Objectives
- Many systematic reviews of randomized clinical trials require meta-analyses of odds ratios (OR).
- A conventional method estimate the overall OR via weighted averages of the logarithm of individual OR’s. However, this approach has several deficiencies due to the underlying assumptions and approximations.
- The goal of this study is to understand and quantify the methodological pitfalls in conducting a meta-analysis of OR.

Methods
- considered logistic regression models for meta-regression
- compared fixed-effect and random-effect models of pooled OR via applying to meta-analyses of SNP studies
- popular open-source statistical software R used for the analysis in addition to SPSS and SAS

Recommendation
- When the outcome data are available only as study-level summaries such as OR, LR, and RR, it is recommended to use the methods that account for the sampling variation in the estimate of the between-study variance (e.g., profile likelihood).
- Random-effects models are preferred as some degree of heterogeneity exist among different studies unless there is a clear reason to use a fixed-effect model (e.g., identical study setups).

Results

Conclusion
- Point estimates and confidence intervals for the overall log OR can differ substantially between the traditional and alternative methods.
- This would affect the resulting statistical inferences.
- For producing reliable results, the traditional methods for meta-analysis of OR should be discouraged.

References