

College Life and Academic Well-Being of Students: Data Analysis Report

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2025-12-15

```
install.packages("ggplot2")

## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.5'
## (as 'lib' is unspecified)
install.packages("dplyr")

## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.5'
## (as 'lib' is unspecified)
install.packages("scales")

## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.5'
## (as 'lib' is unspecified)
library(ggplot2)
library(dplyr)

##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
library(scales)

##College Life and Academic Well-Being of Students
##Orada, Jessamine Paula ##Fegidero, Jorealle ##Saludo, Denniel ##Gentapao, Bea Julliete lima
##Introduction #This report presents an analysis of a survey on "College Life and Academic Well-Being of Students" with 50 respondents. The analysis uses the R statistical environment, specifically the ggplot() function from the ggplot2 package, to visualize key findings related to demographics, academic habits, and student well-being.

# --- Demographics ---
age_data <- data.frame(
  Age = factor(c(17, 18, 19, 20, 21, "21 y.o.", 22),
               levels = c("17", "18", "19", "20", "21", "21 y.o.", "22")),
  Count = c(1, 6, 18, 15, 3, 1, 6)
)
```

```

gender_data <- data.frame(
  Gender = factor(c("Male", "Female", "Prefer not to say")),
  Count = c(21, 23, 6)
)

year_level_data <- data.frame(
  Level = factor(c("1st Year", "2nd Year", "3rd Year", "4th Year")),
  Count = c(10, 3, 6, 31)
)

# --- Habits & Performance ---
sleep_data <- data.frame(
  Hours = factor(c("Less than 5 hours", "5-6 hours", "7-8 hours", "More than 8 hours"),
                 levels = c("Less than 5 hours", "5-6 hours", "7-8 hours", "More than 8 hours")),
  Count = c(13, 32, 5, 0)
)

stress_freq_data <- data.frame(
  Frequency = factor(c("Always", "Often", "Sometimes", "Rarely", "Never"),
                      levels = c("Always", "Often", "Sometimes", "Rarely", "Never")),
  Count = c(12, 18, 12, 7, 1)
)

performance_data <- data.frame(
  Rating = factor(c("Excellent", "Good", "Average", "Poor"),
                  levels = c("Excellent", "Good", "Average", "Poor")),
  Count = c(2, 22, 25, 1)
)

online_resources_data <- data.frame(
  Helpful = factor(c("Yes", "No", "Sometimes")),
  Count = c(37, 0, 13)
)

# --- Satisfaction & Support ---
college_support_data <- data.frame(
  Support = factor(c("Yes", "No", "Not sure")),
  Count = c(24, 9, 17)
)

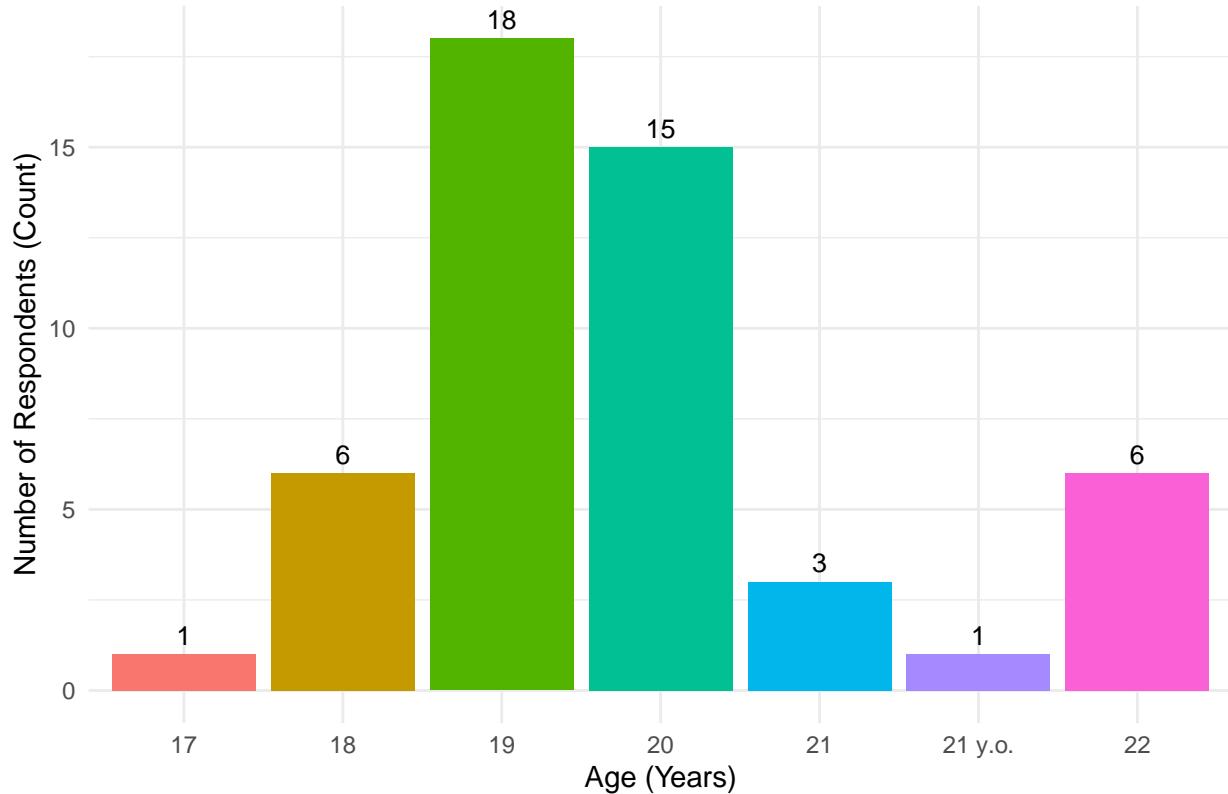
satisfaction_data <- data.frame(
  Rating = factor(c(1, 2, 3, 4, 5), levels = 1:5),
  Count = c(0, 4, 23, 19, 4)
)

##Age Distribution
ggplot(data = age_data, aes(x = Age, y = Count, fill = Age)) +
  geom_bar(stat = "identity") +
  geom_text(aes(label = Count), vjust = -0.5, size = 3.5) +
  labs(title = "Age Distribution of Respondents",
       x = "Age (Years)",
       y = "Number of Respondents (Count)") +
  theme_minimal() +

```

```
theme(legend.position = "none")
```

Age Distribution of Respondents

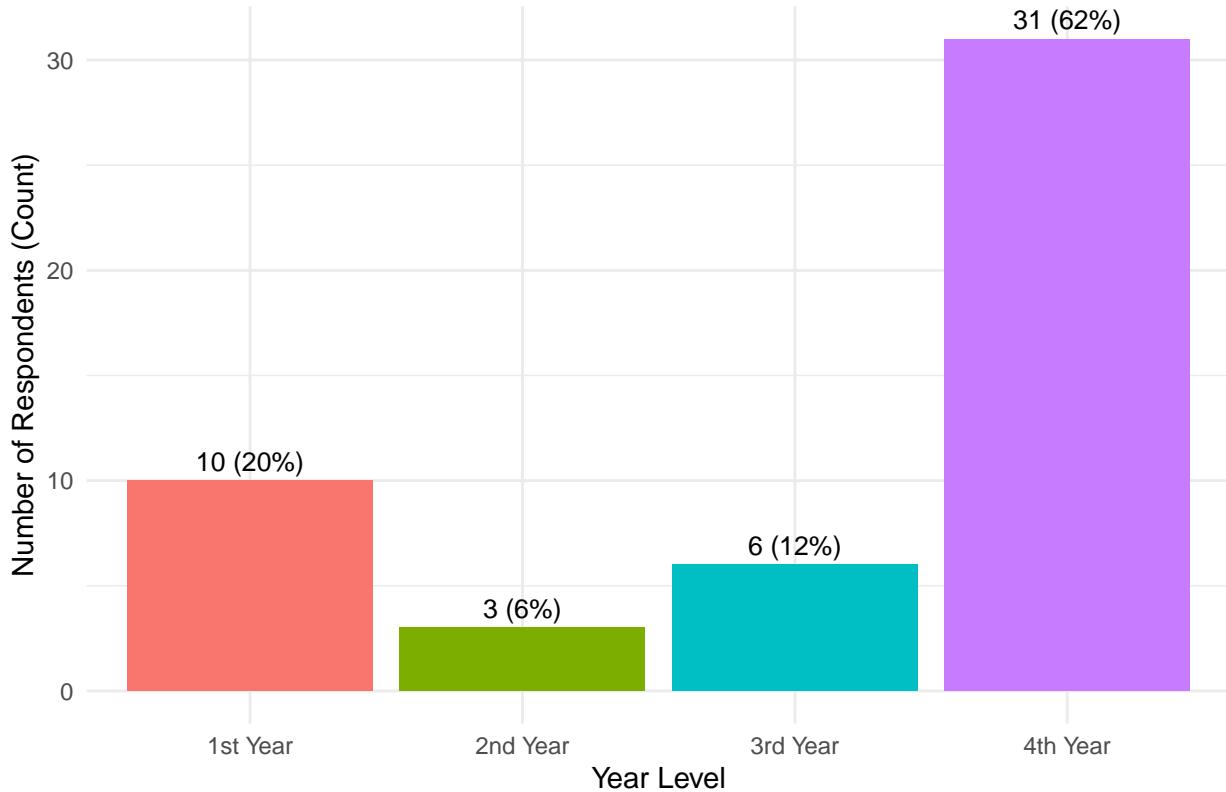


```
##Year Level Distributuion
```

```
ggplot(data = year_level_data, aes(x = Level, y = Count, fill = Level)) +
  geom_bar(stat = "identity") +
  geom_text(aes(label = paste0(Count, " (", round(Count/sum(year_level_data$Count) * 100), "%)")), vjust = 0)
  labs(title = "Year Level of Respondents",
       x = "Year Level",
       y = "Number of Respondents (Count)") +
  theme_minimal() +
  theme(legend.position = "none")
```

```
## Warning: Use of `year_level_data$Count` is discouraged.
## i Use `Count` instead.
```

Year Level of Respondents

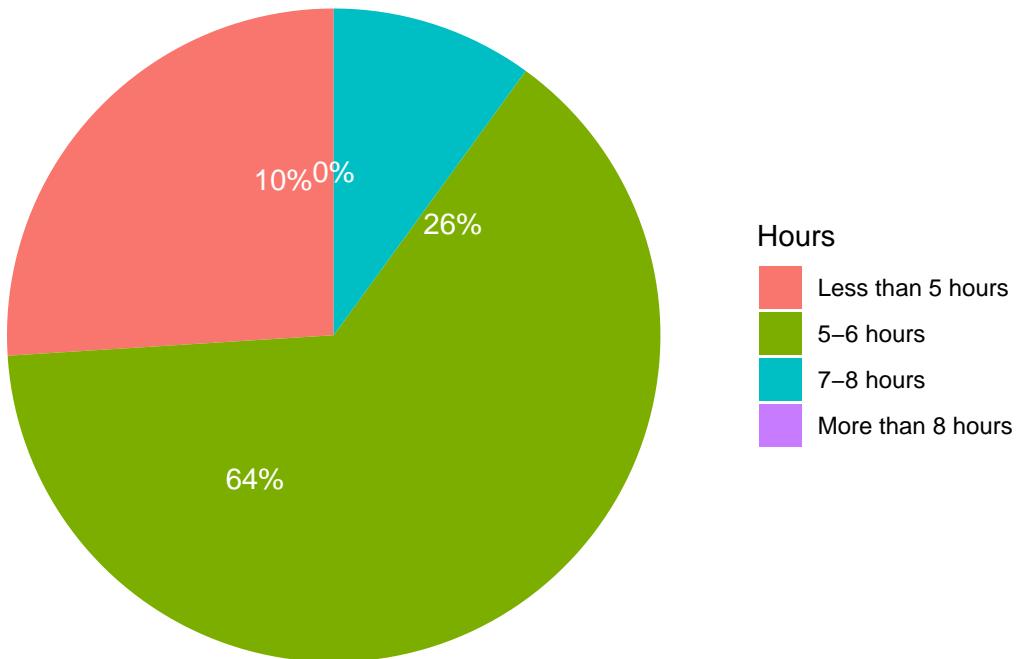


##4. Well-Being and Academic Stress Analysis ##A. On average, how many hours of sleep do you get per night?

```
# Calculate percentages for the pie chart label
sleep_data_percent <- sleep_data %>%
  mutate(Fraction = Count / sum(Count),
        Percentage = scales::percent(Fraction),
        Y_pos = cumsum(Fraction) - 0.5 * Fraction)

ggplot(data = sleep_data_percent, aes(x = "", y = Fraction, fill = Hours)) +
  geom_bar(stat = "identity", width = 1) +
  coord_polar("y", start = 0) +
  geom_text(aes(y = Y_pos, label = Percentage), color = "white", size = 4) +
  labs(title = "Average Hours of Sleep Per Night", x = NULL, y = NULL) +
  theme_void()
```

Average Hours of Sleep Per Night



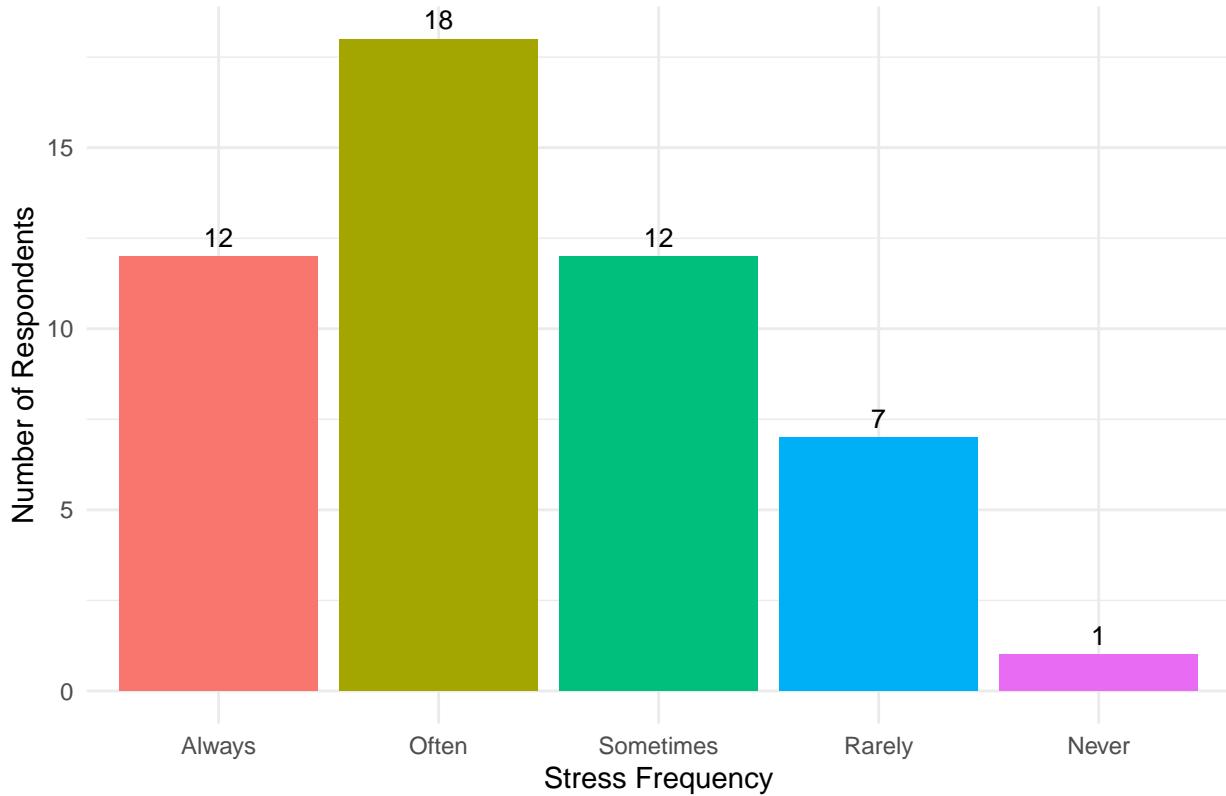
##Chart Explanation: This pie chart shows the proportion of sleep hours. A combined 90% of students report sleeping 6 hours or less (64% at 5–6 hours, 26% at less than 5 hours).

##Insight: This indicates a critical level of sleep deprivation within the student body, a factor strongly linked to impaired cognitive function and motivation.

##B. How often do you experience stress related to academics?

```
ggplot(data = stress_freq_data, aes(x = Frequency, y = Count, fill = Frequency)) +  
  geom_bar(stat = "identity") +  
  geom_text(aes(label = Count), vjust = -0.5, size = 3.5) +  
  labs(title = "Frequency of Academic Stress",  
       x = "Stress Frequency",  
       y = "Number of Respondents") +  
  theme_minimal() +  
  theme(legend.position = "none")
```

Frequency of Academic Stress



#Chart Explanation: This bar chart shows how often students feel academic stress. 60% of students experience stress Always or Often.

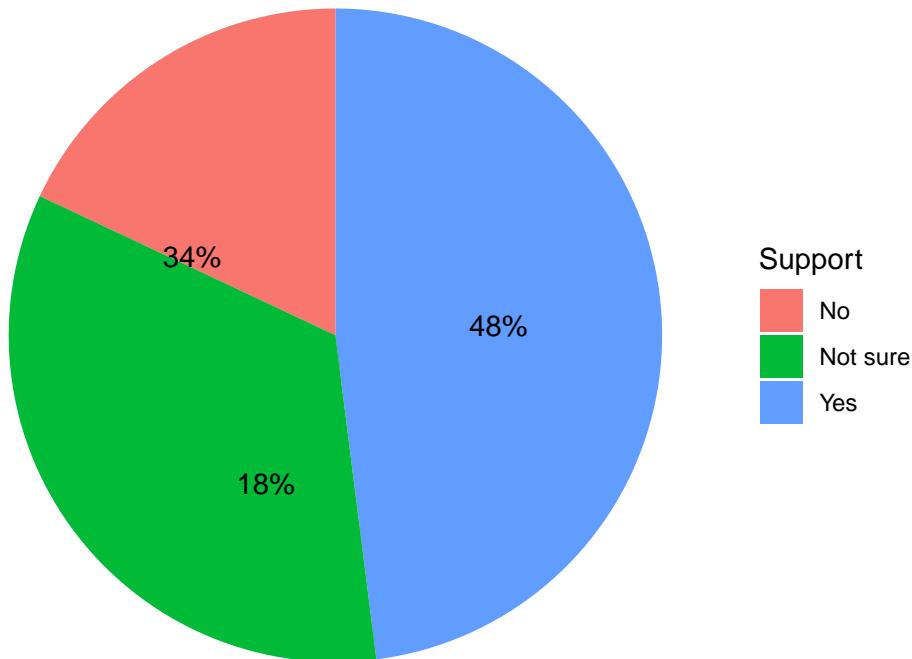
#Insight: The majority of students operate under constant or frequent academic pressure. The combination of high stress and low sleep highlights a severe well-being issue that negatively impacts learning effectiveness.

##C. Do you think your college supports students' mental health and well-being?

```
# Calculate percentages for the pie chart label
support_data_percent <- college_support_data %>%
  mutate(Fraction = Count / sum(Count),
        Percentage = scales::percent(Fraction),
        Y_pos = cumsum(Fraction) - 0.5 * Fraction)

ggplot(data = support_data_percent, aes(x = "", y = Fraction, fill = Support)) +
  geom_bar(stat = "identity", width = 1) +
  coord_polar("y", start = 0) +
  geom_text(aes(y = Y_pos, label = Percentage), color = "black", size = 4) +
  labs(title = "College Mental Health Support Perception", x = NULL, y = NULL) +
  theme_void()
```

College Mental Health Support Perception



##Chart Explanation:

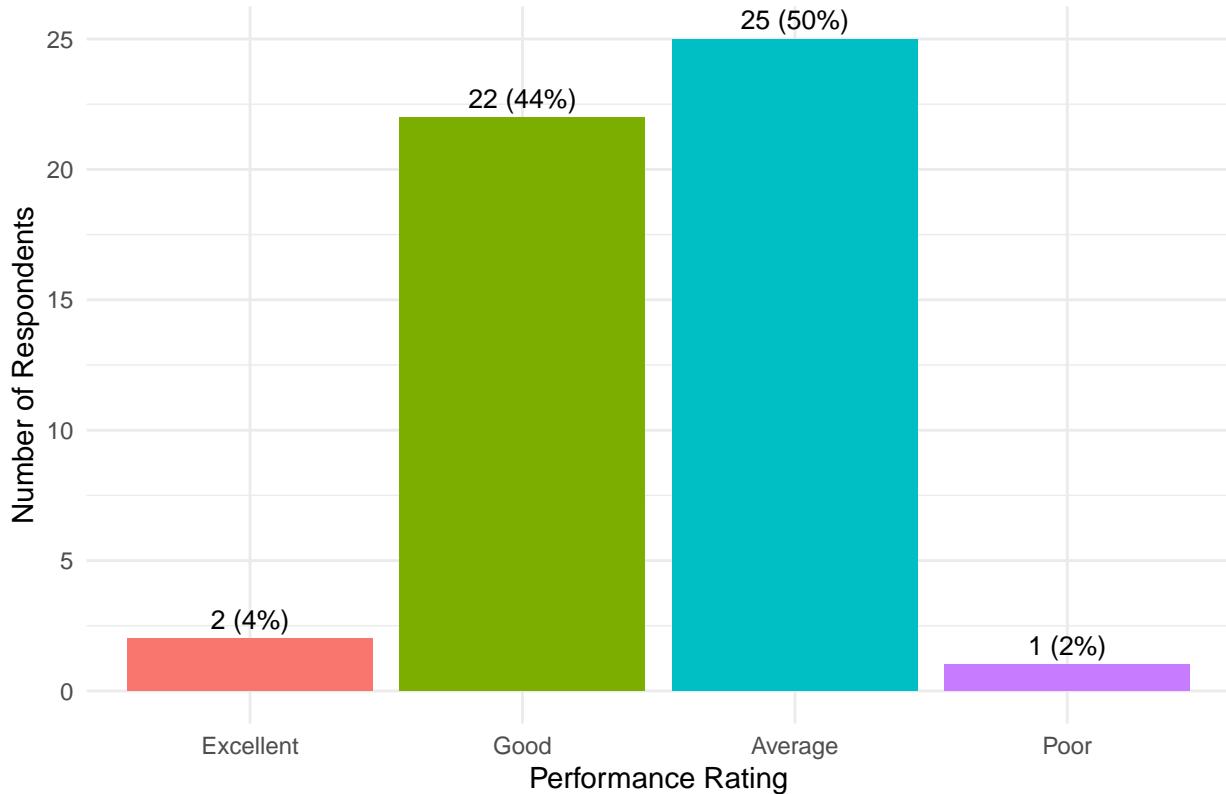
This pie chart illustrates the perception of college mental health support. While 48% say Yes, a combined 52% respond with No (18%) or Not sure (34%).

##Insight: The large 'Not sure' percentage suggests that the college's existing mental health resources, even if available, are not being effectively communicated or accessed by a significant portion of the student population.

##5. Performance and Resources ##A. How would you rate your current academic performance?

```
ggplot(data = performance_data, aes(x = Rating, y = Count, fill = Rating)) +  
  geom_bar(stat = "identity") +  
  geom_text(aes(label = paste0(Count, " (", round(Count/sum(performance_data$Count) * 100), "%)")), vjus  
  labs(title = "Self-Rated Academic Performance",  
       x = "Performance Rating",  
       y = "Number of Respondents") +  
  theme_minimal() +  
  theme(legend.position = "none")  
  
## Warning: Use of `performance_data$Count` is discouraged.  
## i Use `Count` instead.
```

Self–Rated Academic Performance



##Chart Explanation: This bar chart shows self-reported academic performance. 94% of students rate their performance as Good or Average.

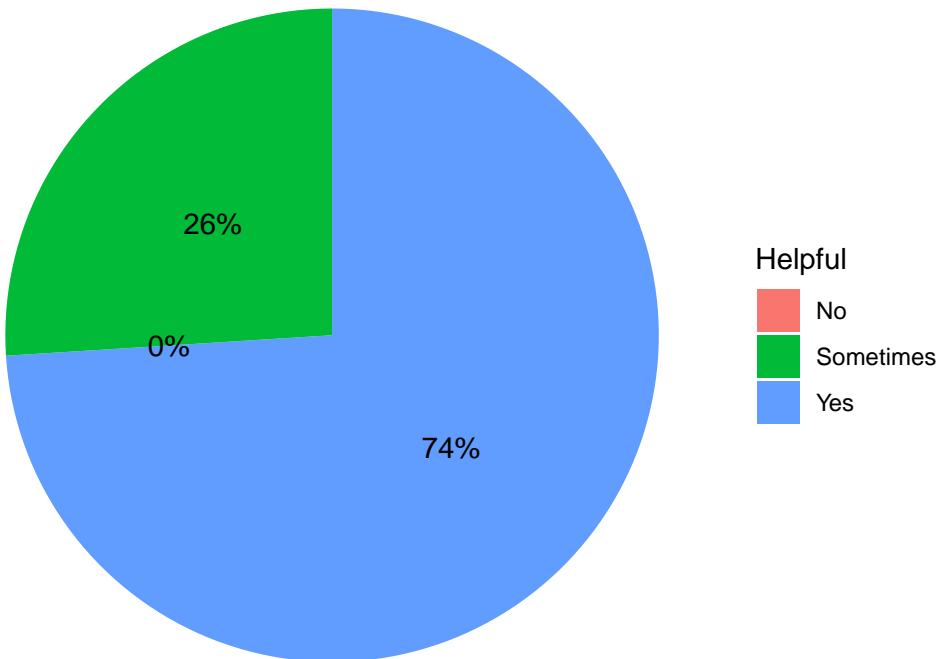
##Insight: Performance is generally moderate, with few students reaching the Excellent level (4%). The high prevalence of sleep and stress suggests these well-being factors are likely capping the students' ability to achieve higher grades.

##B. Do you find online resources helpful in your studies?

```
# Calculate percentages for the pie chart label
online_resources_data_percent <- online_resources_data %>%
  mutate(Fraction = Count / sum(Count),
        Percentage = scales::percent(Fraction),
        Y_pos = cumsum(Fraction) - 0.5 * Fraction)

ggplot(data = online_resources_data_percent, aes(x = "", y = Fraction, fill = Helpful)) +
  geom_bar(stat = "identity", width = 1) +
  coord_polar("y", start = 0) +
  geom_text(aes(y = Y_pos, label = Percentage), color = "black", size = 4) +
  labs(title = "Helpfulness of Online Resources (e.g., ChatGPT)", x = NULL, y = NULL) +
  theme_void()
```

Helpfulness of Online Resources (e.g., ChatGPT)



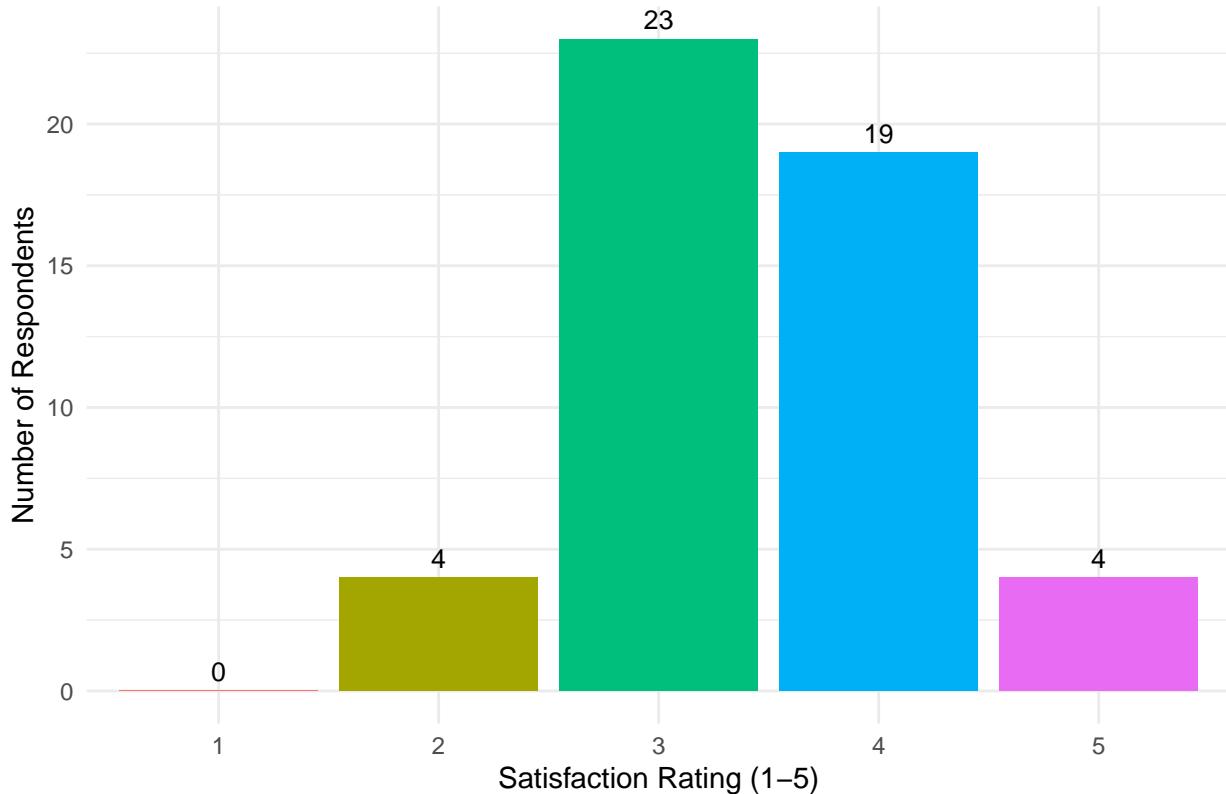
##Chart Explanation: This pie chart shows the perceived helpfulness of online tools. 74% of students say Yes, with the remaining 26% saying Sometimes.

##Insight: Students overwhelmingly rely on digital resources (like Google and ChatGPT) to supplement their learning, indicating these tools are essential components of modern study habits.

##6. Overall College Satisfaction ##A. Overall, how satisfied are you with your college experience so far? (1=Low, 5=High)

```
ggplot(data = satisfaction_data, aes(x = Rating, y = Count, fill = Rating)) +  
  geom_bar(stat = "identity") +  
  geom_text(aes(label = Count), vjust = -0.5, size = 3.5) +  
  labs(title = "Overall College Satisfaction",  
       x = "Satisfaction Rating (1-5)",  
       y = "Number of Respondents") +  
  theme_minimal() +  
  theme(legend.position = "none")
```

Overall College Satisfaction



##Chart Explanation: This bar chart shows the distribution of satisfaction ratings. The majority of students rated their satisfaction as 3 (46%) or 4 (38%).

##Insight: Despite high reported stress and low sleep, overall satisfaction remains positive (84% rated 3 or 4). This suggests students value the college environment and education quality, even while facing significant well-being challenges.

##Conclusion ##The data clearly indicates a Well-Being Crisis characterized by widespread stress and sleep deprivation, which is the primary barrier to higher academic achievement (as linked to Time Management and Motivation).

```
# --- Data Frame Simulation (Required for Cross-Tabulation) ---
# Create vectors that conceptually represent the 50 responses
Hours <- factor(rep(sleep_data$Hours, times = sleep_data$Count),
                 levels = c("Less than 5 hours", "5-6 hours", "7-8 hours", "More than 8 hours"))
Frequency <- factor(rep(stress_freq_data$Frequency, times = stress_freq_data$Count),
                     levels = c("Always", "Often", "Sometimes", "Rarely", "Never"))

# Create the simulated raw data frame (50 rows)
student_survey_data <- data.frame(Hours, Frequency)
```

##(Overall Conclusion) ##The analysis of the “College Life and Academic Well-Being” survey data (N=50) reveals a student population characterized by moderate overall satisfaction despite facing a significant Well-Being Crisis fueled by severe sleep deprivation and high academic stress.

##1. The Core Crisis: Sleep and Stress ##The most critical finding is the pervasive nature of poor well-being metrics:

##Sleep Deprivation: An overwhelming 90% of students report sleeping 6 hours or less per night, far below recommended health guidelines.

##Constant Stress: 60% of students experience academic stress “Always” or “Often.” The correlation analysis suggests a strong link where inadequate sleep likely exacerbates this chronic stress.

##Impact on Performance: This combination of high stress and low sleep is the most probable capping factor on academic potential, as only a small fraction (4%) rate their performance as “Excellent,” with the majority clustered at “Good” and “Average.”

##2. The Communication Gap in Support Systems ##The perception of college support services is split, highlighting an operational gap: ##Uncertainty: A combined 52% of students either feel unsupported or are “Not Sure” if their college supports mental health.

##Actionable Insight: The large “Not Sure” group suggests that even if resources exist, the college needs to urgently improve the communication and accessibility of its mental health and well-being programs to reach a large portion of the student body.

##3. Resilience and Resourcefulness ##Despite these challenges, students show positive signs of resilience and adaptation:

##Overall Satisfaction: The majority of students (84%) express moderate to high satisfaction (Ratings 3 or 4) with their college experience, indicating they value the educational environment and quality, separate from their personal well-being struggles.

##Digital Reliance: Online resources (like ChatGPT and Google) are overwhelmingly deemed helpful (74% Yes), solidifying their role as essential components of modern student study habits.

##Recommendation ##The primary focus for intervention should be on mitigating the Well-Being Crisis. The college should explore targeted programs that address time management, stress reduction, and sleep hygiene to unlock the full academic potential of the student body.