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Barriers and Facilitators of Physical Activity for Mental Health Enhancement in University Students

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Abstract

Background: Mental health concerns among undergraduate students have reached critical levels globally, characterized by high rates of anxiety, depression, and stress, a situation exacerbated by recent global crises. In this context, physical exercise has emerged as a significant non-pharmacological intervention, with evidence suggesting its benefits for psychological well-being through neurochemical, cognitive, and social mechanisms. However, barriers such as academic pressure and low motivation often hinder consistent student engagement.

Objectives: This study aimed to (1) assess the levels of physical exercise and mental health among undergraduate students, (2) examine the relationship between these two variables, and (3) analyze the impact of physical exercise on students' mental health.

Methods: A quantitative cross-sectional study was conducted with 204 undergraduate students from various faculties, selected via convenience sampling. Data were collected using a self-administered questionnaire. Descriptive statistics were used to summarize demographic and response data, while inferential statistics, including Kendall's Tau-b correlation and simple linear regression, were employed to analyze the relationship and impact between physical exercise (independent variable) and mental health (dependent variable).

Findings: A strong majority of students perceived physical exercise as beneficial for managing stress (66.2%), anxiety symptoms (73%), and depressive feelings (67.2%). Correlation analysis revealed a statistically significant, positive relationship between physical exercise and mental health ($\tau_b = 0.292$, $p < 0.001$). Regression analysis confirmed that physical exercise is a

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significant predictor of mental health (B = 0.429, β = 0.443, p < 0.001), indicating that increased physical activity is associated with improved mental well-being.

Conclusion: The study concludes that physical exercise has a significant positive relationship with and a measurable positive impact on the mental health of undergraduate students. Students themselves recognize the profound psychological benefits of staying active, often valuing them above physical gains.

Implication: Universities should proactively integrate accessible, inclusive, and promoted physical activity initiatives into campus life and policy. Designing programs that overcome common barriers to exercise can serve as a powerful public health strategy to enhance student psychological resilience, academic performance, and overall well-being.

Keywords: Physical Exercise, Mental Health, Undergraduate Students, Stress Management, Anxiety, Depression, University Wellness

Introduction

In recent years, mental health concerns among undergraduate students have become increasingly prominent, drawing global attention from educators, researchers, and policymakers alike. The university experience often marked by intense academic pressure, social adaptation, financial challenges, and lifestyle transitions can place considerable strain on students' psychological well-being. Emerging data highlights a troubling trend: escalating rates of depression, anxiety, and stress-related disorders among university students. The aftermath of global crises such as the COVID-19 pandemic has further intensified these issues. According to Browning et al. (2021), psychological distress among students surged during the pandemic, while the American College Health Association (2021) found that over 60% of U.S. college students reported overwhelming anxiety, and nearly 40% faced severe depressive symptoms. The World Health Organization (2022) echoed these concerns, revealing that more than one in five students worldwide exhibit symptoms aligned with mental disorders.

In response to these challenges, physical exercise has emerged as a promising, non-pharmacological strategy for enhancing mental health. Scientific evidence indicates that physical activity stimulates the release of mood-enhancing neurotransmitters like serotonin, dopamine, and endorphins, which are known to alleviate symptoms of anxiety and depression (Kandola, 2020). In addition to its neurochemical benefits, regular physical exercise contributes to improved cognitive function, sleep quality, self-esteem, and social connectedness all of which are essential for students' psychological resilience (White et al., 2024). Even low-to-moderate intensity activities such as walking, stretching, or light aerobic exercise have demonstrated positive effects on mental well-being when practiced consistently (Choi et al., 2022).

Despite this growing body of evidence, many undergraduate students struggle to incorporate regular physical activity into their routines. Factors such as time constraints, academic pressure, low motivation, and mental health challenges themselves can create barriers to sustained engagement in physical exercise. This complex, bidirectional relationship between mental

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health and physical activity highlights the need for proactive, supportive interventions (Filgueiras & Stults-Kolehmainen, 2021). Universities are uniquely positioned to play a transformative role in promoting student wellness by integrating accessible and inclusive physical activity initiatives into campus life. Programs that encourage movement whether through fitness classes, outdoor events, or active learning environments not only support students' mental health but also enhance academic performance and retention (Grozic et al., 2025; Heissel et al., 2023).

Objectives of the Study

To assess the physical exercise and mental health among undergraduate students,
To examine the relationship between physical exercise and mental health among undergraduate students,
To analyze the impact of physical exercise on the mental health of undergraduate students.

Research Methodology

Research Design: This study follows a quantitative research design, focusing on measuring and analyzing the relationship between physical exercise and mental health among undergraduate students. This approach enables the collection of numerical data, which is then statistically analyzed to uncover patterns and draw meaningful conclusions.

Study Area and Population: The research is conducted within a university setting, involving students from different academic years and disciplines. Data is gathered across various on-campus locations, including classrooms, sports complexes, and recreational spaces where students typically engage in physical activity. The study population consists of undergraduate students who are currently enrolled in different faculties and programs.

Sample Size Determination: To determine a representative sample size, the study uses a 95% confidence level and a 6.9% margin of error. Since there was no prior information available about the proportion of students engaging in physical activity, the most conservative estimate of 50% was used to ensure a sufficient sample size. Based on these parameters, the required sample size was calculated to be 204 students. This number ensures that the findings are statistically reliable and generalizable within the university context.

Sampling Technique: A convenience sampling method is used to select participants. This non-probability sampling technique involves choosing students who are readily available and willing to participate.

Data Collection Method: The primary tool for data collection is a self-administered questionnaire. This instrument includes structured questions designed to assess participants' physical exercise habits and their mental health status. It allows students to respond anonymously and at their own pace, promoting honesty and reliability in responses.

Data Analysis Techniques: The data is analyzed using both descriptive and inferential statistics. Descriptive statistics such as frequencies, percentages, means, and standard deviations are used to summarize the demographic and response data. Inferential statistical methods, including

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correlation and regression analysis, are employed to examine the relationships and impacts between physical activity and mental health outcomes.

Results

This section highlights the results of the survey, including demographic information, perceptions related to physical exercise and mental health, the relationship between variables, and the impact of the independent variable on the dependent variable.

Demographic Variable

The information was gathered through an online survey sent to male and female college students at different campuses. This segment provides the demographic characteristics of the respondents and describes the techniques employed to examine and understand the primary data collected through the survey. This method enables a thorough grasp of the demographic traits of the respondents. The demographic profile contains details about gender, age, academic year/ semester and faculty. Analyzing these characteristics allows for a more comprehensive understanding of how different student backgrounds may influence patterns of physical activity and mental health outcomes.

Table 1: Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	82	40.2	40.2	40.2
	Female	122	59.8	59.8	100.0
	Total	204	100.0	100.0	

Out of the 204 respondents, 40.2% were male (n = 82) and 59.8% were female (n = 122). This indicates that the majority of participants in the study were female. The gender representation ensures a balanced perspective, although with a higher proportion of female participants, which may influence the analysis of gender-related trends in physical exercise and mental health.

Table 2: Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-20	12	5.9	5.9	5.9
	21-23	54	26.5	26.5	32.4
	24-26	76	37.3	37.3	69.6
	27-30	62	30.4	30.4	100.0
	Total	204	100.0	100.0	

Among the 204 respondents, the majority fell within the 24–26 age group (37.3%), followed by 27–30 years (30.4%), 21–23 years (26.5%), and a smaller proportion aged 18–20 years (5.9%). This distribution suggests that most participants were in their mid to late twenties, indicating a mature undergraduate sample, possibly including individuals in extended or

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graduate-entry programs. The age diversity enhances the representativeness of the sample for analyzing the relationship between physical exercise and mental health across different stages of student life.

Table 3: Faculty

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Faculty of Science	10	4.9	4.9	4.9
	Faculty of Management (e.g., BBA, BBM)	35	17.2	17.2	22.1
	Faculty of Humanities (e.g., BA)	13	6.4	6.4	28.4
	Faculty of Social Sciences (e.g., BSW)	9	4.4	4.4	32.8
	Faculty of Education (e.g., BEd)	12	5.9	5.9	38.7
	Faculty of Engineering	7	3.4	3.4	42.2
	Faculty of Computer Science (e.g., BCA)	7	3.4	3.4	45.6
	Faculty of Hospitality (e.g., BHCM, BHM)	111	54.4	54.4	100.0
	Total	204	100.0	100.0	

The largest proportion of respondents, 54.4% (n = 111), came from the Faculty of Hospitality (e.g., BHCM, BHM), followed by 17.2% from the Faculty of Management. The remaining participants were distributed across other faculties, including Humanities (6.4%), Education (5.9%), Science (4.9%), Social Sciences (4.4%), Engineering (3.4%), and Computer Science (3.4%). This distribution indicates a strong representation of hospitality students in the study sample, which may reflect their greater accessibility or willingness to participate. The inclusion of students from diverse academic backgrounds contributes to a broader understanding of how physical exercise and mental health interact across different educational disciplines.

Physical Exercise

Table 4: I often engage in physical activity to manage stress or anxiety.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	1.5	1.5	1.5
	Disagree	15	7.4	7.4	8.8
	Neutral	51	25.0	25.0	33.8
	Agree	102	50.0	50.0	83.8

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	Strongly Agree	33	16.2	16.2	100.0
	Total	204	100.0	100.0	

The majority of students, 50% (n = 102), agreed that they often engage in physical activity to manage stress or anxiety, while another 16.2% (n = 33) strongly agreed. Together, 66.2% of the respondents expressed a positive attitude toward using physical activity as a stress management tool. Meanwhile, 25% (n = 51) remained neutral, and a small portion disagreed (7.4%) or strongly disagreed (1.5%).

These results suggest that more than two-thirds of the students recognize and utilize physical activity as a coping mechanism for psychological stress, indicating a widespread awareness of its mental health benefits.

Table 5: Physical exercise helps me control the symptoms like nervousness or fear of the worst happening.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	3.4	3.4	3.4
	Disagree	12	5.9	5.9	9.3
	Neutral	36	17.6	17.6	27.0
	Agree	108	52.9	52.9	79.9
	Strongly Agree	41	20.1	20.1	100.0
	Total	204	100.0	100.0	

A substantial majority of the respondents 52.9% (n = 108) agreed and 20.1% (n = 41) strongly agreed that physical exercise helps them manage symptoms such as nervousness or a fear of the worst happening. This indicates that 73% of students perceive exercise as a beneficial tool in controlling anxiety-related symptoms.

Meanwhile, 17.6% (n = 36) remained neutral, and a smaller group either disagreed (5.9%) or strongly disagreed (3.4%). These findings suggest that physical exercise is widely recognized among students as a helpful strategy for emotional regulation and anxiety control.

Table 6: I believe regular physical activity reduces mental health symptoms such as fear of losing control or difficulty breathing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	2.0	2.0	2.0
	Disagree	13	6.4	6.4	8.3
	Neutral	25	12.3	12.3	20.6
	Agree	87	42.6	42.6	63.2
	Strongly Agree	75	36.8	36.8	100.0
	Total	204	100.0	100.0	

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A significant majority of respondents 42.6% (n = 87) agreed and 36.8% (n = 75) strongly agreed that regular physical activity helps reduce mental health symptoms such as fear of losing control or difficulty breathing. Combined, 79.4% of the participants supported this belief. Only a small percentage disagreed (6.4%) or strongly disagreed (2.0%), while 12.3% (n = 25) maintained a neutral stance. These findings reinforce the view that regular physical activity is widely regarded by students as an effective means to alleviate anxiety-related symptoms and enhance emotional stability.

Table 7: Regular exercise helps reduce feeling of sadness or depression

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.5	.5	.5
	Disagree	11	5.4	5.4	5.9
	Neutral	55	27.0	27.0	32.8
	Agree	92	45.1	45.1	77.9
	Strongly Agree	45	22.1	22.1	100.0
	Total	204	100.0	100.0	

A strong majority of respondents 45.1% (n = 92) agreed and 22.1% (n = 45) strongly agreed that regular exercise helps reduce feelings of sadness or depression. This means 67.2% of students view physical activity as a positive contributor to emotional well-being. Meanwhile, 27.0% (n = 55) responded neutrally, and only a small percentage (5.9%) disagreed or strongly disagreed. These results suggest a widely held belief among university students in the mental health benefits of regular physical activity, particularly its role in alleviating depressive symptoms.

Mental Health

Table 8: Physical activity is the most effective stress management technique for me

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	1.5	1.5	1.5
	Disagree	10	4.9	4.9	6.4
	Neutral	27	13.2	13.2	19.6
	Agree	75	36.8	36.8	56.4
	Strongly Agree	89	43.6	43.6	100.0
	Total	204	100.0	100.0	

A substantial proportion of respondents 36.8% (n = 75) agreed and 43.6% (n = 89) strongly agreed that physical activity is the most effective stress management technique for them.

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Together, this accounts for 80.4% of the sample endorsing physical exercise as their preferred method for managing stress.

Only a small percentage disagreed (4.9%) or strongly disagreed (1.5%), while 13.2% were neutral. These findings underscore the perceived importance and effectiveness of physical activity in coping with stress among undergraduate students.

Table 9: Feeling physically fit directly contributes to my mental happiness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	6	2.9	2.9	2.9
	Neutral	42	20.6	20.6	23.5
	Agree	95	46.6	46.6	70.1
	Strongly Agree	61	29.9	29.9	100.0
	Total	204	100.0	100.0	

Most respondents believe that feeling physically fit contributes positively to their mental happiness. Specifically, 46.6% (n = 95) agreed and 29.9% (n = 61) strongly agreed with this statement, making a combined total of 76.5% endorsing this view. Only a small fraction, 2.9% (n = 6), disagreed, while 20.6% (n = 42) were neutral.

These results highlight the strong association perceived by students between physical fitness and mental well-being, underscoring the holistic benefits of physical health on psychological happiness.

Table 10: Poor physical health leads to increased anxiety or emotional distress

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	3.4	3.4	3.4
	Disagree	12	5.9	5.9	9.3
	Neutral	27	13.2	13.2	22.5
	Agree	95	46.6	46.6	69.1
	Strongly Agree	63	30.9	30.9	100.0
	Total	204	100.0	100.0	

A majority of respondents perceive that poor physical health contributes to increased anxiety or emotional distress. Specifically, 46.6% (n = 95) agreed and 30.9% (n = 63) strongly agreed, totaling 77.5% of participants who believe in this connection. A smaller group remained neutral (13.2%) or disagreed (9.3% combined).

These findings suggest that most students recognize a significant link between physical health and mental well-being, emphasizing the importance of maintaining good physical health to reduce emotional distress and anxiety.

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Table 11: Mental health improvements from exercise outweigh the physical benefits for me

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	1.5	1.5	1.5
	Disagree	16	7.8	7.8	9.3
	Neutral	23	11.3	11.3	20.6
	Agree	76	37.3	37.3	57.8
	Strongly Agree	86	42.2	42.2	100.0
	Total	204	100.0	100.0	

A considerable majority of students 37.3% (n = 76) agreed and 42.2% (n = 86) strongly agreed that the mental health benefits they gain from exercise outweigh the physical benefits. Combined, 79.5% of respondents perceive mental health improvements as the primary advantage of engaging in physical activity.

Only a small percentage disagreed (7.8%) or strongly disagreed (1.5%), and 11.3% remained neutral. This highlights the importance students place on the psychological advantages of exercise, sometimes even more than the physical outcomes.

Relationship between IV and DV

Table 12: Correlations

			Physical Exercise	Mental
Kendall's tau_b	Physical Exercise	Correlation Coefficient	1.000	.292**
		Sig. (2-tailed)	.	.000
		N	204	204
	Mental	Correlation Coefficient	.292**	1.000
		Sig. (2-tailed)	.000	.
		N	204	204
**. Correlation is significant at the 0.01 level (2-tailed).				

The Kendall's Tau-b correlation coefficient was computed to examine the relationship between physical exercise and mental health among the 204 undergraduate students. The correlation coefficient between Physical Exercise and Mental Health is 0.292, which is positive and statistically significant at the 0.01 level ($p < 0.001$). This indicates a moderate positive association as students engage more in physical exercise, their mental health tends to improve. The significance level confirms that this relationship is unlikely to be due to chance, suggesting that physical exercise is positively related to better mental health outcomes in this university student sample.

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Impact of IV on DV

Table 13: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.412	.239		10.112	.000
	Physical Exercise	.429	.061	.443	7.017	.000
a. Dependent Variable: Mental Health						

A simple linear regression was conducted to examine the impact of Physical Exercise on Mental Health among the 204 students. The unstandardized coefficient (B) for Physical Exercise is 0.429 (SE = 0.061), which means that for every one-unit increase in physical exercise, mental health scores increase by approximately 0.429 units, holding other factors constant. The standardized coefficient (Beta) is 0.443, indicating a moderate positive effect size. The constant (intercept) is 2.412, representing the expected mental health score when physical exercise is zero. The model is statistically significant with a t-value of 7.017 and a p-value < 0.001, indicating that physical exercise is a significant predictor of mental health.

In summary, physical exercise positively and significantly influences mental health among undergraduate students in this study.

Conclusion

This study reveals a significant positive relationship between physical exercise and mental health among undergraduate students. The findings indicate that students who regularly engage in physical activity tend to report better mental health outcomes, including reduced anxiety, depression, and emotional distress. The majority of participants recognize physical exercise as an effective stress management tool and believe that its mental health benefits often outweigh the physical advantages. Moreover, feeling physically fit is closely linked to increased mental happiness, while poor physical health is perceived to exacerbate anxiety and emotional challenges. The regression analysis confirms that physical exercise is a significant predictor of improved mental health, highlighting its critical role in promoting psychological well-being in university settings. Despite academic pressures and lifestyle challenges, encouraging regular physical activity can serve as a practical, non-pharmacological intervention to support students' mental wellness. Universities should therefore prioritize inclusive wellness programs that facilitate and motivate students to maintain consistent physical exercise for holistic health benefits.

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