Review of Statistical Methods for Publication Bias in Meta-Analysis

Fathima K.M

Department of Biostatistics
St Thomas College; Palai

Meta analysis offers a statistical analysis through which conflicting theoretical and/or empirical findings on a given topic can be summarized and compared. Meta analyses summarize primary studies and describe, based on statistical methods, the average effect size in the field: that is to say, they analyze if there is an effect and how great it is. The main objective of this project is "To review the statistical methods for handling publication bias in meta analysis using Myocardial Infarction data" and "To review the statistical methods for finding summary statistics of a meta analysis data using Myocardial Infarction data". The dataset "Olkin95" is taken from the package meta. Data from meta analysis of over 70 studies of Thrombolytic Therapy after Acute Myocardial Infarction. Firstly, a forest plot showing graphical display of meta analysis results on the data of Thrombolytic Therapy after Acute Myocardial Infarction. Secondly, the numerical results for each study which are identical to the graphical display are given. Finally, the methods for detecting publication bias such as, funnel plot, Begg’s rank correlation method and Egger’s regression method and its graphical representation. Meta analysis is now a widely used method for summarizing evidence from many studies. Publication bias, the bias induced by the fact that research with statistically significant results is potentially more likely to be submitted and published than work with null or non-significant results, poses a threat to the validity of such analyses. The main objective was to review the methods existing for publication bias in Meta analysis. This thesis consolidated all the three existing methods in publication bias in Meta analysis.