Identifiability of Treatment Effect in a Pretest-Posttest Study with Missing Data

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The pretest-posttest study is very important in the causal inference, missing posttest response for some patients is routine. Discarding the missing cases can lead to invalid inference. In this paper, based on the completely observed baseline (pretest) data, it is considered to use the pre-test baseline data to improve the identifiability of the post-test outcome. We derive the identified estimation (IE) for the posttest parameter, and compare with the maximum likelihood estimator (MLE). We also give the estimation of the average causal effect. The simulation study based on the model of this paper shows that the proposed method gives promising results.

Key Words: Causal effect, covariate adjustment, nonignorable nonresponse