I read with great interest the recent Journal article by Nandi et al. (1) on the role of neighborhood poverty as a potential determinant of injection cessation among injection drug users. The authors fitted and contrasted 4 logistic regression models: “crude,” “baseline adjusted,” “fully adjusted,” and one based on inverse-probability weighting (IPW). The results obtained from the IPW model were taken to be valid, whereas those from the other 3 models—including, notably, the “fully adjusted” one—were taken to be biased. Specifically, in the Discussion section of their article, the authors state the following: “These divergent results suggest that use of traditional regression to handle confounding in neighborhood effects studies may induce bias because the individual-level characteristics frequently adjusted for may be time-dependent covariates affected by prior exposure” (1, p. 395).

This statement would indeed be true in the context of analysis in which the examination of causal associations with prior exposure(s) measured before the relevant time-dependent covariates were of interest. However, according to the logistic regression models that the authors fitted, this was not the case; only the association of cessation of drug use with recent exposure (i.e., the “level of neighborhood poverty reported at prior visit,” as explicitly stated in the title of Table 2 (1, p. 394)) was estimated and reported, not the association with level of neighborhood poverty at visits before the prior visit. Thus, provided that the set of covariates for adjustment (in the “fully adjusted, traditional” model) and weighting (in the IPW model) is identical, the parameter estimates for the association between recent level of neighborhood poverty and cessation of drug use obtained from the “fully adjusted, traditional” logistic regression model should be no more or less biased than those obtained from the model in which confounding by time-dependent covariates was dealt with by IPW.

As for the numerical discrepancy in the estimates of the parameters from the 2 models (“fully adjusted” vs. IPW), it could have easily arisen as a consequence of odds ratio heterogeneity across strata defined by the numerous covariates (both baseline and time dependent). In other words, the 2 types of models estimate conceptually different parameters and would thus be expected to produce numerically different parameter estimates even in the absence of bias in either of them (2, 3).

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REFERENCES


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