Impact of Lifestyle and Mental Health on Academics

Vignesh RB (002322663), Abhishek Kothari (002369703)

December 7, 2024

Abstract

This study explores the intricate relationship between lifestyle choices, mental health, and academic performance among international students. By analyzing synthetic data based on real-world challenges faced by this demographic, we identify factors influencing both mental well-being and academic success. Our findings emphasize the importance of sleep, stress-relief activities, and financial stability, providing actionable insights for institutions and students alike.

1 Introduction

International students face a unique set of challenges, including cultural adjustment, academic pressure, and financial concerns. Statistics reveal that during the 2020-2021 academic year, over 60% of college students met the criteria for at least one mental health problem. Nearly two-thirds of international students experience loneliness and isolation, especially within their first months abroad. These challenges are compounded by academic workloads, language barriers, and financial difficulties, making it imperative to study their impact on academic performance.

The motivation for this project stems from the need to better understand these issues and provide data-driven recommendations for improving student well-being and academic

outcomes. Addressing these challenges requires a comprehensive approach, considering various lifestyle and mental health factors.

2 Methodology

2.1 Data Collection

The initial dataset was sourced from Kaggle and contained approximately 100 rows of data. To enable a more robust analysis, we expanded the dataset to 1,000 rows using advanced synthetic data generation techniques. The synthetic data mirrored real-world patterns to ensure accuracy and relevance. We utilized the CTGAN Synthesizer for generating synthetic data and achieved a similarity score of 85% when comparing the synthetic data to the original dataset. This high similarity score validates the reliability of the synthetic data for analysis.

2.2 Database Design

The dataset was structured into three interrelated tables:

- **Students Table**: This table contains demographic and academic details of students.

```
CREATE TABLE Students(
    student_id INTEGER PRIMARY KEY,
    university TEXT NOT NULL,
    age INTEGER NOT NULL,
    gender TEXT NOT NULL,
    academic_year TEXT NOT NULL,
    degree_major TEXT NOT NULL,
    degree_level TEXT NOT NULL,
    residential_status TEXT NOT NULL);
```

- **MentalHealth Table**: This table captures mental health-related attributes.

```
CREATE TABLE MentalHealth(
    student_id INTEGER NOT NULL,
    anxiety INTEGER NOT NULL,
    depression INTEGER NOT NULL,
    financial_concerns INTEGER NOT NULL,
    social_relationships INTEGER NOT NULL,
    isolation INTEGER NOT NULL,
    future_insecurity INTEGER NOT NULL,
    campus_discrimination TEXT NOT NULL,
    sports_engagement INTEGER NOT NULL,
    FOREIGN KEY (student_id) REFERENCES Students(student_id));
```

- **Lifestyle Table**: This table records lifestyle and academic performance data.

```
CREATE TABLE Lifestyle(
    student_id INTEGER NOT NULL,
    average_sleep INTEGER NOT NULL,
    cgpa REAL NOT NULL,
    stress_relief_activities TEXT NOT NULL,
    study_satisfaction INTEGER NOT NULL,
    academic_workload INTEGER NOT NULL,
    academic_pressure INTEGER NOT NULL,
    FOREIGN KEY (student_id) REFERENCES Students(student_id));
```

2.3 Research Questions

The study focused on key questions aimed at identifying the links between lifestyle, mental health, and academics. Examples include:

- Which student majors report the highest levels of depression?

- How do financial concerns impact mental health and sleep quality?

- What is the effect of sports participation on mental well-being and CGPA?

- How do gender differences influence mental health and academic success?

- What is the relationship between academic workload and study satisfaction?

3 Analysis and Findings

3.1 Mental Health

Mental health plays a crucial role in determining students' academic performance. Our analysis revealed several key insights:

- **Stress Relief Activities**: Students engaging in sports and fitness activities reported lower levels of anxiety and depression compared to those who did not participate in such activities. These activities foster social connections and provide an outlet for stress.

- **Sleep Patterns**: Students with an average sleep duration of more than seven hours per night exhibited significantly lower rates of depression. Adequate sleep was found to be a strong predictor of better mental health.

- **Financial Concerns**: Financial insecurity emerged as a significant factor contributing to heightened levels of anxiety and depression. Students facing financial challenges were more likely to report poor mental health outcomes.

3.2 Academic Performance

Lifestyle choices and mental health were found to have a direct impact on academic performance. Key findings include:

- **Sleep and CGPA**: A positive correlation was observed between sleep quality and CGPA. Students who maintained regular sleep schedules consistently performed better academically.

- **Study Satisfaction**: Students who reported higher academic satisfaction also experienced lower academic pressure and manageable workloads. Satisfaction was linked to better time management and realistic expectations.

- **Stress Management**: Students who actively engaged in stress-relief activities, such as meditation or exercise, were better able to maintain focus and achieve higher CGPAs, even under significant workloads.

4 Detailed Discussion

The findings underscore the interconnectedness of mental health, lifestyle, and academic performance. Financial stability, for instance, not only affects students' ability to focus on academics but also influences their mental well-being. Similarly, participation in stress-relief activities serves as a buffer against the adverse effects of academic pressure.

Gender differences were also apparent, with female students reporting higher levels of anxiety but demonstrating better academic outcomes compared to their male counterparts. This could be attributed to differences in coping mechanisms and support-seeking behaviors.

Residential status further influenced well-being, with on-campus students reporting better mental health outcomes due to increased access to resources and social support networks.

5 Recommendations

5.1 For Institutions

- **Promote Stress-Relief Programs**: Universities should implement programs that encourage participation in physical activities and mindfulness practices.

- **Enhance Financial Support**: Providing scholarships, grants, and emergency financial aid can alleviate students' financial burdens and improve mental health.

- **Raise Awareness**: Institutions should educate students about the importance of sleep and stress management for academic success.

5.2 For Students

- **Adopt Balanced Lifestyles**: Students should prioritize sleep, engage in regular exercise, and allocate time for hobbies.

- **Seek Support**: Leveraging campus resources, such as counseling services and peer support groups, can help address mental health challenges.

- **Time Management**: Effective planning and time management can reduce academic pressure and improve satisfaction.

6 Conclusion

This study highlights the critical link between lifestyle choices, mental health, and academic performance. By fostering healthier lifestyles and providing targeted support, institutions can significantly improve student well-being and academic outcomes. Future research could explore longitudinal effects and the role of cultural differences in shaping these dynamics.

References

1. Healthy Minds Network, "Mental Health Among College Students," 2020-2021.

2. Institute of International Education, "Challenges Faced by International Students," 2021.

3. Anxiety and Depression Association of America, "Student Mental Health Statistics," 2021.