

Original article. Movement and the mind: exploring the relationship between physical activity and mental well-being. Vol. 12, n. ° 2; p. 1-17, April 2026. <https://doi.org/10.17979/sportis.2026.12.2.12827>

## **Movement and the mind: exploring the relationship between physical activity and mental well-being**

## **Movimiento y la mente: explorando la relación entre la actividad física y el bienestar mental**

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**Editorial schedule:** Article received 25/11/2025 Accepted: 01/03/2026 Published: 01/04/2026

<https://doi.org/10.17979/sportis.2026.12.2.12827>

### **To cite this article, use the following reference:**

Eustaquio, E.C.; Nueva, G.T. (2026). Movement and the mind: exploring the relationship between physical activity and mental well-being. *Sportis Sci J*, 12 (2), 1-17 <https://doi.org/10.17979/sportis.2026.12.2.12827>

**Author contribution:** E.C.E. conceptualized and designed the study, supervised data collection, performed data analysis, and drafted the manuscript. G.T.N assisted in instrument administration, data encoding, and preliminary statistical analysis. Both authors contributed to literature review development, manuscript revision, and critical intellectual content review. All authors read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

**Funding:** This research received no external funding. The study was conducted without financial support from any public, commercial, or non-profit funding agency.

**Conflict of interest:** The authors declare that there are no conflicts of interest regarding the publication of this paper. The research was conducted independently, and no financial or personal relationships influenced the study's design, data collection, analysis, or interpretation.

**Ethical aspects:** The study was conducted in accordance with established ethical standards for research involving human participants. Institutional permission was secured prior to data collection, and informed consent was obtained from all respondents before participation. Participation was voluntary, anonymity was preserved, and respondents were informed of their right to withdraw at any time without penalty. All data were treated with strict confidentiality and used solely for academic research purposes.

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## Abstract

This study investigates the relationship between university students' physical activity levels and mental health. In view of increased concerns about psychological wellbeing in higher education, the main goal is to investigate whether different levels of physical exercise are linked to disparities in students' mental health. 1,199 individuals were chosen by simple random sampling as part of a quantitative technique with a descriptive-correlational design. The International Physical Activity Questionnaire (IPAQ) was used to gauge levels of physical activity, and a standardized Mental Well-Being Scale was used to gauge mental health. Descriptive statistics and Pearson's correlation were used in data analysis to ascertain the direction and strength of the association between the variables. The results showed a positive connection, meaning that students who engaged in more physical exercise had better mental health outcomes. These findings demonstrate how engaging in regular physical activity might improve students' general wellbeing. According to the study, integrating movement-based activities can lead to better psychological outcomes, underscoring the significance of treating both physical and mental health in academic programs. In conclusion, the observed relationship between physical activity and mental health highlights the importance of holistic approaches to student health, acknowledging physical activity as a key element in promoting mental wellness.

**Keywords:** movement behavior; psychosocial health; emotional resilience; college students; life satisfaction

## Resumen

Este análisis investiga la conexión entre el bienestar mental de los alumnos universitarios y su participación en actividades físicas. El propósito fundamental es averiguar si la salud psicológica de los jóvenes se ve afectada por los diferentes grados de actividad física, especialmente teniendo en cuenta la preocupación cada vez mayor por el bienestar mental en la educación superior. Se utilizó un método cuantitativo con una estructura descriptiva-correlacional, en la que intervinieron 1,199 alumnos escogidos por muestreo aleatorio simple. El Cuestionario Internacional de Actividad Física (IPAQ) se utilizó para evaluar los niveles de actividad física, y la Escala de Bienestar Mental para medir el bienestar mental. Se usaron estadísticas descriptivas y la correlación de Pearson para analizar los datos. Los hallazgos revelaron una correlación positiva, lo que demuestra que los alumnos con más implicación en actividades físicas tienen niveles de bienestar mental más altos. Estos resultados indican que fomentar el ejercicio físico es una estrategia efectiva para mejorar la salud en su totalidad de los alumnos. El estudio subraya la relevancia de que las universidades tomen en cuenta la salud mental y física de manera simultánea, e indica que incluir actividades físicas en los planes educativos puede contribuir a mejorar el bienestar psicológico. En resumen, los resultados obtenidos destacan la importancia de adoptar enfoques integrales de salud estudiantil, identificando la actividad física como un elemento esencial para reforzar el bienestar emocional.

**Palabras clave:** comportamiento de movimiento; salud psicosocial; resiliencia emocional; estudiantes universitarios; satisfacción con la vida

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## Introduction

Mental well-being refers to a state of psychological health that enables individuals to cope with the everyday stresses of life, work productively, and contribute meaningfully to their communities (Suganya, 2024). It encompasses emotional resilience, life satisfaction, positive functioning, and managing emotions effectively. Mental well-being is not merely the absence of mental illness but the presence of positive attributes such as self-esteem, optimism, and a sense of purpose (Pazer, 2024). Achieving mental well-being requires balancing individual capacities and external life demands, fostering personal fulfillment and healthy social interactions (Alamsyah & Merdeka, 2023).

Physical activity engagement refers to the consistent participation in bodily movements that enhance or maintain physical fitness and overall health (Gothe et al., 2020). It includes walking, running, sports, and structured exercises that promote cardiovascular endurance, muscular strength, flexibility, and coordination (Zheng et al., 2022). Regular physical activity has been widely associated with numerous physical and psychological benefits, including reduced risk of chronic diseases and improved mental well-being. It reflects the frequency and intensity of bodily movement and the motivation, attitudes, and behaviors that drive individuals to remain active daily (Marsigliante et al., 2023).

Today's students face mounting challenges that significantly impact their mental well-being and physical activity engagement (Hammoudi Halat et al., 2023). High academic pressure, social isolation, financial stress, and the pervasive influence of digital technology contribute to rising levels of anxiety, depression, and emotional exhaustion among young people (Evans-Lacko et al., 2018). Simultaneously, sedentary lifestyles have become increasingly common, fueled by screen-based learning, lack of access to recreational spaces, and reduced physical education in school curricula (Gogoi et al., 2022). These dual concerns are particularly pressing because mental and physical health are deeply interconnected, and neglect in one area often worsens outcomes in the other. Students who lack regular physical activity are more likely to experience poor mood regulation, lower self-esteem, and heightened psychological distress (Zhu et al., 2021).

Several studies have highlighted the growing concern surrounding students' well-being, emphasizing the psychological toll of academic stress, social pressures, and

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transitional life stages (Oftedal et al., 2024). Research consistently shows that university students are particularly vulnerable to mental health issues, including anxiety, depression, and burnout, due to the demands of higher education and the struggle to balance academic and personal responsibilities (Herbert, 2022). Moreover, studies have identified that supportive learning environments, peer relationships, and coping strategies significantly influence students' mental well-being and academic performance (Burton et al., 2022). These findings underscore the importance of integrating mental health support within educational systems to foster resilience, positive mental states, and holistic student development (Merino et al., 2024).

Extensive research has established the critical role of physical activity in promoting overall health and preventing various physical and mental health conditions (Kim, 2024). Studies have shown that regular physical activity improves cardiovascular health, strengthens the musculoskeletal system, and enhances metabolic functioning while reducing the risk of obesity and chronic diseases (Hognestad et al., 2022). Beyond physical benefits, physical activity has been linked to positive mental health outcomes, including reduced symptoms of depression and anxiety, improved mood, and better cognitive function (Hanifah et al., 2023). These provide compelling evidence that consistent physical activity is a key determinant of physical and psychological well-being across various age groups, especially among students navigating academic and social pressures (Abdoli et al., 2025).

Although numerous studies have examined physical activity and mental health independently, less attention has been given to their statistical association within a single student population using standardized measurement tools. While previous research frequently reports beneficial links between physical activity and psychological outcomes, fewer studies have examined the strength and direction of their relationship using validated instruments in a correlational framework. In particular, limited evidence exists employing the International Physical Activity Questionnaire (IPAQ) and the Mental Well-being Scale to assess these constructs simultaneously among university students experiencing academic and lifestyle demands. This gap highlights the need for methodologically grounded investigations that clarify how these variables relate under natural, non-experimental conditions. Accordingly, this study addresses the research

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question: What is the relationship between students' physical activity levels, as measured by the IPAQ, and their mental well-being, as assessed by the Mental Well-being Scale?

This research is significant because it provides empirically grounded insights into the association between movement behavior and psychological well-being in an academic setting. By applying a descriptive correlational design and Pearson's correlation analysis, the study contributes methodologically transparent evidence to the literature. Rather than assuming causal direction, the findings aim to clarify the magnitude and nature of the relationship between these variables. The results may inform educators, counselors, and policymakers in designing data-informed initiatives that promote holistic student health. Furthermore, the study lays a foundation for future experimental or longitudinal research to explore potential causal pathways between physical activity and mental well-being.

## Methods

### Research Design

This study utilized a quantitative research approach, applying a descriptive correlational method to investigate how students' participation in physical activity relates to their mental well-being. Quantitative research centers on the structured gathering and evaluation of numerical information to uncover patterns, connections, and observable trends (Creswell & Hirose, 2019). Within this framework, descriptive correlation focuses on identifying and interpreting the strength and direction of associations between variables while maintaining natural conditions and avoiding any form of manipulation (Hirose & Creswell, 2023).

The use of a descriptive correlational design aligns well with the goals of this investigation, as it enables an examination of the natural interplay between physical activity and mental well-being in a real-life student context. This approach is suitable for determining whether a relationship exists between these constructs and how strongly they are linked. Moreover, the design offers valuable insights that can inform future programs, initiatives, and interventions aimed at promoting both physical and psychological health among students.

### Respondents and Sampling

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The study included a total of 1,199 participants who were chosen using simple random sampling. This sampling approach gives every individual in the population an equal probability of being selected, which helps produce a sample that is free from selection bias (Noor et al., 2022). It was considered the most suitable technique for this research because it increases the likelihood that the sample accurately represents the overall student body. By providing each student an equal chance to be part of the study, the approach strengthens the generalizability of the results, allowing the findings to be relevant to a wider population of students with varied characteristics and experiences.

## Research Instrument

This study used the International Physical Activity Questionnaire (IPAQ) (Craig et al., 2003) to evaluate the respondents' level of physical activity. The IPAQ is a widely recognized instrument that measures how often, how long, and how intensely individuals engage in physical activity, and it has demonstrated a reliability score of 0.80. To assess mental well-being, the researchers employed the Mental Well-being Scale developed by Tennant et al. (2007). This instrument shows strong internal consistency, with a Cronbach's alpha of 0.91, confirming its reliability in assessing mental well-being across different groups. Both measures have been extensively validated, making them appropriate for capturing the main variables of interest in this study. Their combined use offers a solid foundation for examining the connection between physical activity participation and mental well-being.

## Statistical Analysis

This study applied both descriptive and inferential statistical techniques to interpret the data gathered. Descriptive statistics—including frequency distributions, mean scores, and composite means—were used to summarize the core variables of physical activity engagement and mental well-being. To determine whether these variables were related, the analysis employed the Pearson Correlation Coefficient, a statistical test that identifies the strength and direction of a linear relationship between two continuous measures. This test was suitable for the study because both variables are continuous, allowing Pearson's correlation to provide a precise and valid assessment of

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their connection. By examining how variations in one variable align with changes in the other, the method offered a sound basis for analyzing their relationship. Overall, this approach ensured a rigorous examination of the data, supporting dependable conclusions on the link between physical activity and mental well-being.

## Data Gathering Procedure

Prior to data collection, formal approval was secured from the appropriate university authorities. After clearance was obtained, participants were selected through simple random sampling from the official student roster. Selected students were invited to participate and were provided with an informed consent form outlining the purpose of the study, voluntary participation, confidentiality measures, and their right to withdraw at any time. Upon giving consent, respondents completed the International Physical Activity Questionnaire (IPAQ) and the Mental Well-being Scale through a structured survey format administered either in person or via an approved online platform. The accomplished questionnaires were collected, checked for completeness, and encoded for statistical analysis.

## Ethical Considerations

This study adhered strictly to ethical standards in research involving human participants. An informed consent form was provided to all respondents prior to participation, clearly explaining the objectives of the study, procedures, potential risks, and benefits. Copies of the survey instruments, including the IPAQ and the Mental Well-being Scale, are attached as Annexes B and C for transparency and documentation. Participation was entirely voluntary, and anonymity was ensured by not collecting identifying information. All gathered data were treated with confidentiality and used solely for academic research purposes.

## Results

Table 1 presents the physical activity engagement levels of the respondents, providing a detailed overview of their participation in various physical activities. The

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table highlights the frequency, intensity, and duration of physical activity engagement among the study participants.

Table 1. Respondents' Physical Activity Engagement

Physical Activity Engagement	Frequency (n= 1,199)	Percentage (%)
Low Activity	324	27.0
Moderate Activity	460	38.0
High Activity	415	35.0

Table 2 displays the mental well-being scores of the respondents, offering insights into their emotional and psychological states. It comprehensively summarizes the participants' well-being based on the Mental Well-being Scale.

Table 2. Respondents' Mental Well-being

Statements	Mean	Verbal Interpretation
1. I've found myself interested in new activities	3.68	Often
2. I've felt cared for by others	3.55	Often
3. I've felt positive about what lies ahead	3.44	Often
4. I've experienced a sense of cheerfulness	3.36	Some of the Time
5. I've felt that I am able to contribute or be helpful	3.33	Some of the Time
6. I've been able to make decisions with ease	3.33	Some of the Time
7. I've felt satisfied with who I am	3.30	Some of the Time
8. I've felt a strong sense of connection with others	3.26	Some of the Time
9. I've had more than enough energy	3.23	Some of the Time
10. I've felt calm and at ease	3.21	Some of the Time
11. I've managed challenges effectively	3.21	Some of the Time
12. I've been able to think clearly	3.19	Some of the Time
13. I've felt self-assured	3.14	Some of the Time
14. I've taken interest in the people around me	3.08	Some of the Time
<b>Grand Mean</b>	<b>3.31</b>	<b>Average Mental Well-being</b>
4.24 – 5.00	All of the Time	Very High Mental Well-being
3.43 – 4.23	Often	High Mental Well-being
2.62 – 3.42	Some of the Time	Average Well-being
1.81 – 2.61	Rarely	Low Mental Well-being
1.00 – 1.80	None of the Time	Very Low Mental Well-being

Table 3 tests the relationship between the respondents' physical activity engagement and mental well-being. It shows the results of the Pearson Correlation analysis, illustrating the strength and direction of the relationship between these two variables.

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Table 3. Test of Relationship between the Respondents' Physical Activity Engagement and Mental Well-being

Variables	Pearson Correlation Coefficient	p-value	Interpretation $\alpha=0.05$
Physical Activity Engagement and Mental Well-being	.190**	.001	Statistically Significant

## Discussion

### Respondents' Physical Activity Engagement

The distribution of physical activity levels among the 1,199 students who took part is shown in Table 1. Of these, 324 students (27%) said they were not very active, 460 students (38%) said they were moderately active, and 415 students (35%) said they were very active. While most respondents are moderately active, a sizable portion continue to participate in very little physical activity. This pattern suggests that many students could not be reaping the full health benefits of consistent physical activity, which could have an impact on their general wellbeing.

Potential long-term health issues are highlighted by the significant percentage of students who fall into the low and moderate exercise levels. The combined 65% of respondents who fall into the low (27%) and moderate (38%) categories indicates that a significant portion of the student body may not be fulfilling prescribed physical activity criteria, even while 35% of respondents fall into the high activity group. This infrequent participation may worsen emotional or psychological problems, increase stress, and have an impact on physical health. Finding the causes of these activity patterns is essential since they have a big impact on academic achievement and health outcomes.

These results are in line with previous research showing that university students do not engage in enough physical activity. According to earlier studies, a large number of students fall short of the necessary levels of physical exercise, which leads to a rise in sedentary lives (Westerbeek & Eime, 2021). According to research conducted worldwide, young individuals frequently suffer from inactivity as a result of academic demands and a lack of opportunity for physical activity (Shi et al., 2021). The detrimental impacts of insufficient physical activity on mental and physical health highlight the significance of giving this issue top priority among student populations (Peromingan et al., 2025).

### Respondents' Mental Well-being

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Table 2. According to Respondents' Mental Well-being, "I have been interested in new things" had the highest mean of 3.68, with a verbal description of "often." This indicates that students are highly curious and interested in new experiences. The conclusion is that students can remain enthusiastic and receptive to new chances in spite of the academic demands and difficulties of university life. They may be more emotionally and cognitively resilient as a result of their curiosity. It emphasizes how pupils' exposure to novel concepts and pursuits can improve their general mental health.

These results corroborate previous research showing that curiosity and interest in novel experiences are important markers of mental health (Baik et al., 2019). According to studies, taking part in new and interesting activities boosts psychological resilience, improving emotional stability and life satisfaction (Zaidi et al., 2024). Furthermore, studies indicate that students who actively seek out new experiences typically have better stress-reduction strategies because they are flexible in the face of difficulties (Maier et al., 2022). Maintaining a happy attitude on life and general mental health is largely dependent on one's capacity to remain intrigued and involved in new activities (Jivraj, 2024).

Conversely, "I have been feeling interested in other people" had the lowest mean of 3.08, with a verbal description of "Some of the Time." This indicates that although students may engage in social interactions to some extent, their desire in doing so varies. It follows that a lot of pupils might have trouble relating to people on a regular basis, which might be a sign of underlying emotional or social issues. The loneliness that some students feel, especially in a stressful academic setting, may be reflected in this decreased level of social involvement. It might also imply that a lot of students do not have a strong sense of belonging or support in their social networks.

This result is consistent with earlier studies showing that students' social participation varies, especially during demanding academic times (Scherer & Leshner, 2021). According to studies, students' social interactions frequently deteriorate during times of intense academic pressure, including deadlines or exams, which might result in emotional detachment (Arslan et al., 2020). Furthermore, problems like social anxiety and loneliness, which have been found to be prevalent among college students, may be connected to a lack of consistent social engagement (Worsley et al., 2022). Additionally,

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some research indicates that a decline in social interaction may exacerbate feelings of loneliness, which could be detrimental to students' mental health (English et al., 2022).

Students generally maintain a modest level of mental well-being, according to the grand mean for respondents' mental well-being, which is 3.31, or "Average Mental Well-being." The implication is that students' general mental health is neither unduly high nor low, even though they experience a balance of good and negative emotions. This degree of mental health suggests that while the majority of students are controlling their emotional and psychological states, they may still struggle to reach their full potential. It indicates that students' general well-being is stable but not very high, with opportunities for growth in a number of areas.

These results are in line with recent research that shows that university students' mental health is generally moderate, demonstrating a balance between positive and negative emotional states. According to research, a lot of students' mental health fluctuates because of social pressures, academic stress, and life changes (Lee & Tan, 2024; Carter, 2024). Additionally, research shows that although students often report average mental health, coping mechanisms and outside stressors have a big impact on these results (Davis et al., 2024). The average mental well-being shown in this study is consistent with larger patterns in student populations, where difficulties in social and academic spheres affect emotional stability in general.

### **Physical Activity Engagement and Mental Well-being**

With a Pearson Correlation Coefficient of .190 and a p-value of .001 ( $\alpha = 0.05$ ), the analysis showed a statistically significant relationship between physical activity involvement and mental well-being. Students who participate in greater physical exercise tend to report somewhat higher levels of mental well-being, according to this result, which indicates a positive but weak association. Even though it is not the sole factor affecting students' psychological status, the small correlation suggests that physical activity improves mental health. Although other factors also play substantial roles, the existence of a significant association highlights the potential of regular physical activity to improve mental well-being.

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These findings are consistent with the body of research that shows a positive relationship between physical activity and mental health. Previous research has shown that physical activity improves mood regulation and reduces symptoms of anxiety and sadness (Romeo et al., 2019). Additionally, studies demonstrate that physical activity, even at moderate levels, can improve mental health, especially by reducing stress and improving cognitive functioning (Dishman et al., 2021). Additionally, it has been demonstrated that exercise increases the production of endorphins, which promote happy emotional states and general psychological wellbeing (Dai & Menhas, 2020).

The study's considerable positive association emphasizes how crucial it is to encourage kids' physical activity in order to enhance their mental health. Academic institutions may find it advantageous to incorporate organized and easily available physical activity opportunities into their curricula in light of growing concerns about the well-being of their students. Students' psychological resilience could be improved by taking steps like offering fitness tools, promoting consistent exercise, or putting in place activity-based health programs. Previous research showing that exercise is essential for controlling stress, anxiety, and depressive symptoms—particularly in college students—supports these suggestions (Martins et al., 2021). A more comprehensive approach to student well-being can be achieved by integrating physical exercise into daily routines in addition to current mental health measures (Case, 2021).

## Conclusion

In conclusion, this study successfully achieved its primary objective of examining the relationship between physical activity and mental well-being among university students using standardized and validated instruments. The findings reveal clear variability in students' physical activity levels, with a substantial proportion classified within low to moderate engagement categories. This distribution highlights a critical health concern within the student population, indicating that although movement is present in many routines, optimal levels of physical activity are not consistently attained. These results underscore the importance of structured institutional initiatives aimed at reducing inactivity and addressing contextual barriers that limit sustained engagement in physical activity.

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With respect to mental well-being, the results indicate a generally moderate level of psychological wellness, accompanied by noticeable variability across respondents. This pattern confirms that student mental health is neither uniformly positive nor critically impaired but exists along a spectrum shaped by academic, social, and environmental demands. The findings reinforce the multidimensional character of mental well-being and emphasize the need for integrative support systems within higher education settings. Importantly, the use of a validated mental well-being scale strengthens the reliability of these conclusions and provides a measurable baseline for future institutional assessments.

Most significantly, the study establishes a statistically significant positive relationship between physical activity levels and mental well-being, confirming that higher engagement in physical activity is associated with better psychological outcomes among students. While causality cannot be inferred due to the correlational design, the strength and direction of the association provide empirical support for positioning physical activity as a meaningful correlate of student mental wellness. The originality of this study lies in its large randomly selected sample, its simultaneous use of the IPAQ and a validated mental well-being scale within a single academic population, and its contribution of context-specific evidence that bridges movement behavior and psychological functioning in higher education.

### **Limitation of the Study**

Despite its strengths, this study has several limitations. The use of a descriptive correlational design restricts conclusions to associations and does not allow for causal interpretation. Data were collected through self-report questionnaires, which may be subject to recall bias or social desirability effects. Additionally, although the large randomly selected sample enhances generalizability within the institution, the findings may not be universally applicable to students from different cultural or educational contexts. Future research employing longitudinal or experimental designs would provide deeper insight into the directional dynamics between physical activity and mental well-being.

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