



Analysis of the Relationship Between Physical Activity and Physical Fitness Among Grade X Nursing Assistant Students

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Keywords

Physical Activity;
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Abstract

This study aims to examine the relationship between physical activity, physical fitness level, and physical readiness among Grade X Nursing Assistant students at SMKN 11 Malang in facing learning demands and fieldwork practice. This study used a quantitative, descriptive correlational approach, with all Grade X students in the program as subjects. Physical fitness was measured using the Indonesian Student Fitness Test (TKSI) for students aged 16-19, while physical activity was measured using the Global Physical Activity Questionnaire (GPAQ). Descriptive results indicate that students' physical fitness is still predominantly in the moderate to poor category in several components, particularly cardiorespiratory endurance, reaction time, and agility. Meanwhile, students' physical activity is in the moderate to high category, but it is still accompanied by relatively long sitting durations. These findings suggest that unstructured daily physical activity does not necessarily align with optimal physical fitness. Therefore, more innovative physical education (PE) learning, targeted training programs, and reinforcement of active lifestyle habits are needed to continuously improve students' physical readiness.

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INTRODUCTION

Physical activity, in essence, consists of various body movements performed in school sports activities, including fundamental movements that require agility, coordination, balance, and endurance (Hendryanto, 2025). Vocational education, particularly at SMKN 11 Malang, which holds the status of a Center of Excellence, has the primary mission of producing graduates who are ready to enter the workforce (Samengasbumi et al., 2024). In the Nursing Assistant program, physical demands are relatively high because students are required to perform clinical tasks during Fieldwork Practice, such as assisting with patient mobilization and transferring patients from a bed to a stretcher (Arlini & Riza, 2025). In this vocational context, physical fitness refers to an optimal physical condition that enables students to work safely, efficiently, and without experiencing excessive fatigue.

Previous research by Mohtar & Wijaya (2024) reported that many Nursing Assistant students still demonstrate low motivation in Physical Education (PE) classes, resulting in lower participation in learning activities. Low motivation may negatively affect students' physical fitness, which in turn influences their readiness to perform practicum activities, particularly during Fieldwork Practice (Maulana, 2023). Therefore, teachers are expected to develop more creative and innovative learning strategies so that Physical Education becomes more engaging and contributes to the improvement of students' physical fitness (Rikalmi et al., 2025). Physical fitness is an essential foundation for supporting daily activities and serves as an important indicator of overall health.

Physical fitness is particularly important for vocational high school students who engage in intensive academic and practical learning activities. Good physical fitness helps students maintain energy during learning, complete academic assignments effectively, and carry out daily activities efficiently (Sufitriyono et al., 2024). Students with higher levels of fitness are generally better able to absorb learning materials and maintain concentration throughout the learning process, thereby supporting the achievement of educational goals (Wang, 2024). Furthermore, good physical fitness may increase students' self-confidence because they are less likely to experience fatigue, loss of concentration, or illness associated with reduced physical endurance (Sugiarto, 2025).

Workplace challenges often involve prolonged working hours and repetitive movements that may increase the risk of injury if not supported by adequate physical fitness (Abdul Rahmat, 2025). Consequently, physical fitness is an important factor in maintaining productivity during Fieldwork Practice (Zebua et al., 2025). Students with better physical fitness are expected to be more prepared for fieldwork activities in Grade XI (Anugrah et al., 2026). According to Hendryanto, (2025), physical fitness in vocational education is not merely the ability to move but also a fundamental asset that enables students to meet academic and practical demands safely. Nursing Assistant students regularly engage in activities involving patient transfers, prolonged standing, lifting light to moderate loads, and maintaining concentration for extended periods. Insufficient physical fitness may increase the risk of fatigue, reduced concentration, and procedural errors.

In this study, physical fitness is defined as the body's ability to perform practicum-related activities effectively, efficiently, and safely Mahmudah, (2025). Such readiness is influenced by several components, including endurance, agility, muscular strength, coordination, and recovery ability. According to Eva Faridah, (2024), these components develop through planned and structured activities rather than routine movements performed without a specific training purpose. Therefore, although students may report relatively high levels of physical activity, such activities may not necessarily provide sufficient physiological stimulus to improve physical fitness components.

Research examining physical fitness among vocational high school students has generally focused on students in engineering, automotive, or other technical programs. In contrast, studies investigating the relationship between physical activity and physical fitness among Nursing Assistant students remain limited, despite the substantial physical demands associated with healthcare-related practical work. This gap highlights the need for further investigation into the physical readiness of healthcare-oriented vocational students.

Therefore, the novelty of this study lies in its focus on Nursing Assistant students, a population that has received relatively little attention in previous vocational fitness research.

Based on this background, this study aims to examine the relationship between physical activity and physical fitness among Grade X Nursing Assistant students at SMKN 11 Malang. The findings are expected to provide valuable information for Physical Education teachers, schools, and practicum supervisors in designing learning programs that are more closely aligned with vocational demands. Ultimately, students are expected not only to maintain active lifestyles but also to develop sufficient physical capacity to meet workplace demands requiring endurance, movement accuracy, and sustained performance.

METHODS

This study employed a quantitative approach with a descriptive correlational design to examine the relationship between physical activity and physical fitness among Grade X Nursing Assistant students at SMKN 11 Malang. The study was conducted without providing any treatment to participants and focused on observing the natural relationship between the variables at a single point in time. The population consisted of all 65 Grade X students enrolled in the Nursing Assistant program at SMKN 11 Malang. A total sampling technique was applied, allowing all members of the population to participate in the study.

Physical fitness was assessed using the Indonesian Student Fitness Test (TKSI) for adolescents aged 16–19 years. The TKSI components included Hand-Eye Coordination, Hand and Touch Reaction, Vertical Jump, Dipping Test, Ball Catching Test, and the Multi-Stage Fitness Test. The results of each test were converted into standardized categories according to the TKSI norms to determine students' physical fitness levels. Physical activity was measured using the Global Physical Activity Questionnaire (GPAQ), developed by the World Health Organization (WHO). The GPAQ consists of 16 items covering physical activity in work, transportation, recreation, and sedentary behavior domains. Based on WHO guidelines, physical activity levels were categorized as low, moderate, or high using MET-minutes per week calculations.

Data analysis was conducted in two stages. First, descriptive statistics were used to summarize students' physical fitness and physical activity profiles. Second, normality testing was performed to determine the appropriate correlation analysis. If the data were normally distributed, Pearson Product Moment correlation was applied. If the normality assumption was not met, Spearman Rank correlation was used. Because the data were not normally distributed, the relationship between physical activity and physical fitness was analyzed using the Spearman Rank correlation test with a significance level of 0.05. This methodological approach enabled the researcher to describe students' physical activity and fitness profiles while simultaneously examining the statistical relationship between the two variables.

RESULTS AND DISCUSSION

Table 1. Correlation Between Physical Activity and Physical Fitness

Variables	N	Correlation Coefficient (ρ)	Sig. (2-tailed)	Interpretation
Physical Activity (GPAQ Total METs) and Physical Fitness (TKSI Score)	65	0.099	0.566	Very weak positive correlation, not statistically significant

The results of the Spearman Rank correlation test showed a very weak positive relationship between physical activity and physical fitness ($p = 0.099$). However, the relationship was not statistically significant ($p = 0.566 > 0.05$). These findings indicate that students with higher levels of physical activity did not necessarily demonstrate better physical fitness. Therefore, physical activity alone may not be sufficient to explain variations in physical fitness among Nursing Assistant students.

Based on the physical fitness assessment, 14 students (21.5%) were categorized as Very Good, 7 students (10.8%) as Good, 16 students (24.6%) as Moderate, and 28 students (43.1%) as

Poor. The largest proportion of students belonged to the Poor category, indicating that physical fitness remains a major concern among Grade X Nursing Assistant students. The strongest component was the Dipping Test, which was dominated by the Very Good category, while Hand-Eye Coordination and the Multi-Stage Fitness Test were dominated by the Poor category. These findings suggest that cardiorespiratory endurance and motor coordination require further improvement.

The GPAQ results showed that most students were classified in the moderate and high physical activity categories. Of the 65 students, 19 reported vigorous work-related activities, 46 reported moderate work activities, 36 regularly walked or cycled as transportation, 29 participated in vigorous recreational activities, and 44 engaged in moderate recreational activities. The median sitting time was 6.0 hours per day, while the mean sitting time reached 7.5 hours per day. Approximately 78.3% of students met the WHO recommendation of at least 600 MET-minutes of physical activity per week.

Interestingly, although most students met the recommended physical activity level, physical fitness was still dominated by the Poor category. This finding may explain why the correlation between physical activity and physical fitness was weak and statistically insignificant. One possible explanation is that most students accumulated physical activity through moderate-intensity daily activities, such as walking, transportation, household chores, and routine school activities. Although these activities contribute to total MET values, they may not provide sufficient physiological stimulus to improve cardiorespiratory endurance, muscular strength, and overall fitness capacity.

The relatively high sitting time may also contribute to the discrepancy between activity levels and fitness outcomes. Students spent an average of 7.5 hours per day sitting or lying down. Prolonged sedentary behavior has been associated with lower energy expenditure, muscle stiffness, reduced movement readiness, and poorer cardiovascular fitness. Consequently, students may appear physically active according to GPAQ standards while still exhibiting suboptimal fitness levels.

Cardiorespiratory endurance emerged as one of the weakest fitness components, as indicated by the poor performance in the Multi-Stage Fitness Test. This finding is particularly important because Nursing Assistant students are expected to perform physically demanding tasks during fieldwork practice, including prolonged standing, patient mobilization, lifting, and transferring patients. Liu and Wu, (2023) reported that adequate endurance is essential for maintaining performance and reducing fatigue during healthcare-related activities. Students with poor endurance may experience reduced concentration, slower responses, and greater difficulty in completing repetitive tasks.

The findings of this study support the view that physical fitness is influenced not only by the quantity of physical activity but also by activity intensity, training quality, recovery patterns, and lifestyle habits Aprilia and Januarto, (2022). Physiological adaptation occurs when the body receives adequate and progressive training stimuli. Therefore, students who perceive themselves as physically active may not necessarily achieve good fitness levels if their activities lack sufficient intensity, continuity, and progression. This explanation is consistent with the weak and non-significant correlation observed in the present study.

From a pedagogical perspective, PE learning plays a strategic role in improving students' fitness. Teachers can implement structured fitness-oriented programs such as circuit training, interval training, agility drills, and endurance exercises. Such activities may provide a more effective physiological stimulus than sporadic daily movement. Furthermore, schools can support healthy lifestyles through regular fitness programs, campaigns to reduce sedentary behavior, and practical simulations that encourage ergonomic movement patterns relevant to healthcare professions.

Overall, the findings suggest that physical fitness should be considered an important indicator of vocational student readiness, particularly among Nursing Assistant students who will encounter substantial physical demands during fieldwork practice and future professional activities that the activity is not necessarily structured, intense, and progressive enough to improve fitness.

CONCLUSION

Based on the findings of this study, it can be concluded that the relationship between physical activity and physical fitness among Grade X Nursing Assistant students at SMKN 11 Malang was very weak and not statistically significant. The Spearman Rank correlation analysis showed that higher levels of physical activity did not necessarily correspond to better physical fitness levels among students. Although most students were classified as having moderate to high levels of physical activity, physical fitness was still predominantly categorized as moderate and poor in several important fitness components, particularly cardiorespiratory endurance and motor coordination.

These findings suggest that the quantity of physical activity alone may not be sufficient to improve physical fitness. The quality, intensity, frequency, and continuity of physical activity appear to play a more important role in developing optimal physical fitness. Many students may accumulate physical activity through routine daily activities, yet these activities may not provide adequate physiological stimulus to improve fitness capacity significantly.

Therefore, improving the physical fitness of vocational students, particularly those in the Nursing Assistant program, requires strengthening Physical Education (PE) programs through more structured, progressive, and fitness-oriented activities that are relevant to fieldwork practice demands. Schools should also promote active lifestyle habits and reduce sedentary behavior to support students' physical readiness for future professional responsibilities. Through these efforts, students are expected to develop better physical fitness levels that can enhance their effectiveness, safety, and productivity during practicum and workplace activities.

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