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Short Communication

Not all effect sizes are the same: Comments on Holden (2008)

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Abstract

Despite the common belief that response bias is a significant moderator of psychological tests in field settings, these biases have been notoriously difficult to identify. Holden (2008) has recently presented evidence suggesting this paradox may at least in part be explained by problems inherent to the use of moderated regression with self-report indicators of response bias. His article offers an innovative proposal for understanding a central issue in applied test use. However, the conclusions drawn about both moderated regression and the general validity of response bias indicators are open to alternative explanations. It would be premature to assume these factors are important contributors to the ephemeral character of response bias effects.

Keywords: Faking; Response bias; Moderated regression; Effect sizes; Self-report

1. Introduction

After more than 60 years of analytic discussion (Cronbach, 1946), the role of faking and response bias in self-report measurement continues to vex psychologists interested in assessment. Despite widespread concern about the prevalence of invalid responding in applied settings (e.g., Gouvier, Lees-Haley, & Hammer, 2003; Mittenberg, Patton, Canyock, & Condit, 2002), a number of authors have concluded the importance of response bias has been greatly exaggerated (e.g., Hogan, Barrett, & Hogan, 2007; Ones & Viswesvaran, 1998; Piedmont, McCrae, Riemann, &

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Angleitner, 2000; Rorer, 1965). Holden (2008) brings a fresh approach to this issue, suggesting that the failure to find response bias effects may be a problem with commonly used statistical methods and bias indicators. Because it is a potentially important contribution to a very important literature, Holden's case deserves close consideration.

The first study described by Holden (2008) focused on psychopathic tendencies, the second on the five factor model (Costa & McCrae, 1991). In both studies, undergraduates completed one or more predictor scales and response bias indicators under either a standard, fake-good, or fake-bad instructional set. Three statistical models were used to detect the effect due to response bias. The first computed the difference in the proportion of criterion variance predicted by the predictor scale (the difference in the squared correlation) under standard instructions versus each faking instructional set. This will be referred to here as Model 1. These differences in the proportion of variance predicted varied between 10.96% and 16.70%, with a mean value weighted by sample size of 15.09%.

The second approach (Model 2) used moderated regression analyses in which the predictors were the predictor scale, a dichotomous variable representing membership in either the standard instruction group or one of the faking instruction groups, and the product term. The proportion of variance predicted by this last term, represented by the part correlation, varied between 0.29% and 11.63% with a mean of 5.17%. For Model 3, dimensional score on a response bias indicator was substituted for the dichotomous indicator in the moderated regression. The proportion of variance predicted declined even further, varying between 0% and 10.05% with a mean of 2.45%. To summarize, Models 2 and 3 differed from Model 1 in the use of moderated regression; Model 3 differed from Models 1 and 2 in the use of response bias indicators rather than instructional set. Each accounted for a smaller proportion of variance than the previous model.

Holden (2008) interpreted these results as evidence that moderated regression using response bias indicators tends to underestimate the occurrence of bias. The implication is that response bias can be a substantially greater problem than the research literature using this strategy would suggest. Before such a conclusion is accepted, however, it is important to place the results of this study in the context of prior discussions of moderated regression, and to note certain limitations of the study that could have limited the effectiveness of the bias indicators.

2. Moderated regression

Based on the smaller mean proportion of variance predicted by Model 2 versus Model 1, it was concluded that the moderated regression results underestimate the proportion of variance predicted by response bias. This conclusion is based on several assumptions. One is that Model 1 provides the "true" estimate of that quantity. In fact, it is a well-known problem in the use of standardized effect size measures that different statistics validly can lead to different conclusions about the strength of an effect (e.g., McGrath & Meyer, 2006). There is no authoritative rationale for awarding precedence to the results of Model 1 over those from Model 2. However, even if this point is acceded, the conclusion requires the further assumption that the proportion of variance values generated for Model 1 are comparably scaled with those generated by Models 2 and 3. Despite the reference to "proportion of variance" in both statistical models, the lower values for Model 2 than for Model 1 suggests that perhaps they are not. In fact, there is a literature that would support this conclusion as well.