**Assignment 2**

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PSYR 6003

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**Results**

**Univariate visualizations**

Univariate visualizations for socially prescribed perfectionism (SPP) scores (M=4.38, SD=1.43; see Table 1) and conscientiousness scores (M=5.03, SD=1.29; see Table 1) appear to have slight negative skewness, suggesting that most undergraduate students scored high on these traits. Negative affect scores (M=2.44, SD=0.98; see Table 1) appears to have slight positive skewness, indicating that most students reported lower levels of negative affect. Additionally, the visualizations reveal a higher proportion of female participants (n=112) compared to male participants (n=19).

**General linear model assumption checks**

The assumptions of the general linear model were only partially met. The residual dependence plot shows a slight curvature, suggesting a violation of the linearity assumption. This violation could be influenced by outliers, which could be removed to mitigate the issue, although this does not appear to be clearly indicated in the residual dependence plot. To check, we could examine the loess line to ensure it is not being influenced by outliers and remove any influential data points if appropriate. Alternatively, we could add a polynomial variable to the model to better capture a non-linear relationship. The funnel shape on both ends of the residual dependence plot suggests non-constant variance of the residuals, violating the assumption of homoscedasticity. In further support of violation of the assumption of homoscedasticity, the S-L plot does not demonstrate a flat line. To mitigate this potential violation, we could transform the data (ex. logarithms or square root) to stabilize variance across difference levels of the predictors. The assumption of normality of residuals was met, as indicated by the histogram of residuals, which demonstrates a normal distribution. The assumption of independence of observations was met by design, as each participant was measured only once, with no repeated measures and no identified clustering.

**Full model results**

The full model accounted for 27% of the variance in negative affect (R² = 0.27; see Table 2), indicating that SPP, conscientiousness, and sex were moderate predictors of negative affect. Semi-partial R² values indicated that consciousness (R² = 0.14; see Table 2) was the strongest predictor of negative effect compared to SPP (R² = 0.08; see Table 2) and sex (R² = 0.05; see Table 2). This suggests that conscientiousness explained more of an effect on negative affect compared to SPP and sex, and that SPP explained more of an effect on negative affect compared to sex.

**Model comparison and estimates for hypothesis one**

All the model fit indices in our model comparison, without controlling for any variables in our reduced model, supported the full model, suggesting that sex, conscientiousness, and SPP, together, predict negative affect better than when these predictors are omitted. Support for the full model was indicated by a Bayes factor greater than one (543039.50), a lower Akaike Information Criterion (AIC) value for the full model (333.26) compared to the reduced model (368.29), a lower Bayesian Information Criterion (BIC) value for the full model (347.63) compared to the reduced model (374.04), and a higher R² value for the full model (R²=0.27; see Table 2) compared to the reduced model (R²=0.00). This supports the first part of hypothesis one, where we hypothesised that sex, conscientiousness, and SPP, together, predict negative affect. The predicted differences between the models suggest that the model including conscientiousness, SPP, and sex can account for up to a 0.64-point differential in negative affect, corresponding to approximately a 13% shift on the PANAS scale, further supporting hypothesis one. Estimates from the full model revealed that conscientiousness was negatively associated with negative (b = -0.26, 95% CI [−0.37, −0.14]; see Table 2), such that each 1-point increase in conscientiousness corresponded to a 0.26-point decrease in negative affect, supporting the extension of our first hypothesis that consciousness negatively predicts negative affect. This suggests that the higher someone scores on consciousness, the more likely they experience less negative affect. Additionally, estimates from the full model revealed that SPP was positively associated with negative affect (b = 0.20, 95% CI [0.10, 0.31]; see Table 2), with each 1-point increase in SPP corresponding to a 0.20-point increase in negative affect, supporting the extension of the first hypothesis that SPP positively predicts negative affect. This suggests that the higher someone score in SPP, the more likely they may be to experience more negative affect.

**Model comparison for hypothesis two**

All the model fit indices in our model comparison, while controlling for conscientiousness and sex in our reduced model, supported the full model, suggesting that including SPP in the model along with conscientiousness and sex, predict negative affect better than when SPP is omitted. Support for the full model was indicated by a Bayes factor greater than one (111.43), a lower Akaike information criterion (AIC) value for the full model (333.26) compared to the reduced model (345.56), a lower Bayesian information criterion (BIC) value for the full model (347.63) compared to the reduced model (357.06), and a higher R² value for the full model (R²=0.27; see Table 2) compared to the reduced model (R²=0.19).This supports our second hypothesis, where we predicted that SPP predicts unique variance in negative affect over and above sex and conscientiousness in a meaningful way. This suggests an important role that SPP may play in predicting negative affect, warranting further investigation such as its potential impact on negative affect over time.

**Appendices**

**Table 1**

*Means, standard deviations, and correlations with confidence intervals*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | *M* | *SD* | 1 | 2 |
|  |  |  |  |  |
| 1. SPP | 4.38 | 1.43 |  |  |
|  |  |  |  |  |
| 2. Consciousness | 5.03 | 1.29 | -.21\* |  |
|  |  |  | [-.37, -.04] |  |
|  |  |  |  |  |
| 3. Negative affect | 2.44 | 0.98 | .37\*\* | -.37\*\* |
|  |  |  | [.21, .51] | [-.51, -.22] |
|  |  |  |  |  |

*Note.* *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). \* indicates *p* < .05. \*\* indicates *p* < .01.

**Table 2**

*Regression results using negative affect as the criterion*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Predictor | *b* | *b*  95% CI  [LL, UL] | *sr2* | *sr2*  95% CI  [LL, UL] | Fit |
| (Intercept) | 2.93\*\* | [2.08, 3.77] |  |  |  |
| Consciousness | -0.26\*\* | [-0.37, -0.14] | .14 | [.02, .20] |  |
| Sex | -0.58\*\* | [-0.99, -0.16] | .05 | [-.02, .10] |  |
| SPP | 0.20\*\* | [0.10, 0.31] | .08 | [.00, .17] |  |
|  |  |  |  |  | *R2*  = .269\*\* |
|  |  |  |  |  | 95% CI[.13,.37] |
|  |  |  |  |  |  |

*Note.* A significant *b*-weight indicates the semi-partial correlation is also significant. *b* represents unstandardized regression weights. *sr2* represents the semi-partial correlation squared. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively.  
\* indicates p < .05. \*\* indicates p < .01.