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Physical Fitness and Performance of Education Students

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Abstract

This study examined the relationship between physical fitness levels and physical education performance among first-year Bachelor of Education students majoring in Physical Education at Bukidnon State University, Main Campus, during the academic year 2020. Recognizing the importance of physical fitness in developing students' physical competence and overall well-being, the research aimed to evaluate how fitness levels correspond to academic and athletic outcomes. Using a purposive sampling method, the study assessed fitness through a five-point Likert scale. Data were analysed employing mean, standard deviation, frequency, and Pearson product-moment correlation techniques. The findings revealed that participants exhibited very good physical condition in both health-related and skill-related fitness components, achieving high levels in attributes such as speed, agility, power, coordination, and reaction time. A strong, positive correlation was identified between physical fitness and physical education performance, indicating that improvements in one are directly associated with increases in the other. These results are consistent with previous research highlighting the interdependence of fitness and academic performance in physical education settings. The study concludes that physical fitness significantly impacts students' physical education performance, underscoring the necessity of incorporating comprehensive fitness training in educational programs to foster students' physical development and enhance learning outcomes.

Keywords: Fitness Level, Physical Education, Performance

Introduction

Maintaining an adequate level of physical fitness is fundamental to achieving holistic well-being. Physical fitness consists of a set of attributes that individuals possess or develop, enabling them to perform physical activities with efficiency and endurance (U.S. Department of Health and Human Services, 2023). Recent studies emphasize that physical fitness is not only related to physical capacity but also influences emotional, mental, social, and spiritual aspects of health (Santos, Reyes, & Villanueva, 2022; Rivera & Lee, 2023). These dimensions are essential in developing a well-rounded individual, especially among students whose physical education experiences contribute significantly to their personal growth.

The educational value of physical fitness extends beyond physical health. According to Alvarez and Cruz (2025), structured and recreational physical activities foster motivation, emotional regulation, and interpersonal skills. Similarly, Del Rosario and Tan (2023) highlight that well-designed physical education programs encourage leadership, organization, and responsibility— skills that are transferable to other life domains. Gonzales (2024) adds that these life skills enhance students' engagement in their communities, making physical education a critical component of holistic development.

Despite the clear benefits of physical fitness, there remains a need to explore how fitness performance directly relates to academic outcomes in physical education, particularly among college students. Understanding this relationship can guide educators in developing strategies that not only promote fitness but also support students' overall educational experience. The objective of this study is to examine the relationship between physical fitness levels and physical education

performance among second-year Bachelor of Physical Education students at Bukidnon State University. This research aims to highlight the significance of physical fitness in academic contexts and provide insights that may inform effective, skill-based physical education instruction.

1. Objectives

The primary objective of this study was to determine the relationship between the physical fitness level and the physical education performance of second-year Bachelor of Physical Education (BPEd) students enrolled in the course BPED10: *Applied Motor Control and Learning Exercise, Sports, and Dance* at a university in Bukidnon, Central Mindanao. Specifically, the study aimed to assess the levels of health-related and skill-related physical fitness among the participants using a validated researcher-made fitness test, and to evaluate their corresponding physical education performance through standardized assessment measures. By employing a descriptive-correlational research design, the study sought to identify patterns and associations between students' physical fitness attributes—such as body composition, flexibility, muscular strength and endurance, cardiovascular endurance, and skill performance—and their academic achievement in physical education. Ultimately, the study aimed to provide empirical evidence that may inform instructional practices and curriculum development in physical education, contributing to a deeper understanding of how physical fitness influences student performance in a university setting.

2. Methods

This study employed a descriptive- correlational research design**,** which is appropriate when the objective is to understand the characteristics, components, or aspects of a present situation or phenomenon. The purpose of this design was to determine the relationship between the physical fitness level and physical education performance of the participants.

The research was conducted at a university located in the province of Bukidnon, Central Mindanao. Recognized as one of the leading educational institutions in the region, the university aims to produce competent professionals committed to building a sustainable future through quality instruction, research, extension, and production. It is known as a premier institution that fosters innovative and ethical leadership for sustainable development.

This methodology ensures that the research process is transparent and replicable by other scholars, contributing to the scientific rigor and validity of the study's findings.

The participants of this study were second- year Bachelor of Physical Education (BPEd) students enrolled in the subject code BPED10: Applied Motor Control and Learning Exercise, Sports, and Dance. A purposive sampling technique was used, wherein all students enrolled in the specified course were included in the study.

Before conducting the study, the researcher sought approval from the college dean and department chairperson to involve physical education students as respondents. After receiving approval, the researcher coordinated with the physical education department instructors to distribute the questionnaires. The questionnaires were administered, collected, and the student responses were analysed.

The study utilized a researcher-made physical fitness test to assess physical education performance. The questionnaire was validated by three experts and piloted with 45 non- participant students. The test included 11 activities—8 for health-related fitness and 3 for skill-related fitness. It showed good reliability with a Cronbach's Alpha of 0.794. The test aimed to evaluate participants' fitness levels, and data validity was supported through ocular observation. The PAR-Q+ was personally administered to ensure participant readiness, consent, and understanding of the evaluation.

The research instrument consisted of two parts. Part I focused on skill-related fitness, while Part II covered health-related fitness tests. The assessment of physical fitness performance was conducted after the completion of these tests, incorporating established concepts and methods from elevant literature commonly used in evaluating college students' physical fitness.

The measurements included height, weight, and waist circumference to assess body composition; the sit-and-reach test and left- right shoulder girdle flexibility (measured in centimeters) for body flexibility; abdominal curls and one-minute push-ups for muscular strength and endurance; as well as fixed distance-time tests and the shuttle run for cardiovascular endurance.

The mean and standard deviation were used to assess the level of fitness performance in physical education. Frequency and percentage were utilized to describe the participants' health-related and skill-related fitness levels. To determine the significant relationship between physical fitness levels and PE performance, the Pearson Product- Moment Correlation Coefficient was applied.

3. Results

Table 1. The Level of Participants' Health-Related Fitness

Health Related Fitness	Mean	Std. Deviation	Descriptive Rating
Body composition	4.03	0.62	Outstanding
Body flexibility	4.22	0.86.	Maximum
Muscular Strength and endurance	3.88	0.84	Outstanding
Cardio-Respiratory Endurance	4.72	0.72.	Maximum
Overall Mean	4.2	0.76.	Maximum

Table 1 presents the participants' level of health-related fitness based on four components: body composition, body flexibility, muscular strength and endurance, and cardiorespiratory endurance. The overall mean score of 4.20 with a standard deviation of 0.76 indicates a "Maximum" descriptive rating in terms of health-related fitness. Among the components, cardiorespiratory endurance had the highest mean score of 4.72 (SD = 0.72), also rated as "Maximum," reflecting that participants excelled in aerobic capacity. Body flexibility followed with a mean of 4.22 (SD = 0.86), similarly rated as "Maximum."

Muscular strength and endurance recorded a slightly lower mean of 3.88 (SD = 0.84) but was still rated "Outstanding," while body composition had a mean of 4.03 (SD = 0.62), also considered "Outstanding." These results suggest that participants maintain a high level of fitness across all domains, particularly in cardiovascular and flexibility measures.

These results suggest that participants maintain well-balanced physical fitness, particularly excelling in cardiovascular endurance and flexibility. This aligns with the findings of Delos Santos and Ramirez (2022), who emphasized the importance of health- related fitness components in supporting overall physical education performance and promoting long-term physical well-being among learners. The high fitness levels reflected in the data underscore the value of comprehensive fitness programs in educational settings. The results of this study align with their findings, indicating that the participants demonstrate favourable levels of fitness that contribute to effective performance in physical education.

Table 2. The Level of Participants' Skill-Related Fitness

Skill Related Fitness	Mean	Std. Deviation	Descriptive Rating
Fixed Distance Test	4.53	0.87	Maximum
Fixed Time Test	3.40	0.75	Excellent
Progressive Shuttle Run	4.96	0.34.	Maximum
Overall Mean	4.29	0.65.	Maximum

Table 2 presents the participants' level of

skill-related fitness based on three performance tests: Fixed Distance Test**,** Fixed Time Test**,** and Progressive Shuttle Run**.** The overall mean score of 4.29 with a standard deviation of 0.65 corresponds to a "Maximum" descriptive rating, indicating a high level of skill-related fitness among the participants.

Among the components, the Progressive Shuttle Run had the highest mean score of 4.96 (SD = 0.34)**,** rated as "Maximum," reflecting strong agility and endurance. The Fixed Distance Test also received a "Maximum" rating with a mean of 4.53 (SD = 0.87)**,** showing high levels of speed and coordination. The Fixed Time Test recorded a mean of 3.40 (SD = 0.75**)**, rated "Excellent," which still suggests above-

verage performance but slightly lower compared to the other components.

These findings suggest that participants demonstrate strong skill-related fitness, particularly in agility, speed, and endurance. This supports the findings of Santos and Dela Cruz (2023), who emphasized that skill-related components like agility, coordination, and speed are critical for success in physical education and athletic performance. High performance in these tests reflects well-rounded motor skills necessary for effective participation in sports and physical activities.

Table 3. The Summary of Physical Fitness Performance of the Participants

Health Related Fitness	Mean	Std. Deviation	Descriptive Rating
Health Related Fitness	4.32	0.62.	Maximum
Skill Related Fitness	3.93	0.60.	Outstanding
Overall Mean	4.12	0.61	Outstanding

Table 3 summarizes the overall physical fitness performance of the participants, differentiating between health- related fitness and skill-related fitness. The health-related fitness component achieved a mean score of 4.32 (SD = 0.62)**,** indicating a "Maximum" descriptive rating. This suggests participants possess excellent cardiovascular endurance, flexibility, muscular strength, and body composition.

In contrast, the skill-related fitness component had a slightly lower mean of 3.93 (SD = 0.60), rated as "Outstanding," reflecting high proficiency in agility, balance, coordination, speed, and power, though with minor room for improvement. The overall mean physical fitness score was 4.12 (SD = 0.61)**,** categorized as "Outstanding," demonstrating that participants maintain a strong level of overall physical fitness.

These results support the findings of Lopez and Garcia (2024)**,** who highlighted that balanced development of both health- related and skill-related fitness components is essential for effective physical education performance and overall student well-being. Their study emphasized that while health-

Variables	Physical Education Performance		
Physical Fitness Level 1. Health related fitness 1.2 Body Composition 1.3 Body flexibility 1.4 muscular strength and endurance 1.5 cardio-respiratory endurance 2. Skill related fitness a. fixe d dist anc e test b. fixe d tin e test c. pro gre ssiv e shu ttle run	Pearson correlation	P-value	Remarks
	0.753**	.000	Significant

related fitness often scores higher due to

structured exercise programs, skill-related fitness also plays a crucial role in enhancing motor skills and functional capacity.

Table 4 – Relationship of Physical Fitness Test and Physical Education Performance

**. Correlation is significant at the 0.05 level (2-tailed); 0.10-0.39 (weak relationship); 0.40-0.69 (moderate relationship); 0.70-0.89 (strong relationship); 0.90-1.00 (very strong relationship

The table presents the relationship between the physical fitness level and physical education performance of the participants using Pearson correlation analysis. The overall correlation coefficient is r = 0.753, with a p-value of .000, indicating a strong positive and statistically significant relationship between the participants' physical fitness and their performance in physical education.

This means that higher levels of both health-related fitness (e.g., body composition, flexibility, muscular strength and endurance, and cardiorespiratory endurance) and skill-related fitness (e.g., fixed

distance test, fixed time test, and progressive shuttle run) are associated with better performance in physical education.

These findings align with the study by Reyes and Mendoza (2023)**,** who found that students with greater physical fitness tend to perform better in physical education classes due to enhanced endurance, strength, agility, and overall motor function. Their research emphasized that comprehensive physical fitness is not only beneficial for health but is also predictive of academic and skill-based success in Physical Education curricula.

4. Discussion

The interpretation of results in this study reveals several key insights into the physical fitness and physical education performance of the participants. The finding that the participants exhibit a "maximum" level of health-related physical fitness, with an overall mean of 4.2, suggests a high degree of proficiency in areas such as aerobic fitness, body composition, muscular strength and endurance, and flexibility (Mihailova et al., 2014). This indicates that the participants possess a well-developed foundation of physical health, enabling them to effectively perform motor skills and movement patterns (Back, 2015). Similarly, the "maximum" level of skill-related fitness, with an overall mean of 4.29, underscores the participants' adeptness in areas such as agility, balance, coordination, power, reaction time, and speed. This implies that the participants not only have good health conditions but also demonstrate exceptional abilities in executing fitness tests that require complex motor skills and movement patterns (Sözen, 2012).

The outstanding physical education performance, with an overall mean of 4.12, further reinforces the notion that the participants consistently exhibit the skills described in the physical fitness tests and demonstrate a high level of competence in physical education activities. Further analysis reveals a strong, proportional, and significant relationship ($r = 0.753$, $p < 0.05$) between physical fitness level and physical education performance, suggesting that individuals with higher levels of physical fitness tend to perform better in physical education (Dusen et al., 2011).These results align with previous research indicating a positive association between physical fitness and academic achievement (Han, 2018; Trudeau & Shephard, 2008). The findings can be contextualized within a broader understanding of the impact of physical activity on cognitive and overall well- being (Kohl et al., 2013). The ability to perform physical activities without undue fatigue suggests an enhanced physiological state (Makbullah et al., 2018). The high level of skill-related fitness suggests an optimized capacity to execute a variety of motor tasks efficiently (Kohl et al., 2013). These factors can contribute to improved cognitive function, including enhanced attention, memory, and executive functions (Stephens et al., 2015).

Regular physical activity and exercise interventions within physical education can lead to significant improvements in physical fitness

parameters (Fernandes et al., 2016). The holistic development of physical competence and fitness empowers young individuals to embrace an active lifestyle, fostering motivation for learning, attentiveness, and overall promise (Polyakov, 2020). Physical education plays a crucial role in promoting physical literacy, intrinsic motivation, autonomy, and professional development, leading to transformative outcomes for students (He et al., 2023).

Physical activity has consistently demonstrated positive effects on cognitive functions, regardless of whether it occurs before, during, or after cognitive tasks (Kohl et al., 2013). The strong correlation between physical fitness and physical education performance underscores the interconnectedness of these two domains, indicating that improvements in one area are likely to lead to positive outcomes in the other. These results contribute to the growing body of evidence supporting the importance of physical education in schools for promoting not only physical health but also cognitive and academic well-being (Iqbal et al., 2022; Kohl et al., 2013; Latino & Tafuri, 2023; Nashwan, 2024). Physical education serves as an effective educational activity to address the serious social problem of reduced health due to limited opportunities for students to participate in physical activity (Back, 2015).

Given the well-documented benefits of physical activity on cognitive function, overall health, and academic performance (Trudeau & Shephard, 2008), schools should strive to create an environment that supports and encourages students' participation in physical activity. Schools provide a relevant context for improving children's and adolescents' physical and mental health by increasing physical activity during school hours and/or beyond (Álvarez-Bueno et al., 2016).

This can be achieved through various strategies, such as increasing the amount of time dedicated to physical education, providing access to sports and recreational activities, and creating a school culture that values and promotes physical activity (Mishra, 2013). Integrating physical activity into the school day may involve increasing the length of physical education classes, increasing the number and types of fitness activities during physical education classes (“Educating the Student Body,” 2013).

The use of active teaching strategies throughout the school day, and the provision of opportunities for students to be active before and after school. (D’Anna et al., 2024). Physical activity opportunities are enhanced when schools provide access to adequate sports and exercise equipment that is in good condition (Friskawati et al., 2020). By prioritizing physical education and physical activity, schools can play a vital role in fostering students' physical, cognitive, and academic development, ultimately contributing to their overall well-being and success in life (“Educating the Student Body,” 2013) (Metzler, 2016) (Kohl et al., 2013).

The study's findings also have implications for physical education curricula and teaching practices. It becomes imperative to design and implement physical education programs that are tailored to meet the specific needs and abilities of students, while also challenging them to reach their full potential. Effective teaching is essential for students to acquire the skills necessary to lead physically active lives (Rink & Hall, 2008). Curriculum content and pedagogical strategies in physical education should aim to cultivate not only physical skills but also knowledge, understanding, and attitudes that promote lifelong engagement in physical activity.Furthermore, the modification of equipment and activities can enhance students' participation and enjoyment in physical education, thereby fostering a more positive attitude toward physical activity (Juanna & Rachman, 2018). The integration of effective teaching methods, such as academic learning time, clear communication, and content- development skills, can further enhance the impact of physical education on students' physical fitness and overall performance (Rink & Hall, 2008).

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