Example 1: Results for a One-way ANOVA with Tukey Post hoc

A one-way ANOVA was conducted to explore anxiety based on political affiliation. An alpha level of .05 was utilized. Descriptive statistics are in Table 1. All groups were normally distributed. Variances were homogeneous, *F* (3, 16) = 1.37, *p* = .289. Statistically significant differences were evident among the political groups, *F* (3, 16) = 11.49, *p* < .001. A large effect size was noted, *η2*= .68 (95% CI [.27, .78]), indicative of a strong degree of practical significance. Replication of this analysis could yield effects consistent with a large effect size, suggesting a stable finding. Given the sample size of *n* = 20, statistical significance would be detected only for large effect sizes, *η2* > .41.

In order to investigate significant differences between political groups, a Tukey post hoc analysis was conducted. Statistically significant differences were noted between Liberal and Very Conservative, Very Liberal and Very Conservative, and Conservative and Very Conservative (see Table 2). Practical significance was assessed using Cohen’s *d*. A moderate effect size was noted between groups Liberal and Conservative. Large effect sizes were noted between groups Liberal and Very Liberal, Liberal and Very Conservative, Very Liberal and Conservative, Very Liberal and Very Conservative, and Conservative and Very Conservative (see Table 2). Large effect sizes were indicative of very strong practical significance.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table 1 |  | |  |  |
| *Descriptive Statistics* | | | | |
| Group | | *n* | Mean | SD |
| 1. Liberal | | 5 | 6.00 | 2.55 |
| 1. Very Liberal | | 5 | 9.00 | 1.23 |
| 1. Conservative | | 5 | 7.00 | 1.58 |
| 1. Very Conservative | | 5 | 2.40 | 1.67 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table 2. |  |  |  |  |
| *Tukey post hoc analysis* | | |  |  |
| Group Comparisons | | Mean Difference | *p* | *d* |
| 1 | 2 | -3.00 | 0.082 | 1.50 |
|  | 3 | -1.00 | 0.822 | 0.47 |
|  | 4 | 3.60\* | 0.030 | 1.67 |
| 2 | 3 | 2.00 | 0.339 | 1.41 |
|  | 4 | 6.60\* | < .001 | 4.50 |
| 3 | 4 | 4.60\* | 0.005 | 2.83 |
| \**p* < .05 | |  |  |  |

**Results**

**Descriptive Statistics**

| **Descriptive Statistics** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **Anxiety** | | | | | | | |
|  | | **liberal** | | **very liberal** | | **conservative** | | **very conservative** | |
| Valid |  | 5 |  | 5 |  | 5 |  | 5 |  |
| Missing |  | 0 |  | 0 |  | 0 |  | 0 |  |
| Mean |  | 6.000 |  | 9.000 |  | 7.000 |  | 2.400 |  |
| Std. Deviation |  | 2.550 |  | 1.225 |  | 1.581 |  | 1.673 |  |
| Skewness |  | 0.000 |  | 1.361 |  | 0.000 |  | 1.089 |  |
| Std. Error of Skewness |  | 0.913 |  | 0.913 |  | 0.913 |  | 0.913 |  |
| Shapiro-Wilk |  | 0.944 |  | 0.833 |  | 0.987 |  | 0.881 |  |
| P-value of Shapiro-Wilk |  | 0.692 |  | 0.146 |  | 0.967 |  | 0.314 |  |
| Minimum |  | 3.000 |  | 8.000 |  | 5.000 |  | 1.000 |  |
| Maximum |  | 9.000 |  | 11.000 |  | 9.000 |  | 5.000 |  |
|  | | | | | | | | | |

**ANOVA**

| **ANOVA - Anxiety** | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cases** | | **Sum of Squares** | | **df** | | **Mean Square** | | **F** | | **p** | | **η²** | |
| Group |  | 114.600 |  | 3 |  | 38.200 |  | 11.489 |  | < .001 |  | 0.683 |  |
| Residuals |  | 53.200 |  | 16 |  | 3.325 |  |  |  |  |  |  |  |
|  | | | | | | | | | | | | | |
| *Note.*  Type III Sum of Squares | | | | | | | | | | | | | |

**Descriptives**

| **Descriptives - Anxiety** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Group** | | **Mean** | | **SD** | | **N** | |
| conservative |  | 7.000 |  | 1.581 |  | 5 |  |
| liberal |  | 6.000 |  | 2.550 |  | 5 |  |
| very conservative |  | 2.400 |  | 1.673 |  | 5 |  |
| very liberal |  | 9.000 |  | 1.225 |  | 5 |  |
|  | | | | | | | |

**Assumption Checks**

| **Test for Equality of Variances (Levene's)** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **F** | | **df1** | | **df2** | | **p** | |
| 1.367 |  | 3.000 |  | 16.000 |  | 0.289 |  |
|  | | | | | | | |

**Post Hoc Tests**

**Standard**

| **Post Hoc Comparisons - Group** | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | | **Mean Difference** | | **SE** | | **t** | | **Cohen's d** | | **p tukey** | |
| liberal |  | very, liberal |  | -3.000 |  | 1.153 |  | -2.601 |  | -1.500 |  | 0.082 |  |
|  |  | conservative |  | -1.000 |  | 1.153 |  | -0.867 |  | -0.471 |  | 0.822 |  |
|  |  | very, conservative |  | 3.600 |  | 1.153 |  | 3.122 |  | 1.669 |  | 0.030 |  |
| very, liberal |  | conservative |  | 2.000 |  | 1.153 |  | 1.734 |  | 1.414 |  | 0.339 |  |
|  |  | very, conservative |  | 6.600 |  | 1.153 |  | 5.723 |  | 4.501 |  | < .001 |  |
| conservative |  | very, conservative |  | 4.600 |  | 1.153 |  | 3.989 |  | 2.826 |  | 0.005 |  |
|  | | | | | | | | | | | | | |
| *Note.*  Cohen's d does not correct for multiple comparisons. | | | | | | | | | | | | | |
| *Note.*  P-value adjusted for comparing a family of 4 | | | | | | | | | | | | | |