Assignment 2

By

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PSYR 6003 Fundamentals of Applied Statistics

Dalhousie University

16 March 2025

**Methods**

**Participants and Procedure**

In total, 137 undergraduate students began the survey. Participants completed an online survey assessing personality traits and emotional experience. After excluding those with missing responses to any survey items, the final sample size was N = 132, with n = 5 participants excluded. Sex was handled as a dichotomous variable (0 = Female, 1 = Male).

**Measures**

Negative Affect (NA) was assessed using the PANAS negative affect subscale. Participants were asked to rate their experiences of fear, hostility and guilt on a 5-point Likert scale.

Conscientiousness (CONS) was measured using The Ten Item Personality Measure (TIPM) conscientiousness subscale. The second question of the subscale was reverse-coded before calculating the mean score as per the TIPM scoring guidelines.

Socially Prescribed Perfectionism (SPP) was measured using the Multidimensional Perfectionism Scale Short Form (MPS-SF), a five-item 7-point Likert scale.

**Statistical Analysis**

Descriptive statistics and bivariate correlations were computed for all the primary variables. Multiple regression was used to examine the hypothesis that sex, CONS, and SPP will have a predictive relationship for NA. Following this, another regression analysis was completed to examine the amount of variability in NA that can be attributed to SPP while controlling for sex and CONS. The model fit was determined using the R-squared values, Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and Bayes factors.

**Results**

**Assumption Checking**

Prior to conducting the primary analyses, all statistical assumptions needed were validated. The normality assumption was verified with the histogram of residuals, which demonstrated a mild right skew but could still be considered normally distributed. Since the violation was minor, the model was deemed robust enough to proceed with analysis. The residual dependence plot produced a level distribution with some curvature at low and high ranges of the line. This assumption appears to be violated, and a quadratic or other model may be a better fit. Homoskedasticity was assessed with the S-L plot, and it was shown that the slope of the line was relatively flat, with a slight increase towards the right side of the line. However, the line is flat enough to conclude that the homoskedasticity assumption was met. The assumption of independence was fulfilled because individuals were surveyed separately without interference.

**Descriptive Statistics and Bivariate Correlations**

Descriptive statistics such as means, standard deviations, and bivariate correlations for NA, CONS, SPP, and sex are presented in Table 1. The mean of NA was 2.44 (SD = 0.97), CONS was 5.01 (SD = 1.31), and SPP was 4.38 (SD = 1.42). SPP was positively correlated with NA (r = 0.36, 95% CI [0.20, 0.50]), while CONS was negatively correlated with NA (r = -0.37, 95% CI [-0.51, -0.22]). The sex and NA correlation was negative but failed to reach significance

(r = -0.15, 95% CI [-0.31, 0.03]). Since CONS and SPP were both significantly correlated with NA in opposite directions, a follow-up analysis was conducted to determine if SPP explained variance in NA above and beyond sex and CONS.

**Hypothesis 1: Predicting Negative Affect**

A multiple regression model examined whether sex, CONS, and SPP predicted NA. The overall model accounted for 26.9% of the variance in NA (R^2 = 0.269, 95% CI [0.13, 0.37]). Regression coefficients are shown in Table 2. Sex was a significant predictor of NA, with female sex being associated with higher NA scores (b = -0.56, 95% CI [-0.97, -0.15], beta = -0.21). CONS was also a significant negative predictor (b = -0.26, 95% CI [-0.38, -0.15], beta = -0.35), while SPP was positively related to NA (b = 0.20, 95% CI [0.10, 0.30], beta = 0.29). These findings are as predicted by hypothesis 1, confirming that sex, CONS, and SPP significantly predict NA.

**Hypothesis 2: Incremental Validity of SPP**

A hierarchical regression analysis was used to test if SPP independently explained variance in NA beyond sex and CONS. The reduced model included only sex and CONS, and the full model included sex, CONS, and SPP. The reduced model accounted for 18.6% of the variance in NA (R^2 = 0.186), whereas the full model accounted for 26.9% (R^2 = 0.269). The model comparison test revealed that the full model provided a better fit to the data, reflected through a lower AIC compared to the reduced model (334.97 vs. 347.14, respectively) and BIC compared to the reduced model (349.38 vs. 358.67, respectively) and higher Bayes factor (103.99), reflecting robust evidence for the full model. It suggests that the addition of SPP improved the model's predictive power over and beyond sex and CONS alone. Thus, hypothesis 2 was confirmed, demonstrating that SPP predicts unique variance in negative affect.

**Conclusion**

The results of the current study help shed light on the complex correlation between sex, CONS, and SPP in the prediction of NA in undergraduate university students. Even though sex and CONS were strong predictors, SPP contributed more to the explanation, emphasizing its role in NA over the effect of sex and CONS. These findings are in line with previous studies suggesting that SPP may be a risk factor for NA independent of other variables. Subsequent research can continue to examine the mechanisms involved in this correlation, such as maladaptive coping or heightened self-criticism associated with perfectionism.

**Table 1**

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | *M* | *SD* | 1 | 2 | 3 |
|  |  |  |  |  |  |
| 1. NA | 2.44 | 0.97 |  |  |  |
|  |  |  |  |  |  |
| 2. CONS | 5.01 | 1.31 | -.37\*\* |  |  |
|  |  |  | [-.51, -.22] |  |  |
|  |  |  |  |  |  |
| 3. SPP | 4.38 | 1.42 | .36\*\* | -.19\* |  |
|  |  |  | [.20, .50] | [-.35, -.02] |  |
|  |  |  |  |  |  |
| 4. sex | 0.15 | 0.36 | -.15 | -.17\* | -.00 |
|  |  |  | [-.31, .03] | [-.33, -.00] | [-.18, .17] |
|  |  |  |  |  |  |

*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 NA as the criterion*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Predictor | *b* | *b*  95% CI  [LL, UL] | *beta* | *beta*  95% CI  [LL, UL] | *sr2* | *sr2*  95% CI  [LL, UL] | *r* | Fit |
| (Intercept) | 2.97\*\* | [2.14, 3.79] |  |  |  |  |  |  |
| sex | -0.56\*\* | [-0.97, -0.15] | -0.21 | [-0.36, -0.05] | .04 | [-.02, .10] | -.15 |  |
| CONS | -0.26\*\* | [-0.38, -0.15] | -0.35 | [-0.51, -0.20] | .12 | [.02, .21] | -.37\*\* |  |
| SPP | 0.20\*\* | [0.10, 0.30] | 0.29 | [0.14, 0.45] | .08 | [.00, .16] | .36\*\* |  |
|  |  |  |  |  |  |  |  | *R2*  = .269\*\* |
|  |  |  |  |  |  |  |  | 95% CI [.13,.37] |
|  |  |  |  |  |  |  |  |  |

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

**Table 3**

*Regression Analysis Predicting NA*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Predictor | *b* | *b*  95% CI  [LL, UL] | *beta* | *beta*  95% CI  [LL, UL] | *sr2* | *sr2*  95% CI  [LL, UL] | *r* | Fit | Difference |
| (Intercept) | 4.07\*\* | [3.44, 4.69] |  |  |  |  |  |  |  |
| CONS | -0.31\*\* | [-0.42, -0.19] | -0.41 | [-0.57, -0.25] | .16 | [.05, .28] | -.37\*\* |  |  |
| Sex | -0.59\*\* | [-1.02, -0.16] | -0.22 | [-0.38, -0.06] | .05 | [-.02, .11] | -.15 |  |  |
|  |  |  |  |  |  |  |  | *R2*  = .186\*\* |  |
|  |  |  |  |  |  |  |  | 95% CI[.07,.29] |  |
|  |  |  |  |  |  |  |  |  |  |
| (Intercept) | 2.97\*\* | [2.14, 3.79] |  |  |  |  |  |  |  |
| CONS | -0.26\*\* | [-0.38, -0.15] | -0.35 | [-0.51, -0.20] | .12 | [.02, .21] | -.37\*\* |  |  |
| SPP | 0.20\*\* | [0.10, 0.30] | 0.29 | [0.14, 0.45] | .08 | [.00, .16] | .36\*\* |  |  |
| sex | -0.56\*\* | [-0.97, -0.15] | -0.21 | [-0.36, -0.05] | .04 | [-.02, .10] | -.15 |  |  |
|  |  |  |  |  |  |  |  | *R2*  = .269\*\* | Δ*R2*  = .083\*\* |
|  |  |  |  |  |  |  |  | 95% CI[.13,.37] | 95% CI[.00, .16] |
|  |  |  |  |  |  |  |  |  |  |

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