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Predicting Depression in University Students: The Role of Anxiety

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1 Abstract

Analysis of a public student mental-health dataset (**n = 101**) shows higher depression rates among anxious students compared with non-anxious peers. Using descriptive statistics, a two-proportion (χ^2) test, and a logistic regression, we find a substantially higher odds of depression for students reporting anxiety. Results are reported with effect sizes and confidence intervals; all materials are fully reproducible.

2 1. Introduction

Aim/Hypothesis. Anxiety is associated with higher depression risk among university students. This mini project is a **replication with small extensions** using a public dataset (Islam, 2023; Kaggle).

3 2. Methods

Data Source. Kaggle: *Student Mental Health Dataset* (Shariful Islam, 2023).

Variables. Anxiety (Yes/No), Depression (Yes/No) — recoded to 1/0.

Exclusions. Rows with missing Anxiety/Depression removed.

Analysis. Descriptive rates by anxiety status; two-proportion test (χ^2); logistic regression with odds ratio (OR) and 95% CI.

4 3. Results

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

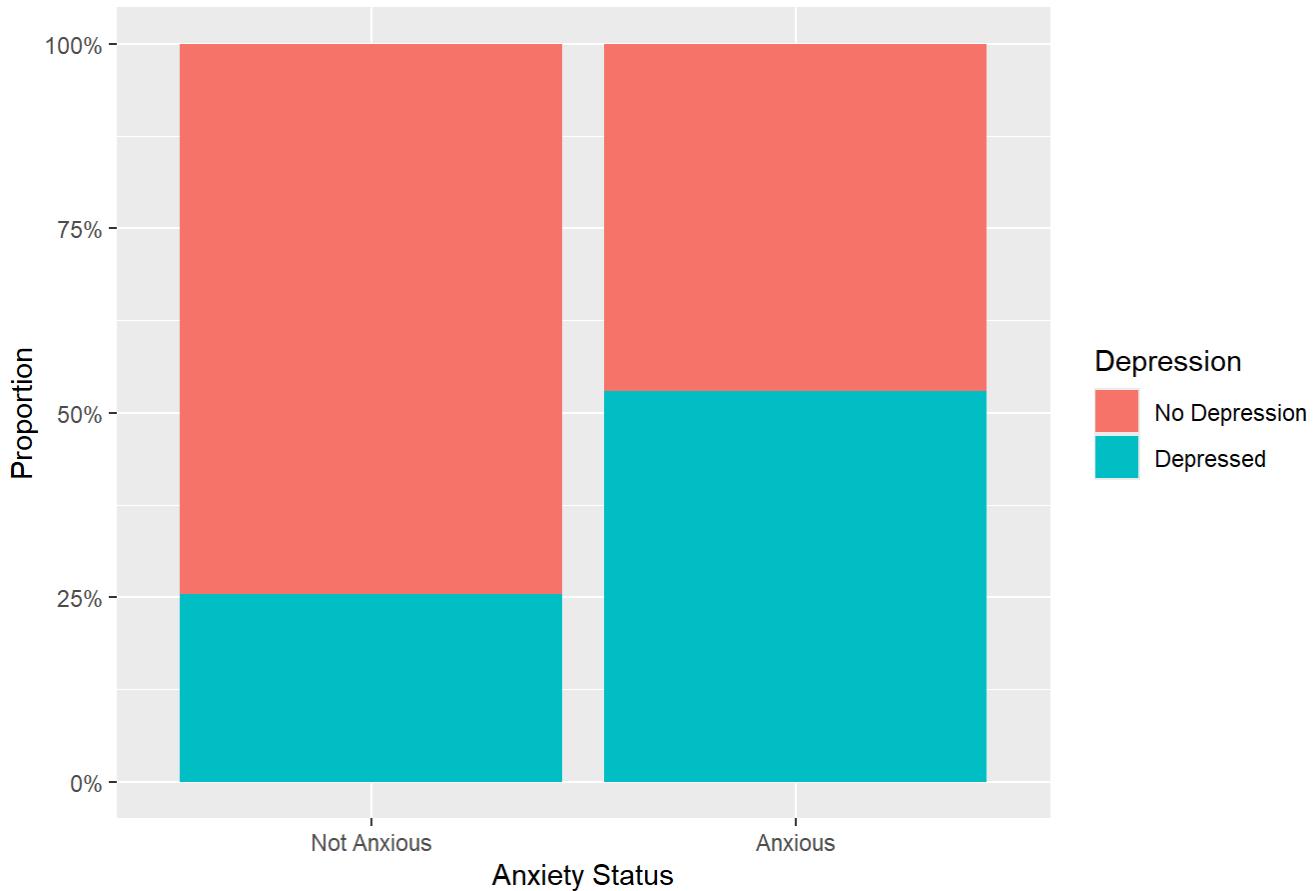
Key Finding.

- **52.9%** of anxious students were depressed
- **25.4%** of non-anxious students were depressed

Statistical Test (APA-style).

$\chi^2(1) = 6.40, p = .0114$; OR = 3.31, 95% CI [1.40, 8.03], $p = .007$.

Depression Proportion by Anxiety Status (n = 101)



5 4. Discussion

Findings replicate the expected association: anxious students show higher depression rates.

Limitations. Secondary, cross-sectional, self-report; no causal inference.

Implications. Routine anxiety screening may help identify students at higher risk.

6.5. Conclusion

Anxiety is associated with higher odds of depression in this student sample. Reporting emphasizes effect sizes (OR, CI) and reproducibility.

7 References

Islam, S. (2023). *Student Mental Health Dataset*. Kaggle. (See dataset page for access and license details; accessed 08 November 2025.)

8 Reproducibility & Integrity

This is an **independent replication study** using a public dataset (Islam, 2023).

All code, analysis, and reporting were conducted by **Parsa Rismanchi**.

No part of this work was copied from existing notebooks.

Full reproducibility is ensured via the provided R Markdown file and session info below.

9 Data Availability

- **Source:** Kaggle – Student Mental Health (Shariful Islam, 2023)
- **License:** See dataset page for license details
- **Ethics:** Public anonymized data; no human-subjects involvement

10 Session Info

```
## R version 4.5.1 (2025-06-13 ucrt)
## Platform: x86_64-w64-mingw32/x64
## Running under: Windows 10 x64 (build 19045)
##
## Matrix products: default
## LAPACK version 3.12.1
##
## locale:
## [1] LC_COLLATE=English_United States.utf8
## [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
##
## 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
## [9] tidyverse_2.0.0  tibble_3.3.0   ggplot2_4.0.0   tidyverse_2.0.0
##
## loaded via a namespace (and not attached):
## [1] bit_4.6.0          gtable_0.3.6       jsonlite_2.0.0   crayon_1.5.3
## [5] compiler_4.5.1     tidyselect_1.2.1   parallel_4.5.1   jquerylib_0.1.4
## [9] scales_1.4.0        yaml_2.3.10       fastmap_1.2.0    R6_2.6.1
## [13] labeling_0.4.3     generics_0.1.4    backports_1.5.0  bslib_0.9.0
## [17] pillar_1.11.1      RColorBrewer_1.1-3 tzdb_0.5.0     rlang_1.1.6
## [21] stringi_1.8.7     cachem_1.1.0     xfun_0.54       sass_0.4.10
## [25] S7_0.2.0           bit64_4.6.0-1    timechange_0.3.0 cli_3.6.5
## [29] withr_3.0.2        magrittr_2.0.4    digest_0.6.37   grid_4.5.1
## [33] vroom_1.6.6        rstudioapi_0.17.1 hms_1.1.4      lifecycle_1.0.4
## [37] vctrs_0.6.5        evaluate_1.0.5    glue_1.8.0      farver_2.1.2
## [41] rmarkdown_2.30      tools_4.5.1      pkgconfig_2.0.3  htmltools_0.5.8.1
```