

ADJUSTING FOR UNMEASURED COVARIATES – A BAYESIAN APPROACH

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In practice, the situation often arises where covariates are not measured, even though they may be suspected, on the basis of evidence from other studies, to influence the outcome of interest. We describe a Bayesian approach whereby we incorporate the prior knowledge of other studies to estimate the effect of an unmeasured covariate in the current study. We apply this approach to three groups of simulated data on weight, height and gender, with gender missing for one group, and show that by synthesising the three groups we can identify the true relationship between height and weight for males and females separately. Finally we apply this method to data from Insight 2007, a study of patients' satisfaction with health services in Ireland, in which outpatients were asked about their waiting time for treatment but General Practice and Emergency Department patients were not. We find a relationship between waiting time and satisfaction for the groups of patients where this was not measured, and modification of some covariates that were measured for each group. This approach is easily implemented using BUGs, with implications for practical application.