**Statistical Analysis for The Getting Out the Gunk**

**To: Dr.Bingenheimer**

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**RE: Statistical Analysis**

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**A. Section 1**

Table 1 represents the mean scores from a paired t-test before and after the intervention. Knowledge, Self-Efficacy, and Motivation increased while LDL decreased, suggesting that the intervention is effective. Table 2 used nonparametric analysis because the Hispanic/Latino group was less than <30. P-value was included to indicate statistical significance. The intervention had a positive effect on self-efficacy and motivation among this subgroup. Knowledge improvement and LDL reduction were not statistically significant in this subgroup; however, due to sample size, further calculations can reveal the magnitude of the difference.

**Table 1: Pre-test-Posttest Design Results**

|  |  |  |
| --- | --- | --- |
| **Variable** | **Pre-Test Mean** | **Post-Test Mean** |
| **Knowledge scale** | 0.5253 | 0.6105 |
| **Self-Efficacy scale** | 3.6316 | 3.8884 |
| **Motivation scale** | 3.5158 | 3.8926 |
| **LDL in mg/dL** | 178.0666 | 172.1874 |

**Table 2: Pre-test and Post-test Design Results by Hispanic/Latino**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Pre-Test Mean** | **Post-Test Mean** | **p-value** |
| **Knowledge Scale** | 0.5095 | 0.5905 | 0.294 |
| **Self-Efficacy Scale** | 3.5524 | 3.9810 | 0.001 |
| **Motivation Scale** | 3.3333 | 3.7524 | 0.011 |
| **LDL in mg/dL** | 173.1464 | 168.1333 | 0.230 |

**B. Section 2**

LDL levels decreased in the treatment group, suggesting a positive health benefit from the program intervention. Table 3 used Levene’s test to identify group variances amongst the outcome variables. The knowledge scale has an F value of .028, meaning unequal variance, suggesting the intervention affected participants differently. In Table 4, the Mann-Whitney Test was conducted for Hispanic/Latino participants to compare the control and treatment groups within a specific category. LDL levels were lower in the treatment group, with a close result to significance.

**Table 3:Post-test Design Results for Control and Treatment Group**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Control Mean** | **Treatment Mean** | **Mean Difference** |
| **Knowledge Scale POST** | 0.5648 | 0.6105 | -0.04576 |
| **Self-efficacy Scale POST** | 3.6229 | 3.8884 | -0.26556 |
| **Motivation Scale POST** | 3.5429 | 3.8926 | -0.34977 |
| **LDL in mg/dL POST** | 181.8704 | 172.1874 | 9.68301 |

**Table 4: Post-test Design by Hispanic/Latino**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Control Mean Rank** | **Treatment Mean Rank** | **p-value** |
| **Knowledge Scale POST** | 27.37 | 25.21 | 0.612 |
| **Self-efficacy Scale POST** | 26.32 | 26.76 | 0.918 |
| **Motivation Scale POST** | 25.71 | 27.67 | 0.647 |
| **LDL in mg/dL POST** | 29.58 | 21.95 | 0.075 |

**C. Section 3**

The intervention had the most substantial impact on motivation and self-efficacy. LDL levels were lower in the treatment group, suggesting a positive health benefit from the intervention. The sum of squares assesses effect size, with LDL, motivation, and self-efficacy having the most significant effects. Given the knowledge scale’s smaller value, the program should reevaluate its methods of educating participants to improve retention.

**Table 5: ANCOVA Pretest-Posttest Control Group Analysis**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Sum of Squares** | **Estimated Marginal Mean Control** | **Estimated Marginal Mean Treatment** | **Standard Error Control** | **Standard Error Treatment** |
| **Knowledge Scale POST** | 0.181 | .558a | .618a | 0.027 | 0.028 |
| **Self-efficacy Scale POST** | 3.945 | 3.615a | 3.897a | 0.051 | 0.054 |
| **Motivation Scale POST** | 7.270 | 3.528a | 3.910a | 0.053 | 0.056 |
| **LDL in mg/dL POST** | 3026.306 | 180.978a | 173.174a | 1.327 | 1.395 |