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## **Fit to cope: Physical Activity and its influence on the resilience of university students**

### **En forma para afrontar la situación: la actividad física y su influencia en la resiliencia de los estudiantes universitarios**

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## Abstract

This study aimed to explore the relationship between university students' physical activity engagement and their resilience, recognizing the growing importance of holistic well-being in educational settings. Employing a quantitative descriptive correlational design, the research involved 790 students selected through simple random sampling to ensure representativeness. Data were collected using two validated instruments: the International Physical Activity Questionnaire (IPAQ) to measure physical activity levels and the Nicholson McBride Resilience Questionnaire (NMRQ) to assess resilience. Descriptive statistics summarized the levels of physical activity and resilience, while the Pearson correlation coefficient tested the relationship between these variables. Results revealed that a significant positive association exists between physical activity engagement and resilience, indicating that students who are more physically active tend to exhibit stronger resilience. The findings highlight the interconnectedness of physical and psychological well-being, underscoring the importance of integrating physical activity into student support programs to enhance overall resilience. This relationship suggests that promoting physical activity may contribute to enhanced emotional resilience and improved coping abilities in students. The study contributes to the existing body of knowledge by addressing a gap in understanding how these two variables interact within the student population. It also highlights implications for policy and practice, advocating for a more comprehensive approach to student health that balances physical and emotional development. Overall, the research concludes that promoting physical activity is a vital component in supporting students' resilience, ultimately enhancing their ability to manage academic and social challenges effectively.

**Keywords:** adaptability; coping skills; physical wellness; psychological strength; student well-being

## Resumen

Este estudio tuvo como objetivo explorar la relación entre el nivel de compromiso de los estudiantes con la actividad física y su resiliencia, reconociendo la creciente importancia del bienestar integral en los entornos educativos. Se utilizó un diseño cuantitativo de tipo correlacional descriptivo, y participaron 790 estudiantes seleccionados mediante muestreo aleatorio simple para garantizar la representatividad de la muestra. La recopilación de datos se realizó a través de dos instrumentos validados: el Cuestionario Internacional de Actividad Física para medir los niveles de actividad física, y el Cuestionario de Resiliencia de Nicholson McBride para evaluar la resiliencia. Se aplicaron estadísticas descriptivas para resumir los niveles de actividad física y resiliencia, y se utilizó el coeficiente de correlación de Pearson para analizar la relación entre ambas variables. Los resultados revelaron una asociación positiva y significativa entre el compromiso con la actividad física y la resiliencia, lo que indica que los estudiantes más físicamente activos tienden a mostrar una mayor capacidad de adaptación frente a las dificultades. Estos hallazgos resaltan la interconexión entre el bienestar físico y psicológico, subrayando la importancia de considerar la actividad física como parte fundamental de los programas de apoyo estudiantil orientados al desarrollo integral. La relación observada sugiere que una mayor participación en actividades físicas se vincula con una mayor fortaleza emocional y mejores habilidades de afrontamiento. El estudio aporta al cuerpo de conocimiento existente al abordar una brecha en la comprensión sobre

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cómo interactúan estas dos variables en la población estudiantil. Asimismo, plantea implicaciones relevantes para las políticas y prácticas educativas, promoviendo un enfoque equilibrado que integre el desarrollo físico y emocional. En conclusión, la investigación destaca que fomentar la actividad física representa un componente esencial para fortalecer la resiliencia de los estudiantes y potenciar su capacidad para enfrentar con éxito los retos académicos y sociales.

**Palabras clave:** adaptabilidad; habilidades de afrontamiento; bienestar físico; fortaleza psicológica; bienestar estudiantil

## Introduction

Resilience refers to an individual's capacity to adapt positively in the face of adversity, stress, or significant life challenges (Sharma et al., 2021). It enables people to recover from setbacks and maintain psychological well-being despite difficult circumstances. In educational settings, resilience is crucial as it allows students to cope with academic pressure, emotional struggles, and social demands (Jivraj, 2024). Rather than being a fixed trait, resilience is a dynamic process that can be developed over time through supportive environments, self-regulation, and coping strategies (DeLuca et al., 2022). It is widely recognized as a protective factor for mental health and academic success (Buchwald-McGlennon, 2023).

Physical activity engagement refers to the consistent participation in bodily movements that result in energy expenditure and contribute to overall physical health (Gothe et al., 2020). It encompasses a wide range of activities, including walking, running, sports, and structured exercise programs, whether undertaken for recreation, transportation, or fitness purposes (Zheng et al., 2022). Regular physical activity is essential not only for maintaining physical health but also for enhancing cognitive function, emotional well-being, and social interaction (Marsigliante et al., 2023). Among students, engaging in physical activity has been linked to improved concentration, reduced stress, and better academic performance. These benefits highlight the importance of encouraging active lifestyles in educational settings (Westerbeek & Eime, 2021).

Today's students face increasing challenges that threaten their resilience and overall well-being. Academic pressure, social expectations, family issues, and mental health concerns often overwhelm students, making it difficult for them to cope effectively

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with stress (Smith & Emerson, 2021). Many lack access to supportive relationships and resources that could help foster resilience, leading to higher risks of anxiety, depression, and academic failure (Pillay et al., 2022). At the same time, physical activity among students has declined due to sedentary lifestyles, excessive screen time, and limited opportunities for exercise in schools and communities (Romeo et al., 2019). This lack of physical activity further affects students' physical and mental health, reducing their capacity to develop resilience and maintain positive well-being (Martins et al., 2021).

A study from Shengyao et al. (2024) explored the concept of resilience and its significance in the lives of students. Research has shown that resilience contributes to better emotional regulation, academic achievement, and mental health outcomes, especially in challenging environments (Haktanir et al., 2021). This emphasizes the role of personal strengths, family support, and school connectedness in fostering resilience among youth. Furthermore, interventions aimed at building resilience, such as social-emotional learning programs and mindfulness practices, have been found effective in helping students cope with stress and adversity (Li & Hasson, 2020).

Likewise, Zhu et al. (2021) highlighted the benefits of physical activity on students' overall development. Engaging in regular physical activity has been associated with improved mood, reduced symptoms of anxiety and depression, and enhanced cognitive performance in school-aged children and adolescents (Donnelly & Lambourne, 2011). Additionally, research suggests that physically active students tend to have better attention spans, higher self-esteem, and more positive social interactions (Klussman et al., 2021).

Despite the growing body of research on student resilience and physical activity, a lack of comprehensive data remains regarding the direct relationship between these two critical variables. Most existing studies tend to focus on each construct independently, with limited investigation into how physical activity may influence or contribute to the development of resilience among students. This gap highlights the need for further exploration, particularly in educational contexts where both mental and physical well-being plays a crucial role in student success. The primary objective of this research is to investigate whether and how physical activity engagement is related to the resilience

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levels of students, thereby contributing to the development of more comprehensive support strategies in education.

This research is essential because it offers valuable insights into how physical activity may enhance resilience among students, a factor crucial to their academic and personal success. The findings can help educators, school leaders, and policymakers design programs that promote both physical and emotional well-being. Additionally, this study contributes to the body of knowledge by addressing a gap in current literature and encouraging future research on integrated approaches to student development. Its relevance extends to the broader academic community by supporting evidence-based practices that foster healthier and more resilient learners.

### Objectives of the Study:

1. To examine the level of physical activity engagement among students;
2. To determine the level of resilience demonstrated by the students; and
3. To identify the significant relationship between students' physical activity engagement and their level of resilience.

## Methods

### Research Design

This research employed a quantitative design, specifically the descriptive correlational method. Quantitative research focuses on collecting and analyzing numerical data to identify patterns, relationships, or trends among variables (Hirose & Creswell, 2023). Descriptive correlational research aims to determine the degree and direction of the relationship between two or more variables without manipulating them (Creswell & Hirose, 2019). This design is proper when the goal is to describe existing conditions and examine the associations between variables in a specific population.

The use of a quantitative descriptive correlational design is appropriate for this study because it seeks to explore the relationship between students' physical activity and their resilience. This approach enables the researcher to collect measurable data from multiple students and analyze the strength of the association between the two variables. Since the study does not aim to establish a cause-and-effect relationship but rather to examine whether one exists, the chosen design is suitable. It provides an objective way



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to assess the patterns and trends that may exist between physical activity engagement and resilience among students.

### **Respondents and Sampling**

This study involved 790 students from one of the leading state universities in Maguindanao, Philippines, selected using simple random sampling. Of the total students, 428 (54.18%) were female and 362 (45.82%) were male. In terms of ethnicity, a large portion identified as Maguindanaon (38.10%), followed by Iranun (22.91%), Maranao (18.61%), and other indigenous and Moro ethnolinguistic groups (20.38%). Simple random sampling is a technique where every member of the population has an equal chance of being chosen, ensuring that the sample is representative and unbiased (Noor et al., 2022). This study did not involve any intervention, as it was purely a survey-based research.

A pilot test was conducted prior to the actual data collection to ensure the clarity and reliability of the research instruments. This method is suitable for the study because it enables the collection of data that accurately reflects the larger student population, thereby reducing the risk of sampling bias. By using simple random sampling, the research can produce findings that are generalizable and reliable, providing a solid basis for examining the relationship between physical activity and resilience.

### **Research Instruments**

This research adopted two established questionnaires to measure the key variables. The International Physical Activity Questionnaire (IPAQ), developed by Craig et al. (2003), was used to assess students' physical activity levels and has demonstrated strong reliability with a Cronbach's alpha typically above 0.80. To measure resilience, the Nicholson McBride Resilience Questionnaire (NMRQ) (Wales, 2020) was utilized, which has been validated in previous studies with a reliability index of approximately 0.85. Both instruments are widely recognized for their validity and reliability in educational and health-related research. Using these standardized tools ensures the accuracy and consistency of the data collected. This approach supports the study's objective to analyze the relationship between physical activity and resilience quantitatively.

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## Statistical Analysis

This research utilized both descriptive and inferential statistics to analyze the data. Descriptive statistics, including mean and composite mean, were used to summarize and describe the levels of physical activity and resilience among the students. To examine the relationship between these two variables, the Pearson Correlation Coefficient was employed as the inferential statistical test. This test is appropriate because it measures the strength and direction of the linear relationship between continuous variables. Using Pearson's correlation allows the study to determine whether a significant association exists between students' physical activity and their resilience. Overall, this approach provides a clear and precise understanding of the variables and their interconnection.

## Results

Table 1 presents a summary of the students' physical activity engagement levels, showing the overall trends. It highlights how frequently and intensely the students engage in any of physical activities such as walking, running, doing workout, etc.

Table 1. Students' Physical Activity Engagement

Physical Activity Engagement	Frequency (n=790)	Percentage (%)
Low Activity	221	27.97
Moderate Activity	352	44.56
High Activity	217	27.47

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Table 2 presents the students' levels of resilience, showing the average scores and distribution across various resilience dimensions. It provides an overview of how well students cope with challenges and adapt to stress.

Table 2. Students' Level of Resilience		
Statements	Mean	Verbal Interpretation
1. In a difficult spot, I immediately turn to what can be done to put things right.	3.42	Agree
2. I influence where I can rather than worrying about what I can't influence.	3.38	Agree
3. I don't take criticism personally.	3.26	Agree
4. I generally manage to keep things in perspective.	3.41	Agree
5. I am calm in a crisis.	3.25	Agree
6. I'm good at finding solutions to problems.	3.37	Agree
7. I wouldn't describe myself as an anxious person.	3.19	Agree
8. I don't tend to avoid conflict.	3.17	Agree
9. I try to control events rather than being a victim of circumstances.	3.49	Agree
10. I trust my intuition.	3.69	Strongly Agree
11. I manage my stress levels well.	3.33	Agree
12. I feel confident and secure in my position.	3.34	Agree
<b>Grand Mean</b>	<b>3.35</b>	<b>Strong Level of Resilience</b>
Mean Scale:	Verbal Description	Interpretation
4.00-3.50	Strongly Agree	Exceptional level of resilience
3.49-2.50	Agree	Strong level of resilience
2.49-1.50	Disagree	Established level of resilience
1.49-1.00	Strongly Disagree	Developing level of resilience

Table 3 presents the results of the test of the relationship between the students' physical activity engagement and their resilience. It shows the correlation coefficient, indicating the strength and direction of the association between these two variables.

Table 3. Test of Relationship between the Students' Physical Activity Engagement and Resilience			
Variables	Pearson Correlation Coefficient	p-value	Interpretation $\alpha=0.05$
Physical Activity Engagement and Resilience	.159**	.001	Statistically Significant

\*\* . Correlation is significant at the 0.01 level (2-tailed).

## Discussion:

### Students' Physical Activity Engagement

Table 1 shows the students' physical activity engagement among the 790 students. 221 students (27.97%) reported low physical activity engagement, 352 students (44.56%) had moderate physical activity engagement, and 217 students (27.47%) exhibited high



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physical activity engagement. This distribution indicates that less than one-third of the students maintain a high level of physical activity, while a larger portion falls within the low to moderate range. This implies that a significant number of students may not be engaging in sufficient physical activity to meet their full physical and mental health needs.

The considerable number of students with low physical activity engagement is particularly concerning because it suggests that many students are not regularly participating in physical activities at optimal levels. This trend could potentially affect their overall well-being, including energy levels, mood regulation, and cognitive functioning. The predominance of low to moderate engagement may limit the student's ability to build physical endurance and resilience, both of which are important for coping with academic and social challenges.

These findings are supported by previous studies that also report similar patterns of physical inactivity among students. For example, research indicates that sedentary behavior and insufficient physical activity are prevalent among young people worldwide, often associated with increased screen time and academic demands (Erickson et al., 2022). Other studies have emphasized that low physical activity levels are associated with adverse outcomes such as poor mental health and decreased academic performance (Monacis et al., 2022). This consistent evidence highlights the importance of understanding physical activity patterns within student populations (Dishman et al., 2021).

### Students' Level of Resilience

In terms of students' level of resilience, the statement number 10, "I trust my intuition" received the highest mean score of 3.69, with a verbal description of "strongly agree." This suggests that many students have confidence in their judgment and decision-making abilities. It implies a strong sense of self-awareness and reliance on internal guidance when facing challenges. Such a mindset can contribute to effective coping strategies and emotional stability during stressful situations.

These findings align with previous research highlighting the importance of self-trust and confidence as key components of resilience. Studies have shown that trusting one's intuition enhances problem-solving and adaptive responses to adversity (Mcdermott

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et al., 2020). Moreover, resilient individuals often display a strong belief in their ability to navigate difficulties, which supports emotional regulation and persistence (Dalipe et al., 2025). This internal trust is seen as foundational in maintaining psychological well-being under pressure (Abualruz et al., 2024).

Conversely, the statement number 8, “I don’t tend to avoid conflict” had the lowest mean score of 3.17, with a verbal description of “agree.” It suggests that some students may still feel uncomfortable about addressing conflicts directly. It implies that a avoidance or discomfort with conflict remains a challenge for specific individuals, potentially affecting their resilience in social or stressful situations. Such hesitation could limit opportunities for growth by hindering the resolution of interpersonal difficulties.

This observation is consistent with studies that find conflict avoidance to be a common barrier to building resilience among students. Research suggests that reluctance to face conflict can hinder emotional development and stress management (Floyd et al., 2024). Furthermore, individuals who struggle with conflict resolution often report lower resilience and increased anxiety (Hussain et al., 2023). Understanding this dynamic is crucial for recognizing areas where resilience may be vulnerable (Chen & Taylor, 2023).

The overall grand mean for resilience among students was 3.35, interpreted as a “Strong Level of Resilience.” It indicates that, despite some challenges, students generally possess a robust capacity to recover from difficulties and adapt positively. It implies a prevailing strength in emotional and psychological resources that supports their ability to handle academic and personal stressors. Such a level reflects the students’ potential to maintain well-being in the face of adversity.

These results correspond with earlier research that reports moderate to strong resilience levels in student populations. Several studies highlight that many young individuals develop resilience through personal strengths and external support systems (Spohrer, 2024). Additionally, a strong level of resilience has been linked to better academic performance and mental health outcomes (Jaspal, 2024). This supports the view that resilience is a critical factor in student success and well-being (Fullerton et al., 2021).

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## Relationship between the Students' Physical Activity Engagement and Resilience

The test of the relationship between the students' physical activity engagement and resilience yielded a Pearson correlation coefficient of 0.159, with a p-value of 0.001, indicating a significant positive relationship. This suggests that as students' physical activity engagement increases, their resilience tends to improve as well. The correlation, though modest, is statistically significant at the 0.01 level, showing a meaningful association between these two variables. This finding highlights the interconnectedness of physical activity and resilience within the student population.

It means that students who are more physically active generally exhibit higher levels of resilience. It suggests that physical activity may play a role in supporting students' ability to cope with challenges and recover from adversity. The positive association suggests that physical engagement is related to psychological strength and adaptability. Such a connection highlights the holistic nature of student well-being, as it links physical and emotional health.

These findings are supported by prior research that demonstrates a positive link between physical activity and resilience in youth. Studies have found that regular physical activity contributes to improved stress management and emotional regulation (Rosita Hernani et al., 2025). Additionally, physical activity has been associated with greater psychological resilience and reduced symptoms of anxiety and depression (Wadhwa, 2023). This evidence underscores the importance of incorporating physical activity into resilience-building strategies (Almutairi et al., 2020).

A significant positive relationship between physical activity and resilience among students underscores the need for policies that integrate physical wellness into educational frameworks. Encouraging regular physical activity can support not only students' physical health but also their emotional and psychological well-being, creating a more balanced approach to student development (Battalio et al., 2020). In practice, schools and institutions might consider embedding physical activity into daily routines to foster resilience, which is essential for coping with academic and social challenges (Dai & Menhas, 2020). Such policy considerations can lead to healthier, more adaptive student populations, ultimately enhancing overall educational outcomes (Case, 2021).

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## Conclusion

The students' physical activity engagement reflects a varied but generally moderate level of participation, indicating that many are not consistently active at optimal levels. This pattern suggests that physical activity remains an area with room for growth within the student population, which could influence their overall health and well-being. The engagement levels reveal essential insights into lifestyle habits that can impact both physical and mental well-being. Understanding these patterns is crucial for developing a holistic view of student health behaviors.

Regarding resilience, the students demonstrate a generally strong capacity to manage stress and adapt to challenges, reflecting a positive psychological foundation. However, certain aspects of resilience, such as conflict management, appear less developed, pointing to potential areas of vulnerability in coping strategies. This overall resilience level highlights students' ability to navigate academic and personal difficulties with some degree of emotional strength. It suggests that resilience remains a dynamic trait influenced by various internal and external factors.

The significant relationship between physical activity engagement and resilience indicates that aspects of student well-being are interconnected and mutually supportive. This connection emphasizes the importance of considering both physical and psychological dimensions when addressing student health. It also suggests that efforts to enhance one area may positively influence the other, contributing to more comprehensive support for students. Ultimately, this relationship underscores the importance of integrated approaches that acknowledge the intricate interactions influencing student success and well-being.

## Limitations

This study has several limitations that should be considered when interpreting the results. First, the use of self-reported questionnaires may introduce response bias, as participants might overestimate or underestimate their physical activity and resilience levels. Additionally, the cross-sectional design limits the ability to establish causality between physical activity and resilience. The sample, although randomly selected, may not fully represent the diversity of all student populations, which could affect the generalizability of the findings. Finally, other factors influencing resilience, such as social

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support or mental health status, were not examined, potentially overlooking essential variables that contribute to the observed relationships. To gain deeper insights into students' experiences and perspectives, future research may consider incorporating qualitative methods to complement the findings and explore underlying factors more thoroughly.

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