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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)

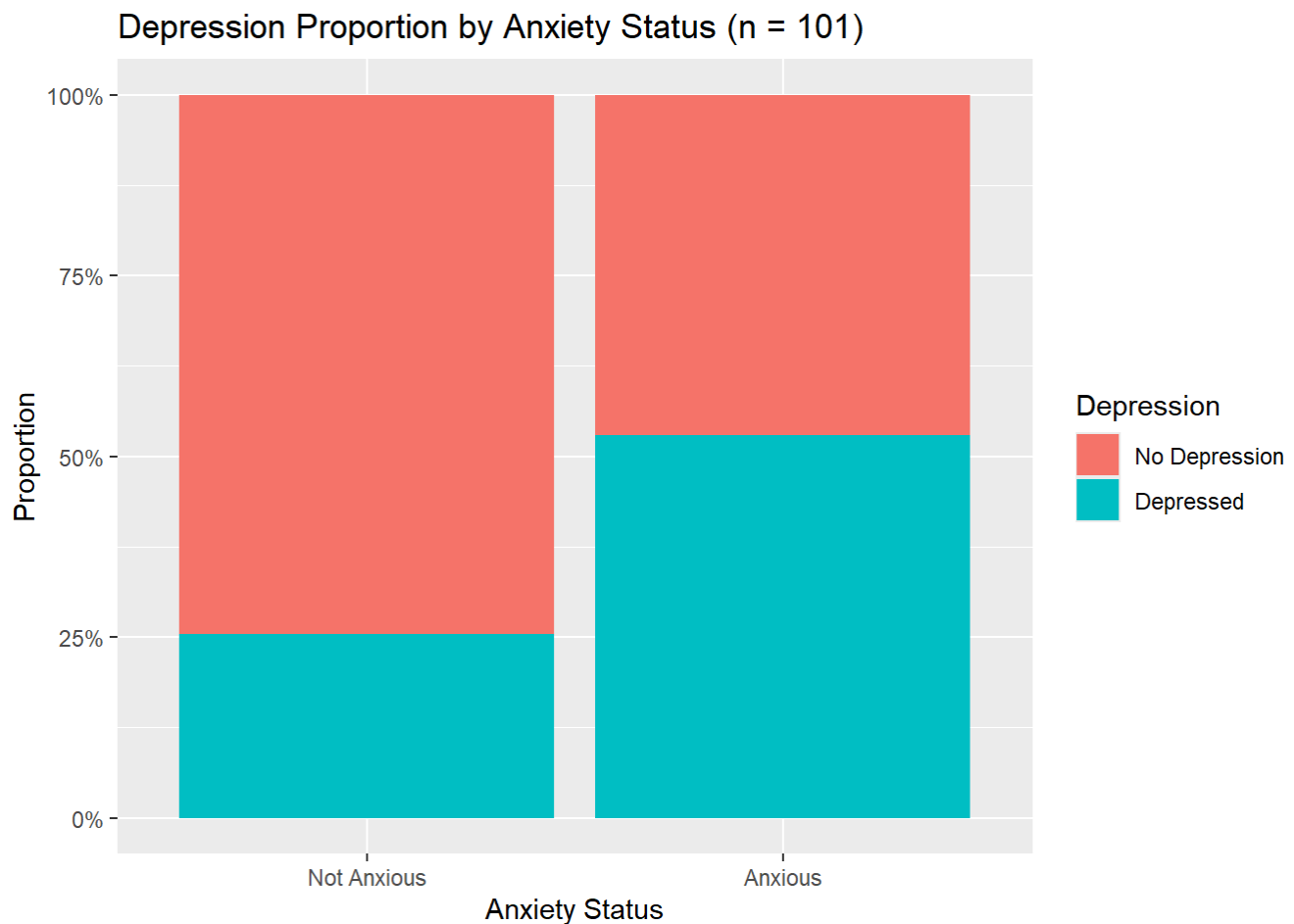
Anxiety Status	Depressed (n)	Group Size (n)	Percent Depressed
Not Anxious	17	67	25.4
Anxious	18	34	52.9

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], $p = .007$.



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] tidyr_1.3.1     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
```