



Physical Education and psychological strengths in adolescent

Educación Física y fortalezas psicológicas en adolescentes

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Abstract

Introduction: Adolescence was one of the life stages in which most psychological challenges emerge. This study highlighted the importance of Physical Education (PE) in developing adolescents' psychological strengths, a critical component of their well-being and holistic development.

Objective: The main objective was to analyze how PE participation, together with gender and age, influenced adolescents' psychological dimensions.

Methodology: The sample comprised 561 adolescents (53.1% boys and 46.9% girls), who were divided into two groups according to their participation or non-participation in PE. The VIA-Youth scale was used to assess six strength dimension: courage, transcendence, ascendancy, justice and humanity, temperance, and knowledge.

Results: Statistical analyses revealed significant correlations among all dimensions, the highest between justice and humanity and temperance ($r = 0.605$, $p < .001$). Adolescents who participated in PE scored significantly higher in courage, transcendence, and justice and humanity ($p < .05$). Furthermore, girls outperformed boys in courage, knowledge, and justice and humanity. No significant age-related differences were observed.

Conclusions: These findings emphasize the positive impact of PE on the development of skills such as resilience, empathy, and self-confidence, supporting its inclusion as a key component of the school curriculum to enhance adolescents' psychological well-being and socio-emotional competences.

Keywords

Character development; emotional well-being; gender differences; social competence.

Resumen

Introducción: La adolescencia fue una de las etapas de la vida donde se presentaron mayores problemas psicológicos. Este estudio subrayó la importancia de la Educación Física (EF) en el desarrollo de fortalezas psicológicas en adolescentes, un aspecto crítico para su bienestar y desarrollo integral.

Objetivo: El objetivo principal fue analizar cómo la EF, junto con variables como el género y la edad, influyen en las dimensiones psicológicas de los adolescentes.

Metodología: La muestra incluyó 561 adolescentes (53.1% chicos y 46.9% chicas) divididos en dos grupos según su participación o no en EF. Se utilizó la escala VIA-Youth para evaluar seis dimensiones de fortalezas: coraje, trascendencia, ascendencia, justicia y humanidad, templanza y conocimiento.

Resultados: Los análisis estadísticos revelaron correlaciones significativas entre todas las dimensiones, siendo mayor entre justicia y humanidad con templanza ($r=0.605$, $p<.001$). Los resultados mostraron que los adolescentes que practicaban EF obtuvieron puntuaciones más altas en coraje, trascendencia y justicia y humanidad ($p<.05$). Además, las chicas superaron significativamente a los chicos en coraje, conocimiento y justicia y humanidad. Sin embargo, no se observaron diferencias significativas relacionadas con la edad.

Conclusiones: Estos hallazgos resaltan el impacto positivo de la EF en el desarrollo de habilidades como la resiliencia, empatía y autoconfianza, y sugieren su inclusión como componente clave en el currículo escolar para potenciar el bienestar psicológico y las competencias socio-emocionales de los adolescentes.

Palabras clave

Bienestar emocional; competencia social; desarrollo del carácter; diferencias de género.

Introduction

Adolescence is a stage of life characterized by intense physical, psychological, and social changes, accompanied by wide individual variability. Although it is considered the healthiest stage from a physical standpoint, it is also one of the most problematic in terms of psychosocial risk. According to Hidalgo et al. (2014), the main psychosocial developmental goals during this period include achieving independence from parents, developing and accepting one's body image, forming relationships with peers or partners, and establishing sexual, vocational, moral, and self-identity.

From a psychological perspective, adolescents frequently experience motivational instability, mood fluctuations, and variations in commitment, self-confidence, and attentional focus (Steinberg, 2005). In addition, the pressure to conform to socially imposed physical ideals may lead to feelings of distress, sadness, stress, and even depression (Steinberg, 2005).

Regarding physical activity, significant differences have been observed among adolescents across the countries studied by the WHO in the 11–17 age range, with Spanish girls being the most sedentary group among the 24 nations analyzed (Currie et al., 2000). Other research (Kumar et al., 2015; Ramos et al., 2016) indicates that students who engage in higher levels of physical activity tend to show greater enthusiasm for their Physical Education classes. In Spain, the overall physical fitness of adolescents is lower than that of their counterparts in other countries, which often results in reduced physical activity levels in adulthood (Ramos et al., 2016). Therefore, this stage of life represents a crucial period for promoting psychological well-being and fostering healthy developmental outcomes.

According to psychologist Carol Ryff (1989), professor at Pennsylvania State University (USA), psychological well-being is shaped by several core dimensions. The first, *self-acceptance*, refers to a positive attitude toward oneself, involving recognition and acceptance of both strengths and weaknesses. The second, *positive relationships with others*, reflects the presence of warm, intimate, and caring interpersonal connections. The third, *purpose in life*, involves having life goals, a clear sense of direction, and perceiving one's existence as meaningful. The fourth, *personal growth*, entails perceiving oneself as continuously evolving and developing. The fifth dimension, *autonomy*, represents the ability to resist social pressures and maintain self-determination in opinions and decisions. Finally, *environmental mastery* refers to the perceived sense of control and competence in managing life circumstances.

Psychological well-being can also be understood as a concept that reflects individuals' favourable emotions and productive thoughts about themselves, characterized by a personal and subjective experience, and strongly linked to particular dimensions of physical, psychological, and social functioning (García-Viniegras & González, 2000). Well-being includes both reactive and transient elements, linked to emotions, and more stable cognitive and evaluative components. These are strongly interrelated and influenced by personality as a system of complex interactions, as well as by environmental conditions, particularly the most stable ones (García-Viniegras & González, 2000). From a eudemonic perspective, psychologist María Laorden (2022) defines psychological well-being as the capacity to live fully and develop in ways that are personally valued. In this sense, happiness is not viewed as the mere experience of positive emotions, but as the outcome of a well-lived and meaningful life.

Human strengths, in turn, represent the psychological mechanisms that underpin virtues (Peterson & Seligman, 2004; Raimundi et al., 2018). They are defined as a set of positive traits expressed through thoughts, emotions, and behaviours that manifest across various life situations and develop over time (Park & Peterson, 2006; Raimundi et al., 2018). The VIA-Youth framework identifies six dimensions of strengths: Courage, the ability to face fear, pain, uncertainty, or adversity with determination; Transcendence, the capacity to find meaning beyond material or immediate concerns; Ascendancy, the personal drive associated with leadership and influence; Justice and Humanity, encompassing fairness, compassion, and empathy toward others; Temperance, referring to moderation, self-control, and restraint; and Knowledge, reflecting curiosity, understanding, and the pursuit of truth.

Extensive research supports a positive relationship between psychological well-being and the development of human strengths (Emmons & McCullough, 2003; Fredrickson et al., 2003). Strengths such as optimism, gratitude, resilience, and empathy contribute to sustained psychological well-being by facilitating adaptive responses to life challenges and fostering positive emotions. For instance, studies in positive psychology have shown that gratitude practices are associated with greater life satisfaction and



lower depressive symptoms (Emmons & McCullough, 2003), while resilience enables constructive coping and emotional stability in times of adversity (Fredrickson et al., 2003). Collectively, this evidence suggests that human strengths are not only desirable traits but essential components for achieving and maintaining psychological well-being.

Regarding gender differences in psychological strengths among adolescents, Raimundi et al. (2018) reported significant effects, with girls scoring higher in appreciation of beauty, fairness, solidarity, and perspective — strengths related to Transcendence and interpersonal connection (Park & Peterson, 2006; Raimundi et al., 2018; Ruch et al., 2014; Van Eeden et al., 2008). From a moral development standpoint, studies have found that girls exhibit higher levels of moral reasoning than boys (Raimundi et al., 2018; Shields & Bredemeier, 2001; Weinberg & Gould, 2010). Personality models also indicate that girls tend to value and express emotions more deeply, being more affectionate and interested in art than boys (McCrae et al., 2005; Raimundi et al., 2018).

Concerning age, several studies have reported differences between younger and older adolescents, with the younger groups benefiting more in terms of certain psychological strengths (Park & Peterson, 2006; Ruch et al., 2014; Raimundi et al., 2018).

In relation to the level of sports participation, Raimundi et al., (2018) found that adolescents belonging to Argentina's national teams scored higher on psychological strengths than those engaged in lower levels of sport or who did not practice sport at all. Similarly, González et al. (2012) emphasized the multiple benefits of physical exercise in primary school students, including physical improvements (motor, respiratory, cardiovascular, nervous, and endocrine systems), psychological benefits (stress reduction and higher self-esteem), health and well-being outcomes (better hygiene, nutrition, and posture habits), and social benefits (values such as cooperation, respect, and self-improvement). They also underscored the crucial role of Physical Education in students' holistic development. Recent literature further supports these benefits, highlighting gamification as an effective methodological tool for enhancing motivation, academic and physical performance, self-esteem, teamwork, creativity, and active student engagement (Rodríguez-Torres et al., 2022). Additionally, Physical Education provides opportunities to foster a sense of belonging — a critical need during adolescence — and offers a social environment where interaction with peers and teachers promotes emotional and social skills (Smith & Smoll, 1997).

High-Performance Sports Centres represent the peak of athletic preparation, providing a structured environment that integrates training, recovery, and multidisciplinary support. However, several studies have revealed challenges that may negatively affect athletes' psychological well-being and career development. Key issues include training overload and the difficulty of balancing personal life with athletic demands, leading to stress and an increased risk of both physical and mental burnout (Burlot et al., 2016). The growing professionalization of sport has intensified training schedules, often reducing opportunities for recovery and holistic development. This constant pressure to achieve excellence can place athletes in a state of chronic tension, where performance goals take precedence over personal and social well-being.

Moreover, inequality in access to resources and the variability in the quality of psychological and medical support constitute additional challenges within high-performance contexts (Moreau & Nabhan, 2012). While some athletes benefit from specialized assistance, others face limited psychological care, which may compromise long-term performance and overall well-being. These findings underscore the importance of evaluating how Physical Education and sports participation contribute to the development of psychological strengths from an early age. Understanding how Physical Education influences key dimensions such as Courage, resilience, and fairness in adolescents may offer valuable insights for optimizing training models in elite sports settings.

Nevertheless, our review found no studies analyzing the effects of participating or not participating in Physical Education on psychological strengths, nor the interaction between age, gender, and PE participation. Therefore, the primary objective of this study was to analyze and compare differences in adolescents' psychological strengths based on their participation in Physical Education, considering gender and age. The working hypothesis proposed that students who engage in Physical Education would achieve higher scores across all analyzed strengths than those who do not.

Method

Participants

A total of 561 subjects (298 males, 263 females) participated in the study, which fits a sample size of $N=548$ for a 2-group fixed factor ANOVA test, with an effect size of 0.12 and a statistical power of 0.80 (G*Power). Table 1 specifies the participants according to the different variables of analysis. Table 1 specifies the participants according to the different variables analysis.

Table 1. Study participants

Variables	Participants	N	%
Gender	Boys	298	53.1
	Girls	263	46.9
Educational stage	Secondary Education	478	85.2
	Baccalaureate	83	14.8
Participates in PE	No	195	35.4
	Yes	366	64.6

Source: Authors' own elaboration

Procedure

Instrument

Analyzed variables:

a) Dependent variables

- **Courage:** Impetuous determination and effort of spirit, courage.
- **Transcendence:** Moving from one realm to a higher or more significant one.
- **Ascendancy:** Leadership status.
- **Justice and humanity:** Justice implies fairness and impartiality in the application of the law and the resolution of conflicts, while humanity refers to the quality of being compassionate and considerate towards others.
- **Temperance:** Describes an action that a person refrains from doing, and may be more evident to observers in its intemperate absence than in its temperate presence. Moderation, sobriety and continence.
- **Knowledge:** Acquisition and use of information in the service of the good life. Action and effect of knowing.

b) Independent variables

- **Gender:** Two categories—male (boys) and female (girls).
- **Educational stage:** Two categories—Secondary Education and Baccalaureate.
- **Participates in Physical Education:** Two categories—the group that participates in PE and the group that does not participate in PE.

Brief Adapted Adolescent Strengths Scale (VIA-youth)

Validated in the article *Assessment of Character Strengths in Argentinean Adolescents: validation of a Brief Version of the VIA-Youth* (Waigel et al., 2020). It is composed of 66 items and these items are divided into 6 dimensions and sub-dimensions. The first dimension is courage with 15 items, the second dimension is transcendence with 12 items, the third is ascendancy with 9 items, the fourth is justice and humanity with 9 items, the fifth is temperance with 9 items and finally knowledge with 12 items. The questionnaire is evaluated on a Likert scale from 1 to 5.

Data analysis



Data analysis was performed with SPSS 28.0 (IBM; Chicago, USA). First, a reliability analysis was conducted for each of the Psychological Strengths dimensions. All dimensions showed Cronbach's alpha values between 0.7 and 0.9 (Courage=.835; Transcendence=.836; Ascendancy =.767; Justice and Humanity=.756; Temperance=.784 and Knowledge=.841) being highly reliable values (Cohen et al., 2017). Mean, median and interquartile range were used as descriptive statistics. Prior to the inferential analysis, K-S tests for normality and Levene's test for homogeneity of variances were performed.

To compare psychological strengths according to gender, age group and whether or not they did or did not do PE, Mann Whitney U tests were performed. To compare the interaction effect of the 3 variables (gender, age and EF performance) on psychological strengths, Kruskal-Wallis tests were performed, with subsequent Mann-Whitney U-tests for pairwise comparisons, adjusting for significance according to Bonferroni.

To analyse relationships between psychological strengths, Spearman's Rho bivariate correlations tests were performed. Significance was adjusted for p-values <.05.

Results

Correlation analysis

All psychological strengths show a significant correlation ($p < .001$), with strength ranging from the lowest value of .45 (medium strength) between Justice and Humanity and Courage, to the highest value of .605 between Justice and Humanity and Temperance (high strength) (Table 2).

Table 2. Correlations among the different Adolescent Psychological Strengths dimensions.

Psychological Strengths	Courage	Transcendence	Ancestry	Justice	Temperance	Knowledge
Courage	1	.530**	.592**	.450**	.571**	.547**
Transcendence		1	.589**	.490**	.564**	.554**
Ascendancy			1	.414**	.522**	.544**
Justice and humanity				1	.605**	.502**
Temperance				<	1	.536**
Knowledge						1

Source: Authors' own elaboration**: $p < .001$

Analysis of Differences According to Gender

According to gender, girls score higher on all psychological dimensions than boys. In addition, girls score significantly higher on Courage ($U = 23228$; $Z = -6.8$; $p < .001$), Justice and Humanity ($U = 35329$; $Z = -2.0$; $p = .044$), and Knowledge ($U = 33207$; $Z = -3.1$; $p = .002$) (Table 3).

Table 3. Comparisons of the different dimensions of Psychological Strengths according to gender.

Psychological Strengths	Boys			Girls			p
	M	Mn	RIC	M	Mn	RIC	
Courage	3.57	3.6	0.66	3.86	4	0.67	***
Transcendence	3.29	3.5	0.84	3.3	3.5	1.16	
Ascendancy	3.31	3.56	0.89	3.34	3.56	1	
Justice and humanity	3.04	3.22	1	3.19	3.33	1	*
Temperance	3.26	3.44	1.11	3.34	3.56	1	
Knowledge	3.36	3.5	1.08	3.57	3.83	1.08	**

* = $p < .05$; ** = $p < .01$; *** = $p < .001$; M = Mean; Mn = Median; RIC = Range Inter Quartile

Source: Authors' own elaboration

Analysis of Differences According to Educational Stage

Age has no significant effect on any of the Psychological Strengths. However, the older group shows higher levels in all dimensions than the younger group (Table 4).

Table 4. Comparisons of the different Psychological Strengths dimensions according to educational stage.

Psychological Strengths	Young			Older			p
	M	Mn	RIC	M	Mn	RIC	
Courage	3.71	3.8	0.8	3.73	3.73	0.66	.890
Transcendence	3.28	3.58	1.08	3.34	3.33	0.67	.178
Ascendancy	3.29	3.56	1	3.54	3.56	0.89	.340
Justice and humanity	3.1	3.33	1	3.18	3.22	1	.589
Temperance	3.27	3.56	1	3.45	3.44	0.94	.802
Knowledge	3.43	3.67	1.09	3.64	3.71	1	.713

* = $p < .05$; ** = $p < .01$; *** = $p < .001$; M = Mean; Mn = Median; RIC = Range Inter Quartile

Source: Authors' own elaboration

Analysis of Differences According to Participation in Physical Education

The group that participates in Physical Education in Conventional Centres shows higher scores on the Psychological Strengths dimensions of Courage ($U = 23424$; $Z = -5.9$; $p < .001$), Transcendence ($U = 30911$; $Z = -3.5$; $p < .001$), Justice and Humanity ($U = 33269$; $Z = -2.2$; $p = .026$), and Knowledge ($U = 33208$; $Z = -2.3$; $p = .024$) (Table 5).

Table 5. Comparisons of the different Psychological Strengths dimensions according to participation in Physical Education.

Psychological Strengths	NO PE			YES PE			p
	M	Mn	RIC	M	Mn	RIC	
Courage	3.45	3.6	0.73	3.86	3.93	0.74	***
Transcendence	3.14	3.33	1	3.33	3.58	1.08	***
Ascendancy	3.31	3.5	0.89	3.3	3.56	1	
Justice and humanity	3.02	3.22	0.89	3.13	3.33	1.11	*
Temperance	3.27	3.44	1	3.28	3.44	1	
Knowledge	3.38	3.5	1.08	3.47	3.83	1.09	*

* = $p < .05$; ** = $p < .01$; *** = $p < .001$; M = Mean; Mn = Median; RIC = Range Inter Quartile

Source: Authors' own elaboration

Analysis of Differences According to the Interaction of Gender, Educational Stage, and Physical Education

The interaction between age group, gender and Physical Education had a significant influence on Courage ($H7 = 85.1$; $p < .001$), Transcendence ($H7 = 21.7$; $p = .003$), Ascendancy ($H7 = 15.8$; $p = .027$), Justice and humanity ($H7 = 18.2$; $p < .011$) and Knowledge ($H7 = 20.9$; $p = .004$). To simplify the presentation of results in the group comparisons for each dimension, the strongest groups will be indicated as those with the highest scores, while the weakest groups will be those with the lowest scores (Table 6).

Analysing the strongest and weakest group in each dimension, in Courage the strongest group is the group of young girls who do Physical Education while the weakest group is the group of young boys who do not do Physical Education.

In Transcendence the strongest group is the group of older boys doing PE while the weakest group is the group of young girls not doing PE.

In Ascendancy the strongest group is the group of older boys who do NOT do PE while the weakest group is the group of younger boys who do PE.

In Justice and Humanity, the strongest group is the group of older boys who do NOT do PE while the weakest group is the group of older girls who do PE.

Finally, in Knowledge the strongest group is the group of older boys who do NOT do PE while the weakest group is the group of younger boys who do PE.

Table 6. Comparisons of the different Psychological Strengths dimensions of according to the interaction between educational stage, gender and PE

Strengths	NO Physical Education				YES Physical Education				p
	Young		Older		Young		Older		
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
Courage	M	M	M	M	M	M	M	M	***
	3.29	3.48	3.69	3.58	3.66	4.05	3.8	3.85	



Transcendence	3.3	2.98	3.43	3.18	3.24	3.45	3.5	3.22	**
Ascendancy	3.31	3.24	3.79	3.22	3.19	3.4	3.49	3.35	*
Justice and humanity	2.93	3.11	3.28	3.23	3.02	3.25	3.19	2.89	*
Temperance	3.32	3.19	3.56	3.35	3.15	3.4	3.4	3.34	
Knowledge	3.34	3.39	3.7	3.67	3.27	3.64	3.62	3.49	**

* = $p < .05$; ** = $p < .01$; *** = $p < .001$; M = Mean

Source: Authors' own elaboration

Discussion

The general objective of this study is to examine the level of psychological well-being among adolescents from different educational settings—some of whom participate in Physical Education (PE) classes, while others do not. More specifically, the study aims to compare adolescents' psychological strengths according to gender, age, and participation in PE.

Girls score significantly higher than boys on the dimensions of Courage, Justice and Humanity, and Knowledge. These findings are consistent with previous research indicating that adolescent girls tend to demonstrate higher levels of moral reasoning and emotional awareness (McCrae et al., 2005; Raimundi et al., 2018). Elevated scores in Justice and Humanity suggest a greater inclination toward empathy and fairness, consistent with prior studies on moral development (Shields & Bredemeier, 2001). Similarly, Gilligan (1982) emphasizes that females tend to attribute greater importance to empathy and interpersonal relationships within their moral reasoning processes.

Gender differences in Courage may be linked to socialization patterns, as girls are often encouraged to exhibit resilience and perseverance in challenging contexts (Eagly & Wood, 1991). This interpretation aligns with Peterson and Seligman (2004), who argue that certain character traits are differentially reinforced by gender norms, influencing the development of specific psychological strengths.

With respect to educational stage, no significant differences are found in the dimensions analyzed. However, older adolescents obtain slightly higher scores across all strengths. This trend is consistent with prior research suggesting that psychological strengths become more complex and mature with age (Kretzschmar et al., 2022). Erikson (1968) proposes that identity formation during late adolescence fosters greater clarity of personal values and character strengths. Similarly, Arnett (1999) describes adolescence and emerging adulthood as stages of identity exploration, during which strengths continue to evolve. Longitudinal studies (e.g., Damon, 2004) underscore the influence of life experiences and supportive environments on the progressive development of strengths, suggesting that these changes may be non-linear and context-dependent. Consequently, the absence of statistically significant differences in this study may reflect the subtle and gradual nature of these developmental variations. Moreover, research indicates that participation in leadership or volunteer programs can enhance strengths such as Courage, Fairness, and Humanity (Larson, 2000).

Regarding PE participation, the findings indicate that engaging in PE positively influences adolescents' psychological strengths. Students who attend PE classes score higher in Courage, Temperance, and Justice and Humanity, supporting previous research on the psychological and social benefits of physical activity (Castro-Sánchez, 2016; Rodríguez et al., 2022). Physical Education provides a structured environment in which adolescents develop coping mechanisms, resilience, and collaboration skills—core components of psychological strength (Weiss & Wiese-Bjornstal, 2009). Regular physical activity is associated with improved emotional well-being and reduced stress levels, contributing to the cultivation of Temperance and Courage (Lubans et al., 2010). Additionally, well-designed sports programs foster character development and social competence (Gould & Carson, 2008). PE and sport also serve as effective means for promoting a sense of belonging—an essential element during adolescence—by offering safe spaces for peer interaction and emotional learning (Smith & Smoll, 1997).

However, adolescents attending high-performance sports centres exhibit lower scores in key psychological strengths compared with their peers in regular schools. This outcome aligns with previous studies highlighting the psychological challenges faced by elite athletes. While high-performance centres provide advanced training and multidisciplinary support, they often impose rigid schedules, high workloads, and constant performance demands, leading to elevated stress levels and a greater risk of burnout (Burlot et al., 2016). The relentless pursuit of excellence creates an environment where psychological



well-being becomes secondary, limiting the development of strengths such as resilience, emotional stability, and social cohesion. In contrast, PE in traditional school settings promotes enjoyment, personal growth, and social interaction, thereby supporting intrinsic motivation and overall well-being.

Disparities in access to psychological and medical support across high-performance centres also contribute to these lower scores. While some athletes benefit from specialized care, others face insufficient support and recovery time, which leads to emotional exhaustion and diminished coping resources (Moreau & Nabhan, 2012). Furthermore, the lack of balance between academic, social, and personal life often experienced by elite athletes impedes the development of strengths such as Justice and Humanity, Transcendence, and Temperance. Conversely, adolescents in standard educational settings benefit from a more holistic experience that promotes social connection, self-expression, and broader opportunities for personal development. These findings underscore the importance of reforming elite training models to integrate structured psychological support, social inclusion strategies, and recovery frameworks that safeguard both performance and well-being.

In summary, this study provides empirical evidence of differences in adolescents' psychological strengths based on gender, age, and participation in Physical Education. The results highlight the relevance of these variables in fostering holistic adolescent development. The observed gender differences suggest the need for tailored emotional and moral education strategies that address the specific strengths and needs of boys and girls (Noddings, 2002). Furthermore, the demonstrated benefits of Physical Education reinforce its role as a critical educational tool for promoting psychological well-being and social competence (Trudeau & Shephard, 2008). Implementing school programs that combine physical activity with the intentional development of psychological strengths enhances overall well-being and better prepares adolescents to face future life challenges (Bailey et al., 2013).

Despite its educational implications, this study presents certain limitations. Its cross-sectional design precludes causal inference, and self-report measures may be subject to social desirability bias (Paulhus & Vazire, 2007). Additionally, the sample, although sufficiently large, is limited to a specific population, restricting the generalizability of findings. Future research should employ longitudinal designs to explore the evolution of psychological strengths over time and the influence of contextual and individual factors (Larson, 2000). Expanding research to more diverse populations would enhance external validity. Finally, future studies could assess targeted interventions aimed at strengthening specific psychological dimensions, evaluating their effectiveness across different educational and cultural settings (Park & Peterson, 2006).

Conclusions

This study underlines the importance of Physical Education in the development of adolescents' psychological strengths, highlighting significant differences according to gender, educational stage and participation or not in the subject of Physical Education. The results showed that adolescents who took Physical Education scored higher on the dimensions of courage, transcendence, justice and humanity and knowledge. This supports the existing literature on the benefits of physical exercise not only for physical health but also for psychological and social well-being.

The differences observed between boys and girls suggest the need for differentiated approaches to emotional and moral education, adapting interventions to address the specific strengths and needs of each gender. In addition, the findings highlight the importance of promoting and facilitating participation in sports and physical activities, especially in school contexts, as a strategy for comprehensive adolescent development.

For future studies, longitudinal research is recommended to explore how psychological strengths evolve over time and how different contextual and individual factors influence this development. It would also be beneficial to extend the research to more diverse populations to assess the generalisability of the findings. Future research could explore specific interventions designed to strengthen the identified psychological dimensions, assessing their effectiveness in different educational and cultural contexts.

In summary, this study provides evidence of differences in the psychological strengths of adolescents according to gender, age and participation in the subject of Physical Education, highlighting the importance of these factors in the holistic development of individuals.

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