Practice Quiz 5

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Part 1: Single Regressions

Does conscientiousness contribute to the prediction of job performance beyond GMA?

Conscientiousness accounted for an additional 10% of the variance in job performance ratings beyond GMA alone, sr2=.10, 95% CI[.05,.14]. When considering GMA alone, the total variance accounted for was 26%, R2=.26, 95% CI[.20,.32]. However, when considering both predictors together, the total percentage variance accounted for increased to 36%, R2=.36, 95% CI[.29,.41], F(2,497)=137.5, p<.001. As a result, conscientiousness does contribute to the prediction of job performance beyond that of only GMA.

Do Assessment Centre ratings contribute to prediction of jp beyond GMA?

Assessment Centre ratings accounted for an additional 2% of the variance in job performance ratings beyond GMA alone, sr2=.02, 95% CI[-.00,.04]. When considering GMA alone, the total variance accounted for was 26%, R2=.26, 95% CI[.20,.32]. However, when considering both predictors together, the total percentage variance accounted for increased to 28%, R2=.28, 95% CI[.21,.34], F(2,497)=95.56, p<.001. As a result, assessment centre ratings do contribute to the prediction of job performance beyond that of only GMA.

Do Graphology ratings contribute to prediction beyond GMA?

Graphology ratings did not account for any additional variance in job performance ratings beyond GMA alone, sr2=.00, 95% CI[.00,.00]. When considering GMA alone, the total variance accounted for was 26%, R2=.26, 95% CI[.20,.32]. Similarily, when considering both predictors together, the total percentage variance accounted remained 26%, R2=.26, 95% CI[.20,.32], F(2,497)=87.54, p=.60. As a result, graphology ratings do not contribute to the prediction of job performance beyond that of only GMA.

Which additional predictor would you use?

Conscientiousness as it contributes an additional 10% to the varaince in job performance ratings beyond GMA alone brining the toal percentage variance accounted for to 36%.

Part 2: Answer the Same Questions Using Two-Block Regressions

Question 1

Conscientiousness accounted for an additional 10% of the variance in job performance ratings beyond GMA alone, $\Delta R2$=.10, 95% CI[.05,.14]. When considering GMA alone, the total variance accounted for was

26%, R2=.26, 95% CI[.20,.32]. However, when considering both predictors together, the total percentage variance accounted for increased to 36%, R2=.36, 95% CI[.29,.41], F(2,497)=137.5, p<.001. As a result, conscientiousness does contribute to the prediction of job performance beyond that of only GMA. Using two-block regressions do not change the results of the regression, they are just a different way of finding the same answer.

Question 2

Assessment Centre ratings accounted for an additional 2% of the variance in job performance ratings beyond GMA alone, $\Delta R2$=.02, 95% CI[-.00,.04]. When considering GMA alone, the total variance accounted for was 26%, R2=.26, 95% CI[.20,.32]. However, when considering both predictors together, the total percentage variance accounted for increased to 28%, R2=.28, 95% CI[.21,.34], F(2,497)=95.56, p<.001. As a result, assessment centre ratings do contribute to the prediction of job performance beyond that of only GMA. Using two-block regressions do not change the results of the regression, they are just a different way of finding the same answer.

Question 3

Graphology ratings did not account for any additional variance in job performance ratings beyond GMA alone, $\Delta R2$=.00, 95% CI[.00,.00]. When considering GMA alone, the total variance accounted for was 26%, R2=.26, 95% CI[.20,.32]. Similarily, when considering both predictors together, the total percentage variance accounted remained 26%, R2=.26, 95% CI[.20,.32], F(2,497)=87.54, p=.60. As a result, graphology ratings do not contribute to the prediction of job performance beyond that of only GMA. Using two-block regressions do not change the results of the regression, they are just a different way of finding the same answer.

Part 3: Confidence and Prediction Intervals

Using GMA and conscientiousness, what is the confidence interval for predicted performance scores at the mean GMA and mean conscientiousness.

Mean general mental ability is M=100.00, SD=15.10, while the mean conscientiousness level is M=120.00, SD=8.30. Considering these values, the best estimate of the predicted population mean for job performance is M=101.00, CI 95%[100.28,101.72].

What is the prediction interval?

Considering a general mental ability level (GMA) of M=100.00 and a mean conscientiousness level of M=120.00, the range of of possible predicted predicted job performance values is PI 95%[84.87, 117.13]. This means that individuals with a mean GMA of 100 and a mean conscientiousness level of of 120, could achieve job performance ratings between 84.87 and 117.13 with 95% prediction confidence.