

Kolloquium „Statistische Methoden in der empirischen Forschung“

Wann: 18. Dezember 2018, 17:00 – 18:30 Uhr

Wo: Robert Koch-Institut | Nordufer 20 | 13353 Berlin (Wedding),
S41, S42, U9 Westhafen | U9, Bus 142 Amrumer Str

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Comparison of propensity score methods used in the analysis of rare events in pregnancy

Due to ethical reasons, observational studies are the predominant source when investigating pregnancy outcomes after drug exposure. For treatment effect estimation, baseline characteristics often differ between the cohorts, requiring adequate adjustment for bias due to confounding. For rare events like major birth defects and medium sized studies, conventional regression adjustment using covariates is not reasonable due to small number of events. In this situation, propensity score based methods are generally preferred. However, clear recommendations for the method of choice among the various propensity score methods in settings with small sample size and rare outcomes are still missing. Since matching and stratification on the propensity score are not feasible to control for confounding in this context, we compared covariate adjustment using the propensity score and inverse probability of treatment weighting. We simulated different scenarios for treatment effect estimation generating propensity scores, group membership and outcome events, based on parameters from previously published observational cohort studies on maternal drug exposure during first trimester, carried out at the German Embryotox pharmacovigilance institute. The results of the simulations were similar for covariate adjustment using the logit of the propensity score and inverse probability of treatment weighting, with marginally increased variances for the latter.