ΚΥΚΛΟΣ ΣΕΜΙΝΑΡΙΩΝ ΣΤΑΤΙΣΤΙΚΗΣ - ΦΕΒΡΟΥΑΡΙΟΣ 2015

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Allowing for uncertainty due to missing data in pairwise and network meta-analysis

ΠΕΜΠΤΗ 5/2/2015
13:00 – 15:00

ΑΙΘΟΥΣΑ 607, 6^{ος} ΟΡΟΦΟΣ,
ΚΤΙΡΙΟ ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ
(ΕΥΕΛΠΙΔΩΝ & ΛΕΥΚΑΔΟΣ)

ΠΕΡΙΛΗΨΗ (ΣΤΑ ΑΓΓΛΙΚΑ)

Missing outcome data are commonly encountered in clinical trials and may compromise the validity of the estimated treatment effects if reasons for dropout are associated with the unobserved outcome. Most popular statistical methods used in meta-analysis underestimate uncertainty by using single imputation methods that treat the imputed data as if they were observed. The problem is accumulated in a synthesis of studies via meta-analysis. Our aim is to develop methods for estimating meta-analytic summary treatment effects in the presence of missing data for some of the individuals within the trials. We present a general framework that used pattern-mixture models to allow for uncertainty due to missing outcome data for both dichotomous and continuous outcomes in pairwise and network meta-analysis for any effect size (mean differences, standardized mean differences, risk/odds ratio e.t.c). We quantify the degree of departure from the missing at random assumption by the informative missingness parameters that relate the outcome in the missing data to the outcome in the observed data. These parameters are not informed by the data but we may use expert opinion to inform them or conduct a sensitivity analysis. We estimate the effect size and its uncertainty in a single trial either using Monte Carlo integration or a Taylor series approximation and the estimated effect sizes and their variances are synthesized in a meta-analysis model. Easily implemented STATA code has been developed to facilitate meta-analysts in applying the suggested methodology.

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THURSDAY 5/2/2015
13:00 – 15:00

**ROOM 607, 6th FLOOR,
POSTGRADUATE STUDIES BUILDING
(EVELPIDON & LEFKADOS)**

ABSTRACT

Missing outcome data are commonly encountered in clinical trials and may compromise the validity of the estimated treatment effects if reasons for dropout are associated with the unobserved outcome. Most popular statistical methods used in meta-analysis underestimate uncertainty by using single imputation methods that treat the imputed data as if they were observed. The problem is accumulated in a synthesis of studies via meta-analysis. Our aim is to develop methods for estimating meta-analytic summary treatment effects in the presence of missing data for some of the individuals within the trials. We present a general framework that used pattern-mixture models to allow for uncertainty due to missing outcome data for both dichotomous and continuous outcomes in pairwise and network meta-analysis for any effect size (mean differences, standardized mean differences, risk/odds ratio e.t.c). We quantify the degree of departure from the missing at random assumption by the informative missingness parameters that relate the outcome in the missing data to the outcome in the observed data. These parameters are not informed by the data but we may use expert opinion to inform them or conduct a sensitivity analysis. We estimate the effect size and its uncertainty in a single trial either using Monte Carlo integration or a Taylor series approximation and the estimated effect sizes and their variances are synthesized in a meta-analysis model. Easily implemented STATA code has been developed to facilitate meta-analysts in applying the suggested methodology.