The Fitness, Rest, and Exercise for Strength and Health (FRESH) Study: A Comparison of College Students' Perceived Health to Measured Health Metrics

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BACKGROUND

- The college years are a significant transition period in a young adult's life. Health habits developed during this time have the potential to influence health behaviors throughout adulthood.
- Nutrition, physical activity, sleep, and stress contribute to an individual's acute and long-term physical and mental health.
- The majority of college-aged students do not meet dietary and physical activity guidelines.[3,5]
- During and after the COVID-19 pandemic, a large percentage of college students struggled with their mental health.[2,4]

OBJECTIVES

1. To describe key health measures among two cohorts of college freshmen that may contribute to overall physical and mental health.
2. To analyze the relationship between participants' perceived health and measured health metrics.
3. To provide relevant information to the George Washington University (GWU) community regarding perceived health and measured health metrics among undergraduate students.

METHODS

Participants:

- Students (n=152) in their first-year of undergraduate education at GWU from the 2021-2022 and 2022-2023 academic years

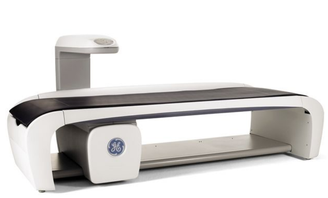
Measures:

- **Self-administered health surveys**
  - Demographics
  - General Health
  - Physical Activity
  - Perceived Stress
  - Sleep Quality Index
  - Beverage Intake
  - Dietary Intake
- **Body composition testing**
  - Dual Energy XRay Absorptiometry (DEXA)
  - In-Body Bioelectrical Impedance Analysis (BIA)

REDCap Research Electronic Data Capture

Analyses:

- Descriptive statistics include means and relevant frequencies
- Associations measured using Chi-Square Test
- *P*-value <0.05 indicates statistical significance



RESULTS

Table 1: Descriptive Statistics of GW First-Year Undergraduate Students

	2021-2022 Cohort	2022-2023 Cohort	Total (n, %)
Participants (n, %)	71, 46.7%	81, 53.3%	152, 100%
Biological Sex at Birth (n, %)			
Male	11, 15.5%	19, 23.5%	30, 19.7%
Female	60, 84.5%	62, 76.5%	122, 80.3%
Race/Ethnicity (n, %)			
African American/Black	7, 9.9%	16, 19.8%	23, 15.1%
Caucasian/White	43, 60.6%	46, 56.8%	89, 58.6%
Asian	13, 18.3%	14, 17.3%	27, 17.8%
Other	4, 5.6%	1, 1.2%	5, 3.3%
Multiracial	4, 5.6%	4, 4.9%	8, 5.3%
Hispanic/Latino	7, 9.9%	7, 8.6%	14, 9.2%

Table 2: Perceived Physical and Mental Health

	Excellent	Very Good	Good	Fair	Poor
Physical Health n=152	14.5%	42.8%	33.6%	8.5%	0.6%
Mental and Emotional Health n=152	4.6%	17.1%	30.3%	40.1%	7.9%

- *The highest percentage of students rated their physical health as "Very Good", but their mental health as only "Fair."*

Table 3: Frequency of Sub-optimal Health Metrics

Not Healthy Weight Status (BMI) n=152	Exercise <150 min/week n=131	High Stress Accumulation n=131	Poor Sleep Quality n=131	Sugar Sweetened Beverage >1/day n=136	Fast Food >1/week n=130	Fried Potatoes >4 /week n=144
32.3%	32.8%	74.8%	31%	10.3%	60.8%	63.3%

- *Overall, most metrics had at least a third of students having sub-optimal health markers in each category.*
- *Notable amount of high stress and poor dietary habits were found among the population.*

Table 4: Relationship Between Students' Perceived Health and Poor Health Metrics

	Perceived Physical Health		Perceived Mental Health	
	Fair to Poor	Excellent to Good	Fair to Poor	Excellent to Good
Not Healthy Weight Status (BMI) n=151	46.2%	28.3%	31.9%	27.8%
Exercise <150 min/week n=130	45.5%	31.9%	37.9%	29.6%
High Stress Accumulation n=131	45.5%	30.8%	56.7% (p<.001)	11.3% (p<.001)
Poor Sleep Quality n=131	54.5%	29.2%	45.8% (p=.002)	19.4% (p=.002)
Sugar Sweetened Beverage >1/day n=136	9.1%	10.4%	9.1%	13.9%
Fast Food >1/week n=130	76.9%	59%	65.6%	56%

- *Those with poor mental health are more likely to report high stress accumulation and poor sleep quality.*
- *Although not significant, approximately one third of those who say they have good physical health report suboptimal physical activity, diet, sleep and stress levels.*

GW FRESH

Table 5: Self-Reported Height and Weight vs Measured Body Compositions

BMI Categories	Self-Reported BMI n=152	Lab Measured BMI n=28	Percent Body Fat n=28	Percent Body Fat Categories
Underweight	4.6%	3.6%	3.57%	Excellent
Normal	67.8%	60.1 %	3.5%	Good
			21.43%	Fair
Overweight	21.1%	17.8%	10.7%	Poor
Obese	6.6%	17.8%	60.7%	Very Poor

- *Based on both lab-measured and self-reported height and weight measurements, most participants fall into a healthy weight status (BMI).*
- *Based on DEXA measurements, however, most participants fall into the very poor category of percent body fat.*

CONCLUSIONS

Health measures among participants indicate:

- Students positively rated their physical health, while simultaneously rating their mental health as poor.
- Although they rated their physical health as good, nearly a third of students did not have a healthy BMI, exercise less than the recommended 150 mins/week, and have poor sleep quality.

Analysis of self-reported health measures compared to objective health metrics reveals:

- Students who perceive their mental health as poor were significantly more likely to have high stress accumulation and poor sleep quality.
- There were no significant relationships between perceptions of physical health and physical health metrics.
- Although self-reported and laboratory measured weight status indicated that over 60% of students were a healthy weight status, body composition assessments indicated that the majority had a poor or sub-optimal body composition.

PUBLIC HEALTH IMPLICATIONS

Public health implications of this research indicate the need to:

- Identify the long terms effects of stress accumulation and poor sleep quality on overall mental health.
- Recognize areas of improvement to inform university-driven health initiatives geared towards undergraduate students' mental health.
- Continue to monitor sub-optimal health behaviors (diet, physical activity and sleep) across the college experience and how they may affect acute and chronic health.

Of importance to the greater college community:

- Understand how the "college built environment" affects students nutritional and physical activity choices.
- Recognize and address areas for improvement of current university facilities to promote student health.
- Acknowledge that health habits in college may not have physical effects now; however, these suboptimal habits have greater impact with age.

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