



The Role of Physical Education in Shaping Students' Healthy Lifestyle

DOI: 10.5281/zenodo.20094217

Lianeza C. Cabildo

Foundation University, Inc., Dr. Miciano Road, Dumaguete City

Lianeza.cabildo@deped.gov.ph

Runelo L. Piñero, EdD

Foundation University, Inc., Dr. Miciano Road, Dumaguete City

runelopinero@gmail.com

Abstract

This study employed a quantitative descriptive-correlational design to examine the relationship between the perceived implementation of Physical Education (PE) components and the development of healthy lifestyle behaviors among 300 students. A validated and reliable research instrument was used to ensure data accuracy and consistency. The results showed a high level of perception of the implementation of the PE component. Correspondingly, students exhibited a high extent of healthy lifestyle behaviors. Further analysis also revealed a statistically significant positive relationship between PE implementation and healthy lifestyle behaviors, with overall implementation demonstrating a strong correlation. This stresses the critical role of PE implementation in promoting students' well-being. Moreover, significant differences in students' healthy lifestyle behaviors were observed based on age, but no differences were found based on students' sex and grade level, with male students reporting higher scores than their female counterparts. Similarly, perceptions of PE implementation did not differ by age and grade level but varied significantly by sex. These findings imply that the impact of PE lies not merely in its consistent implementation but in its capacity to meaningfully shape students' health-related behaviors, positioning PE as a key mechanism for cultivating lifelong wellness habits.

Keywords: Fitness development, healthy lifestyle behaviors, movement competency, nutrition and wellness, physical education, skill-related activities

Introduction

A healthy lifestyle encompasses behaviors such as balanced nutrition, regular physical activity, adequate sleep, and avoidance of harmful practices that collectively support adolescents' physical, emotional, and social well-being (González Moreno & Molero Jurado, 2023). Within the school setting, Physical Education (PE) plays a crucial role in promoting these behaviors by providing structured opportunities for movement and developing students' understanding of lifelong health practices. Research has shown that regular physical activity improves psychological well-being, emotional regulation, self-esteem, and social competence among adolescents (Haapala et al., 2025; Li et al., 2023; Zhang et al., 2025). In the Philippine context, Campoamor Olegario et al. (2025) highlighted that physically active Filipino adolescents exhibit better mental well-being, while Almanon et al. (2024) emphasized the positive contribution of the K-12 PE curriculum to students' physical and mental health. Despite these benefits, physical inactivity remains a major concern. The World Health Organization (2020) identified insufficient physical activity among adolescents as a global issue, and Cagas et al. (2022) reported that approximately 85% of Filipino adolescents fail to meet the recommended daily physical activity requirement. This growing sedentary lifestyle, characterized by increased screen time and limited recreational movement, is likewise evident among students of Tambo National High School and is consistent with the findings of Sârbu et al. (2023).



Although numerous studies have established the immediate physical and psychological benefits of PE, limited research has explored its long-term influence on students' broader lifestyle behaviors and overall well-being. Rojo Ramos et al. (2023) observed that PE-related studies commonly focus on short-term outcomes such as fitness improvement and motor skill development, with less attention given to the sustainability of healthy behaviors beyond the school environment. Similarly, Zou et al. (2023) emphasized the importance of peer support in promoting resilience and participation in physical activity, yet its impact on sustained lifestyle changes remains insufficiently examined. Moreover, Chang et al. (2024) and Srinivasan (2025) noted that while school-based PE programs effectively improve physical fitness, their influence on reducing sedentary behaviors and shaping holistic lifestyle practices is often limited. In response to these gaps, this study seeks to examine how PE contributes to the development of healthy lifestyle behaviors among junior high school students. Anchored on Sustainable Development Goal 3, which promotes health and well-being for all, the study aims to determine the extent to which PE fosters sustainable health practices and identify factors that support or hinder the development of lifelong healthy behaviors within the school context.

Statement of the Problem

This study aimed to assess how students perceived the components of Physical Education (PE) and how these components influence their healthy lifestyle habits.

Specifically, the study sought to answer the following questions:

1. To what extent are the following PE components implemented, as perceived by the students in terms of:
 - 1.1 movement competency and skill-related activities;
 - 1.2 fitness development;
 - 1.3 understanding of physical activity and its benefits;
 - 1.4 values and character development through physical education; and
 - 1.5 students' level of engagement in skills-related activities?
2. To what extent do students develop healthy lifestyle behaviors in terms of the following:
 - 2.1 physical activity habits;
 - 2.2 nutrition and wellness behavior; and
 - 2.3 physical fitness level?
3. Is there a significant relationship between the perceived implementation of PE components and the extent to which students develop healthy lifestyle behavior?
4. Is there a significant difference in students' healthy lifestyle habits when grouped according to their profile in terms of:
 - 4.1 age;
 - 4.2 sex; and
 - 4.3 grade level?
5. Is there a significant difference in students' perception of PE components implementation when grouped according to their profile in terms of:
 - 5.1 age;
 - 5.2 sex; and
 - 5.3 grade level?

Statement of the Null Hypotheses

Ho1: There is no significant relationship between the perceived implementation of PE components and the extent to which students develop healthy lifestyle behavior.

Ho2: There is no significant difference in students' healthy lifestyle habits when grouped according to their profile in terms of age, sex, and grade level.

Ho3: There is no significant difference in students' perceptions of PE components implementation when grouped according to their profile in terms of age, sex, and grade level.



Literature Review

This section critically reviews existing literature and empirical studies on the role of physical education in shaping students' healthy lifestyle behaviors.

Physical education in shaping students' healthy lifestyles. Physical Education (PE) is widely recognized as an essential component of holistic education that promotes learners' physical, cognitive, emotional, and social development. Michael et al. (2021) described PE as a structured, school-based program designed to improve physical fitness, motor competence, and overall well-being through guided instructional activities. In the Philippine educational context, PE remains an integral part of the K–12 curriculum that encourages lifelong healthy lifestyle practices. Studies conducted by Palma et al. (2024) and Khairuddin et al. (2025) revealed that health-oriented and culturally responsive PE programs significantly improve cardiovascular endurance, muscular strength, and students' awareness of healthy behaviors. These findings suggest that PE contributes meaningfully to the development of sustainable wellness practices among learners. Beyond physical fitness, PE also supports students' cognitive, emotional, and social functioning. Mavilidi et al. (2023) emphasized that physically active learners tend to demonstrate stronger concentration, executive functioning, and classroom engagement. Similarly, Bosque (2025) and Booth et al. (2023) noted that participation in PE reduces stress, anxiety, and depressive symptoms while enhancing emotional resilience and psychological well-being. In terms of social development, Cachón-Zagalaz et al. (2023) explained that PE activities promoting teamwork, autonomy, and cooperation strengthen peer relationships and social responsibility. Collectively, these studies affirm that PE serves as a significant avenue for fostering healthy lifestyles and holistic learner development.

Movement competency and skill-related activities. Movement competency and skill-related activities are fundamental elements of PE that support students' participation in physical activity and the development of healthy behaviors. Longakit et al. (2024) defined movement competency as the ability to perform fundamental movement skills efficiently and confidently. Research by Ha et al. (2024), Redublado et al. (2024), and Liu et al. (2024) revealed that students with higher motor competence demonstrate increased self-confidence, intrinsic motivation, and active participation in physical activities. These studies indicate that movement competency strengthens students' engagement in active lifestyles and reduces sedentary behaviors. Skill-related activities, including game-based learning, sports drills, and cooperative tasks, also contribute significantly to students' physical and social development. Gula (2024) emphasized that these activities improve agility, balance, coordination, speed, and reaction time. Likewise, Camacho-Sánchez et al. (2023) and Ramos-Campo and Clemente-Suárez (2024) found that structured skill-based activities enhance teamwork, cognitive functioning, and academic performance. These findings suggest that movement competency and skill-related activities provide learners with opportunities to develop both physical proficiency and positive health behaviors.

Fitness development. Fitness development is another important dimension of PE that promotes students' health and well-being. Palma et al. (2024) explained that fitness development focuses on improving cardiovascular endurance, muscular strength, flexibility, and body composition through structured physical activities. Research findings consistently demonstrate that fitness-focused PE programs positively influence adolescent health. Mitic (2024) found that high-intensity interval training incorporated into PE classes significantly improved students' aerobic capacity and muscular strength. Similarly, Rocha et al. (2025) reported that short structured fitness sessions enhanced flexibility, endurance, and obesity-related indicators among students. In the Philippine context, Palma et al. (2024) observed that while Filipino junior high school students generally exhibited strong cardiovascular endurance and muscular strength, flexibility remained limited, emphasizing the need for targeted interventions. Furthermore, Peng et al. (2025) highlighted that improved fitness levels contribute to greater confidence, resilience, and long-term participation in active lifestyles. These studies collectively show that fitness development within PE supports both physical health and sustainable healthy behaviors among adolescents.



Understanding of physical activity and its benefits. Understanding physical activity and its benefits is essential in shaping students' motivation and attitudes toward healthy living. Grady et al. (2025) explained that knowledge of the physical, mental, and emotional benefits of movement encourages learners to engage consistently in healthy behaviors. Similarly, Hnidkova et al. (2024) found that students with higher health literacy are more likely to achieve recommended physical activity levels and maintain positive lifestyle practices. Local studies further emphasize the importance of contextualized and culturally relevant PE experiences. Lobo and Dimalanta (2024) revealed that students who understood the health and cultural value of physical activity showed stronger engagement in PE programs. Likewise, Pacadaljen (2024) observed that culturally responsive activities increased learners' appreciation of movement and wellness. These findings suggest that PE serves not only as physical training but also as a platform for developing informed, health-conscious, and motivated individuals.

Values and character development through physical education. PE also contributes significantly to students' values formation and character development. According to Aygun (2024), PE cultivates discipline, teamwork, leadership, respect, and responsibility through structured physical activities. Supporting this, Jadwiszczak et al. (2025) found that value-oriented PE approaches, such as the Teaching Personal and Social Responsibility model, strengthen fairness, cooperation, and emotional well-being among learners. González-Hernández et al. (2024) likewise noted that PE programs emphasizing values improve empathy, group cohesion, and prosocial behavior. In the Philippine context, Panganiban et al. (2025) highlighted that integrating larong tradisyunal in PE promotes inclusivity, community spirit, and mutual respect. Similarly, Pacadaljen (2024) emphasized that culturally grounded activities encourage appreciation of heritage and positive interpersonal relationships. These studies demonstrate that PE contributes not only to physical literacy but also to the development of morally responsible and socially aware individuals.

Students' engagement in skills-related activities. Students' engagement in skills-related activities reflects their participation, effort, and involvement in PE tasks. Carballo-Fazanes et al. (2023) asserted that structured physical activity programs encourage meaningful participation and continuous skill development among learners. Similarly, Martinez-Lopez et al. (2024) explained that regular involvement in physical activities improves physical fitness and reinforces students' engagement in PE. Enjoyment and confidence also influence students' level of engagement. Ha et al. (2024) found that students who experience positive participation during PE sessions are more likely to sustain involvement in physical activities. Likewise, Hill et al. (2024) and Kasanen et al. (2023) emphasized that enjoyable and structured activities increase motivation, performance, and long-term participation. These findings imply that engaging and student-centered PE experiences strengthen learners' commitment to skills-related activities.

Healthy lifestyle. A healthy lifestyle encompasses behaviors that promote overall well-being, including regular physical activity, balanced nutrition, adequate rest, and avoidance of harmful practices (González Moreno & Molero Jurado, 2024). Research consistently highlights the role of PE in shaping these behaviors among adolescents. Zhang et al. (2025) revealed that participation in structured PE programs is associated with reduced physical inactivity and healthier dietary practices. Similarly, González Moreno and Molero Jurado (2024) reported that healthy lifestyle habits improve students' self-esteem and reduce stress levels. In the Philippine setting, Campoamor-Olegario et al. (2025) and Dacay et al. (2024) found that students who regularly practice physical activity, proper nutrition, and stress management demonstrate higher levels of well-being. These findings indicate that PE and health-related programs significantly influence the development of positive lifestyle habits among learners.

Physical activity habits. Physical activity habits refer to regular and consistent engagement in movement behaviors that eventually become part of students' daily routines (Phipps et al., 2025). Mijarra Murillo et al. (2024) emphasized that adolescence is a critical period for establishing lifelong physical activity patterns. Studies by Perez (2025), Campoamor-Olegario et al. (2025), and Cocca et al. (2025) showed that physically active students demonstrate better fitness, stronger motivation, and improved well-being. However, Mijarra Murillo et al. (2024) also reported that many adolescents fail to meet recommended physical activity levels, highlighting the need for stronger habit formation through PE programs.



Nutrition and wellness behavior. Nutrition and wellness behaviors involve healthy eating patterns, hydration, adequate sleep, stress management, and other practices that support physical and mental well-being (Taylor & Trejo Tello, 2024). Hasan et al. (2025) noted that students who practice healthy nutrition and wellness behaviors exhibit stronger confidence and improved psychological outcomes. Similarly, Estrela et al. (2025) and Rahayu (2025) found that school-based health programs significantly improve students' health literacy and positive lifestyle behaviors. In the Philippine context, Pengpid et al. (2025) and Bernardino et al. (2024) reported that many adolescents demonstrate poor dietary habits and limited understanding of healthy food choices. Conversely, Zhang (2025) and Taylor and Trejo Tello (2024) found that improved eating habits, hydration, and sleep contribute to better physical health, reduced burnout, and increased participation in physical activities. These findings emphasize the importance of integrating nutrition and wellness education within PE programs.

Physical fitness level. Physical fitness level refers to students' ability to perform physical activities effectively and efficiently through components such as endurance, strength, flexibility, agility, and coordination (Liu et al., 2024). Galán Arroyo et al. (2024) emphasized that physical fitness is closely associated with adolescents' overall health and self-perception. Similarly, Mitic (2024) explained that structured fitness development improves not only physiological outcomes but also emotional resilience and cognitive functioning. Research further demonstrates the importance of physical fitness in school settings. Perez (2025) found a positive relationship between physical activity and skill-related fitness among Filipino junior high school students. Likewise, Bloch et al. (2025) and Leone et al. (2025) revealed that students with higher fitness levels demonstrate better aerobic capacity, body image satisfaction, and lower risks of obesity. These findings affirm that PE contributes significantly to students' physical fitness and overall wellness.

Relationship between the implementation of PE components and students' healthy lifestyles. The literature consistently shows that effective implementation of PE programs contributes positively to students' healthy lifestyle behaviors. Othman et al. (2025) found that schools with stronger PE implementation demonstrated better student performance in national fitness assessments. Similarly, Malones (2024) reported that integrating active living and health promotion into PE programs improved students' fitness levels and reduced sedentary behavior. Teachers also play a vital role in achieving these outcomes. Rutkauskaite et al. (2024) emphasized that teachers' attitudes and behaviors toward physical activity strongly influence students' lifestyle habits. Correspondingly, Gabunilas et al. (2024) explained that quality PE instruction supports the development of physical fitness, health awareness, and positive behaviors. These findings suggest that well-planned and effectively implemented PE programs encourage students to adopt and maintain healthy lifestyles.

Profile and healthy lifestyle habits. The reviewed studies indicate that age, sex, and grade level influence students' healthy lifestyle behaviors. Dacay et al. (2024) noted that older students tend to develop more established health routines, although other studies present contrasting findings. Campoamor-Olegario et al. (2025), Pengpid et al. (2025), and Shirzadi et al. (2025) observed that healthy behaviors such as proper nutrition and physical activity often decline as adolescents grow older. In terms of sex, Perez (2025) found that male students demonstrated higher physical activity and skill-related fitness levels than females. However, Erdogan and Kavuran (2024) reported that female students exhibited stronger overall healthy lifestyle behaviors. Regarding grade level, Gautam et al. (2024) and Shirzadi et al. (2025) found that older students were more likely to exhibit unhealthy lifestyle patterns. These findings imply that demographic variables significantly influence students' health-related behaviors.

Profile and students' demonstration of PE components. Studies also revealed that profile variables influence students' demonstration of PE components. Hermassi et al. (2024), Drenowatz et al. (2021), and Tingelstad et al. (2025) found that older students generally demonstrate stronger physical performance, coordination, and endurance due to maturation and continued participation in physical activity. In terms of sex differences, Hermassi et al. (2024) and Roccliffe et al. (2023) reported that male students often exhibit higher participation and enjoyment in PE than females. However, Nugroho Putro et al. (2024) found that instructional factors such as frequency of participation may influence outcomes more than sex alone. Regarding grade level, Perez et al. (2025), Palma et al.



(2024), and García-Hermoso et al. (2022) revealed that although older students may develop better fitness and physical competence, their active participation in PE may decline over time. These findings highlight the need for engaging and inclusive PE programs that sustain students' motivation and participation across grade levels.

Methodology

This section introduces the methods and procedures to make the study rigorous and ethical.

Research Design

This study utilized a quantitative descriptive-correlational research design to examine the role of Physical Education (PE) in shaping healthy lifestyle behaviors among Grades 7 to 10 students at Tambo National High School. The descriptive component assessed students' perceptions of PE implementation, particularly in movement competency, fitness development, understanding of physical activity, and values formation, as well as their healthy lifestyle behaviors in terms of physical activity, nutrition, wellness practices, and physical fitness. Meanwhile, the correlational approach determined the relationship between PE implementation and students' healthy lifestyle behaviors. The study also examined differences in these variables when grouped according to age, sex, and grade level. Through this design, the study generated objective and evidence-based findings that may support the improvement of PE programs and promote students' long-term health and well-being.

Research Environment

This study was conducted at Tambo National High School, which is under the jurisdiction of Ayungon District II in the municipality of Ayungon, Negros Oriental, Philippines. Tambo National High School serves a diverse population of junior high school students from different socio-economic backgrounds, making it a strategic site for examining the role of PE in shaping students' healthy lifestyle behaviors. Moreover, the school provided an ideal setting for the study as it represented a typical learning environment of public secondary schools in rural municipalities, where resources and facilities for PE vary, and students' health-related behaviors are influenced by both school-based instruction and community practices.

Research Respondents

The respondents of this study consist of Grades 7, 8, 9, and 10 students enrolled at Tambo National High School (SY 2024–2025). These grade levels were purposively selected because they represented critical stages of adolescence, a period when lifestyle habits such as physical activity routines, nutritional practices, and fitness behaviors were formed and solidified. Moreover, students in these levels were expected to have already been exposed to various PE components, making them suitable respondents for assessing how PE implementation influenced their health-related behaviors.

The distribution of the respondents is shown below.

Respondent	Population	Sample
Grade 7	296	105
Grade 8	213	75
Grade 9	148	52
Grade 10	193	68
Total	850	300

Using Yamane's formula, a sample of 300 respondents was selected from a total population of 850 students. A systematic sampling technique was employed to ensure fairness and representativeness in the selection process. An official class list for each grade level was obtained, and a random starting point was identified. From this point, every third student on the list was selected as a respondent.



This method was considered appropriate as it provided an efficient and unbiased means of selecting respondents while ensuring that all students had an equal chance of being included in the study.

Instrumentation

The study utilized a structured questionnaire to gather quantitative data on students' perceptions of Physical Education (PE) components and their healthy lifestyle behaviors. Developed from related literature, validated instruments, and the objectives of the study, the questionnaire consisted of four parts: the study orientation and ethical considerations, respondents' demographic profile, perceptions of PE implementation, and healthy lifestyle behaviors. The instrument assessed PE implementation in terms of movement competency, fitness development, understanding of physical activity, and values formation, as well as students' physical activity habits, nutrition and wellness behavior, and physical fitness level, using a five-point Likert scale. To ensure validity, the questionnaire underwent expert evaluation by three PE specialists, followed by revisions and pilot testing among students outside the actual sample. Reliability testing using Cronbach's alpha yielded acceptable to high coefficients across all variables, confirming the instrument's internal consistency and suitability for measuring the intended constructs.

Statistical Treatment of the Data

To ensure accurate data analysis, both descriptive and inferential statistical tools were employed. The mean and median were used to describe the level and central tendency of students' responses regarding PE implementation and healthy lifestyle behaviors. The Shapiro–Wilk test determined data normality and revealed non-normal distribution, which justified the use of non-parametric tests. Consequently, Spearman's Rank-Order Correlation was utilized to examine relationships between variables, while the Kruskal–Wallis H Test and Mann–Whitney U Test were applied to determine significant differences among groups based on age, grade level, and sex. These statistical treatments ensured reliable interpretation of the data and supported the validity of the study's findings. To identify the degree of relationship between two variables, the researcher applied the following descriptions (Statistical Correlation, 2009):

Value of r_s	Strength of Relationship
Between ± 0.50 to ± 1.00	$\pm$ strong relationship
Between ± 0.30 to ± 0.49	$\pm$ moderate relationship
Between ± 0.10 to ± 0.29	$\pm$ weak relationship
Between ± 0.01 to ± 0.09	$\pm$ very weak relationship

Ethics Considerations

The study strictly adhered to established ethical standards throughout the research process. Ethical clearance was secured from Foundation University and the Department of Education – Negros Oriental Division prior to data collection. Respondents were informed of the study's purpose, procedures, and significance, and participation was voluntary with informed consent obtained from all participants. Confidentiality, anonymity, and the right to withdraw at any stage were ensured, while all responses were anonymized and securely stored for academic purposes only. The researcher maintained a respectful and non-threatening environment by using age-appropriate and non-intrusive survey items and by upholding inclusivity and fairness regardless of respondents' demographic background. Furthermore, all findings were reported accurately and responsibly to preserve academic integrity and protect respondent anonymity.



AI Usage and Assistance

This study was developed with the assistance of artificial intelligence (AI) tools, including ChatGPT and QuillBot, which supported literature organization, language refinement, and drafting of selected sections. The use of these tools was limited to enhancing clarity, coherence, and efficiency in writing. The role of AI did not replace the researcher's intellectual contribution, as all content generated or refined was carefully reviewed, critically evaluated, and substantially revised by the researcher. The interpretation of data, analysis of findings, and formulation of conclusions remained entirely under the responsibility of the researcher, ensuring originality, accuracy, and adherence to ethical standards.

Results and Discussion

To determine the verbal interpretation of responses and the extent of practice, the researcher applied the following descriptions:

Extent of Implementation (Eol)

4.21–5.00 – Very High (VH)

3.41–4.20 – High (H)

2.61–3.40 – Moderate (M)

1.81–2.60 – Low (L)

1.00–1.80 – Very Low (VL)

Table 1.1

Extent of Implementation of Physical Education Components as perceived by the Students in terms of Movement Competency and Skill-Related Activities

The teacher...	$\bar{x}$	Eol	SD
1. performs basic movements and sports skills with confidence during Physical Education classes.	4.04	H	0.80
2. keeps up with the movement drills and exercises during our Physical Education sessions.	3.97	H	0.75
3. explores new skill-related activities that challenged my physical abilities.	3.88	H	0.76
4. improves my coordination and agility through different physical activities.	3.87	H	0.71
5. receives guidance to enhance my movement and motor skills.	3.77	H	0.77
Composite	3.91	H	0.76

Note: n = 300

Table 1.1 presents students' perceptions of the extent of implementation of PE components in terms of movement competency and skill-related activities. Overall, the results indicate a "high" extent of implementation, as reflected in the composite mean of 3.91 (SD = 0.76), which suggests that PE instruction effectively supports the development of students' movement skills and physical abilities.

The highest mean is observed in students performing basic movements and sports skills with confidence during PE classes ($\bar{x}$ = 4.04), interpreted as high. This indicates that students are able to execute fundamental skills with assurance, reflecting strong foundational competency. As noted by Longakit et al. (2024), such confidence is essential in progressing toward more complex physical activities. The relatively higher rating of this indicator may be attributed to the frequent practice of basic skills in PE, allowing students to gain familiarity and mastery over time.

Similarly, students keeping up with movement drills and exercises during PE sessions ($\bar{x}$ = 3.97) is also rated high, which indicates active participation in continuous movement tasks. Liu et al. (2024) emphasized that consistent



engagement in such activities promotes moderate-to-vigorous physical activity and reduces sedentary behavior. The slightly lower mean compared to confidence in basic skills may suggest that while students can perform tasks, sustaining performance across extended drills may require endurance and motivation. In addition, the indicator on students exploring new skill-related activities that challenge their physical abilities ($\bar{x} = 3.88$) yields a high rating. This suggests that PE provides varied and stimulating activities that enhance physical capabilities. Camacho-Sánchez et al. (2023) posited that diverse and game-based activities improve motor competence and engagement. However, the lower rating relative to basic skills may indicate that unfamiliar or challenging tasks can limit students' confidence and willingness to fully participate.

Moreover, students improving coordination and agility through different physical activities ($\bar{x} = 3.87$) is also perceived as high. This reflects the effectiveness of PE in developing essential fitness components. Gula (2024) noted that coordination and agility are critical for overall physical performance. The comparable mean across these indicators suggests that while skill development is evident, improvements may vary depending on task complexity and individual ability levels. The lowest mean, though still high, is observed in students receiving guidance to enhance their movement and motor skills ($\bar{x} = 3.77$). This points to a relative gap in instructional support compared to other indicators. One possible reason is the limited time for individualized feedback in PE classes, which may affect how students perceive guidance. This implies a need for more targeted and consistent instructional strategies to support diverse learner needs. Nonetheless, this aligns with Redublado et al. (2024), who emphasized that structured guidance significantly improves motor skill acquisition, and Liu et al. (2024), who linked strong movement competency to increased physical activity participation.

To synthesize, the findings signify that the implementation of movement competency and skill-related activities in PE is effective in promoting students' physical development, although variations in mean scores highlight areas for instructional improvement. Ha et al. (2024) affirmed that higher movement competence enhances self-confidence, motivation, and engagement. Furthermore, Ramos-Campo and Clemente-Suárez (2024) postulated that motor proficiency is associated with both physical fitness and academic performance. Thus, the high level of implementation emphasizes the important role of PE in developing active, confident, and well-rounded learners while also pointing to the need for strengthened instructional guidance.

Table 1.2

Extent of Implementation of Physical Education Components as perceived by Students in terms of Fitness Development

The teacher...	$\bar{x}$	Eol	SD
1. engages us in exercises that help build strength, flexibility, or endurance.	4.09	H	0.66
2. ensures I can push myself physically in Physical Education while still feeling safe and supported.	4.03	H	0.77
3. makes me feel the positive effects of regular physical activity on my body.	3.96	H	0.68
4. encourages consistent participation in fitness-building exercises.	3.90	H	0.69
5. provides fitness routines that match my physical capacity.	3.81	H	0.64
Composite	3.96	H	0.69

Note: n = 300

Table 1.2 presents the students' perception of the extent of implementation of PE components in terms of fitness development. Overall, the results indicate a "high" extent of implementation, as reflected in the composite mean of 3.96 (SD = 0.69). This suggests that PE instruction consistently delivers fitness-related activities; however, while implementation is strong, this does not automatically equate to optimal effectiveness in sustaining long-term healthy lifestyle behaviors among students.



The highest mean is observed in engaging students in exercises that help build strength, flexibility, or endurance ($\bar{x} = 4.09$), interpreted as high. This indicates that structured activities targeting key fitness components are frequently implemented. While this reflects successful delivery of content, it also implies that effectiveness depends on whether these activities translate into habitual physical engagement beyond the classroom. This supports Palma et al. (2024), who asserted that fitness development in physical education focuses on improving cardiovascular endurance, muscular strength, and flexibility, which are crucial for maintaining physical health and functional ability. Also rated as high is ensuring students can push themselves physically in Physical Education while still feeling safe and supported ($\bar{x} = 4.03$). This reflects a well-managed learning environment where challenge and safety coexist. From an implementation standpoint, this indicates appropriate instructional strategies; however, its effectiveness lies in fostering confidence that encourages students to remain physically active even outside school settings. As Peng et al. (2025) noted, supportive PE environments enhance students' motivation and psychological resilience toward exercise, which are essential for maintaining a healthy lifestyle.

In the same vein, making students feel the positive effects of regular physical activity on their bodies ($\bar{x} = 3.96$) receives a high rating. This suggests that students are not only exposed to activities but are also becoming aware of their benefits. This bridges implementation and effectiveness, as awareness is a critical factor in shaping health-related behavior. Rocha et al. (2025) found that structured fitness activities improve physical health indicators, reinforcing students' recognition of the value of exercise in their daily lives.

Furthermore, encouraging consistent participation in fitness-building exercises ($\bar{x} = 3.90$) is also perceived to a high extent. While this reflects regular engagement during PE sessions, a deeper consideration is whether such consistency is internalized by students as a personal commitment to physical activity. Mitic' (2024) highlighted that sustained participation is key to developing lifelong healthy habits, suggesting that effectiveness should be measured not only by participation in class but also by continuity outside it. Meanwhile, the lowest mean, though still interpreted as high, is observed in providing fitness routines that match students' physical capacity ($\bar{x} = 3.81$). This points to a gap between implementation and inclusivity. While activities are delivered consistently, the extent to which they are differentiated may affect their effectiveness, particularly for students with varying fitness levels. Palma et al. (2024) emphasized the importance of adaptive physical education programs to address individual differences, which is essential in promoting equitable health outcomes.

Table 1.3

Extent of Implementation of Physical Education Components as perceived by Students in terms of Understanding of Physical Activity and Its Benefits

The teacher ...	$\bar{x}$	EoI	SD
1. helps me understand how physical activity contributes to my health and well-being.	4.22	VH	0.76
2. encourages me to apply what I learn in Physical Education to my daily health habits.	4.13	H	0.74
3. guides me in making connections between Physical Education lessons and real-life fitness practices.	4.07	H	0.70
4. helps me recognize the long-term benefits of staying physically active.	3.97	H	0.66
5. helps me realize the value of physical activity beyond just playing games.	3.94	H	0.78
Composite	4.06	H	0.73

Note: n = 300

Table 1.3 presents the students' perception of the extent of implementation of PE components in terms of understanding of physical activity and its benefits. Overall, the results indicate a "high" extent of implementation, as reflected in the composite mean of 4.06 (SD = 0.73). This suggests that PE instruction effectively develops students' knowledge and awareness of the importance of physical activity in promoting overall health and well-being.



The highest mean falls under helping students understand how physical activity contributes to their health and well-being ($\bar{x} = 4.22$), interpreted as very high. This indicates that students have a strong awareness of the role of physical activity in improving their physical, mental, and emotional health. The finding aligns with Grady et al. (2025), who emphasized that a clear understanding of the benefits of movement enhances students' knowledge of how physical activity contributes to overall well-being. Likewise, encouraging students to apply what they learn in PE to their daily health habits ($\bar{x} = 4.13$) is rated high. This suggests that students can transfer classroom learning into real-life practices. Such an application is essential in developing sustainable health behaviors, as Hnidkova et al. (2024) found that students with higher health literacy are more likely to engage in regular physical activity.

In a similar manner, guiding students in making connections between PE lessons and real-life fitness practices ($\bar{x} = 4.07$) also receives a high rating. This indicates that students are able to relate PE concepts to practical situations, reinforcing meaningful learning. This finding aligns with Lobo and Dimalanta (2024), who reported that students who understand the relevance of physical activity demonstrate stronger engagement in PE programs.

Moreover, helping students recognize the long-term benefits of staying physically active ($\bar{x} = 3.97$) is likewise perceived to a high extent. This shows that students are aware of the lasting impact of physical activity on their health. Recognizing long-term benefits is crucial in shaping positive attitudes and motivation, as emphasized by Grady et al. (2025), who noted that a clear understanding of movement benefits influences long-term health behaviors. Finally, helping students realize the value of physical activity beyond just playing games ($\bar{x} = 3.94$), although the lowest among the indicators, is still rated high. This suggests that students are gradually developing a deeper appreciation of physical activity beyond recreational purposes. This supports Pacadaljen (2024), who found that meaningful and context-based PE experiences enhance students' appreciation of movement in their daily lives. Collectively, the findings demonstrate that the implementation of this PE component effectively promotes students' understanding of physical activity and its benefits.

Table 1.4

Extent of Implementation of Physical Education Components as perceived by Students in terms of Values and Character Development through Physical Education

The teacher...	$\bar{x}$	Eol	SD
1. encourages me to show respect and fairness during group activities in Physical Education.	4.32	VH	0.81
2. guides me to stay disciplined and follow rules throughout Physical Education sessions.	4.14	H	0.85
3. teaches me to accept wins and losses with a positive attitude.	4.09	H	0.79
4. helps me develop patience, cooperation, and sportsmanship through Physical Education.	4.09	H	0.77
5. helps me work well with my classmates regardless of skill level.	3.99	H	0.80
Composite	4.12	H	0.80

Note: n = 300

Table 1.4 presents the students' perception of the extent of implementation of PE components in terms of values and character development. Overall, the results indicate a "high" extent of implementation, as reflected in the composite mean of 4.12 (SD = 0.80). This suggests that PE instruction consistently integrates value-laden activities; more importantly, it highlights PE as a critical space where students internalize behaviors that shape their character and influence their development as holistic and lifelong learners.

The highest mean was observed in encouraging respect and fairness during group activities ($\bar{x} = 4.32$), interpreted as very high. This signifies that students are not only exposed to cooperative tasks but are actively practicing ethical behavior in social contexts. Such experiences are significant because respect and fairness form the foundation of responsible citizenship and interpersonal relationships beyond school. This supports Jadwiszczak et al. (2025), who



claimed that value-centered approaches such as the Teaching Personal and Social Responsibility (TPSR) model enhance fairness, cooperation, and moral reasoning. Guiding students to remain disciplined and follow rules ($\bar{x} = 4.14$) was also rated high, indicating the development of responsibility and self-regulation. These traits are essential not only in physical activities but also in academic and real-life situations, where discipline supports goal setting and decision-making. Aygun et al. (2024) posited that structured PE environments reinforce behavioral regulation, which contributes to students' long-term personal growth.

Similarly, teaching students to accept wins and losses positively ($\bar{x} = 4.09$) reflects emotional maturity and resilience. This finding is particularly important as it shows how PE helps students manage success and failure, which are key experiences that shape perseverance and adaptability. González-Hernández et al. (2024) highlighted that PE plays a vital role in developing emotional control and sportsmanship, both of which are essential for lifelong learning and coping with real-world challenges. Helping students develop patience, cooperation, and sportsmanship ($\bar{x} = 4.09$) further demonstrates that PE contributes to social and moral development. These values foster collaborative learning and mutual respect, which are necessary in diverse learning and community settings. Meanwhile, working well with classmates regardless of skill level ($\bar{x} = 3.99$), though the lowest, remains high, indicating inclusivity among students. This suggests that while inclusive practices are present, there is still room to strengthen acceptance and equity. This supports Panganiban et al. (2025) and Pacadaljen (2024), who emphasized that culturally responsive PE promotes empathy, respect, and positive social interaction.

Table 1.5

Extent of Implementation of Physical Education Components as perceived by Students in terms of Students' Level of Engagement in Skills-Related Activities

The teacher...	$\bar{x}$	EoI	SD
1. practices proper body control when performing skills during Physical Education classes.	4.06	H	0.79
2. makes an effort to master basic movement patterns such as running, jumping, and throwing.	4.02	H	0.68
3. continuously practices improving my coordination and overall movement ability.	4.00	H	0.76
4. actively participates in movement drills that improve my balance and coordination	3.95	H	0.78
5. performs physical activities with focus and correct technique.	3.90	H	0.74
Composite	3.99	H	0.75

Note: n = 300

Table 1.5 presents the students' perception of the extent of implementation of PE components in terms of students' level of engagement in skills-related activities. Overall, the results indicate a "high" extent of implementation, as reflected in the composite mean of 3.99 (SD = 0.75). This suggests that PE instruction effectively promotes students' active engagement in activities that enhance movement competence and skill performance.

The highest mean is reflected in practicing proper body control when performing skills during PE classes ($\bar{x} = 4.06$), interpreted as high. This indicates that students demonstrate control and coordination when executing movement skills. According to Kananen et al. (2023), motor competence involves the ability to perform fundamental movement patterns with control and efficiency, which serves as the foundation for skill development and participation in physical activities. Also rated high is making an effort to master basic movement patterns such as running, jumping, and throwing ($\bar{x} = 4.02$). This finding is supported by Carballo-Fazanes et al. (2023), who asserted that structured physical activity programs significantly enhance fundamental movement skills, which are essential for sustained engagement in physical activity and the progression to more complex motor skills.



In a similar context, continuously practicing improving coordination and overall movement ability ($\bar{x} = 4.00$) also received a high rating. This connotes that students consistently engage in activities that enhance their motor competence. This result aligns with Martinez-Lopez et al. (2024), who found that motor competence is strongly associated with physical activity, health-related fitness, and overall development, emphasizing the importance of continuous practice in improving movement ability. Moreover, actively participating in movement drills that improve balance and coordination ($\bar{x} = 3.95$) is likewise perceived to a high extent. This reflects that students are involved in structured drills that target essential components of skill-related fitness. Ha et al. (2024) observed that motor competence, including balance and coordination, significantly predicts students' physical activity behavior and enjoyment, which are key factors in sustained participation.

Meanwhile, performing physical activities with focus and correct technique ($\bar{x} = 3.90$), although the lowest among the indicators, is still rated high, indicating that students generally demonstrate satisfactory attention to proper execution during physical activities. Proper technique is essential in maximizing performance and ensuring safe participation in physical activities. This is consistent with the study of Hill et al. (2024), who argued that motor competence plays a critical role in linking physical activity with broader outcomes such as physical performance, cognitive development, and overall health.

Table 2.1

Extent of Development of Students' Healthy Lifestyle Behaviors as perceived by Students in terms of Physical Activity Habits

I manifest the following:	$\bar{x}$	EoD	SD
1. try to maintain a regular habit of moving my body to stay healthy and strong.	4.05	H	0.75
2. set personal goals to stay active, such as doing daily stretches or learning a new movement skill.	3.98	H	0.74
3. stay active even when I'm not in school, like during weekends or vacations.	3.94	H	0.75
4. make time to do physical activities like playing, exercising, or walking on most days of the week.	3.93	H	0.81
5. choose to be physically active instead of just sitting, using my phone, or watching TV for long periods.	3.87	H	0.74
Composite	3.96	H	0.76

Note: n = 300

Table 2.1 presents the extent of development of students' healthy lifestyle behaviors in terms of physical activity habits. Overall, the results indicate a "high" level of development, as reflected in the composite mean of 3.96 (SD = 0.76). This suggests that students generally demonstrate consistent engagement in physical activities as part of their daily routines.

The highest mean is reflected in trying to maintain a regular habit of moving the body to stay healthy and strong ($\bar{x} = 4.05$), interpreted as high. This indicates that students are consciously making efforts to stay physically active. This finding supports Phipps et al. (2025), who emphasized that physical activity habits are formed when movement becomes a regular and routine behavior in daily life. Also rated high is setting personal goals to stay active, such as doing daily stretches or learning a new movement skill ($\bar{x} = 3.98$). This signifies that students are taking initiative in managing their own physical activity. Goal-setting plays an important role in habit formation, according to Cocca et al. (2025), who also noted that structured engagement in physical activities enhances motivation and supports the development of sustained exercise behaviors.

In a similar context, staying active even when not in school, such as during weekends or vacations ($\bar{x} = 3.94$), also received a high rating. This indicates that students extend their physical activity beyond the school environment. Such behavior reflects the internalization of active lifestyles, which is essential in sustaining long-term health practices (Mijarra Murillo et al., 2024). Moreover, making time to do physical activities like playing, exercising, or



walking on most days of the week ($\bar{x} = 3.93$) is likewise perceived to a high extent. This shows that students are able to incorporate physical activity into their regular schedules. Consistent engagement in such activities contributes to improved physical fitness and overall well-being, as supported by Perez (2025), who found that active students exhibit better skill-related fitness.

Meanwhile, choosing to be physically active instead of just sitting, using a phone, or watching TV for long periods ($\bar{x} = 3.87$), although the lowest among the indicators, is still rated high. This suggests that students generally prefer physical activity over sedentary behaviors, though it can still be improved. This implies that while positive tendencies toward activity exist, competing screen-based habits remain a significant influence on students' choices. It highlights the need for more intentional strategies that make physical activity more accessible, enjoyable, and socially engaging, so that active behaviors become the more automatic and sustained option in students' daily routines. Correspondingly, Mijarra Murillo et al. (2024) claimed that many adolescents still do not meet recommended physical activity levels, stressing the need to reinforce active choices in daily life.

Table 2.2

Extent of Development of Students' Healthy Lifestyle Behaviors as perceived by Students in terms of Nutrition and Wellness Behavior

I manifest the following:	$\bar{x}$	EoD	SD
1. eat meals that include vegetables, fruits, and healthy food choices.	4.26	VH	0.77
2. choose water or healthier drinks instead of soft drinks or sugary beverages.	4.11	H	0.78
3. eat breakfast regularly to help me focus and have energy during the day.	4.03	H	0.79
4. make healthy food choices, even when snacks are available.	4.00	H	0.74
5. pay attention to my health by getting enough sleep and eating on time.	3.88	H	0.80
Composite	4.05	H	0.78

Note: n = 300

Table 2.2 presents the extent of development of students' healthy lifestyle behaviors in terms of nutrition and wellness behavior. Overall, the results indicate a "high" level of development, as reflected in the composite mean of 4.05 (SD = 0.78). This suggests that students generally practice healthy eating habits and wellness behaviors that support their overall health and daily functioning.

The highest mean is reflected in eating meals that include vegetables, fruits, and healthy food choices ($\bar{x} = 4.26$), interpreted as very high. This indicates that students are consistently making nutritious food choices that contribute to their growth and well-being. This finding supports Taylor and Trejo Tello (2024), who emphasized that proper nutrition plays a vital role in maintaining energy levels, physical health, and overall wellness. Also rated high is choosing water or healthier drinks instead of soft drinks or sugary beverages ($\bar{x} = 4.11$). This suggests that students are becoming more mindful of their beverage choices, which is essential in maintaining proper hydration and preventing health risks associated with excessive sugar intake. This aligns with Zhang (2025), who found that improved hydration and reduced intake of high-calorie beverages lead to better physical health outcomes.

In a related context, eating breakfast regularly to help focus and have energy during the day ($\bar{x} = 4.03$) also received a high rating. This indicates that students recognize the importance of starting the day with adequate nutrition. This finding is consistent with Pengpid et al. (2025), who reported that skipping meals, particularly breakfast, is associated with poor dietary patterns and negative health outcomes among adolescents.

Furthermore, making healthy food choices, even when snacks were available ($\bar{x} = 4.00$) is likewise perceived to a high extent. This reflects that students can make conscious and informed decisions about their food intake even in the presence of less healthy options. This supports Bernardino et al. (2024), who highlighted the importance of strengthening students' understanding of healthy and unhealthy food choices to improve dietary behaviors. Meanwhile, paying attention to health by getting enough sleep and eating on time ($\bar{x} = 3.88$), although the lowest



among the indicators, is still rated high. This signifies that students are practicing basic wellness behaviors, although there is still room for improvement in maintaining consistent routines. Similarly, Hasan et al. (2025) emphasized that adequate sleep and proper dietary habits contribute to improved psychological well-being and reduced stress among students.

Table 2.3

Extent of Development of Students' Healthy Lifestyle Behaviors as perceived by Students in terms of Physical Fitness Level

I manifest the following:	$\bar{x}$	EoD	SD
1. feel good about my physical condition and try to improve or maintain it.	4.07	H	0.76
2. able to join most physical activities at school without difficulty.	3.97	H	0.78
3. feel that my flexibility, strength, or endurance has improved over time.	3.88	H	0.74
4. can move, run, or play sports without having a hard time catching my breath.	3.82	H	0.79
5. have enough strength and energy to do daily activities without getting tired quickly.	3.78	H	0.72
Composite	3.90	H	0.76

Note: n = 300

Table 2.3 presents the extent of development of students' healthy lifestyle behaviors in terms of physical fitness level. Overall, the results indicate a "high" level of development, as reflected in the composite mean of 3.90 (SD = 0.76). This suggests that students generally demonstrate a satisfactory level of physical fitness that enables them to perform daily activities and participate in school-based physical tasks effectively.

The highest mean is reflected in feeling good about physical condition and trying to improve or maintain it ($\bar{x} = 4.07$), interpreted as high. This means that students possess a positive perception of their physical fitness and are motivated to sustain or enhance it. This finding supports the statement of Galán Arroyo et al. (2024) that physical fitness is closely associated with self-perception and overall well-being among adolescents. Likewise, Leone et al. (2025) found that adolescents with higher fitness levels tend to demonstrate greater body satisfaction and positive self-image, reinforcing their motivation to maintain physical fitness. Also rated high is being able to join most physical activities at school without difficulty ($\bar{x} = 3.97$). This suggests that students have developed sufficient fitness levels to actively participate in school activities. This aligns with Bloch et al. (2025), who found that increased opportunities for physical activity in school settings contribute to improvements in students' aerobic fitness and participation. Similarly, Perez (2025) reported a strong positive relationship between physical activity levels and skill-related fitness components such as agility and balance, indicating that improved fitness enables students to engage more effectively in various physical activities.

In a similar sense, feeling that flexibility, strength, or endurance has improved over time ($\bar{x} = 3.88$) also received a high rating. This indicates that students are aware of their physical progress, reflecting the effectiveness of continuous engagement in physical activities. This is consistent with Perez (2025), who observed that regular participation in physical activities enhances skill-related fitness components such as strength, agility, and balance. This finding implies that when students recognize their own physical improvements, they are more likely to develop intrinsic motivation to remain active and sustain healthy behaviors. It also suggests that fostering self-awareness of progress can strengthen students' confidence and commitment to long-term physical activity, reinforcing the role of PE in promoting lifelong fitness habits. Moreover, being able to move, run, or play sports without having a hard time catching breath ($\bar{x} = 3.82$) is likewise perceived to a high extent. This suggests that students demonstrate adequate cardiorespiratory endurance, which is essential for sustaining physical activities. This result supports Liu et al. (2024), who identified cardiorespiratory endurance as a key indicator of overall physical fitness and functional capacity.

Meanwhile, having enough strength and energy to do daily activities without getting tired quickly ($\bar{x} = 3.78$), although the lowest among the indicators, is still rated high. In other words, students are generally capable of performing daily tasks efficiently, though there is still room for improvement in maintaining higher levels of energy and strength.



This finding is supported by Leone et al. (2025), who noted that higher levels of physical fitness are associated with improved physical performance and reduced risk of fatigue and health issues. In summary, the findings demonstrate that students have developed a positive level of physical fitness, as reflected in their ability to participate in activities, perceive improvements, and maintain their physical condition.

Table 3.

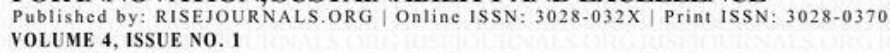
Relationship between the Perceived Implementation of PE Components and the Extent to which Developed Healthy Lifestyle Behavior

Extent of Implementation of PE Components	Healthy Lifestyle Behavior			
	Physical Activity Habits	Nutrition & Wellness Behavior	Physical Fitness Level	Overall Healthy Lifestyle Behavior
Movement Competency & Skill-Related Activities	$r_s = .437$ $p < .001$ (significant)	$r_s = .395$ $p < .001$ (significant)	$r_s = .475$ $p < .001$ (significant)	$r_s = .540$ $p < .001$ (significant)
Fitness Development	$r_s = .296$ $p < .001$ (significant)	$r_s = .232$ $p < .001$ (significant)	$r_s = .395$ $p < .001$ (significant)	$r_s = .384$ $p < .001$ (significant)
Understanding of Physical Activity and Its Benefits	$r_s = .413$ $p < .001$ (significant)	$r_s = .393$ $p < .001$ (significant)	$r_s = .425$ $p < .001$ (significant)	$r_s = .507$ $p < .001$ (significant)
Values & Character Development Through Physical Education	$r_s = .296$ $p < .001$ (significant)	$r_s = .336$ $p < .001$ (significant)	$r_s = .278$ $p < .001$ (significant)	$r_s = .373$ $p < .001$ (significant)
Students' Level of Engagement in Skills-Related Activities	$r_s = .400$ $p < .001$ (significant)	$r_s = .366$ $p < .001$ (significant)	$r_s = .524$ $p < .001$ (significant)	$r_s = .535$ $p < .001$ (significant)
Overall Extent of Implementation	$r_s = .491$ $p < .001$ (significant)	$r_s = .462$ $p < .001$ (significant)	$r_s = .556$ $p < .001$ (significant)	$r_s = .623$ $p < .001$ (significant)

Note: Data are not normally distributed; Spearman's Rank-Order Correlation at $\alpha = 0.05$; $n = 300$

Table 3 presents the relationship between the perceived implementation of PE components and students' healthy lifestyle behaviors. The results reveal that all PE components such as movement competency and skill-related activities, fitness development, understanding of physical activity and its benefits, values and character development, and students' engagement level have significant positive correlations with all dimensions of healthy lifestyle behavior (physical activity habits, nutrition and wellness behavior, and physical fitness level), as well as with overall healthy lifestyle behavior ($p < .001$). Notably, the overall extent of implementation shows the strongest relationship with overall healthy lifestyle behavior ($r_s = .623$). These findings imply that as the implementation of PE components improves, students are more likely to exhibit healthier lifestyle behaviors.

These results strongly support existing literature, which emphasizes that well-implemented PE programs contribute to improved health behaviors among students. For instance, Othman et al. (2025) and Malones (2024) postulated that effective PE instruction leads to better physical fitness and reduced sedentary lifestyles, aligning with the current results showing significant correlations across all variables.

[illegible]



7 vs. 10: $p = 0.014$ (significant)
8 vs. 9: $p = 0.013$ (significant)
8 vs. 10: $p = 0.936$ (not significant)
9 vs. 10: $p = 0.111$ (not significant)

Note: Data are not normally distributed; Kruskal-Wallis (H) Test and Mann-Whitney U Test at $\alpha = 0.05$; $n = 300$

Table 4 shows differences in students' healthy lifestyle habits when grouped by age, sex, and grade level. The results indicate that age does not have a significant effect on healthy lifestyle behaviors ($p = .129$). This connotes that students across different age groups exhibit relatively similar lifestyle habits. This finding contradicts several studies in the literature, such as those by Shirzadi et al. (2025) and Pengpid et al. (2025), which reported that healthy behaviors tend to decline with increasing age. However, the present result may imply that school-based interventions, such as consistent PE implementation, help stabilize lifestyle behaviors across age groups, minimizing expected age-related differences.

In contrast, sex shows a significant difference ($p = .015$), with male students demonstrating higher healthy lifestyle behavior scores than female students. This finding is consistent with local studies such as those by Perez (2025) and Pengpid et al. (2025), which reported that male students are generally more physically active and less likely to engage in unhealthy dietary behaviors compared to females. However, this result may vary across contexts, as some international studies (e.g., Erdoğan & Kavuran, 2024) found females to have better overall lifestyle behaviors. Thus, the current finding supports the notion that gender differences in health behavior are context-dependent, reinforcing the need for gender-responsive physical education programs.

Furthermore, grade level shows a significant difference ($p < .001$), indicating that students' lifestyle behaviors vary across grade levels. Post-hoc analysis revealed that the Grade 8 students differ significantly from Grades 7 and 9, while Grade 7 also differs from Grade 10. This pattern partially supports the literature suggesting that lifestyle behaviors change across grade levels, although not always in a linear manner. For instance, studies cited by Pengpid et al. (2025) indicate that older students may develop poorer habits, yet the present findings show fluctuations rather than a steady decline. This finding suggests that factors such as curriculum exposure, peer influence, and school environment may play a role in shaping behaviors at different grade levels. Additionally, de Almeida and Noll (2024) reported that adolescents' physical activity and lifestyle behaviors vary across developmental stages, with fluctuations influenced by environmental exposure, school context, and lifestyle transitions rather than following a strictly linear progression.

Table 5

Difference in Students' Perceptions of PE Components Implementation when Grouped according to Their Profile

Variables	N	$\bar{x}$	$\tilde{x}$	Comp. Value	P	Remark
Age						
12	23	3.94	3.88	$H = 1.64$ $df = 4$	.801	Not significant
13	88	4.00	3.98			
14	55	4.03	4.04			
15	96	4.00	4.00			
16	37	4.04	4.12			
Sex						
Male	122	4.09	4.08	$U = 8636$	.030	Significant
Female	177	3.95	3.92			
Year Level						
Grade 7	66	3.94	3.92	$H = 4.85$ $df = 3$	.183	Not significant
Grade 8	90	4.05	4.02			



Grade 9	68	3.97	3.96
Grade 10	75	4.05	4.12

Note: Data are not normally distributed; Kruskal-Wallis (H) Test and Mann-Whitney U Test at $\alpha = 0.05$; $n = 300$

Table 5 presents the differences in students' perceptions of PE components implementation and their engagement in skills-related activities when grouped by profile variables. The results indicate that age and grade level do not show significant differences ($p = .801$ and $p = .183$, respectively). This signifies that students across different ages and grade levels perceive the implementation of PE components in a relatively consistent manner. This implies that PE delivery may be uniform across groups, which can be seen as a strength in program implementation. This finding also supports the idea that structured curricula provide similar learning experiences regardless of student classification. Johannes et al. (2025) support this notion as they also found no significant differences between Grade 8 and Grade 9 students in their physical activity experiences, attributing this consistency to similar exposure to PE curricula and shared school environments.

Similarly, Russo et al. (2025) found that while minor variations may exist, students' perceptions of PE—particularly in terms of participation, collaboration, and enjoyment—tend to remain relatively consistent across middle school levels, especially when teaching approaches and learning environments are standardized. However, sex shows a significant difference ($p = .030$), with male students reporting higher perceptions of PE implementation and engagement compared to female students. This finding aligns with studies by Hermassi et al. (2024) and Rocliffe et al. (2023), which found that boys tend to report higher enjoyment, participation, and perceived competence in PE activities. This may be attributed to differences in interests, confidence levels, or social expectations related to physical activity. The result suggests that female students may experience lower engagement or perceived inclusivity, highlighting the need for more gender-sensitive and inclusive PE strategies.

From a theoretical perspective, these findings are again supported by SCT, particularly the role of environmental and social influences. Since perception is shaped by interaction with teachers, peers, and the learning environment, differences in engagement between male and female students may reflect variations in encouragement, modeling, and reinforcement within PE classes.

Conclusion

The findings indicate that Physical Education (PE) plays a significant role in shaping students' healthy lifestyle behaviors by fostering physical competence, health awareness, and positive values through structured and engaging learning experiences. The strong relationship between PE components and healthy lifestyle practices suggests that effective implementation contributes not only to physical development but also to the formation of sustainable health-related behaviors. However, variations across sex and grade level imply that students' experiences and needs differ, highlighting the importance of inclusive and responsive PE strategies. Overall, the study affirms that quality PE extends beyond physical instruction and serves as an essential foundation for developing holistic, health-conscious, and lifelong active learners.

Recommendations

Based on the findings and conclusions drawn, the following are hereby recommended:

For Students

1. Practice specific movement skills regularly, such as jogging or brisk walking for endurance, basic stretching routines for flexibility, and simple bodyweight exercises like squats, lunges, and push-ups to improve strength and coordination, at least 3–5 times a week.



2. Engage in consistent and enjoyable fitness activities beyond PE classes, such as cycling, dancing, skipping rope, or participating in community or school-based sports, for at least 30 minutes daily to help sustain physical fitness and build long-term healthy habits.
3. Maintain healthy lifestyle habits, including regular exercise, proper nutrition, and adequate rest.

For Teachers

4. Provide continuous individualized feedback to sustain students' improvement in movement and motor skills.
5. Integrate consistent and varied fitness activities that maintain students' strength, endurance, and flexibility.
6. Utilize engaging, student-centered strategies to sustain active participation in skills-related activities.
7. Promote inclusive and engaging PE activities that consistently support active participation among all students.

School Heads

8. Sustain high-quality PE implementation by continuously providing teachers with targeted training and adequate resources for movement competency and skills development.
9. Strengthen structured fitness programs and regularly monitor students' progress to maintain high levels of physical fitness.

References

- Almanon, L. G., Lampedario, K. D., Abelardo, J. I., Galigao, A. K. M., Amba, N. D., & Barrios, A. M. (2024). Evaluating the effectiveness of K–12 physical education curriculum among adolescent students of Bai Saripinang National High School: A case study. *International Journal for Multidisciplinary Research*, 6(1).
<https://doi.org/10.36948/ijfmr.2024.v06i01.11665>
- Aygun, Y., Boke, H., Yagin, F. H., Tufekci, S., Murathan, T., Gencay, E., ... & Ardigò, L. P. (2024). Emotional and social outcomes of the teaching personal and social responsibility model in physical education: A systematic review and meta-analysis. *Children*, 11(4), 459. <https://doi.org/10.3390/children11040459>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.
- Becker, M. H., & Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health Education Monographs*, 2(4), 328–335. <https://doi.org/10.1177/109019817400200403>
- Bernardino, M., Sison, N. K. D., Bruce, J. C., Tiribelli, C., & Rosso, N. (2024). Understanding and exploring the food preferences of Filipino school-aged children through free drawing as a projective technique. *Nutrients*, 16(23), 4035. <https://doi.org/10.3390/nu16234035>
- Bloch, M., Cordovil, R., Rodrigues, L. P., Martins, C., Braga, M. L., Vale, S., Proença, R., Brito, J., Guilherme, J., Neto, C., Seabra, A., & Costa, J. A. (2025). The impact of a school-based physical activity program on children's movement Behaviors, aerobic fitness, and motor competence: A follow-up study. *Frontiers in Sports and Active Living*, 7, Article 1541862. <https://doi.org/10.3389/fspor.2025.1541862>
- Bosque, R. A. (2025). Promotion of healthy habits in adolescents: An interdisciplinary study on motivation towards physical education, Mediterranean diet and physical activity. *Behavioral Sciences*, 15(6), 778. <https://doi.org/10.3390/bs15060778>



Booth, J. N., Ness, A. R., Joinson, C., Tomporowski, P. D., Boyle, J. M., Leary, S. D., & Reilly, J. J. (2023). Associations between physical activity and mental health and behaviour in early adolescence. *Mental health and physical activity*, 24, 100497. <https://doi.org/10.1016/j.mhpa.2022.100497>

Burton, A. M., Cowburn, I., Thompson, F., Eisenmann, J. C., Nicholson, B., & Till, K. (2023). Associations between motor competence and physical activity, physical fitness and psychosocial characteristics in adolescents: A systematic review and meta-analysis. *Sports medicine*, 53(11), 2191-2256. <https://doi.org/10.1007/s40279-023-01886-1>

Cachón-Zagalaz, J., Carrasco-Venturelli, H., Sánchez-Zafra, M., & Zagalaz-Sánchez, M. L. (2023). Motivation toward physical activity and healthy habits of adolescents: A systematic review. *Children*, 10(4), 659. <https://doi.org/10.3390/children10040659>

Cagas, J. Y., Mallari, M. F. T., Torre, B. A., Kang, M. D. P., Palad, Y. Y., Guisihan, R. M., ... Capio, C. M. (2022). Results from the Philippines' 2022 report card on physical activity for children and adolescents. *Journal of Physical Activity and Health*. <https://doi.org/10.1016/j.jesf.2022.10.001>

Camacho-Sánchez, R., Manzano-León, A., Rodríguez-Ferrer, J. M., Serna, J., & Lavega-Burgués, P. (2023). Game-based learning and gamification in physical education: a systematic review. *Education Sciences*, 13(2), 183. <https://doi.org/10.3390/educsci13020183>

Campoamor-Olegario, L., Camitan IV, D. S., & Guinto, M. L. (2025). Beyond the pandemic: physical activity and health behaviors as predictors of well-being among Filipino tertiary students. *Frontiers in Psychology*, 16, 1490437. <https://doi.org/10.3389/fpsyg.2025.1490437>

Carballo-Fazanes, A., Díaz-Pereira, M. P., Fernández-Villarino, M. A., Abelairas-Gómez, C., & Rey, E. (2023). Physical activity in kindergarten, fundamental movement skills, and screen time in Spanish preschool children. *Psychology in the Schools*, 60(9), 3318-3328. <https://doi.org/10.1002/pits.22925>

Chang, Z., Liu, X., & Wang, L. (2024). Physical activity, recreational screen time, and depressive symptoms in Chinese adolescents during the COVID-19 pandemic: A three-wave longitudinal study. *Child and Adolescent Psychiatry and Mental Health*, 18, 705. <https://doi.org/10.1186/s13034-024-00705-3>

Cocca, A., Cocca, M., Greier, K., & Ruedl, G. (2025). Structured and unstructured physical activity habits: A study on adolescents' motivational characteristics for exercising. *International Journal of Adolescence and Youth*, 30(1), Article 2446462. <https://doi.org/10.1080/02673843.2024.2446462>

Dacay, N. J. B., Rañon, J. G., & Culajara, C. L. (2024). Examining the health-promoting lifestyle of college students: quantitative analysis. *American Journal of Human Psychology*, 2(1). <https://doi.org/10.54536/ajhp.v2i1.2823>

de Almeida, A. A., & Noll, M. (2024). Physical activity and lifestyle behaviors in children and adolescents. *Children*, 11(11), 1403. <https://doi.org/10.3390/children11111403>

Drenowatz, C., Ferrari, M., Greier, K., & Hinterkörner, M. (2021). Relative Age Effect in Physical Fitness during the Elementary School Years <https://doi.org/10.3390/pediatric13020040>

Erdoğan, R., & Kavuran, K. (2024). Examination of healthy lifestyle behaviors of high school students. *CBU-SBED*, 11(2), 241-253. <https://doi.org/10.34087/cbusbed.1398792>



Estrela, M., Leitaó, C., Neto, V., Martins, B., Santos, J., Branquinho, A., ... & Herdeiro, M. T. (2025). Educational interventions for the adoption of healthy lifestyles and improvement of health literacy: a systematic review. *Public Health*, 245, 105788. <https://doi.org/10.1016/j.puhe.2025.105788>

Gabunilas, J. M. C. M., Cruz, J. F., & Favila, S. A. (2024). Intents and actualities of health optimizing physical education (HOPE) curriculum implementation: A sequential exploratory study. *International Journal of Disabilities, Sports & Health Sciences*, 7(4), 834–841. <https://doi.org/10.33438/ijdshts.1473019>

Galán-Arroyo, C., Mayordomo-Pinilla, N., Castillo-Paredes, A., & Rojo-Ramos, J. (2024). Self-perceived physical fitness as a moderating variable in the relationship between motor self-efficacy and physical self-concept in school-age physical education students. *Frontiers in Psychology*, 15, Article 1462333. <https://doi.org/10.3389/fpsyg.2024.1462333>

García-Hermoso, A., Izquierdo, M., & Ramírez-Vélez, R. (2022). Tracking of physical fitness levels from childhood and adolescence to adulthood: a systematic review and meta-analysis. *Translational pediatrics*, 11(4), 474. <https://doi.org/10.21037/tp-21-507>

Gautam, L., Thapa, M., Pokhrel, P. et al. (2024). Overweight and obesity among adolescents in Nagarjun municipality, Nepal: prevalence and associated factors. *BMJ Public Health*, 2(2), e001675. <https://doi.org/10.1136/bmjph-2024-001675>

González Moreno, A., & Molero Jurado, M. D. M. (2023, December). Healthy lifestyle in adolescence: Associations with stress, self-esteem and the roles of school violence. In *Healthcare* (Vol. 12, No. 1, p. 63). MDPI. <https://doi.org/10.3390/healthcare12010063>

González Moreno, A., & Molero Jurado, M. M. (2024). Healthy lifestyle in adolescence: Associations with stress, self-esteem and the roles of school violence. *Healthcare*, 12(1), 63. <https://doi.org/10.3390/healthcare12010063>

González-Hernández, J., Romero-Rodríguez, J. M., & Pérez-Mármol, J. M. (2024). Developing values through physical education: A mixed methods study on adolescents' prosocial behaviors. *International Journal of Environmental Research and Public Health*, 21(2), 456. <https://doi.org/10.3390/ijerph21020456>

Grady, C. L., Murtagh, E., Ng, K., García Bengoechea, E., & Woods, C. B. (2025). Communicating physical activity messages with adolescents: What works? A scoping review with stakeholder consultation. *International Journal of Behavioral Nutrition and Physical Activity*, 22(1), 20. <https://doi.org/10.1186/s12966-025-01717-8>

Gula, L. P. (2024). Health and skill-related physical fitness tests: An assessment in determining the students' physical fitness level. *Retos*, 58, 1014-1021. <https://doi.org/10.47197/retos.v58.106851>

Ha, T., Fan, X., & Dauenhauer, B. (2024). Physical activity enjoyment, physical activity behavior, and motor competence in low-income elementary school students. *Education Sciences*, 14(6), 629. <https://doi.org/10.3390/educsci14060629>

Haapala, E. A., Leppänen, M. H., Kosola, S., Appelqvist-Schmidlechner, K., Kraav, S. L., Jussila, J. J., ... & Lakka, T. A. (2025). Childhood lifestyle behaviors and mental health symptoms in adolescence. *JAMA network open*, 8(2), e2460012. <https://doi.org/10.1001/jamanetworkopen.2024.60012>



- Hasan, T., Majumder, N., Sultana, M., Shohag, M. M. H., & Tithi, N. S. (2025). Association of stress with nutrition literacy, eating behavior, and physical activity: A cross-sectional study of university students in Bangladesh. *PLoS One*, 20(6), e0326269. <https://doi.org/10.6019/s-bsst2078>
- Hermassi, S., Ketelhut, S., Konukman, F., Sellami, M., Al-Marri, S., Nigg, C. R., & Schwesig, R. (2024). Comparative analysis of physical activity, performance-related health, and academic achievements in 11-to-13-year-old schoolchildren in Qatar. *Healthcare*, 12(5), 588. <https://doi.org/10.3390/healthcare12050588>
- Hill, P. J., McNarry, M. A., Mackintosh, K. A., Murray, M. A., Pesce, C., Valentini, N. C., ... & Barnett, L. M. (2024). The influence of motor competence on broader aspects of health: A systematic review of the longitudinal associations between motor competence and cognitive and social-emotional outcomes. *Sports Medicine*, 54(2), 375-427. <https://doi.org/10.1007/s40279-023-01939-5>
- Hnidková, L., Bakalár, P., Magda, R., Kolarčík, P., Kopčáková, J., & Boberová, Z. (2024). Adolescents' health literacy is directly associated with their physical activity but indirectly with their body composition and cardiorespiratory fitness: Mediation analysis of the Slovak HBSC study data. *BMC Public Health*, 24(1), 2762. <https://doi.org/10.1186/s12889-024-20227-z>
- Jadwiszczak, M., Wawrzyniak, S., & Pezdek, K. (2025). More than movement: A systematic review of moral and social development in adolescents' physical education. *BMC Public Health*, 25, 2076. <https://doi.org/10.1186/s12889-025-23169-2>
- Johannes, C., Titus, S., & Young, M. (2025). Examining the Perceived Benefits of Structured and Unstructured Physical Education Lessons among high School Learners in Cape Town. *The Open Public Health Journal*, 18(1). <https://doi.org/10.2174/0118749445390985250602094532>
- Kasanen, M., Laukkanen, A., Niemistö, D., Kotkajuuri, J., Luukkainen, N. M., & Sääkslahti, A. (2023). Do fundamental movement skill domains in early childhood predict engagement in physical activity of varied intensities later at school age? A 3-year longitudinal study. *Journal of Motor Learning and Development*, 11(3), 424-443. <https://doi.org/10.1123/jmld.2023-0004>
- Khairuddin, K., Masun, M., Handayani, S. G., & Jaslindo, J. (2025). The influence of health education through physical education on the healthy living behavior of elementary school students. *Cakrawala Pendidikan*, 44(1), 238-247. <https://doi.org/10.21831/cp.v44i1.78625>
- Leone, M., Thibault, I., Bui, H. T., Kalinova, E., Lemoyne, J., Gagnon, D., Larivière, G., & Allisse, M. (2025). The protective role of physical fitness level against obesity and body dissatisfaction in French-Canadian youth. *Journal of Functional Morphology and Kinesiology*, 10(1), 46. <https://doi.org/10.3390/jfmk10010046>
- Li, Y., Chen, S., & Zhang, T. (2023). Social influences and adolescents' physical activity participation: The role of peer support and self efficacy. *Frontiers in Psychology*, 14, 1198456. <https://doi.org/10.3389/fpsyg.2023.1198456>
- Liu, D., Huang, Z., Liu, Y., & Zhou, Y. (2024). The role of fundamental movement skills on children's physical activity during different segments of the school day. *BMC Public Health*, 24, Article 1283. <https://doi.org/10.1186/s12889-024-18769-3>
- Lobo, J., & Dimalanta, G. (2024). Individual interest of students in physical education and school engagement in fostering physical culture inside the campus: The case of two prominent local colleges in Pampanga, Philippines. *Journal on Efficiency and Responsibility in Education and Science*, 17(1), 78-90.



<https://doi.org/10.7160/eriesj.2024.170107>

Longakit, J., Lobo, J., Tagare, R. J., Aliser, J., Colobio-Englatiera, B., Panganiban, T., Aquino, J. M., Rodriguez, D., Gazali, N., & Kurnaz, M. (2024). Investigating the effect of a 12-week game skill-based activity in physical education to enhance movement competence of students: A randomized trial. *Pedagogy of Physical Culture and Sports*, 28(6). <https://doi.org/10.15561/26649837.2024.0607>

Malones, E. R. G. (2024). WVSU's physical activity for health and fitness and the global action plan for physical activity. *WVSU Research Journal*, 13(1), 30–46. <https://doi.org/10.59460/wvsurjvol13iss1pp30-46>

Martinez-Lopez, N., Estevan, I., Candia-Cabrera, P., Aguilar-Farias, N., & Carcamo-Oyarzun, J. (2024). Motor competence and compliance with physical activity recommendations in Chilean schoolchildren. *Frontiers in psychology*, 15, 1371766. <https://doi.org/10.3389/fpsyg.2024.1371766>

Mavilidi, M. F., Pesce, C., Mazzoli, E., Bennett, S., Paas, F., Okely, A. D., & Howard, S. J. (2023). Effects of cognitively engaging physical activity on preschool children's cognitive outcomes. *Research quarterly for exercise and sport*, 94(3), 839-852. <https://doi.org/10.1080/02701367.2022.2059435>

Michael, S. L., Wright, C., Mays Woods, A., van der Mars, H., Brusseau, T. A., Stodden, D. F., ... & Pfledderer, C. D. (2021). Rationale for the essential components of physical education. *Research quarterly for exercise and sport*, 92(2), 202-208. <https://doi.org/10.1080/02701367.2020.1854427>

Mijarra-Murillo, J.-J., Polo-Recuero, B., Solera-Alfonso, A., Arribas-Romano, A., García-González, M., Laguarda-Val, S., & Delfa-de-la-Morena, J. M. (2024). Leisure time habits and levels of physical activity in children and adolescents. *Children*, 11(7), 883. <https://doi.org/10.3390/children11070883>

Mitić, P. (2024). Enhancing adolescent physical fitness and well-being: A school-based high-intensity interval training program. *Journal of Functional Morphology and Kinesiology*, 9(4), Article 279. <https://doi.org/10.3390/jfmk9040279>

Nugroho Putro, B., Nurkadri, Sahabuddin, A. A. N., Setyawan, H., Gusliana, H. B., Harmanto, A., ... Tafuri, F. (2024). Examining physical education learning outcomes of senior high school students: The impact of gender and learning frequency. *Retos*, 60, 393–404. <https://doi.org/10.47200/retos.v60.2024.17097>

Othman, J., Abdullah, B., Amir, S., & Norjali Wazir, M. R. W. (2025). Systematic literature review of the implementation levels of teaching and learning physical education and its effects on students' physical fitness. *International Journal of Research and Innovation in Social Science*, 8(5), 2581–2597. <https://doi.org/10.47772/IJRISS.2025.903SEDU0200>

Pacadaljen, R. E. (2024). Integrating culturally-oriented activities in physical education: Analysis on the incidental learning and appreciation of learners to Philippine culture. *Environment and Social Psychology*, 9(10), 26–35. <https://doi.org/10.59429/esp.v9i10.2698>

Palma, F. P. III, Rivera, R. A. C., Belediano-Ellesorio, J. L., Oh, P. M. A., Doruelo, M. E. Y., Lopez, G. A. D., Alegarbes, R. R., & Solidarios, J. T. (2024). Assessing health-related physical fitness among Filipino junior high school students: Implications for tailored fitness programs. *Psychology and Education*, 23(9), 1198–1206. <https://doi.org/10.5281/zenodo.13341203>

Panganiban, T. D., Manalo, J., Precilla, J., & Desepeda, A. (2025). Assessing the significance of social values in pre-service physical education teachers' participation in Philippine traditional games. *Community and Social Development Journal*, 26(1), 52–64. <https://doi.org/10.57260/csdj.2025.268554>



Peng, B., Chen, W., Wang, H., & Yu, T. (2025). How does physical exercise influence self-efficacy in adolescents? A study based on the mediating role of psychological resilience. *BMC Psychology*, 13, 285.

<https://doi.org/10.1186/s40359-025-02529-y>

Pengpid, S., Peltzer, K., Nguyen-Thi, T. T., & Jayasvasti, I. (2025). Meal skipping among adolescents in the Philippines: Prevalence, associated factors, and associations with dietary, mental health, and health risk behavioural outcomes. *Nutrition Journal*, 24, Article 58. <https://doi.org/10.1186/s12937-025-01118-4>

Perez, C. M. Q. (2025). Physical activity level and skill-related fitness among junior high school students in a private Catholic basic education institution. *International Multidisciplinary Journal of Research for Innovation, Sustainability and Excellence*, 2(7), 161–169. <https://doi.org/10.5281/zenodo.15810119>

Phipps, D. J., Camitan, D. S., & Guinto, M. L. M. (2025). Predicting physical activity intentions, habits, and action plans in Finnish parent–child dyads. *Scandinavian Journal of Medicine & Science in Sports*, 35(2), e70028.

<https://doi.org/10.1111/sms.70028>

Rahayu, A. (2025). A self-efficacy–based educational intervention to promote physical activity and healthy eating among adolescents. *Journal of Physical Education and Sport*, 25(11), 2361–2372.

<https://doi.org/10.1016/j.jbct.2025.100568>

Ramos-Campo, D. J., & Clemente-Suárez, V. J. (2024). The correlation between motor skill proficiency and academic performance in high school students. *Behavioral Sciences*, 14(7), 592. <https://doi.org/10.3390/bs14070592>

Redublado, H. J. C., Velez, L. C., Serano, A. V., & Kilag, O. K. T. (2024). Enhancing physical activity and movement skills in youth: A systematic review of school-based interventions. *International Multidisciplinary Journal of Research for Innovation, Sustainability, and Excellence*, 1(3). <https://doi.org/10.5281/zenodo.11045531>

Rocha, R. Z., Ribeiro, F. S., Romig, I. D. K., Arrieira, H. O., da Cunha, G. O. K., Gaya, A. R., Pinheiro, E. D. S., & Bergmann, G. G. (2025). Effects of implementing 15-minute physical exercise sessions during physical education classes on physical fitness and anthropometric indicators in rural adolescents. *Journal of Physical Activity and Health*, 22(7), 800–810. <https://doi.org/10.1123/jpah.2024-0720>

Rocliffe, P., O’Keeffe, B. T., Sherwin, I., Mannix-McNamara, P., & MacDonncha, C. (2023). The impact of different levels of typical school provision of physical education, physical activity and sports on adolescent physical activity behaviors, health and wellbeing. *Youth*, 3(4), 1330–1362. <https://doi.org/10.3390/youth3040084>

Rojo-Ramos, J., Franco-García, J. M., Mayordomo-Pinilla, N., Pazzi, F., & Galán-Arroyo, C. (2023, June). Physical Activity and Emotional Regulation in Physical Education in Children Aged 12–14 Years and Its Relation with Practice Motives. In *Healthcare* (Vol. 11, No. 13, p. 1826). MDPI. <https://doi.org/10.3390/healthcare11131826>

Russo, G., Masini, A., Dallolio, L., & Ceciliani, A. (2025). *Primary and middle school students’ views on inclusive physical education: Perceptions, practices, and future directions*. *Heliyon*, 11 (1), e41232.

<https://doi.org/10.1016/j.heliyon.2024.e41232>

Rutkauskaitė, R., Baravykienė, J., Maciulevičienė, E., & Sukys, S. (2024). Physical literacy of physical education teachers and the application of physical literacy components during physical education classes. *Education Sciences*, 14(12), Article 1391. <https://doi.org/10.3390/educsci14121391>

Sârbu, E. A., Marici, M., Bostan, S., & Gavrila-Ardelean, L. (2023). Physical and recreational activities, sedentary screen time, time spent with parents and drug use in adolescents. *International Journal of Environmental Research*



<https://doi.org/10.3390/ijerph20021434>

Shirzadi, S., Arab Borzu, Z., Jahanfar, S., Alvani, S., Balouchi, M., Jalali Gerow, H., Zarvekanloo, S., & Seraj, F. (2025). *A comparative study of healthy lifestyle behaviors and related factors among Iranian male and female adolescents: A cross-sectional study*. BMC Public Health, 25, 558. <https://doi.org/10.1186/s12889-025-21688-6>

Srinivasan, J. D. (2025). The Role of Physical Education in Promoting Lifelong Fitness: A Review of Contemporary. *AG Volumes*, 41-49. <https://doi.org/10.36676/iss.v1.i1.05>

Taylor, L., & Trejo Tello, K. (2024). Exploring the relationship between wellness behaviors and burnout amongst university faculty and staff. *Journal of Healthy Eating and Active Living*, 4(3), 162–173. <https://doi.org/10.51250/jheal.v4i3.96>

Tingelstad, L. M., Raastad, T., Myklebust, G., Gjerstad Andersen, T. E., Solstad, B. E., Bugten, J. B., & Luteberget, L. S. (2025). Age and Sex Differences in Physical Performance Among Adolescent Team Sport Athletes. *European Journal of Sport Science*, 25(5), e12284. <https://doi.org/10.1002/ejsc.12284>

World Health Organization. (2020). *Guidelines on physical activity and sedentary behavior*. World Health Organization.

World Health Organization. (2023). *Assessing national capacity for the prevention and control of noncommunicable diseases: report of the 2021 global survey*. World Health Organization. <https://doi.org/10.2471/b09488>

Zhang, Y. (2025). Impact of dietary habit changes on college students' physical health: Insights from a comprehensive study. *Scientific Reports*, 15, 9953. <https://doi.org/10.1038/s41598-025-94439-7>

Zou, Y., Liu, S., Guo, S., Zhao, Q., & Cai, Y. (2023). Peer support and exercise adherence in adolescents: the chain-mediated effects of self-efficacy and self-regulation. *Children*, 10(2), 401. <https://doi.org/10.3390/children10020401>