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Active lives, fulfilled needs: physical activity and the triad of autonomy, competence, and relatedness among Filipino university students

Vidas activas, necesidades satisfechas: actividad física y la tríada de autonomía, competencia y relación entre estudiantes universitarios filipinos

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Abstract

This study investigated the relationship between physical activity engagement and the fulfillment of basic psychological needs among university students, with a specific focus on autonomy, competence, and relatedness. A quantitative research design, specifically descriptive correlation, was employed to examine this relationship. A total of 1,129 respondents were selected using simple random sampling. The study utilized the International Physical Activity Questionnaire (IPAQ) to measure physical activity engagement and a Basic Psychological Needs scale to assess the fulfillment of autonomy, competence, and relatedness. Descriptive and inferential statistics were employed to analyze the data, including the Pearson correlation coefficient. The results revealed significant positive correlations between physical activity engagement and the fulfillment of competence and relatedness, while no significant relationship was found with autonomy. These findings suggest that physical activity has a positive impact on students' psychological well-being, particularly in terms of their competence and connection with others. However, the study also highlights that while physical activity contributes to psychological needs, further attention is needed to explore how specific types of physical activity might influence autonomy. The implications of these results emphasize the importance of fostering environments that encourage physical activity to promote students' psychological health and well-being. Overall, the study concludes that physical activity is crucial in supporting basic psychological needs, especially competence and relatedness, and can be a key factor in enhancing students' overall development and success.

Keywords: physical activity; psychological needs; competence; relatedness; university students.

Resumen

Este estudio tuvo como objetivo explorar la relación entre la participación en la actividad física y las necesidades psicológicas básicas entre los estudiantes universitarios, centrándose en la autonomía, la competencia y la relación. Para examinar esta relación se empleó un diseño de investigación cuantitativa, específicamente correlación descriptiva. Se seleccionó a un total de 1.129 encuestados mediante muestreo aleatorio simple. El estudio utilizó el Cuestionario Internacional de Actividad Física (IPAQ) para medir la participación en la actividad física y una escala de Necesidades Psicológicas Básicas para evaluar el cumplimiento de la autonomía, la competencia y la relación. Para analizar los datos se utilizó estadística descriptiva e inferencial, incluido el coeficiente de correlación de Pearson. Los resultados revelaron correlaciones positivas significativas entre la participación en la actividad física y el cumplimiento de la competencia y la relación, mientras que no se encontró una relación significativa con la autonomía. Estos hallazgos

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sugieren que la participación en actividad física tiene un impacto positivo en el bienestar psicológico de los estudiantes, particularmente en términos de su competencia y conexión con los demás. Sin embargo, el estudio también destaca que, si bien la actividad física contribuye a las necesidades psicológicas, se necesita más atención para explorar cómo tipos específicos de actividad física podrían influir en la autonomía. En general, el estudio concluye que la actividad física desempeña un papel crucial en el apoyo a las necesidades psicológicas básicas, especialmente la competencia y las relaciones, y puede ser un factor clave para mejorar el desarrollo y el éxito general de los estudiantes.

Palabras clave: actividad física; necesidades psicológicas; competencia; relación; estudiantes universitarios.

Introduction

Basic Psychological Needs refer to fundamental human needs essential for psychological well-being and optimal functioning (Alamer, 2022). According to the Self-Determination Theory, these needs include autonomy, competence, and relatedness (Ryan & Vansteenkiste, 2023). Autonomy refers to the feeling of being in control of one's actions and decisions, while competence is the sense of mastery and effectiveness in one's activities (Martela et al., 2021). Relatedness involves the need to feel connected and supported by others (Capon-Siebert et al., 2022). These three needs are essential for fostering intrinsic motivation, promoting personal growth, and enhancing overall mental health.

Physical activity refers to any bodily movement that results in energy expenditure, including walking, running, cycling, and participating in sports. It is a broad concept encompassing both structured exercise and incidental movements, such as those involved in daily tasks (Dishman et al., 2021). Regular physical activity offers numerous benefits, including improved cardiovascular health, enhanced mood, and improved cognitive function (Westerbeek & Eime, 2021). Physical activity is also linked to the development of skills, personal growth, and social connections, making it a critical aspect of a healthy lifestyle (Collado-Mateo et al., 2021).

Pressing problems related to Basic Psychological Needs and physical activity among students today are interconnected and pose significant challenges (Sotos-Martínez et al., 2024). Many students face difficulties in fulfilling their psychological needs, particularly in the areas of autonomy, competence, and relatedness (Brenner, 2022). Rigid

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academic structures and high expectations can limit autonomy, while competitive environments can undermine students' sense of competence, leading to feelings of inadequacy (Sadoughi, 2024). Additionally, social disconnection, exacerbated by increased screen time and digital interactions, can impair the need for relatedness, affecting emotional well-being (Anderl et al., 2024). These unmet psychological needs, in turn, are linked to a decline in physical activity, as many students experience barriers such as lack of time, motivation, and access to recreational spaces (Westerskov Dalgas et al., 2024). The growing prevalence of sedentary behaviors further compounds these issues, contributing to poor mental health, physical health problems, and academic struggles (Vally & Helmy, 2023). Addressing Basic Psychological Needs and physical activity is crucial for improving student well-being and performance.

Recent studies have explored the relationship between physical activity and Basic Psychological Needs, highlighting the positive impact of physical engagement on the fulfillment of autonomy, competence, and relatedness. Research suggests regular physical activity enhances students' autonomy by promoting self-directed behaviors and intrinsic motivation (Abdoshahi et al., 2022). Additionally, participation in physical activities provides opportunities for skill development, which supports the need for competence and fosters a sense of achievement (Alkhalwaldeh & Khasawneh, 2024). Studies have also indicated that engaging in group sports or fitness activities facilitates social connections, thus fulfilling the need for relatedness and contributing to emotional well-being (Klussman et al., 2021). These findings underscore the importance of incorporating physical activity into educational settings to support students' psychological needs and overall development (Pascua et al., 2024).

Despite numerous studies examining the relationship between physical activity and Basic Psychological Needs, a notable gap in research remains, particularly concerning university students in the Philippines. While existing literature has explored these connections in various contexts, few studies have explicitly focused on the impact of physical activity on the fulfillment of BPN among this demographic. This gap is significant, as understanding how physical activity influences students' autonomy, competence, and relatedness could inform interventions to improve their psychological well-being and academic performance. This study's general research question is: How

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does physical activity engagement relate to the fulfillment of Basic Psychological Needs among university students? The primary purpose of this research is to explore the relationship between physical activity and the three core psychological needs—autonomy, competence, and relatedness—among university students, particularly within the unique context of the Philippines.

This research is essential for understanding how physical activity can contribute to the well-being of university students, offering valuable insights for students themselves, educators, and policymakers. By examining the relationship between physical activity and the fulfillment of Basic Psychological Needs, this study provides an opportunity to enhance student engagement, mental health, and academic success. Additionally, it contributes to the broader body of knowledge by addressing a gap in the literature, particularly in the Philippine context. It can guide future interventions to support students' psychological and physical development. This research can inform practice and policy, ultimately benefiting the broader academic community.

Material and methods

Research design

This research employs a quantitative research design, a systematic investigation focusing on gathering numerical data to understand patterns, relationships, and trends (Thomas & Zubkov, 2020). Specifically, the study utilizes a descriptive correlation design, which aims to examine the relationship between two or more variables without manipulating them, often to determine the strength and direction of the association (Siedlecki, 2020). The use of this design is particularly appropriate for this research as it allows for the exploration of how physical activity engagement correlates with the fulfillment of Basic Psychological Needs among university students, providing a clear understanding of the relationship between these variables without intervention, which is essential for drawing meaningful conclusions based on students' natural behaviors and experiences.

Respondents and sampling

The study involves 1,129 respondents, selected using simple random sampling, a technique where each individual in the population has an equal chance of being chosen (Leedy & Ormrod, 2015). This sampling method is the most appropriate for this study as

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it ensures that every university student in the population has an equal opportunity to participate, thus minimizing bias and increasing the sample's representativeness. By using simple random sampling, the study enhances the generalizability of its findings, ensuring that the results reflect the experiences and perspectives of a broad range of students, which is essential for drawing valid conclusions about physical activity and Basic Psychological Needs in the university context.

Furthermore, the sample comprised students from all year levels and a diverse range of academic disciplines, with age and gender distributions taken into account during the data collection process to ensure representativeness. Data were gathered through online forms to increase accessibility and accommodate students' varying schedules and geographic locations. In the Philippine higher education setting, physical education is part of the general curriculum—typically taken during the first two years—while participation in extracurricular physical activities varies depending on on-campus facilities and program offerings. Most universities have limited but functional infrastructures such as gymnasiums, open courts, or designated activity areas, which influence students' opportunities for physical engagement. Moreover, Filipino students often juggle academic demands and part-time work, leaving minimal free time for recreational activities. By detailing the educational structure, infrastructure availability, and lifestyle constraints of Filipino university students, the study provides a concrete and contextual foundation for interpreting the findings and evaluating their relevance across different educational systems and cultural environments.

Research instrument

This research adopted the International Physical Activity Questionnaire (IPAQ) to measure the physical activity levels of the respondents. The IPAQ, developed by Craig et al. (2003), has demonstrated strong reliability with a Cronbach's alpha ranging from 0.74 to 0.93. Additionally, the Basic Psychological Needs (BPN) Scale, developed by Deci & Ryan (2000), assessed the fulfillment of autonomy, competence, and relatedness. The BPN Scale has shown high internal consistency, with a Cronbach's alpha of 0.80, indicating its reliability in measuring the three psychological needs.

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Statistical analysis

This research used descriptive and inferential statistics, including frequency counts, mean, and composite mean, to describe the profile of the respondents, their physical activity levels, and their Basic Psychological Needs. The Pearson Correlation Coefficient was employed to test the relationship between physical activity engagement and the fulfillment of basic psychological needs. This statistical method is appropriate because it measures the strength and direction of the linear relationship between two continuous variables, making it ideal for examining the correlation between physical activity and the three psychological needs. Using Pearson's correlation allows for an accurate analysis of how changes in one variable are related to changes in the other, providing valuable insights into the nature of the relationship.

Results

Table 1 presents the respondents' levels of physical activity engagement, categorized into low, moderate, and high levels of activity. These classifications provide an overview of the distribution of physical activity among the respondents, highlighting varying degrees of engagement. Understanding these levels is essential for analyzing their relationship with the fulfillment of Basic Psychological Needs.

Table 1. Respondents' Physical Activity Engagement

Physical Activity Engagement	Frequency (n=1,129)	Percentage (%)
Low Activity	340	30.11
Moderate Activity	424	37.56
High Activity	365	32.33

Table 2 illustrates the respondents' Basic Psychological Needs, categorized into autonomy, competence, and relatedness. This breakdown highlights the levels of fulfillment for each psychological need, providing insight into the respondents' overall well-being. Analyzing these dimensions is crucial for understanding their relationship to physical activity engagement.

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Table 2. Basic Psychological Needs among the Respondents in Terms of Autonomy, Competence, and Relatedness

Statements	Mean	Verbal Description
Autonomy		
4. I feel that I can choose how to do things in my life.	3.08	Agree
5. I feel I can make decisions on my own.	3.03	Agree
1. I feel like I have a choice in the way I do things.	3.01	Agree
3. I feel that I am the one who decides what I do.	2.98	Agree
6. I have control over the way I approach tasks.	2.98	Agree
7. I feel that my behavior is self-chosen.	2.98	Agree
2. I feel free to express my ideas and opinions.	2.97	Agree
Composite Mean	3.00	Moderate Level of Fulfillment
Competence		
1. I am capable of achieving my goals.	3.13	Agree
2. I feel confident in my abilities.	2.94	Agree
6. I feel effective in my activities.	2.93	Agree
4. I am good at what I do.	2.92	Agree
5. I can handle challenging situations.	2.91	Agree
3. I can perform well.	2.89	Agree
Composite Mean	2.95	Moderate Level of Fulfillment
Relatedness		
1. I feel close to others.	2.75	Agree
2. I feel understood by others.	2.61	Agree
3. I feel that I belong to a group.	2.66	Agree
4. I have meaningful relationships with others.	2.84	Agree
5. I feel a sense of connection to others.	2.80	Agree
Composite Mean	2.73	Moderate Level of Fulfillment
Grand Mean	2.91	Moderate Level of Fulfillment
Mean Scale	Verbal Description	Interpretation
4.00-3.50	Strongly Agree	High Level of Fulfillment
3.49-2.50	Agree	Moderate Level of Fulfillment
2.59-1.50	Disagree	Low Level of Fulfillment
1.49-1.00	Strongly Disagree	Very Low Level of Fulfillment

Table 3 tests the relationship between the respondents' physical activity engagement and their Basic Psychological Needs. This analysis examines the correlation between physical activity levels and the fulfillment of autonomy, competence, and relatedness. Understanding this relationship is vital for determining the impact of physical activity on the psychological well-being of the respondents.

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Table 3. Test of Relationship between the Respondents' Physical Activity Engagement and Basic Psychological Needs

Physical Activity Engagement and...	Pearson Correlation Coefficient	p-value	Interpretation $\alpha=0.05$
Autonomy	.015	.619	Not Significant
Competence	.143**	.001	Significant
Relatedness	.136**	.001	Significant

Discussion

Respondents' physical activity engagement

Figure 1 shows the students' physical activity engagement. Among the 1,129 respondents, 340 (30.11%) reported low physical activity engagement, 424 (37.56%) had moderate physical activity engagement, and 365 (32.33%) had high physical activity engagement. This means that while a significant portion of students engage in moderate to high physical activity, a substantial number still have low levels of engagement. This implies that physical activity engagement among students is varied, reflecting diverse lifestyle patterns and priorities that may impact their overall well-being and academic performance.

The considerable number of students with low and moderate physical activity engagement is noteworthy and raises concerns. These levels suggest that many students may not engage in sufficient physical activity to support optimal health and psychological well-being. Low physical activity engagement is associated with potential risks, such as reduced physical fitness, higher stress levels, and diminished mental health. Similarly, moderate engagement, although better than low levels, may not be sufficient to reap the benefits of physical activity fully. This situation highlights the challenge of maintaining a balanced and active lifestyle among students amidst their academic responsibilities and other demands.

The findings align with previous studies that indicate varying physical activity levels among students, with a notable proportion reporting insufficient engagement. For instance, studies have highlighted that academic pressures and sedentary behaviors contribute to low physical activity levels among young adults (Chauntry et al., 2022). Additionally, research has shown that students often face barriers, such as a lack of time and motivation, which hinder their consistent engagement in physical activities (Baillot et al., 2021). These patterns underscore the need to understand better the factors

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influencing students' physical activity to effectively address the gaps (Martins et al., 2021).

Basic psychological needs among the respondents in terms of autonomy, competence, and relatedness

Regarding **Autonomy**, “I feel that I can choose how to do things in my life” received the highest mean of 3.08, with a verbal description of “Agree.” This means that respondents generally feel a sense of control and choice in their actions and decisions. This implies that most students perceive themselves as having reasonable independence in managing their personal and academic lives, which is vital for their overall psychological well-being.

The finding that students feel a sense of autonomy aligns with previous research, which emphasizes the importance of autonomy in fostering motivation and well-being among young adults. Studies have shown that when individuals feel empowered to make their own choices, they are more likely to experience greater satisfaction and personal growth (Weber et al., 2023). This sense of autonomy has been linked to better academic performance and mental health, particularly among students balancing academic and personal responsibilities (Sánchez-Hernando et al., 2021).

On the contrary, the statement “I feel free to express my ideas and opinions” garnered the lowest mean of 2.97, with a verbal description of “Agree.” This means that while students feel they can make personal choices, they may not feel as comfortable expressing their thoughts and perspectives openly. This implies that underlying factors, such as social or institutional barriers, might limit students’ confidence or opportunities to voice their ideas.

The challenge of freely expressing ideas and opinions aligns with findings from other studies, which highlight the influence of external pressures, such as cultural norms or perceived authority, on students’ willingness to share their perspectives. For example, research suggests that students may hold back from expressing opinions due to fear of judgment or lack of supportive environments (Grieve et al., 2021). Furthermore, studies have shown that open expression is often tied to the perceived inclusivity of the academic and social environment (Rapp & Corral-Granados, 2024).

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This study's overall composite mean for autonomy is 3.00, with a verbal interpretation of a “Moderate Level of Fulfillment.” This means that while students generally experience autonomy in their lives, there are areas where this need is not fully met. This implies that autonomy is present to a certain degree, but gaps still prevent students from fully realizing their potential independence and self-direction.

The moderate level of autonomy fulfillment supports prior findings that suggest autonomy is not universally experienced and may vary depending on contextual factors, such as institutional structures or societal expectations. Studies have noted that autonomy is often constrained by external pressures, such as academic demands or cultural expectations, which can limit students' perceived independence (Basri, 2023). Despite these limitations, moderate autonomy still provides a foundation for students' psychological growth and development (Reeve & Cheon, 2021).

In terms of **Competence**, the statement “I am capable of achieving my goals” recorded the highest mean of 3.13, with a verbal description of “Agree.” This means that respondents generally perceive themselves as capable of setting and accomplishing their objectives. This implies that most students have confidence in their ability to succeed, which can be crucial for their academic and personal growth.

The finding that students feel capable of achieving their goals is consistent with studies emphasizing the significance of perceived competence in fostering motivation and success. Research highlights that when individuals believe in their abilities, they are more likely to approach challenges with resilience and determination (Kalisch et al., 2021). Additionally, perceptions of competence are linked to higher levels of engagement and academic achievement among students (Lauermann & ten Hagen, 2021).

On the contrary, the statement “I can perform well” garnered the lowest mean of 2.89, with a verbal description of “Agree.” This means that while students generally believe in their ability to succeed, they may experience doubts about consistently delivering optimal performance. This implies that external or internal factors may influence students' confidence to meet expectations or standards.

The lower mean for performing well aligns with findings in existing literature that highlight the impact of stress, workload, and self-doubt on students' perceptions of their abilities. Studies suggest that students often face performance-related anxieties, which

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can erode their confidence in consistently achieving high outcomes (Heckel et al., 2021). Moreover, environmental pressures, such as academic competitiveness, may also shape these perceptions (Hart & Rodgers, 2024).

The overall composite mean for Competence is 2.95, with a verbal interpretation of a “Moderate Level of Fulfillment.” This means that students moderately feel competent in their abilities, but there are notable areas where this need is not fully met. This implies that while students have a foundational sense of competence, various factors may hinder its full realization.

The moderate fulfillment of competence is supported by studies emphasizing the dynamic nature of perceived competence, which can fluctuate based on environmental support and personal experiences. Research shows that students’ competence is often shaped by their exposure to constructive feedback and opportunities for skill development (Carless, 2022). Despite these challenges, moderate levels of competence still provide a base for students to build on and improve their confidence and capabilities (Tomlinson, 2023).

Regarding **Relatedness**, “I feel close to others” recorded the highest mean of 2.75, with a verbal description of “Agree.” This means that respondents generally perceive themselves as having a sense of closeness or meaningful relationships with others. This implies that many students value and maintain interpersonal connections, which may positively affect their emotional well-being.

The finding that students feel close to others aligns with studies emphasizing the importance of relationships in promoting psychological well-being and overall satisfaction. Research indicates that connecting with others enhances motivation, reduces stress, and fosters a sense of belonging in both academic and social contexts (Pedler et al., 2022). Additionally, strong social bonds are associated with better emotional regulation and coping mechanisms among students (Eriksen & Bru, 2023).

On the contrary, the statement “I feel connected to others” received the lowest mean of 2.70, with a verbal description of “Agree.” While students generally recognize relationships, some may struggle to feel deeply integrated or emotionally connected to others. This implies that personal insecurities, social dynamics, or environmental conditions might limit students’ ability to form strong, fulfilling connections.

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The lower score on feeling connected to others aligns with findings that suggest social fragmentation or isolation can hinder the formation of deeper, more meaningful relational bonds among students. Studies have shown that environmental pressures, such as academic stress and a lack of communal activities, often reduce opportunities for meaningful connections (Limone & Toto, 2022). Moreover, cultural or contextual factors may also influence how individuals perceive their level of connectedness (Kettner et al., 2021).

The composite mean for Relatedness is 2.73, with a verbal interpretation of a “Moderate Level of Fulfillment.” This means that students experience a moderate sense of relatedness, reflecting average satisfaction with their interpersonal relationships. This implies that while some relational needs are being met, others remain unfulfilled, which may influence students’ psychological and social experiences.

The moderate fulfillment of relatedness corresponds with studies highlighting the nuanced nature of interpersonal relationships among students. Research suggests that while students often maintain a basic level of social engagement, deeper relational needs may require supportive environments and meaningful interactions (Amerstorfer & Freiin von Münster-Kistner, 2021). Despite these challenges, a moderate sense of relatedness provides a foundation for improving social connections and emotional well-being (Holt-Lunstad, 2024).

Overall, the respondents’ Basic Psychological Needs across the three areas—Autonomy, Competence, and Relatedness—achieved a grand mean of 2.91, interpreted as a “Moderate Level of Fulfillment.” This means that while students experience a certain level of satisfaction in their psychological needs, there are areas where their needs remain partially unmet. This implies that the respondents may encounter challenges in fully achieving optimal well-being and motivation due to gaps in their basic psychological needs.

The moderate fulfillment of basic psychological needs aligns with studies indicating that many students experience average satisfaction in areas like autonomy, competence, and relatedness. Research suggests that while moderate satisfaction can provide a foundation for functioning, higher levels of need fulfillment are crucial for achieving greater psychological well-being and academic success (Adlaon et al., 2024).

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Similarly, moderate scores on psychological needs often reflect the dynamic interplay between environmental factors, personal challenges, and student support systems (Li & Xue, 2023).

Relationship between the respondents' physical activity engagement and basic psychological needs

The relationship between the respondents' physical activity engagement and Basic Psychological Needs revealed that Competence and Relatedness exhibited significant relationships, with Pearson correlation coefficients of 0.143 and 0.136, respectively, and p-values of 0.001. This means that higher engagement in physical activities is positively associated with a greater sense of competence and connectedness among respondents. This implies that physical activity may enhance students' self-perceived abilities and foster a sense of belonging or connection to others, which are critical components of psychological well-being.

The significant relationships between physical activity engagement, competence, and relatedness are consistent with findings from prior studies. Research has demonstrated that physical activity can improve self-efficacy and perceptions of skillfulness, strengthening feelings of competence (Polo-Peña et al., 2021). Similarly, engaging in physical activities often involves social interaction, which enhances connectedness and relatedness among peers (White et al., 2021). These findings align with the theory that physical activity supports the fulfillment of psychological needs through both individual and social dimensions (Gapa & Tagare, 2023).

The significant relationship between physical activity engagement and basic psychological needs, particularly competence and relatedness, suggests that fostering environments that encourage physical activity could support students' psychological well-being. Policies and practices that integrate physical activity into daily routines may enhance students' sense of competence and connection with others, which are essential for mental health and academic success (Tagare & Villaluz, 2021). As such, educational institutions could consider incorporating more opportunities for physical engagement into their curricula or extracurricular activities to promote holistic student development (Tagare Jr., 2019).

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Furthermore, these findings imply that institutions should consider the role of physical activity in addressing students' psychological needs. Enhancing competence through structured physical activities and promoting social connections through group exercises could be effective strategies to bolster students' sense of autonomy, competence, and relatedness (Hensley et al., 2021). In turn, this could improve students' overall well-being and academic outcomes (Tagare & Tagare, 2022).

Conclusion

In conclusion, the respondents' physical activity engagement reflects diverse levels, highlighting the varying degrees to which students incorporate physical activity into their daily lives. While some students engage in high levels of physical activity, a considerable proportion still report low to moderate engagement. This variation underscores the importance of creating environments that encourage consistent and meaningful physical activity to support students' overall well-being and development.

Regarding basic psychological needs, the respondents generally report a moderate level of fulfillment across autonomy, competence, and relatedness. These results suggest that while students experience some degree of satisfaction in meeting their psychological needs, there is room for improvement in fostering environments that fully support their autonomy, competence, and relatedness. Addressing these areas could enhance students' psychological health and engagement in both academic and extracurricular activities.

Finally, the relationship between physical activity engagement and basic psychological needs highlights that physical activity plays a significant role in fulfilling students' needs for competence and relatedness. Although no significant relationship was found with autonomy, the results still suggest that fostering physical activity can contribute positively to meeting students' psychological needs. This connection emphasizes the potential of physical activity as a tool for promoting holistic student development, benefiting their psychological and academic experiences.

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