CORRECTING FOR MISCLASSIFICATION IN INTERVAL-CENSORED DATA

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The effect of measurement error/misclassification in regression models has been extensively studied in the literature (see e.g. Gustafson, 2004). When ignored, the effect of measurement/misclassification error, is to bias the regression estimates. Here we study the more difficult case of a repeated binary variable measuring the presence/absence of an irreversible disease leading to an interval-censored response representing the onset of the disease. When the binary response is prone to misclassification, correction for misclassification is needed. This could be achieved by (1) assuming a true latent accelerated failure time model for the main model where for the error distribution a variety of assumptions has been made and (2) applying a corrective action at each inspection time. The performance of our approach is illustrated on a longitudinal prospective oral health screening study conducted in Flanders (Belgium). Here, we wish to regress the (interval-censored) onset of caries on dental, dietary behaviorial and brushing behaviorial variables. The correction terms are estimated from the misclassification matrix obtained from the validation data in the study.