Quantitative Research Methods: 012

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# Hypothesis 1: Gender and Depression Severity

**Null Hypothesis (H0):** There is no significant difference in depression severity between male and female students.

**Alternative Hypothesis (H1):** Female students have a significantly higher depression severity than male students.

## Introduction

Gender differences in mental health have been extensively studied, with numerous reports suggesting that females are more likely to experience higher levels of depression compared to males. This difference is often attributed to a variety of biological, psychological, and social factors that differentially impact males and females. Given this context, we hypothesize that female students attending the university mental-health clinic will report significantly higher depression severity compared to their male counterparts.

## Methods

To test this hypothesis, we conducted an independent samples t-test using the depression severity scores of male and female students. The dataset includes the depression severity scores of 220 students, with gender indicated as 0 for male and 1 for female. The depression severity scores range higher indicating greater severity. Descriptive statistics were first computed to understand the mean and standard deviation of depression severity for each gender. Following this, an independent samples t-test was conducted to determine if the differences in means between males and females were statistically significant.

## Results

Table 1

| *Descriptives* | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **GENDER** | | **Mean** | | **SD** | |
| Dep |  | MALE |  | 6.22 |  | 1.28 |  |
|  |  | FEMALE |  | 5.61 |  | 1.76 |  |
|  | | | | | | | |

Note. Descriptive statistics revealed that the mean depression severity score for male students (M = 6.22, SD = 1.28) was higher than that for female students (M = 5.61, SD = 1.76).

Table 2

| *Independent Samples T-Test* | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | | **Statistic** | | **df** | | **p** | |
| Dep |  | Student's t |  | 2.94 | ᵃ | 218 |  | .004 |  |
| Note. Hₐ μ MALE ≠ μ FEMALE | | | | | | | | | |
| ᵃ Levene's test is significant (p < .05), suggesting a violation of the assumption of equal variances | | | | | | | | | |
|  | | | | | | | | | |

The independent samples t-test indicated a statistically significant difference in depression severity between male and female students (t(218) = 2.94, p = .004). As the p-value is less than 0.05, the null hypothesis has been rejected.

## Discussion

The results of the independent samples t-test provide evidence against the null hypothesis, indicating that there is a significant difference in depression severity between male and female students. Contrary to our initial hypothesis, male students reported higher depression severity compared to female students.

The results suggest more male than female students are depressed at this university's mental health facility. This is surprising since most studies suggest women are more sad. This startling observation may have many causes. The clinic's male students may be a subpopulation with severe depression. However, female students with lesser depression may seek therapy elsewhere. Men may delay seeking assistance until their depression is severe due to mental health stigma. These findings demonstrate the importance of gender in mental health research and treatment. More research is required to determine why men and women feel different amounts of grief and if similar discrepancies are seen at other universities or bigger groups.

The study shows that there is a big difference between the levels of sadness among male and female students at a university mental health centre. Male students reported higher levels of depression. This result makes it clear that mental health services need to be more specific and adapt to the needs and situations of both male and female students.

# Hypothesis 2: Peer Support and Academic Achievement

**Null Hypothesis (H0):** There is no significant relationship between perceived peer support and academic achievement.

**Alternative Hypothesis (H1):** There is a significant positive relationship between perceived peer support and academic achievement.

## Introduction

An important link between perceived peer support and better academic performance is increased attendance. Supportive social networks can help students deal with worry and do better in school by giving them emotional, mental, and physical support. The goal of this study is to find out how students who go to a university mental health centre feel about their peers' help and how well they do in school.

## Methods

To test this hypothesis, a correlation analysis was conducted using data from 220 students. The variables of interest were "Peer Support" and "Academic Achievement," both measured on a continuous scale. "Peer Support" reflects the level of support students perceive from their peers, while "Academic Achievement" represents their proficiency in academic performance.

Pearson’s correlation coefficient was used to examine the relationship between these two variables. Pearson’s r measures the strength and direction of the linear relationship between two continuous variables. The significance level was set at 0.05.

**Results**

Table 3

| **Correlation Matrix** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | | **Peer Support** | | **Academic Achievement** | |
| Peer Support |  | Pearson's r |  | — |  |  |  |
|  |  | df |  | — |  |  |  |
|  |  | p-value |  | — |  |  |  |
| Academic Achievement |  | Pearson's r |  | .423 |  | — |  |
|  |  | df |  | 218 |  | — |  |
|  |  | p-value |  | < .001 |  | — |  |
|  | | | | | | | |

Note. The Pearson's correlation coefficient (r) was found to be .423, with a p-value of less than .001. Since the p<0.05 the null hypothesis has been rejected.

## Discussion

The correlation analysis reveals a statistically significant positive relationship between perceived peer support and academic achievement, with a Pearson’s r of .423. Since the p-value is less than .001, we reject the null hypothesis, supporting the alternative hypothesis that there is a significant positive relationship between peer support and academic achievement.

The correlation coefficient of 0.423 indicates a moderate positive relationship, suggesting that as perceived peer support increases, academic achievement also tends to increase. This finding aligns with existing literature, which highlights the importance of social support systems in enhancing students’ academic performance.

Many factors may cause this beautiful partnership. Peer support and study groups may help students understand and enjoy their tasks. These services reduce stress and improve academic performance. Peer encouragement may boost self-esteem and stress management, improving performance. Students may feel connected with peer support. Personality, economics, and resources may be involved. These issues may be studied further using continuous data to find the causes.

# Hypothesis 3: Family Problems and Addiction Severity

**Null Hypothesis (H0):** There is no significant difference in addiction severity between students with and without family problems.

**Alternative Hypothesis (H1):** Students with family problems have a significantly higher addiction severity than those without family problems.

## Introduction

Family problems are often associated with increased stress and emotional distress, which can lead to higher addiction severity as individuals may turn to substances as a coping mechanism. This study aims to investigate the relationship between family problems and addiction severity among students attending a university mental health clinic. We hypothesize that students with family problems will have significantly higher addiction severity compared to those without family problems.

## Methods

To test this hypothesis, we conducted an independent samples t-test using the addiction severity scores of students with and without family problems. The dataset includes the addiction severity scores of 220 students, with family problems indicated as 0 for no and 1 for yes. Addiction severity is measured on a continuous scale, with higher scores indicating greater severity.

Descriptive statistics were first computed to understand the mean and standard deviation of addiction severity for each group. Following this, an independent samples t-test was conducted to determine if the differences in means between the two groups were statistically significant.

Table 4

| *Descriptives* | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **Family Problems** | | **Mean** | | **SD** | |
| Addiction |  | no |  | 5.36 |  | 1.43 |  |
|  |  | yes |  | 5.97 |  | 1.28 |  |
|  | | | | | | | |

Note. Descriptive statistics revealed that the mean addiction severity score for students without family problems (M = 5.36, SD = 1.43) was lower than that for students with family problems (M = 5.97, SD = 1.28).

Table 5

| *Independent Samples T-Test* | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | | **Statistic** | | **df** | | **p** | |
| Addiction |  | Student's t |  | -3.33 |  | 218 |  | .001 |  |
| Note. Hₐ μ no ≠ μ yes | | | | | | | | | |
|  | | | | | | | | | |

The independent samples t-test indicated a statistically significant difference in addiction severity between students with and without family problems (t(218) = -3.33, p = .001). The null hypothesis has been rejected since the p-value is less than .05.

## Discussion

The independent samples t-test showing that students with and without family problems have significantly different addictions rejects the null hypothesis. For example, kids with family difficulties scored substantially higher for addiction severity than those without.

This finding is consistent with the literature that suggests family problems can contribute to higher levels of stress and emotional turmoil, which may lead individuals to use substances as a coping mechanism. Family problems can create a challenging environment, potentially leading to feelings of helplessness and seeking escape through substance use.

Different levels of addiction indicate how essential family issues are in initiatives to prevent youngsters from consuming drugs. To reduce the impact of family concerns on student addiction, universities' mental health services should provide family therapy and assistance.

Remember that this research simply reveals a relationship between family problems and addiction severity, not that one caused the other. Resolve, social support, and mental health tools may also impact addiction severity. Future research might examine these elements and utilise continuous data to determine the causes.

# Hypothesis 4: Study-related Difficulties and Faculty

**Null Hypothesis (H0):** There is no significant difference in self-reported study-related difficulties among students from different faculties.

**Alternative Hypothesis (H1):** There is a significant difference in self-reported study-related difficulties among students from different faculties.

## Introduction

Different academic faculties may pose varying levels of academic challenges to students, potentially leading to different levels of study-related difficulties. This study aims to investigate whether students from different faculties (Business, Law, Arts, Science & Engineering) experience different levels of study-related difficulties across five academic terms.

## Methods

To test this hypothesis, a one-way ANOVA (Welch's) was conducted using the data on study-related difficulties from students across four faculties. The study-related difficulties were measured on a continuous scale at the end of each academic term (five terms in total). Welch's ANOVA was chosen due to its robustness to unequal variances and sample sizes across groups. The significance level was set at 0.05.

Table 6

| *Descriptives* | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **Faculty** | | **Study-related difficulties (1)** | | **Study-related difficulties (2)** | | **Study-related difficulties (3)** | | **Study-related difficulties (5)** | | **Study-related difficulties (4)** | | |
| Mean |  | Business |  | 17.2 |  | 33.0 |  | 56.0 |  | 59.4 |  | 58.7 |  |
|  |  | Law |  | 18.6 |  | 26.1 |  | 56.5 |  | 61.1 |  | 57.5 |  |
|  |  | Arts |  | 16.9 |  | 24.8 |  | 55.6 |  | 57.9 |  | 53.9 |  |
|  |  | Science & Engineering |  | 18.5 |  | 25.1 |  | 53.6 |  | 63.3 |  | 54.7 |  |
| Standard deviation |  | Business |  | 8.36 |  | 18.2 |  | 12.3 |  | 12.2 |  | 12.3 |  |
|  |  | Law |  | 11.0 |  | 18.5 |  | 14.5 |  | 14.3 |  | 12.8 |  |
|  |  | Arts |  | 11.2 |  | 13.6 |  | 12.7 |  | 14.8 |  | 15.2 |  |
|  |  | Science & Engineering |  | 9.39 |  | 15.1 |  | 11.3 |  | 15.4 |  | 15.4 |  |
|  | | | | | | | | | | | | | | | |

 Note. Descriptive statistics show similar average levels and variability of study-related difficulties across faculties.

Table 7

| *One-Way ANOVA (Welch's)* | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **F** | | **df1** | | **df2** | | **p** | |
| Study-related difficulties (1) |  | .372 |  | 3 |  | 72.1 |  | .774 |  |
| Study-related difficulties (2) |  | 1.101 |  | 3 |  | 68.7 |  | .355 |  |
| Study-related difficulties (4) |  | 1.099 |  | 3 |  | 68.1 |  | .356 |  |
| Study-related difficulties (3) |  | .638 |  | 3 |  | 70.3 |  | .593 |  |
| Study-related difficulties (5) |  | 1.178 |  | 3 |  | 70.3 |  | .324 |  |
|  | | | | | | | | | |

Note. Welch's ANOVA reveals low F-values and p-values greater than .05 for all terms, indicating no significant differences in study-related difficulties between faculties. Observed variations are likely due to random fluctuation rather than actual differences.

## Discussion

The results of Welch's ANOVA show no significant difference in study-related difficulties across different faculties for all five academic terms. Thus, we fail to reject the null hypothesis. This suggests that students from Business, Law, Arts, and Science & Engineering faculties experience similar levels of study-related difficulties over time.

These findings indicate that although faculties may have different academic challenges, students generally face the same challenges. This might suggest that all schools of the university have a similar academic environment or that students in all areas handle academic stress similarly.

More research could look into other things that might affect problems with studying, like how people deal with stress, their support networks, and the specific requirements of their programme. On top of that, ongoing studies could give us a better understanding of how problems with studying change over time and help us come up with better ways to help students.