Abstract

The standard Pearson correlation coefficient, *r*, is a biased estimator of the population correlation coefficient, ρ_{xy} , when the predictor (*X*) and the criterion (*Y*) are range restricted by the third variable (*Z*). This phenomenon is known as indirect range restriction (IRR) and is common in personnel selection. To correct the bias, Thorndike Case 3 (Case 3) corrected correlation coefficient, r_c, has been recommended, yet its standard error estimation has received little attention. The present study applies the Chan-Chan (C-C) bootstrap approach to propose a method for the estimation of the standard error of r_c and the construction of three confidence intervals for ρ_{xy} , including the standard interval, the bootstrap percentile (BP) interval and the bootstrap bias-corrected and accelerated percentile (BCa) interval. Under the manipulations of selection ratio, sample size and population correlations, a Monte Carlo simulation study was conducted to examine the accuracy of Case 3 correction, bootstrap standard error estimation and confidence intervals. Results indicated that, first, the Case 3 corrected correlation r_c generally underestimated the population correlation ρ_{xy} , but its overall accuracy was still reasonable. Second, the bootstrap standard error estimation was generally an accurate estimator of the empirical standard deviation of r_c, especially with large sample size and selection ratio. Finally, the BP interval and the BCa interval consistently outperformed the standard interval.