

Diet Quality and Academic Performance in Western Carolina University Students

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ABSTRACT

Healthy lifestyle habits may influence how students experience academic success. This study examined the relationships among diet quality, exercise, academic stress, fatigue, and academic outcomes in 196 undergraduate students at Western Carolina University (WCU). Data was collected through a Qualtrics survey and analyzed to explore connections among these factors.

Results showed that better diet quality was strongly associated with higher perceived academic success. WCU students who reported healthier eating patterns also felt they were performing better academically. Regular exercise was linked to lower fatigue, while academic stress was associated with higher fatigue. These findings suggest a clear pattern: exercise helps maintain energy, stress reduces energy, and diet quality supports overall academic functioning.

Fatigue did not strongly explain the link between diet and perceived academic success, suggesting that diet may directly influence how students feel about their performance rather than working only through reduced tiredness. In contrast, GPA showed weaker associations with lifestyle behaviors, possibly because GPA does not fully reflect daily habits or students' perceptions.

Overall, the findings suggest that diet quality and exercise support academic well-being among WCU students, while stress undermines energy levels. Students' perceptions of academic success appear more sensitive to everyday health behaviors than formal grade measures. These results highlight the important connection between lifestyle habits and academic confidence in university students.

INTRODUCTION

University students frequently experience academic stress, fatigue, and lifestyle changes that may influence their academic performance. Academic performance during college is an important determinant of future employment opportunities, socioeconomic stability, and long-term health outcomes. Diet quality and other lifestyle behaviors, including physical activity and stress management, may play a significant role in students' cognitive functioning, academic performance, and overall well-being. However, limited research has examined how these lifestyle factors interact to influence academic outcomes within college populations. Understanding the relationship between diet quality, lifestyle behaviors, and academic success may help inform strategies that support both student health and academic achievement.^{1,2}

GOAL

To examine whether diet quality is associated with perceived academic success among WCU students.

OBJECTIVES

- Assess the relationship between diet quality and perceived academic success among WCU students.
- Examine associations among lifestyle factors, including diet quality, exercise, academic stress, and fatigue.

KEY TERMS

- Perceived Academic Success** refers to the degree to which students believe they are successful in their academic careers and reflects a subjective assessment of academic performance.³
- Diet Quality** describes how closely an individual's dietary intake aligns with recommended dietary guidelines and reflects the overall nutrient density of foods consumed.⁴

METHODS

Study Design and Participants

A cross-sectional survey study was conducted among 196 undergraduate students at WCU to examine relationships between diet quality, exercise, academic stress, and academic outcomes.

Data Collection

Data were collected via an online Qualtrics survey between Spring and Fall 2025, with voluntary, anonymous participation.

Statistical Analysis

Data was summarized using descriptive statistics and relationships among lifestyle behaviors and academic outcomes were examined using correlation and regression analysis.

RESULTS

Table 1. Participant Characteristics and Comparison with University Demographics (N = 196)

Variable	n (%) or Mean ± SD	University Demographics (Fall 2025)
Age (years), n (%)		
18–20	127 (64.8%)	-
21–23	42 (21.4%)	-
24–26	10 (5.1%)	-
27–30	8 (4.1%)	-
31–35	3 (1.5%)	-
36–40	4 (2.0%)	-
>40	2 (1.0%)	-
BMI (kg/m ²)	25.7 ± 6.0	-
Gender, n (%)		
Female	137 (69.9%)	59.2%
Male	44 (22.4%)	40.7%
Non-Binary	13 (6.6%)	-
Race/Ethnicity, n (%)		
White	168 (85.7%)	74.5%
Black	12 (6.1%)	6.9%
Hispanic	21 (10.7%)	9.0%
Asian	7 (3.6%)	1.3%
Other	9 (4.6%)	1.8%
Academic Classification, n (%)		
Freshman	27 (13.8%)	-
Sophomore	56 (28.6%)	-
Junior	64 (32.6%)	-
Senior	32 (16.3%)	-
Grad Student	17 (8.7%)	-

- Demographic characteristics of the study sample (n = 196) compared with overall university demographics (Fall 2025). Most participants were aged 18–23 years, female, and White.
- The mean BMI was 25.7 ± 6.0 kg/m², and students represented all academic classifications from freshman to graduate level.

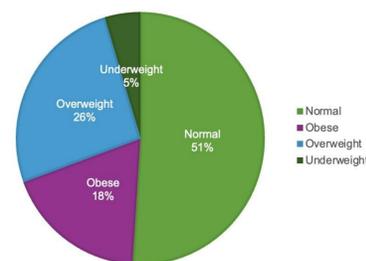


Figure 1. Distribution of BMI Categories Among Participants (N = 196). The majority of participants were classified as normal weight (51.0%), followed by overweight (26.0%) and obese (18.4%), with a smaller proportion categorized as underweight (4.6%).

RESULTS

Healthier Diets Are Associated With Better Academic Success

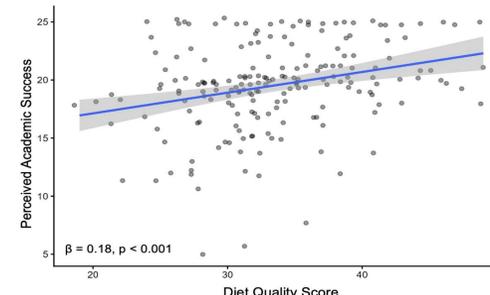


Figure 2. Relationship between diet quality and perceived academic success among Western Carolina University students (n = 196). Higher diet quality scores were associated with greater perceived academic success ($\beta = 0.18$, $p < 0.001$).

Students who reported more regular physical activity experienced significantly lower levels of fatigue.

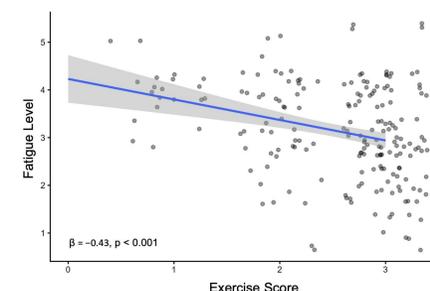


Figure 3. Association between exercise and fatigue among WCU students. Higher levels of exercise were associated with significantly lower fatigue levels ($\beta = -0.43$, $p < 0.001$).

Students experiencing greater academic stress reported higher levels of fatigue.

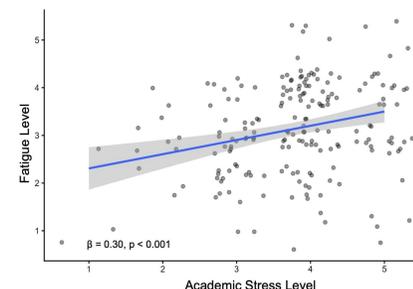


Figure 4. Relationship between academic stress and fatigue among WCU students. Higher academic stress was associated with increased fatigue levels ($\beta = 0.30$, $p < 0.001$).

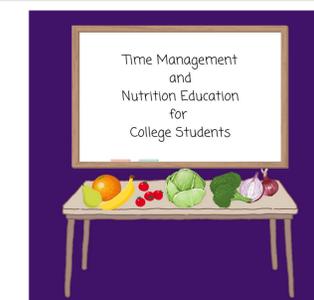
CONCLUSIONS



- Higher diet quality was associated with greater perceived academic success among WCU students.
- Lifestyle factors, including exercise, stress, and fatigue, were also related to students' academic well-being.
- Healthy dietary and lifestyle habits may support academic confidence and well-being among college students.

RECOMMENDATIONS

- ✓ Encourage regular meal consumption.
- ✓ Promote whole, nutrient-dense foods.
- ✓ Improve student access to healthy foods on campus.
- ✓ Provide nutrition and time-management education to support both student well-being and academic success.



References

- Burrows TL, Whatnall MC, Patterson AJ, Hutchesson MJ. Associations between dietary intake and academic achievement in college students: a systematic review. *Nutrients*. 2017;9(3):215. doi:10.3390/nu9030215
- Phillips E, Comeau D. The relationship between diet, physical activity, and academic performance among university students. *J Am Coll Health*. 2021;69(7):761-768.
- Scoulas JM, Sholtick K, De Groot SL. Student perceptions of academic success: A qualitative exploration. *J Coll Stud Dev*. 2009;50(6):671-686.
- Alkerwi A. Diet quality concept. *Nutrition*. 2014;30(6):613-618. doi:10.1016/j.nut.2013.10.001

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