



Moving with the Mind: A Correlational Study of Psychological Flexibility and Physical Activity in a University Setting

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KEYWORDS

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ABSTRACT:

Introduction: Psychological flexibility is a crucial component of mental health and well-being, enabling individuals to navigate life's challenges while maintaining a sense of purpose and direction. Physical activity is widely acknowledged for its extensive benefits, including enhanced mood, cognitive function, and cardiovascular health. With the rising prevalence of mental health issues among university students, identifying interventions that support psychological flexibility is of growing importance. Exercise has been proposed as a potential factor influencing psychological adaptability, yet its specific relationship remains insufficiently explored. This study aims to bridge this gap by investigating the correlation between psychological flexibility and physical activity levels among undergraduate university students.

Objectives: The primary goal of this study was to examine whether increased physical activity is associated with higher psychological flexibility among undergraduate students.

Methods: Following ethical approval, data were collected from 175 undergraduate students aged 18-24 years. Participants voluntarily reported their physical activity levels and psychological flexibility through standardized assessment tools. Inclusion criteria required students to be currently enrolled in undergraduate programs and willing to participate, while those with medical conditions preventing physical activity or undergoing psychological treatment were excluded. The study analyzed the relationship between these two variables using appropriate statistical methods.

Results: Statistical analysis revealed a positive correlation ($r = 0.66$) between physical activity and psychological flexibility, suggesting that students who engaged in higher levels of physical activity exhibited greater psychological adaptability. This indicates that physical activity may play a significant role in enhancing mental resilience.

Conclusions: The findings highlight the potential benefits of physical activity in fostering psychological flexibility among university students. These results support the inclusion of structured exercise programs in university wellness initiatives to enhance mental health outcomes. Future research may explore causation and intervention strategies to maximize psychological benefits.

1. Introduction

In today's fast-paced academic environment, university students often face a myriad of stressors that can significantly impact their mental and physical well-being. Psychological flexibility, defined as the ability to adapt to changing circumstances and maintain a balance

between various demands, has emerged as a critical factor in promoting mental health and overall well-being.

⁽¹⁾ Concurrently, physical activity is widely recognized for its numerous benefits, including improved mood, enhanced cognitive function, and reduced risk of chronic diseases. ⁽²⁾



Despite the growing recognition of the importance of psychological flexibility and physical activity, there is limited research exploring the relationship between these two constructs within the university setting. Understanding this relationship is essential, as it can inform the development of interventions aimed at enhancing both psychological and physical health among students.

Previous studies have highlighted the positive impact of psychological flexibility on mental health outcomes, such as reduced anxiety and depression. ⁽³⁾ Moreover, physical activity has been shown to have a protective effect against mental health issues, contributing to better emotional regulation and stress management. ⁽⁴⁾ However, the interplay between psychological flexibility and physical activity remains underexplored, particularly in the context of university students who often experience unique stressors and demands.

2. Objectives

This study aims to investigate the correlation between psychological flexibility and physical activity among university students. By examining this relationship, we hope to shed light on the potential synergistic effects of these variables and provide insights into how psychological flexibility can be leveraged to promote physical activity and vice versa. The findings of this study will contribute to the existing literature and offer valuable implications for the design of holistic health promotion programs targeting university populations.

3. Methods

This correlational study was conducted on a university campus, with the aim of investigating the relationship between psychological flexibility and physical activity among university students. The study targeted a sample size of at least 165 participants to ensure statistical power (Cohen, 1992) ⁽⁵⁾ but could manage to obtain data from 175 participants.

Sample Size was calculated using the formula for correlational studies:

$$n = \frac{(Z_{\alpha/2} + Z_{\beta})^2}{r^2} + 3$$

[where, $Z_{\alpha/2} = 1.96$ (for a 95% confidence level), 80% statistical power ($Z_{\beta} = 0.84$) and the expected correlation coefficient $r = 0.22$]

The numerator was calculated by adding the Z-values to obtain 2.8. This sum is then divided by the correlation coefficient to yield approximately 12.73, which is squared to produce 162.06. Finally, a constant of 3 is added to this value, resulting in a sample size of approximately 165 participants. This ensures that the study was statistically robust and capable of detecting meaningful effects with high confidence and power.

Furthermore, the study population comprised university students aged between 18-24 years, who were willing to participate and provided informed consent. Inclusion criteria included students who were currently enrolled in the university. However, students with medical conditions that prevented physical activity and those currently undergoing psychological treatment were excluded from the study.

Psychological flexibility was assessed using the Personalized Psychological Flexibility Index (PPFI) ⁽¹⁾, while physical activity levels were measured using the International Physical Activity Questionnaire (IPAQ). ⁽⁶⁾ Participants were recruited through university email lists, social media, and flyers. They were provided with detailed information about the study, and informed consent was obtained prior to participation.

Data collection involved administering the PPFI and IPAQ questionnaires either online or in person. All collected data were handled with strict confidentiality, and securely stored to maintain participants' privacy. ⁽⁷⁾ Ethical approval for the study was obtained from the university's Institutional Ethical committee (PIMS/IEC-DR/2023/118), ensuring adherence to ethical guidelines. Participants were assured of their right to withdraw from the study at any time without any consequences.

4. Results

Data analysis was conducted using Microsoft Excel, ensuring accurate computation and representation of study parameters. The demographic characteristics and key study variables were summarized in Table 1, highlighting their mean and standard deviation (SD). Below are the observed values:



Table 1: mean and SD of Demographic variables and study variables

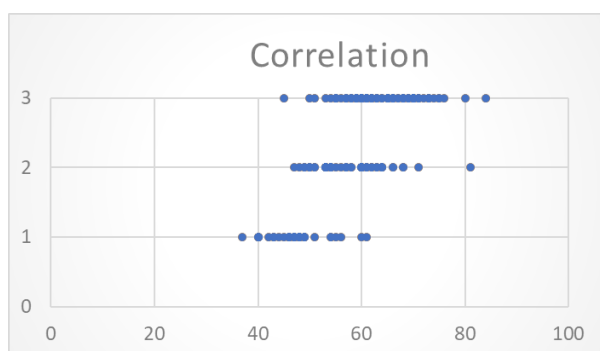
Parameter	Mean	SD
Age (years)	20.81 yrs	2.17
Height (cm)	161.4 cm	19.4
Weight (Kg)	60.36 kg	10.85
Psychological flexibility score	58.7	9.005
Physical activity Score	2.33	0.78
Gender	Male n= 90	Female n=82

In terms of gender distribution, the study comprised 90 male participants and 82 female participants, ensuring a reasonable balance across genders.

Correlation Analysis

The relationship between psychological flexibility (as measured by the PPFi) and physical activity levels (as quantified by the IPAQ) was examined using Spearman's rank correlation coefficient (r). Graph 1 visually represents this correlation.

Graph 1: Correlation of Psychological Flexibility and Physical activity levels



Graph 1 shows correlation Analysis done by Spearman's rank correlation coefficient (r) value 0.6672 indicates a moderate positive correlation between psychological flexibility (PPFi) and physical activity (IPAQ). This implies that individuals with higher psychological flexibility tend to exhibit increased physical activity levels. Such a trend underscores the potential interdependence of mental adaptability and physical health behaviours.

5. Discussion

The present study aimed to investigate the relationship between psychological flexibility and physical activity among university students. The findings revealed a Spearman's rank correlation coefficient ($r_s = 0.6672$), indicating a moderate to strong positive correlation between psychological flexibility, as measured by the Psychological Flexibility Index (PPFi), and physical activity levels, assessed using the International Physical Activity Questionnaire (IPAQ).

This result aligns with existing literature that emphasizes the role of psychological flexibility in promoting health-related behaviours. Psychological flexibility, defined as the ability to adapt to changing circumstances, maintain balance among life domains, and commit to behaviours aligned with personal values, has been shown to enhance motivation and reduce barriers to engaging in physical activity. ⁽⁸⁾⁽⁹⁾

For example, studies have demonstrated that interventions targeting psychological flexibility, such as Acceptance and Commitment Therapy (ACT), can effectively improve physical activity levels. ⁽¹⁰⁾

The observed correlation underscores the potential of psychological flexibility as a target for interventions aimed at increasing physical activity. University students, who often face unique stressors such as academic pressure and time constraints, may particularly benefit from strategies that enhance psychological flexibility. Incorporating psychological flexibility training into university wellness programs could foster healthier lifestyles and improve overall well-being. ⁽⁹⁾

Leveraging the insights from this research, universities have an opportunity to integrate psychological flexibility training into their curricula and campus wellness initiatives, fostering a healthier and more resilient college community. Programs designed to enhance psychological flexibility such as workshops based on Acceptance and Commitment Therapy (ACT) or mindfulness-based interventions, etc. can help students manage stress, adapt to challenges, and maintain a balance between academic and personal life. For instance, studies have shown that ACT-based interventions significantly improve psychological flexibility and well-being among university students. ⁽¹¹⁾⁽¹²⁾ Furthermore, incorporating modules on



psychological flexibility and physical activity into health education courses could raise awareness of their interconnection and motivate students to adopt more active lifestyles. By embedding these strategies into the campus culture, universities can not only promote individual well-being but also cultivate a supportive environment that prioritizes holistic health, ultimately enhancing both academic performance and community engagement.

Recognizing the constraints of this study is also essential. This cross-sectional design precludes any causal inferences, and the sample was limited to university students, which may not be representative of the general population. Future research should consider longitudinal designs and more diverse samples to further elucidate the relationship between psychological flexibility and physical activity.

Conclusion:

The study concludes that the positive correlation between psychological flexibility and physical activity observed in this study suggests that enhancing psychological flexibility could be a valuable strategy in promoting physical activity among university students. These findings contribute to the growing body of literature on the psychological determinants of physical activity and provide a foundation for future research and intervention development.

Declarations:

Ethics approval and consent to participate: The study was conducted following approval from the Ethical Committee of PIMS DU, (PIMS/IEC-DR/2023/118) and was registered with Clinical Trials Registry India: CTRI/2023/03/050359 Registered 6th march 2023, <http://ctri.nic.in>. The study protocol adhered to the ethical principles outlined in the Declaration of Helsinki. The purpose, procedures, and benefits of the study were explained to the participants, who then provided informed written consent.

Availability of the data and materials:

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing Interests:

The authors declare that they have no competing interests.

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