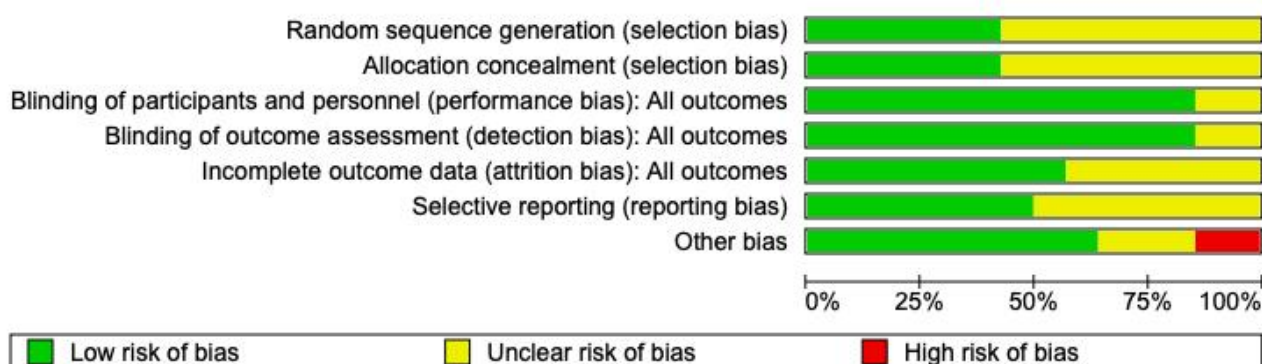


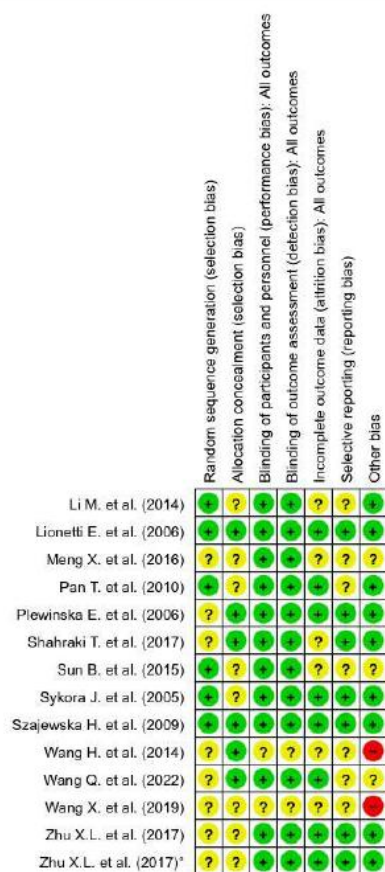
Supplementary Table 1. Search strategy

Database	Search strategy	Filters / Limits applied
PubMed / MEDLINE	("Helicobacter pylori"[Mesh] OR "Helicobacter pylori infection"[Mesh] OR "Helicobacter pylori"[tw] OR "H. pylori"[tw]) AND ("Probiotics"[Mesh] OR probiotic*[tw] OR "Lactobacillus"[Mesh] OR lactobacill*[tw] OR "probiotic mixture"[tw] OR "probiotic therapy"[tw]) AND ("Eradication"[Mesh] OR eradication[tw] OR eradicate*[tw] OR "Treatment"[Mesh] OR treatment[tw] OR therap*[tw] OR "Anti-Bacterial Agents"[Mesh]) AND ("Child"[Mesh] OR "Infant"[Mesh] OR "Adolescent"[Mesh] OR child*[tw] OR pediatric*[tw] OR infant*[tw] OR adolescen*[tw])	Filters: Humans; Languages: English OR Italian; Age: Child: birth–18 years; (optional) Article type: Clinical Trial
EMBASE (Ovid)	('helicobacter pylori'/exp OR 'helicobacter pylori':ti,ab OR 'h. pylori':ti,ab) AND ('probiotic agent'/exp OR probiotic*:ti,ab OR 'lactobacillus'/exp OR lactobacill*:ti,ab OR 'probiotic mixture':ti,ab OR 'probiotic therapy':ti,ab) AND ('eradication'/exp OR eradication:ti,ab OR eradicate*:ti,ab OR 'treatment'/exp OR treatment:ti,ab OR therap*:ti,ab) AND ('child'/exp OR 'adolescent'/exp OR child*:ti,ab OR pediatric*:ti,ab OR infant*:ti,ab OR adolescen*:ti,ab) AND [humans]/lim	Limits: Humans; Age group: Child, Adolescent; Language: English OR Italian
Scopus (Elsevier)	TITLE-ABS-KEY(("Helicobacter pylori" OR "H. pylori") AND (probiotic* OR "Lactobacillus" OR "probiotic mixture" OR "probiotic therapy") AND (eradication OR eradicate* OR treatment OR therap*) AND (child* OR pediatric* OR infant* OR adolescen*))	Filters: Document type (Article, Review, Clinical Trial); Language (English OR Italian); Subject area (Medicine)

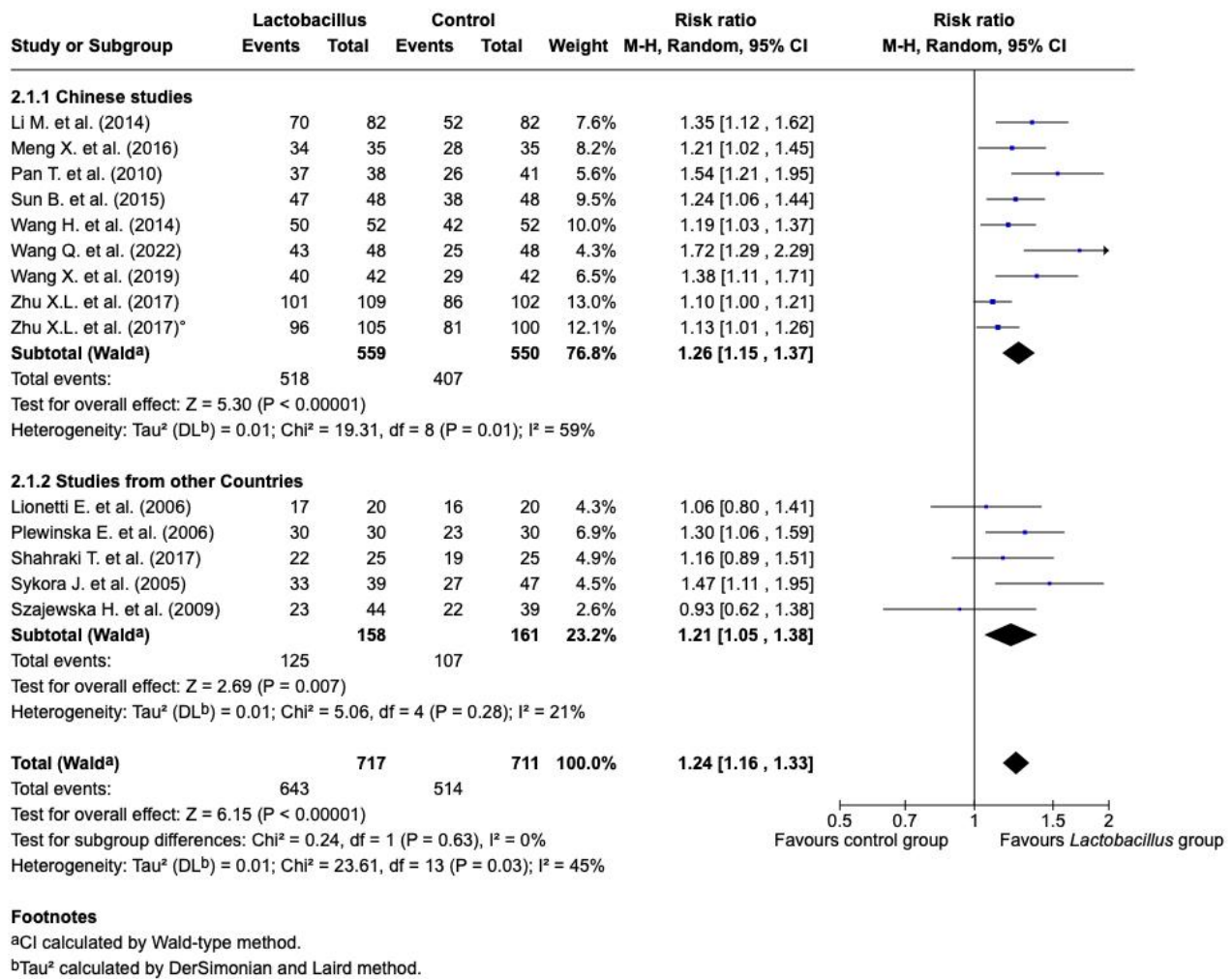
Supplementary Figure 1. Risk of bias summary of the included studies according to the Cochrane RoB 2 tool.



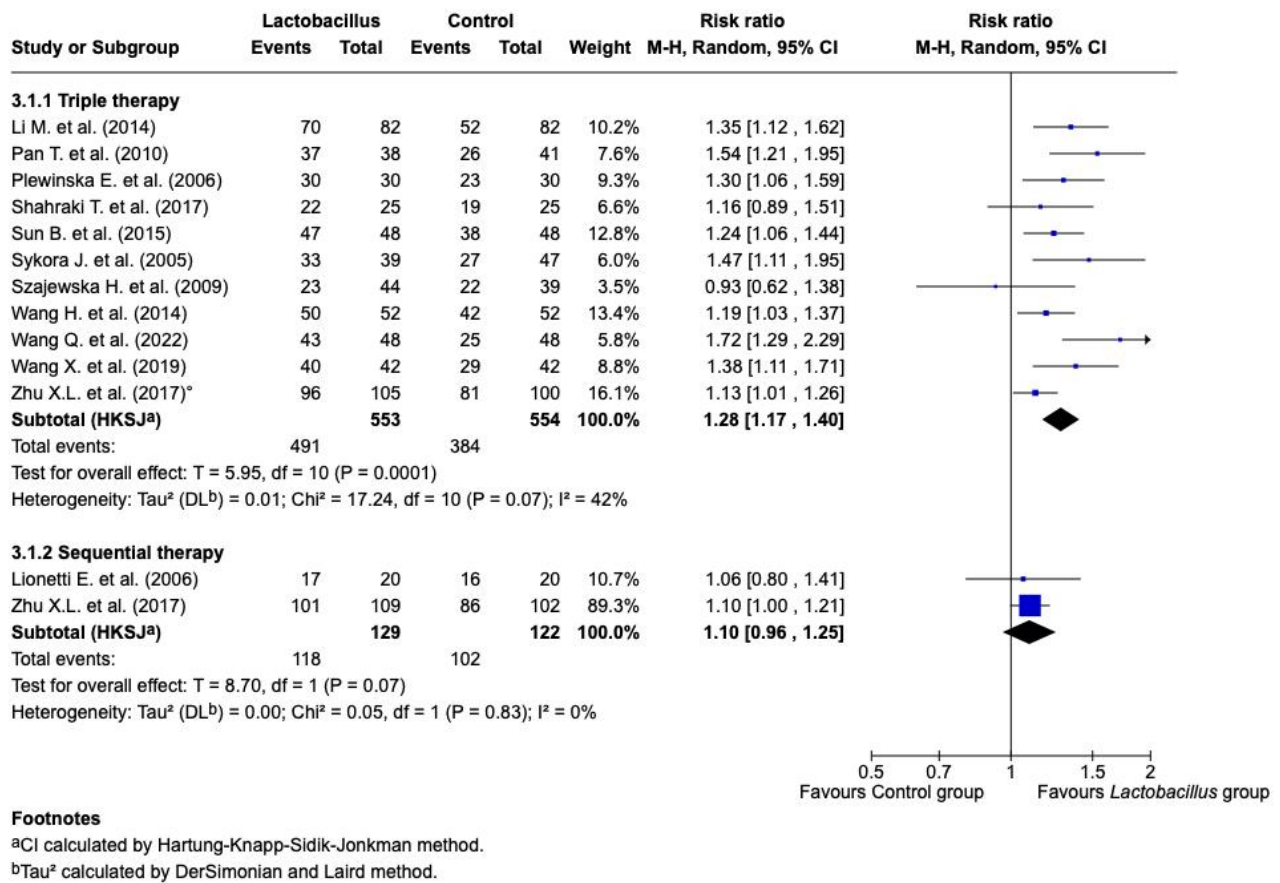
Supplementary Figure 2. Graphical representation of the risk of bias assessment.



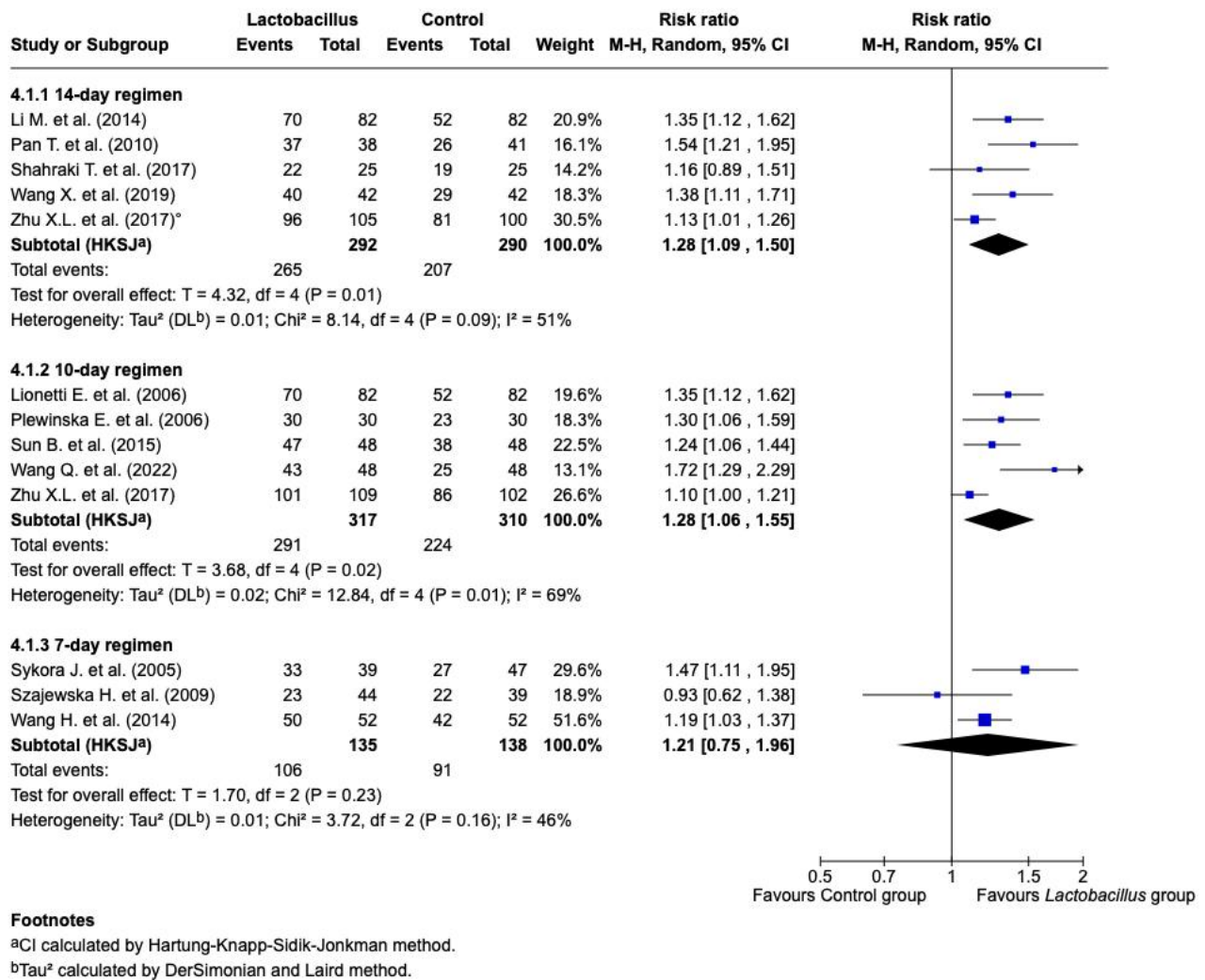
Supplementary Figure 3. Forest plot comparing *Lactobacillus* supplementation as an adjunct to *H. pylori* eradication therapy in Chinese versus non-Chinese studies.



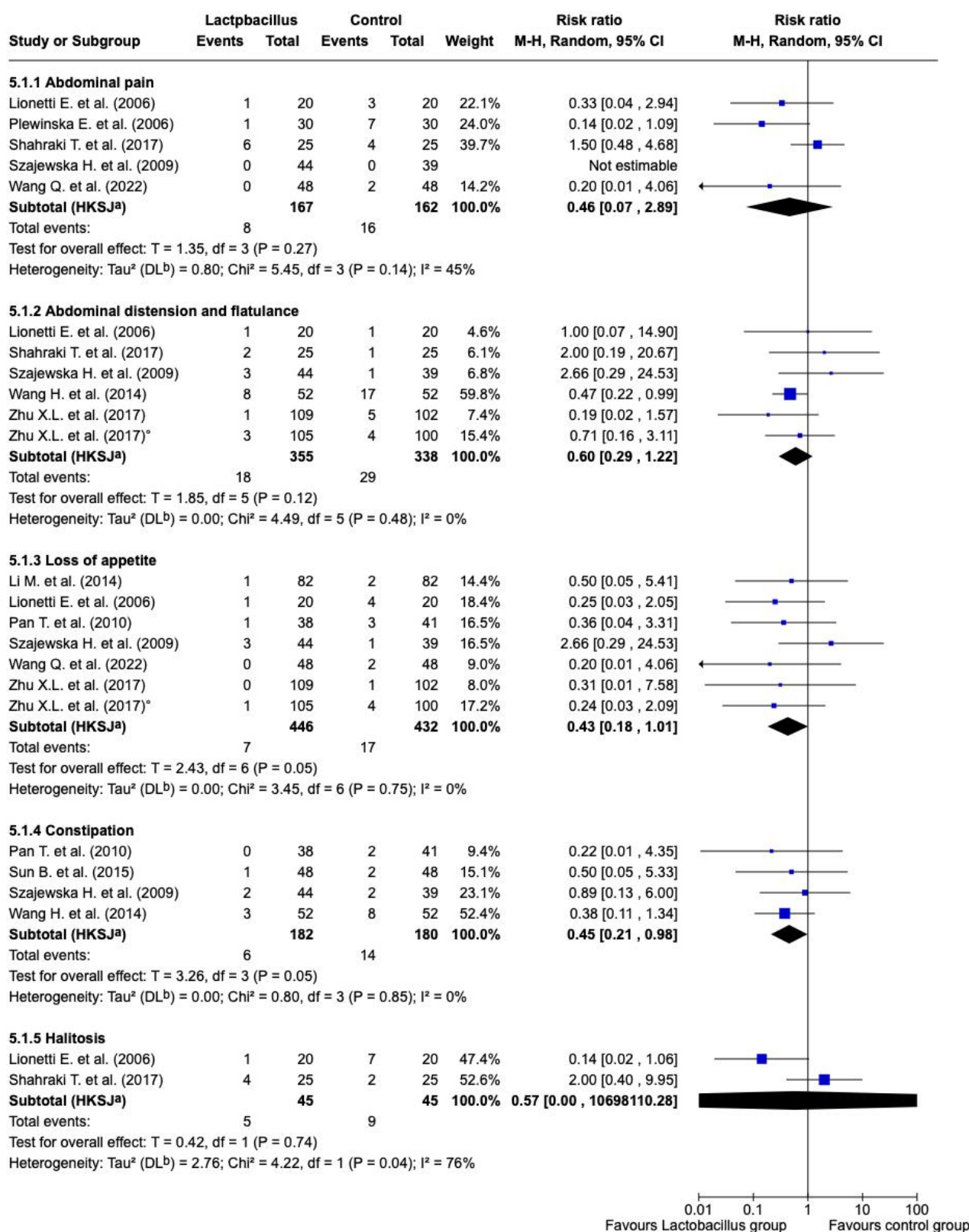
Supplementary Figure 4. Effects of *Lactobacillus* supplementation on *H. pylori* eradication rates in triple and sequential therapy.



Supplementary Figure 5. Effects of *Lactobacillus* supplementation on *H. pylori* eradication rates in the duration of antibiotic therapy.



Supplementary Figure 6. Effects of *Lactobacillus* supplementation on *H. pylori* eradication rates in subgroup analysis based on different symptoms.

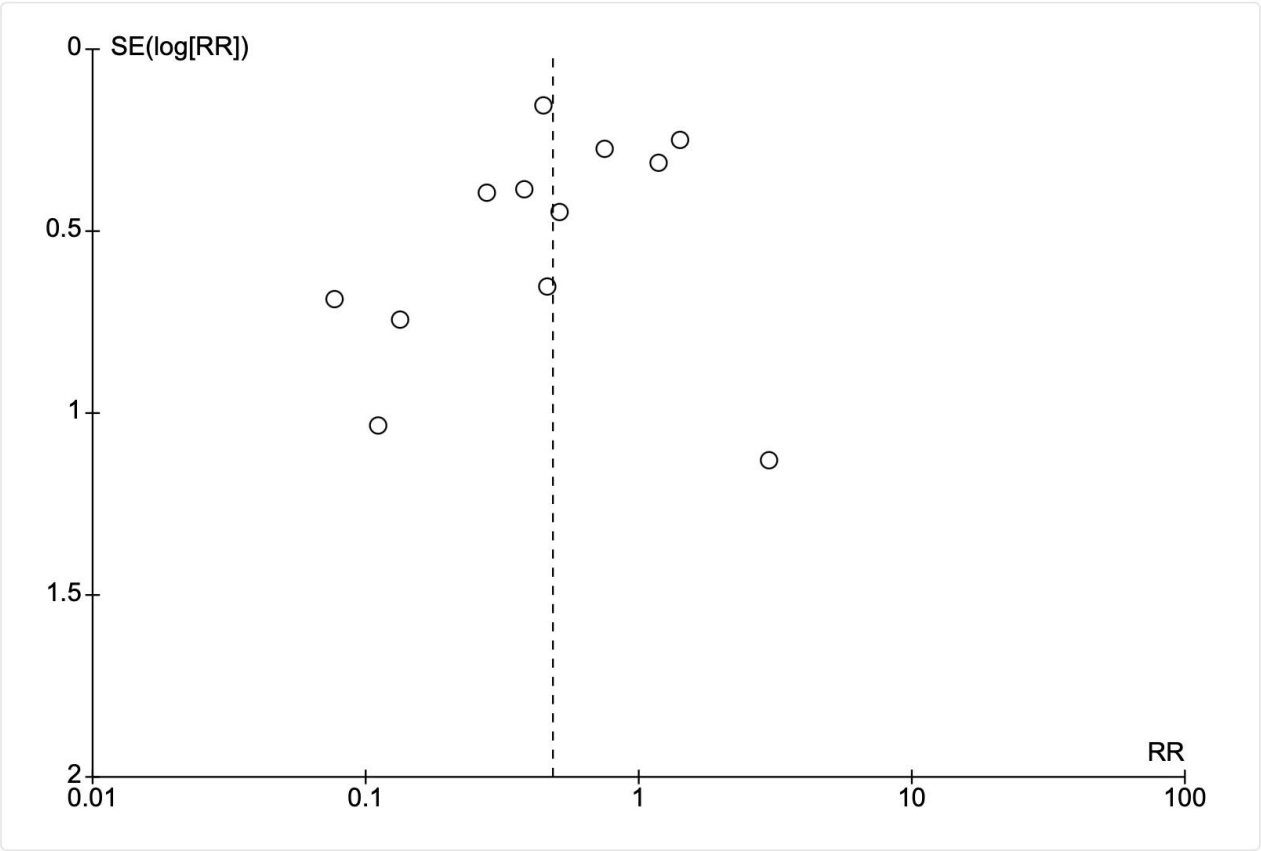


Footnotes

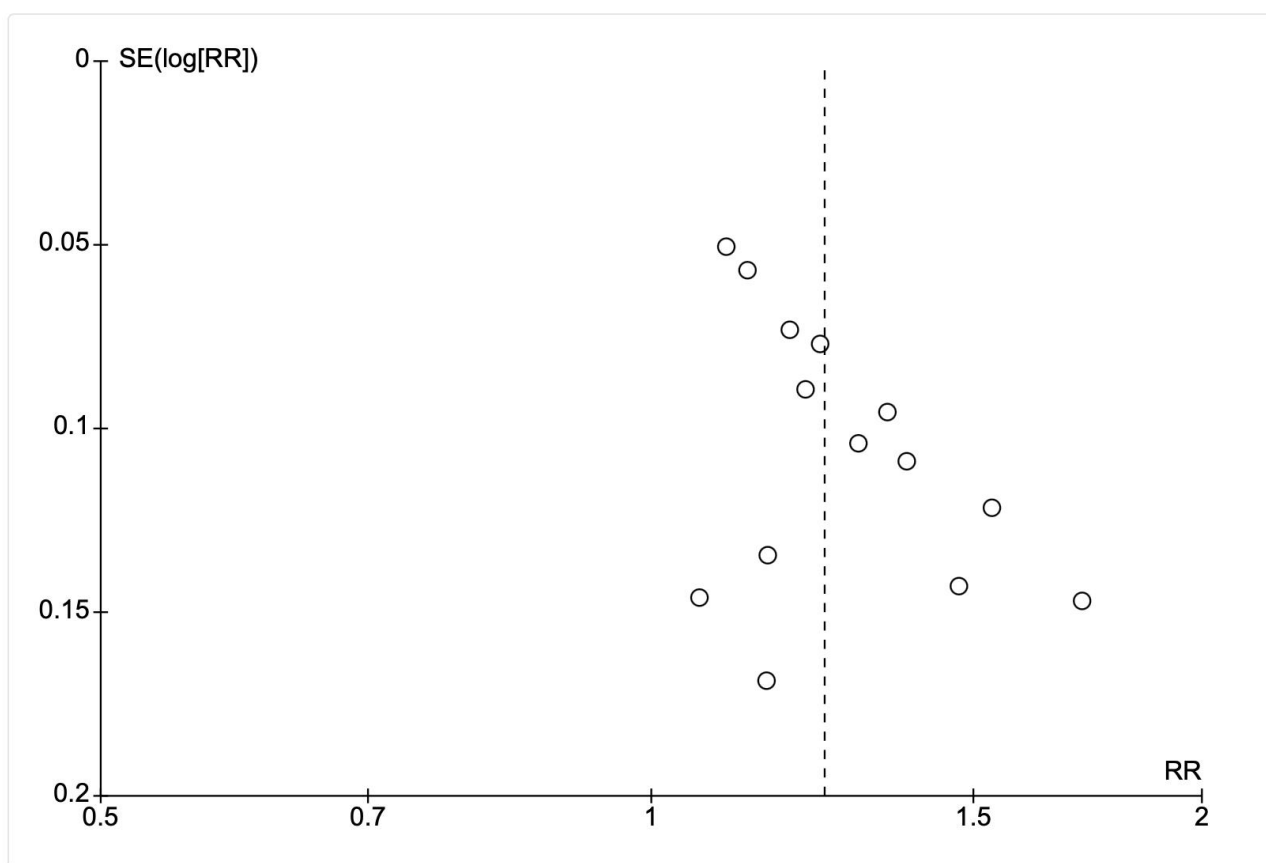
^aCI calculated by Hartung-Knapp-Sidik-Jonkman method.

^bTau² calculated by DerSimonian and Laird method.

Supplementary Figure 7. Funnel plot assessing publication bias for total eradication rates.



Supplementary Figure 8. Funnel plot assessing publication bias for total side effects.



Supplementary Figure 9. Summary of GRADE evidence assessment for the eradication rates.

Lactobacillus compared to Control for health problem or population					
Patient or population: health problem or population Setting: Intervention: Lactobacillus Comparison: Control					
Outcomes	No of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control	Risk difference with Lactobacillus
Total Eradication Rates	1428 (14 RCTs)	⊕⊕⊕⊕ High	RR 1.24 (1.16 to 1.34)	724 per 1000	174 more per 1000 (116 more to 246 more)
Eradication in high-dose group	146 (2 RCTs)	⊕⊕⊕⊕ High	RR 1.36 (0.63 to 2.91)	649 per 1000	234 more per 1000 (240 fewer to 1240 more)
Eradication in low-dose group	173 (3 RCTs)	⊕⊕⊕⊕ High	RR 1.12 (0.99 to 1.27)	690 per 1000	83 more per 1000 (7 fewer to 186 more)
Eradication in long-term group	325 (5 RCTs)	⊕⊕⊕⊕ High	RR 1.33 (1.06 to 1.69)	665 per 1000	219 more per 1000 (40 more to 459 more)
Eradication in short-term group	1033 (8 RCTs)	⊕⊕⊕⊕ High	RR 1.20 (1.11 to 1.30)	738 per 1000	148 more per 1000 (81 more to 221 more)
*The risk in the intervention group (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI). CI: confidence interval; RR: risk ratio					
GRADE Working Group grades of evidence High certainty: we are very confident that the true effect lies close to that of the estimate of the effect. Moderate certainty: we are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different. Low certainty: our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect. Very low certainty: we have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect.					

Supplementary Figure 10. Summary of GRADE evidence assessment for the side effects.

Lactobacillus compared to Control for health problem or population

Patient or population: health problem or population

Setting:

Intervention: Lactobacillus

Comparison: Control

Outcomes	N ^a of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control	Risk difference with Lactobacillus
Total side effects	1258 (12 RCTs)	⊕⊕⊕⊕ High ^a	RR 0.49 (0.27 to 0.87)	330 per 1000	168 fewer per 1000 (241 fewer to 43 fewer)
Abdominal pain	329 (5 RCTs)	⊕⊕⊕⊕ High	RR 0.47 (0.07 to 2.97)	99 per 1000	52 fewer per 1000 (92 fewer to 195 more)
Abdominal distension and flatulence	693 (6 RCTs)	⊕⊕⊕⊕ High	RR 0.60 (0.29 to 1.22)	86 per 1000	34 fewer per 1000 (61 fewer to 19 more)
Diarrhea	832 (6 RCTs)	⊕⊕⊕⊕ High	RR 0.51 (0.24 to 1.08)	90 per 1000	44 fewer per 1000 (69 fewer to 7 more)
Nausea and vomiting	1258 (12 RCTs)	⊕⊕⊕⊕ High	RR 0.66 (0.45 to 0.95)	82 per 1000	28 fewer per 1000 (45 fewer to 4 fewer)
Loss of appetite	878 (7 RCTs)	⊕⊕⊕⊕ High	RR 0.43 (0.18 to 1.01)	39 per 1000	22 fewer per 1000 (32 fewer to 0 fewer)
Constipation	362 (4 RCTs)	⊕⊕⊕⊕ High	RR 0.45 (0.21 to 0.98)	78 per 1000	43 fewer per 1000 (61 fewer to 2 fewer)
Taste disturbance	451 (5 RCTs)	⊕⊕⊕⊕ High	RR 0.41 (0.19 to 0.89)	126 per 1000	74 fewer per 1000 (102 fewer to 14 fewer)
Halitosis	90 (2 RCTs)	⊕⊕⊕⊕ High	RR 0.57 (0.04 to 7.59)	200 per 1000	86 fewer per 1000 (192 fewer to 1318 more)

^aThe risk in the intervention group (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: confidence interval; RR: risk ratio

GRADE Working Group grades of evidence

High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.

Moderate certainty: we are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.

Low certainty: our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.

Very low certainty: we have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect.

Explanations

^aheteogeneity