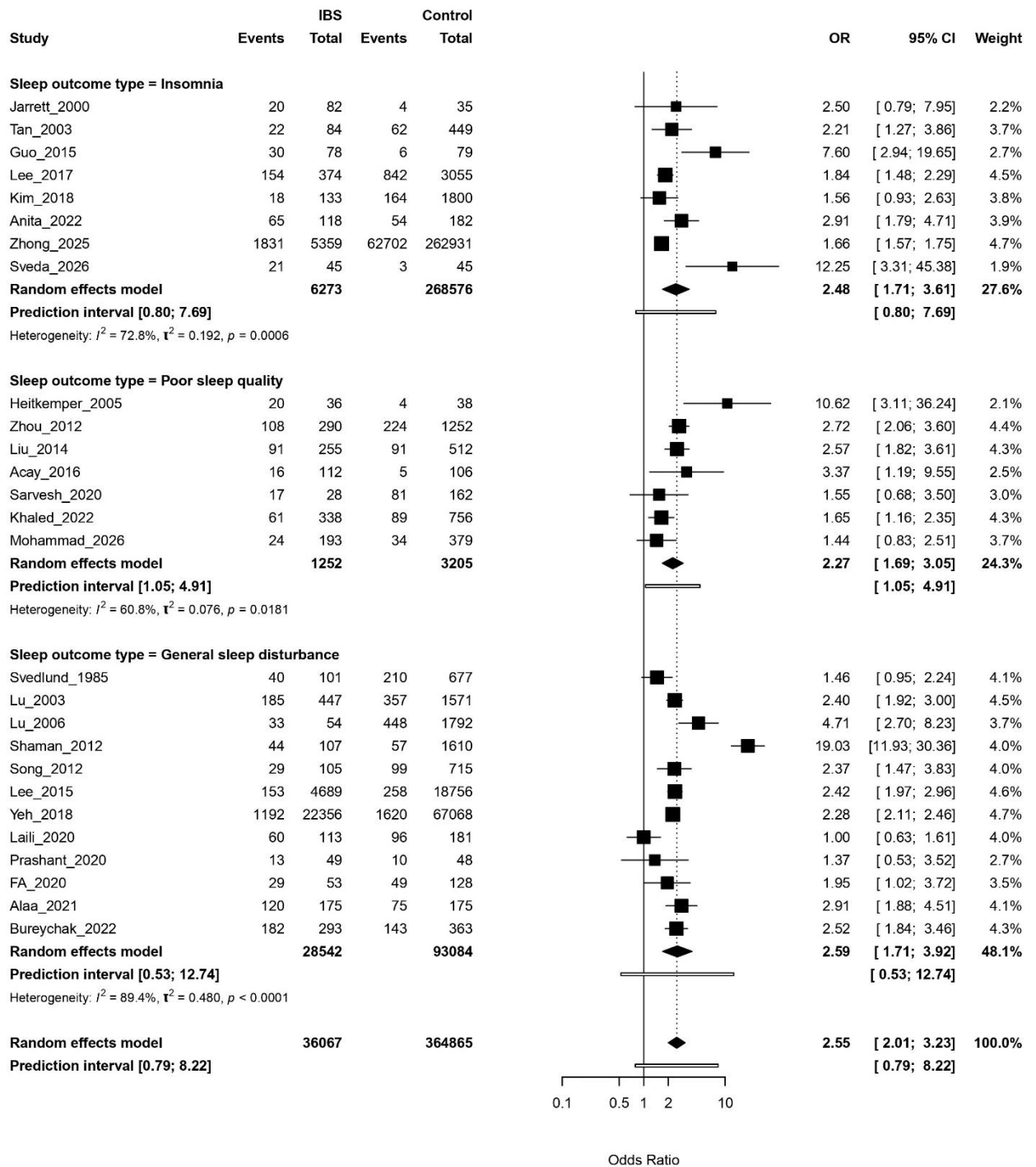
**Figure S7: Subgroup analysis based on study population**



Heterogeneity:  $I^2 = 87.6\%$ ,  $\tau^2 = 0.311$ ,  $p < 0.0001$

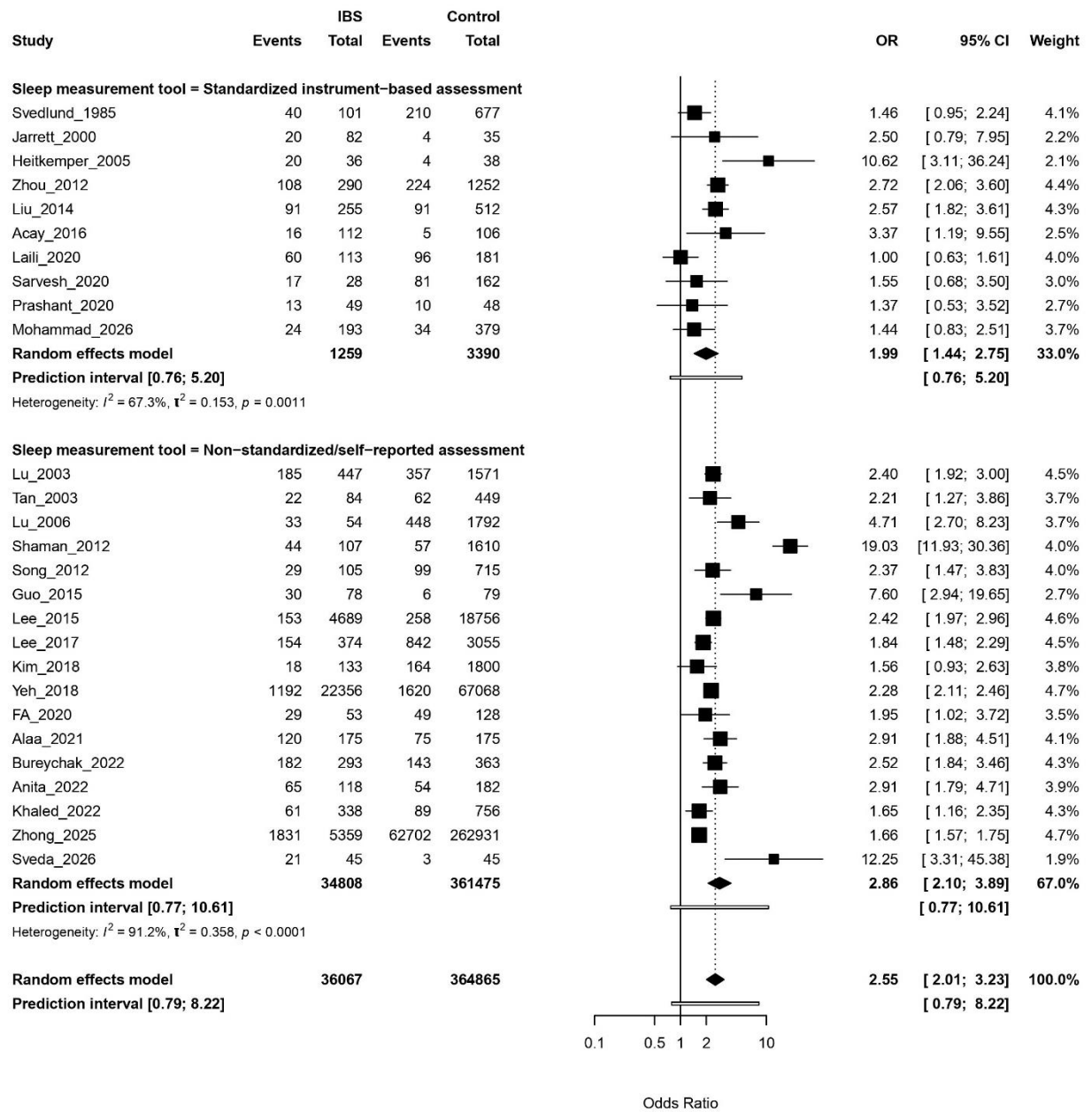
Test for subgroup differences:  $\chi^2 = 0.00$ ,  $df = 1$  ( $p = 0.9646$ )

**Figure S8: Subgroup analysis based on sleep outcome type**



Heterogeneity:  $I^2 = 87.6\%$ ,  $\tau^2 = 0.311$ ,  $p < 0.0001$   
 Test for subgroup differences:  $\chi^2_2 = 0.29$ ,  $df = 2$  ( $p = 0.8648$ )

**Figure S9: Subgroup analysis based on sleep measurement tool**



Heterogeneity:  $I^2 = 87.6\%$ ,  $\tau^2 = 0.311$ ,  $p < 0.0001$

Test for subgroup differences:  $\chi^2 = 2.53$ ,  $df = 1$  ( $p = 0.1116$ )

**Figure S10: Subgroup analysis based on diagnostic criteria for IBS**

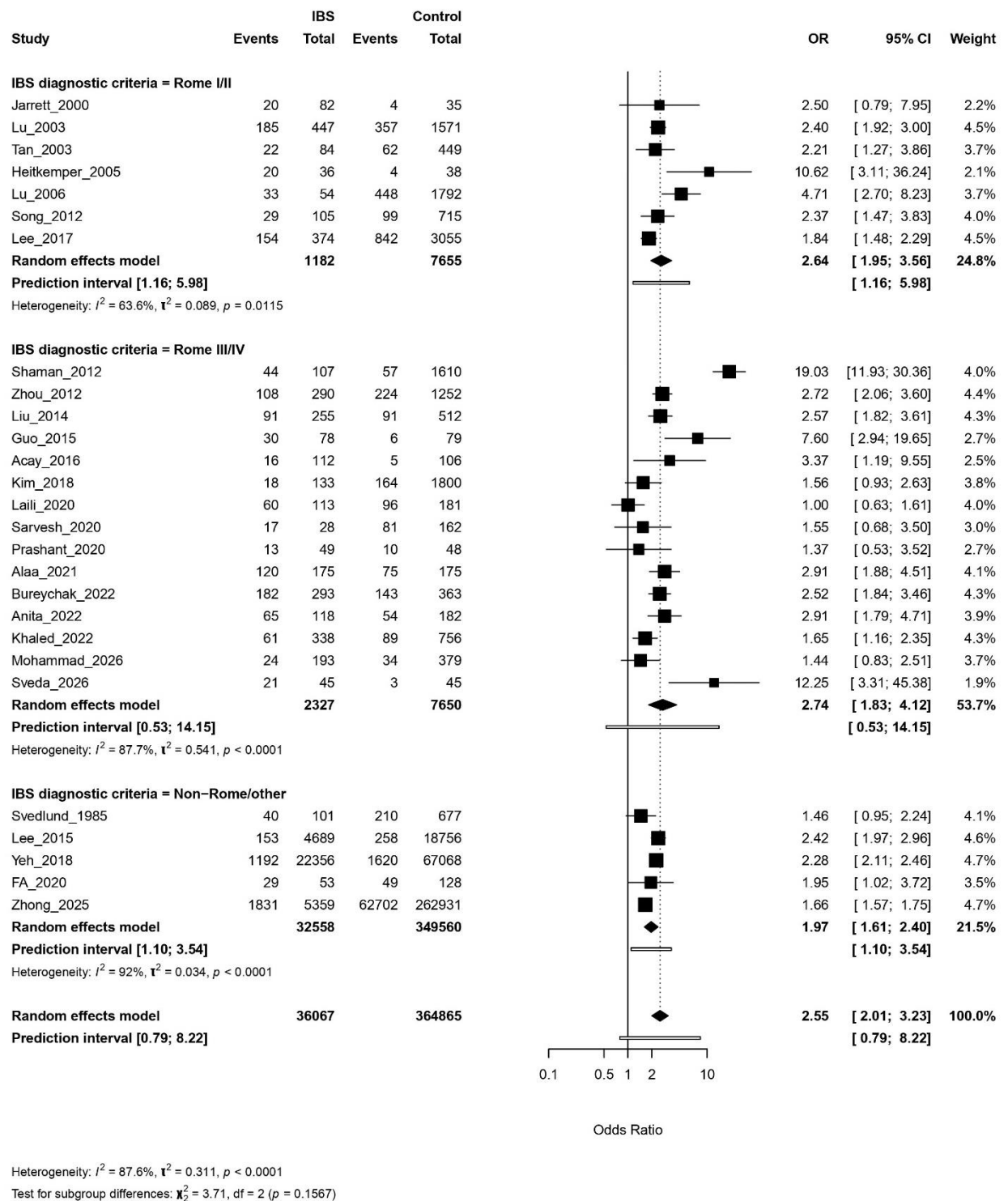


**Figure S11: Subgroup analysis based on publication year**

