

Bayesian Meta-Analysis to Account for Heterogeneity in Studies Relating Life Events to Disease

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Abstract : Associations between life events and various forms of cancers have been identified. The purpose of a recent random-effects meta-analysis was to identify studies that examined the association between adverse events associated with changes to financial status including decreased income and breast cancer risk. The same association was studied in four separate studies which displayed traits that were not consistent between studies such as the study design, location and time frame. It was of interest to pool information from various studies to help identify characteristics that differentiated study results. Two random-effects Bayesian meta-analysis models are proposed to combine the reported estimates of the described studies. The proposed models allow major sources of variation to be taken into account, including study level characteristics, between study variance, and within study variance and illustrate the ease with which uncertainty can be incorporated using a hierarchical Bayesian modelling approach.

Keywords : random-effects, meta-analysis, Bayesian, variation

Conference Title : ICBB 2018 : International Conference on Biostatistics and Biomathematics

Conference Location : Sydney, Australia

Conference Dates : December 03-04, 2018