Predicting Depression in University Students: The Role of Anxiety

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Abstract

Feeling down or overly worried shows up a lot in college students - these struggles tend to come together, making each worse. Spotting how worry ties into sadness might help schools catch troubled students earlier while shaping better support systems. For this small study, I worked with an open-access set of info from 101 students to check if high anxiety links to more depression cases. Once incomplete answers were removed, I looked at depression numbers in those stressed versus those calm by using basic summaries, a chi-squared analysis, plus a logistic prediction method. The trend was obvious: students feeling tense reported much greater levels of low mood - over half (52.9%) - while only about a quarter (25.4%) of relaxed ones did. This link held up in stats, $\chi^2(1)$ = 6.40, p = .0114, while a logistic setup showed anxious feelings raised chances of sadness by over three times (OR = 3.31, 95% CI [1.40, 8.03]). Results line up with known overlap trends, pointing toward checking for nervousness as a useful way to catch low moods sooner in school kids.

1. Introduction

Feeling down or overly worried shows up a lot among college students. School demands, money troubles, changing friendships, along with the shift into adult life make things shaky at this age. Research keeps showing these two struggles pop up together - linked through how we think, feel, even how our bodies react. Take low moods and constant worry - they share traits like dwelling on bad thoughts, struggling to calm nerves. Spotting nervousness early might hint that sadness could follow soon after.

With these findings in mind, it's worth asking if personal reports of anxiety might actually help spot depression risks among students not in treatment. That matters for campus mental health teams - often stretched thin - who use quick check-ins to find those who could gain from early support.

The current study tries to confirm the known link between anxiety and depression by working with an open-access data collection from Kaggle (Islam, 2023). Even though the data isn't complex and comes from personal answers, it still allows us to check if stressed students tend to report more depressive symptoms - then measure how strong that connection is through standard psychology-focused stats methods.

The study uses a clear step-by-step approach: first, it checks how common depression is in people with anxiety versus those without. Then, it confirms whether that gap matters by running a chi-square test. After that, it calculates the odds ratio through logistic regression. Instead of just repeating earlier findings, this work shows how to do reliable science using R code you can check and reuse.

2. Methods

Data Source

Data came from a student mental health collection posted on Kaggle by Shariful Islam in 2023. This set holds answers people gave about their own feelings, like if they've had signs of stress or low mood - sometimes both at once.

Variables

Two yes-or-no factors were picked: - **Anxiety:** Yes / No
- **Depression:** Yes / No

Both were recoded numerically (1 = Yes, 0 = No).

Sample and Exclusions

Rows with missing values in either variable were removed, resulting in a final analytic sample of **101 students**.

Analytic Approach

The review moved ahead in three phases:
1. **Descriptive statistics** to compute depression prevalence in both groups.
2. **Chi-square test** to evaluate group differences.
3. **Logistic regression** to compute odds ratios and confidence intervals.

All analyses were conducted in R using the tidyverse ecosystem.

3. Results

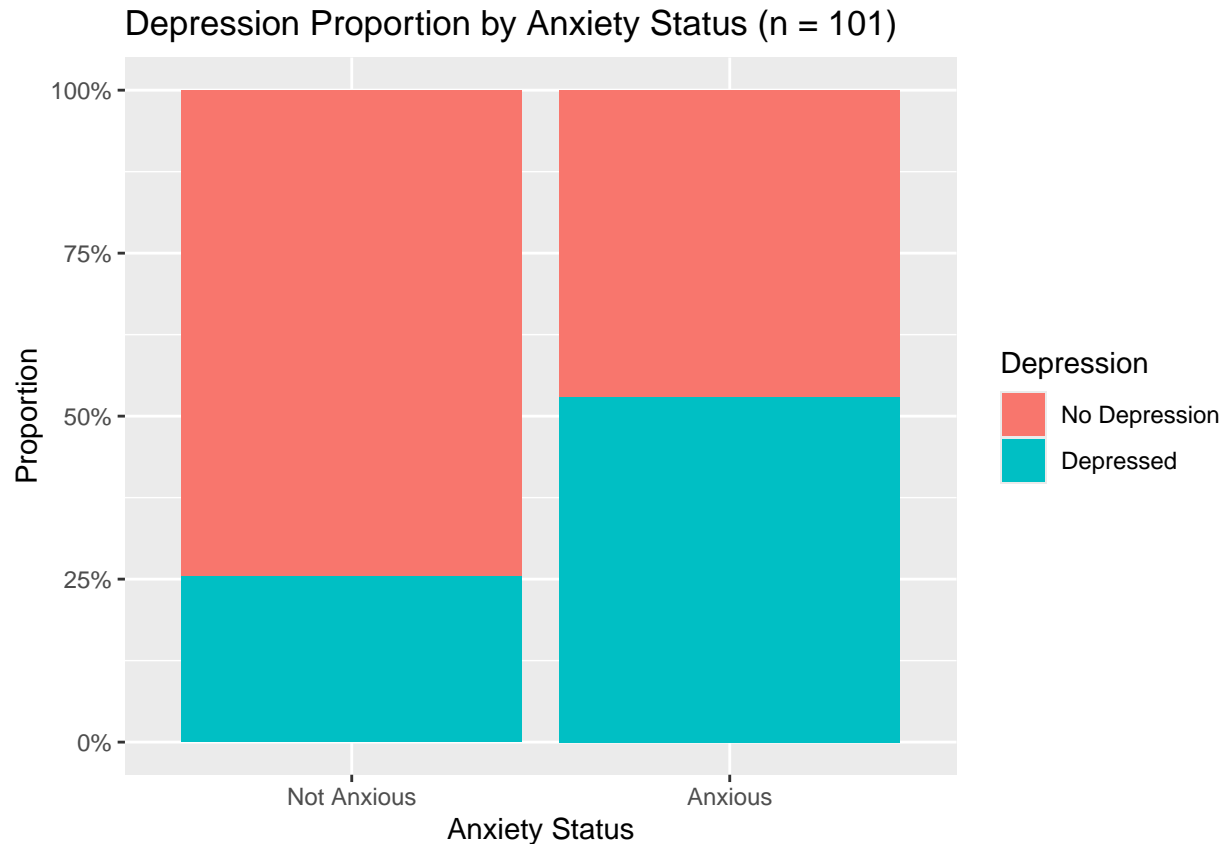Table 1: Table 1. Percentage of Depressed Students by Anxiety Status (n = 101)

Anxiety Status	Depressed (n)	Group Size (n)	Percent Depressed
Not Anxious	17	67	25.4
Anxious	18	34	52.9

Descriptive findings revealed noticeable gaps across both groups. For students without anxiety, 0ne in four - 17 from a total of 67 - said they felt depressed. On the flip side, nearly every second anxious student - 18 out of 34 - reported low mood. That's more than twice the share, suggesting those struggling with worry also faced higher chances of feeling down.

A chi-square check showed the gap wasn't due to chance, $\chi^2(1) = 6.40$, p = .0114 - so here, mood struggles tended to show up together.

The logistic regression showed anxious students tended to report depression much more often - over three times higher odds (OR = 3.31, 95% CI [1.40, 8.03], p = .007). When combining descriptive

stats, inference results, plus the regression findings, the link between anxiety and depression comes through clearly across all methods.

Depression Proportion by Anxiety Status (n = 101)

4. Discussion

The results from this small study match what's been seen before: when people feel more anxious, they're also way likelier to deal with depression. Not surprising - earlier work shows these two often show up together. Instead of seeing them as separate, think of it like overlapping habits in thinking or reacting badly under pressure. That overlap? It makes folks already struggling with worry much more prone to slipping into low moods.

These findings matter because spotting issues early can make a difference. With high student demand, campus counseling services need quick ways to sort through cases. Short anxiety check-ins might point out who needs deeper look or extra care down the line. That's useful on campuses - many students wait too long before reaching out, sometimes not noticing their struggles are getting worse.

The study comes with a few drawbacks - like its one-time snapshot approach, answers based on personal recall, also missing key factors like stress, school pressure, character type, or help from others. Even so, the results clearly show, in a way that can be repeated, how anxiety might signal possible depression among students. ## 5. Conclusion This small study suggests students who say they feel anxious are much more likely to also struggle with sadness. Even though it relies on personal answers and just one snapshot in time, the results still match up with what we already know about these issues often occurring together - while showing even simple math methods can

uncover useful real-world clues. Getting students easier access to check-ups for worry signs - or quick support when needed - could lower how many end up dealing with low moods. ## References Islam, S. (2023). *Student Mental Health Dataset*. Kaggle. (See dataset page for access and license details; accessed 26 November 2025.)

Reproducibility & Integrity

This project repeats earlier research using openly available data (Islam, 2023). You can reproduce every step thanks to the included R Markdown plus session details shown here. ## Data Availability - **Source:** Kaggle – Student Mental Health (Shariful Islam, 2023)
- **License:** See dataset page for details
- **Ethics:** Public anonymized dataset; no human-subjects involvement

Session Info

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## Running under: Windows 10 x64 (build 19045)
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##   LAPACK version 3.12.1
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## [2] LC_CTYPE=English_United States.utf8
## [3] LC_MONETARY=English_United States.utf8
## [4] LC_NUMERIC=C
## [5] LC_TIME=English_United States.utf8
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## time zone: Asia/Tehran
## tzcode source: internal
##
## attached base packages:
## [1] stats     graphics  grDevices utils     datasets  methods   base
##
## other attached packages:
##  [1] broom_1.0.10    knitr_1.50      lubridate_1.9.4 forcats_1.0.1
##  [5] stringr_1.6.0   dplyr_1.1.4     purrr_1.1.0     readr_2.1.5
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##
## loaded via a namespace (and not attached):
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## [17] rlang_1.1.6      stringi_1.8.7      xfun_0.54           S7_0.2.0
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## [33] evaluate_1.0.5     glue_1.8.0         farver_2.1.2       rmarkdown_2.30
## [37] tools_4.5.1        pkgconfig_2.0.3    htmltools_0.5.8.1
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