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Background:

- Surgical site infections (SSIs) remain a significant concern in laparoscopic cholecystectomy despite its status as a minimally invasive procedure.
- There is a dearth of data to help shed light on the incidence and risk factors associated with SSIs.

Methods:

A literature search was conducted in PubMed and ScienceDirect for RCTS

RCTS between January 2014 and February 2024

Meta-regression analysis was done to explore the impact of age and gender on observed effect.

The risk of bias: Revised Cochrane Collaboration's Risk of Bias Tool (RoB-2). Heterogeneity: evaluated with I^2 statistics.

Adult patients (≥ 18 years old) undergoing laparoscopic cholecystectomy and reported SSI rates were included

2 independent reviewers: data extraction, study characteristics, patient demographics, intervention details, SSI outcomes.

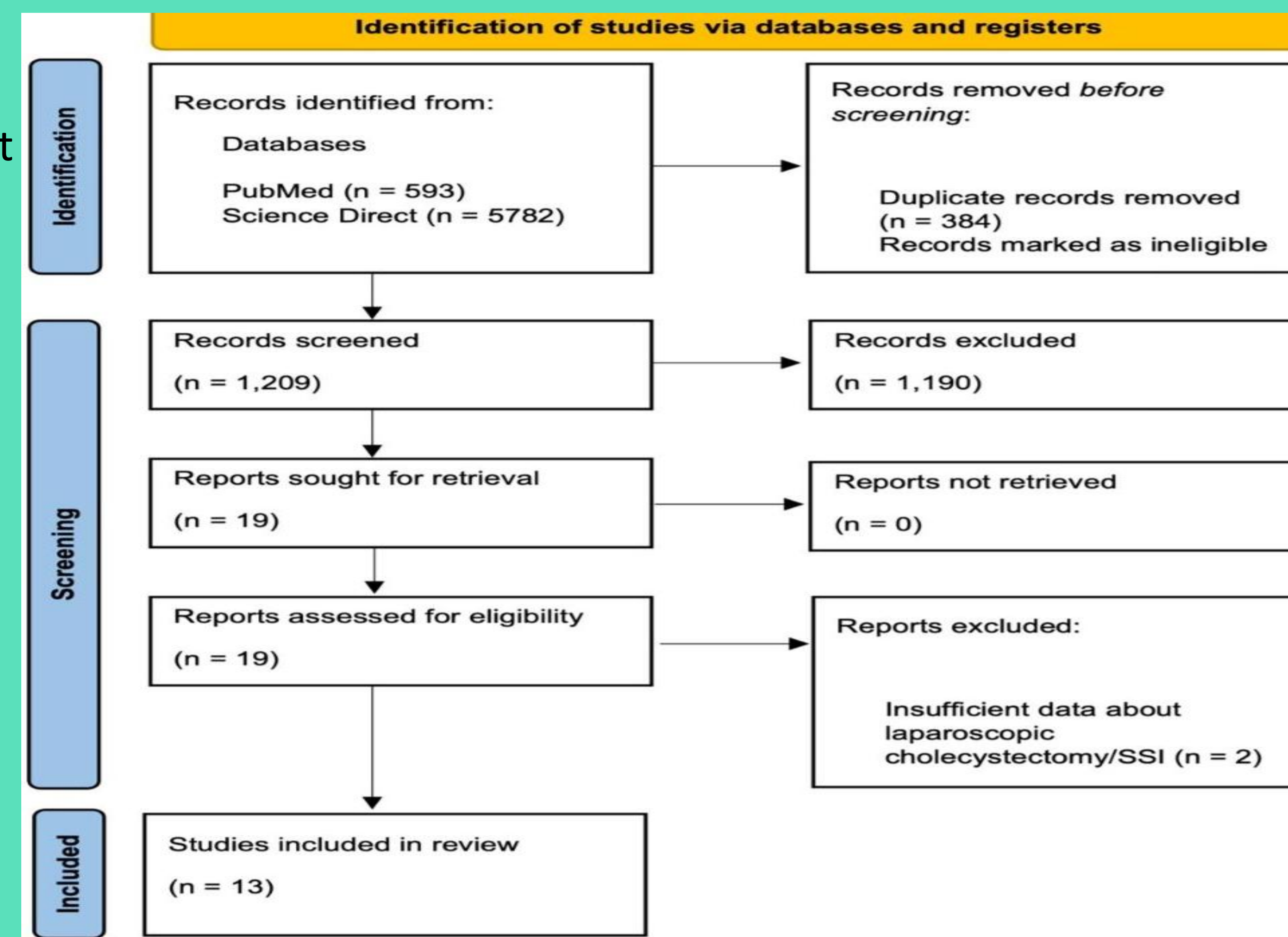
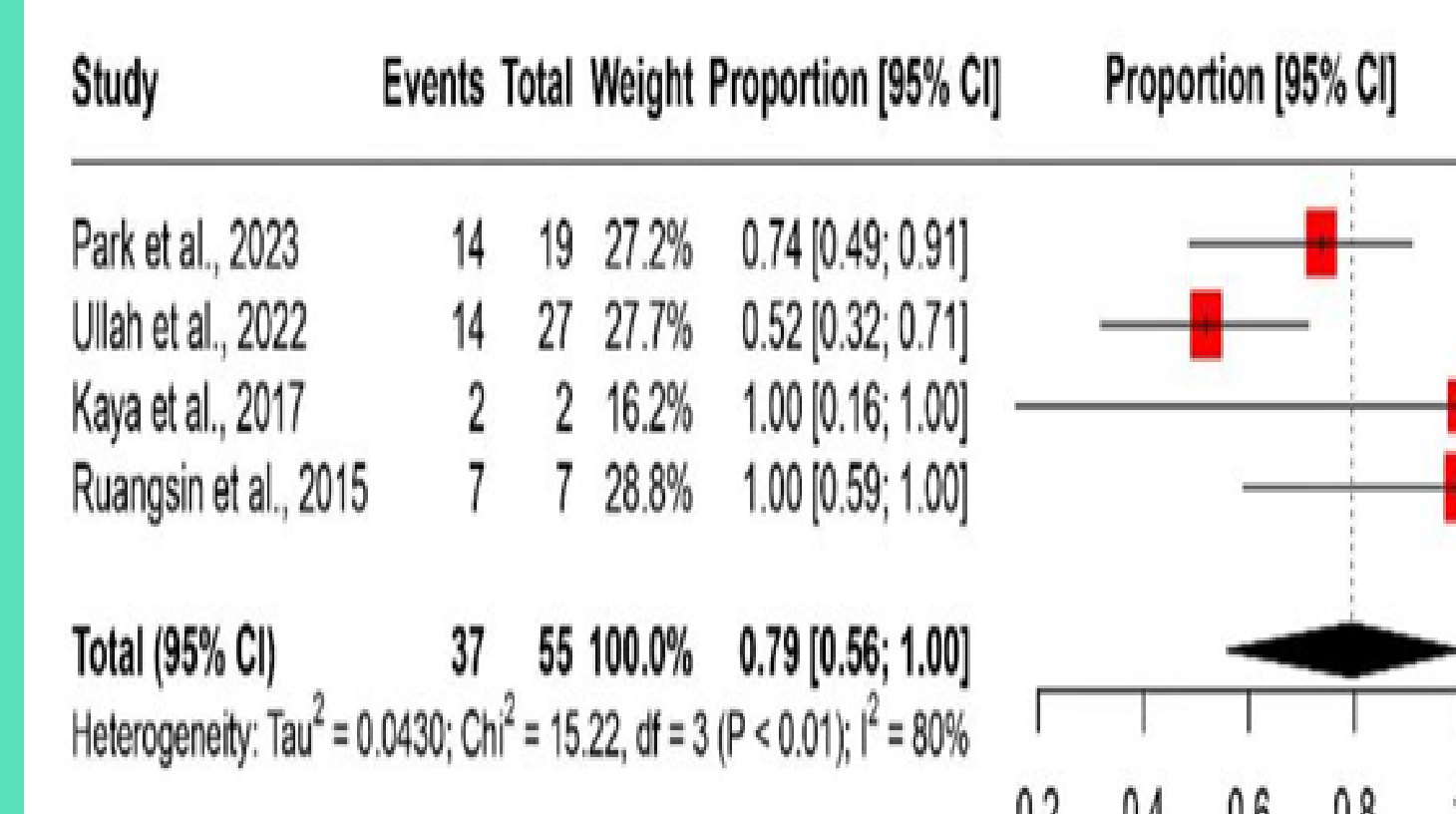
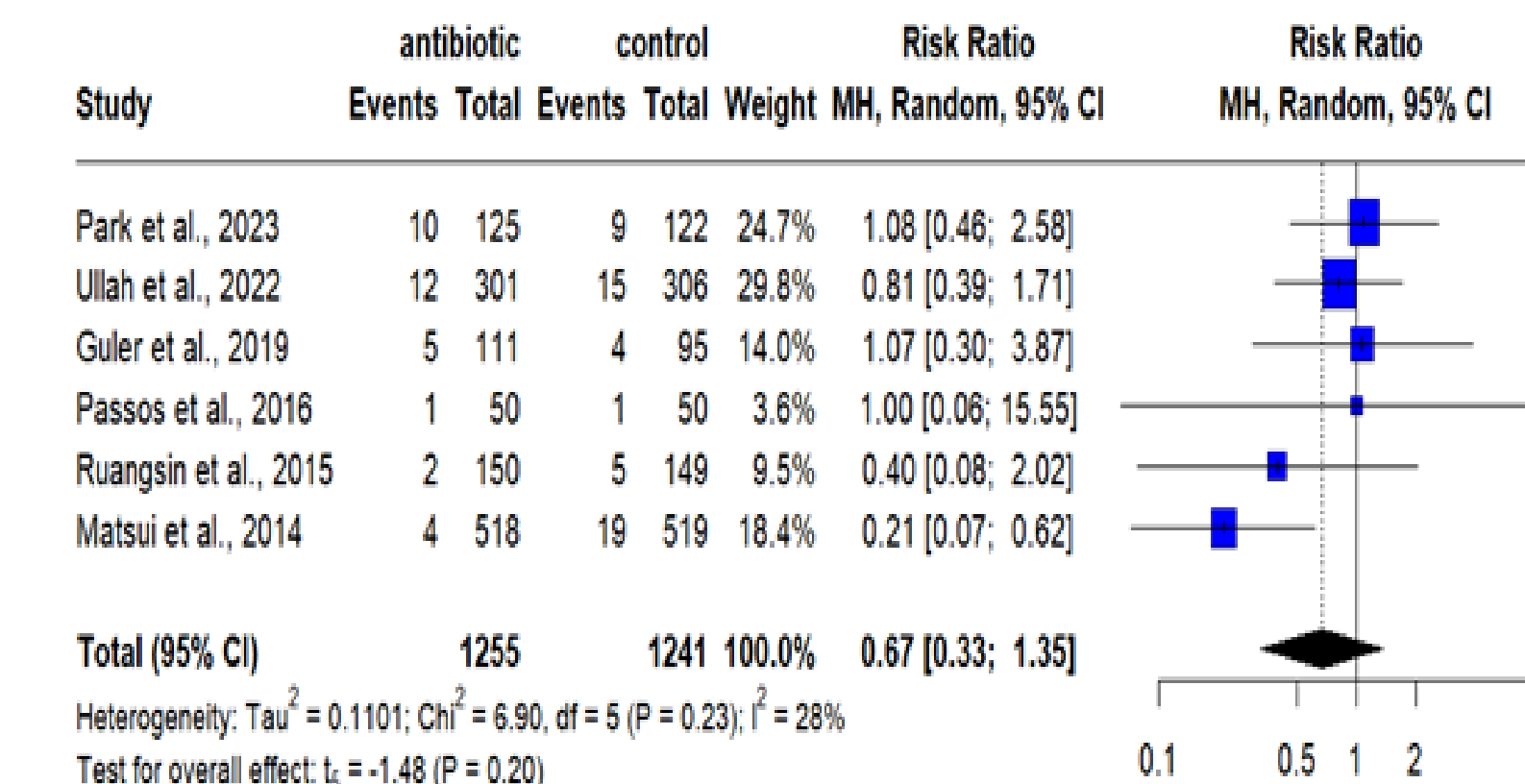


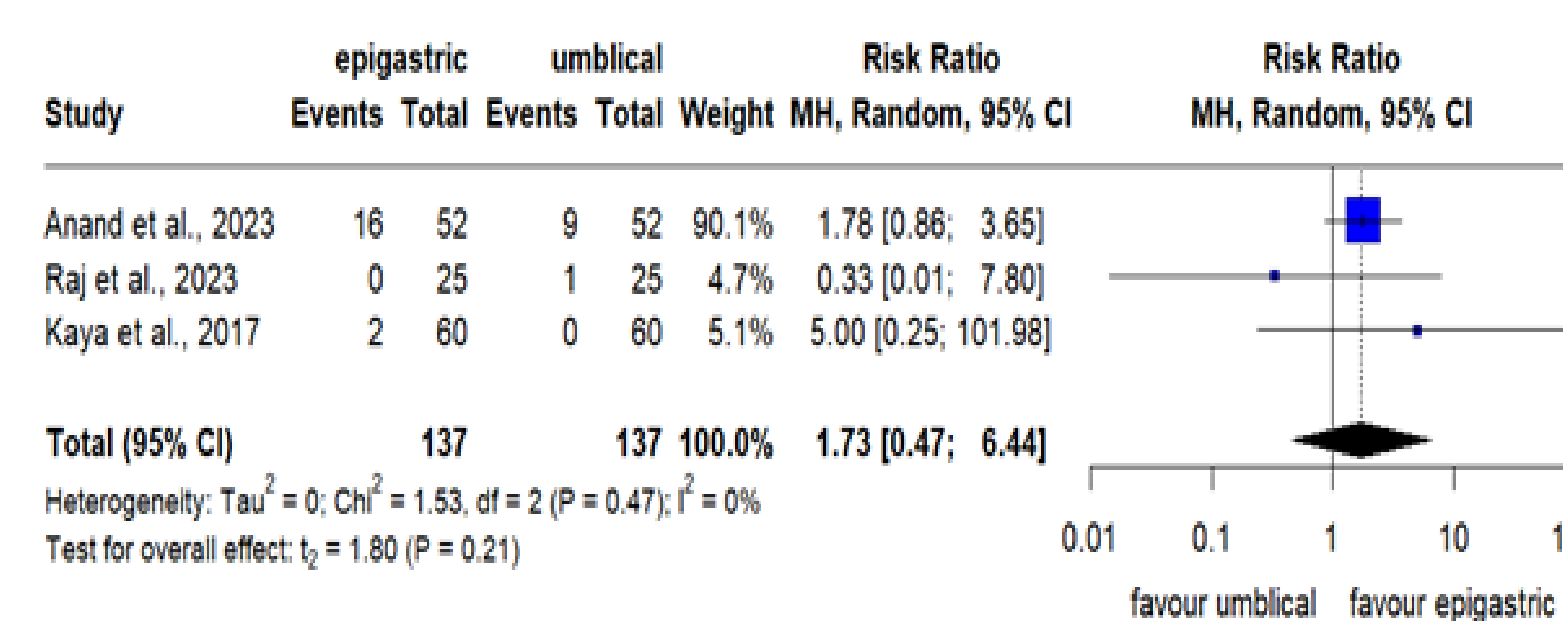
Figure 1: PRISMA flowchart for article screening and study selection



Forest plot for superficial SSI following laparoscopic cholecystectomy.



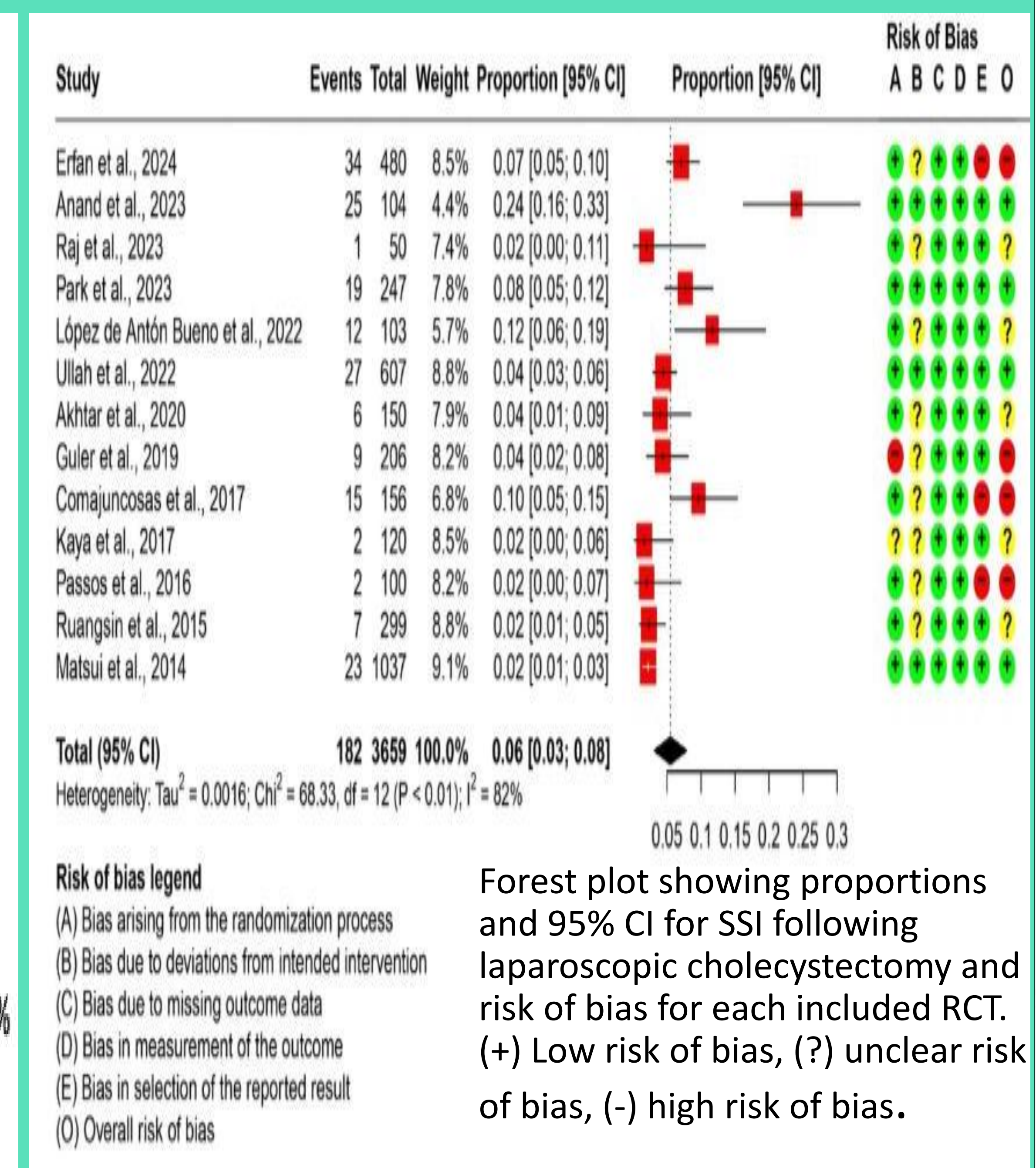
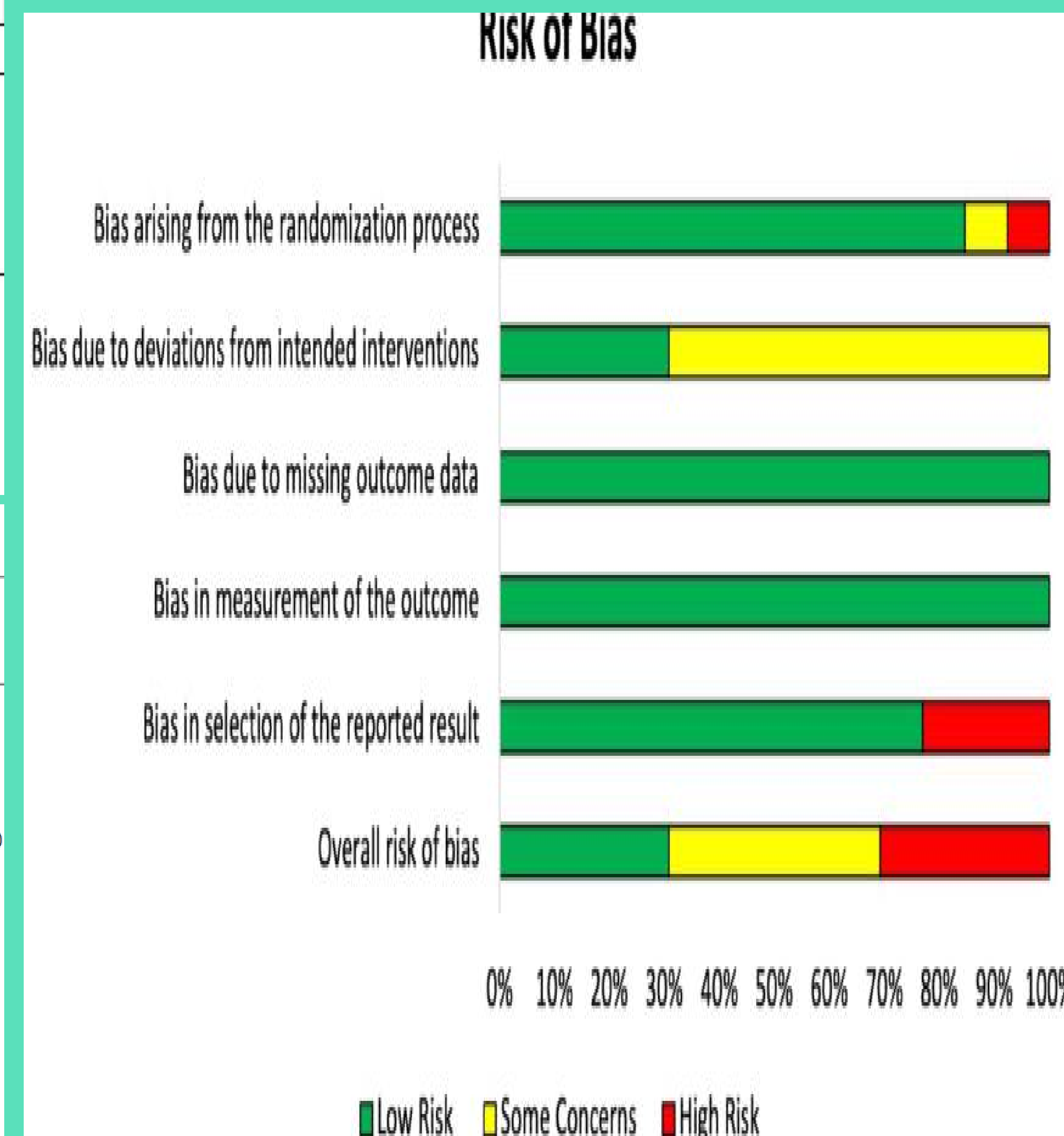
A forest plot showing risk ratio and 95% CI for SSI rates between PaP group and control group.



A forest plot for SSI rates between epigastric port-site group and umbilical port-site group for gallbladder retrieval.

Results:

- Thirteen studies comprising 3,659 patients
- The SSI rate: 5.0% (95% CI: 3%–8%; $I^2 = 82\%$). Superficial SSI was the most common type accounting for 67.3% of reported cases.
- Preoperative antibiotic prophylaxis; significantly lower SSI rate VS control (RR 0.63, 95% CI 0.41–0.96, $I^2 = 28\%$).
- No significant difference in: SSI rates between epigastric VS umbilical port-site gallbladder retrieval (RR 1.73, 95% CI 0.88–3.37, $I^2 = 0\%$).



Conclusions: Laparoscopic cholecystectomy: relatively low overall SSI rate. The choice of port site for gallbladder retrieval does not significantly impact SSI rates.

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