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Analysis Of Student Lifestyle Patterns During Physical Education Learning On Campus

Suthana Tingsabhat[1], Kukuh Pambuka Putra [2], Putri Nur Alifah[3]*

[1]*Faculty of Education, Chulalongkorn University, Bangkok, Thailand*
[2]*Faculty of Health Science, Universitas Kristen Satya Wacana, Salatiga, Indonesia*
[3]*Faculty of Sport Science and Health, Universitas Negeri Surabaya, Surabaya, Indonesia*

Correspondence Email: 24060464091@mhs.unesa.ac.id

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ABSTRACT

The purpose of this study is to examine student lifestyles in relation to physical education learning on campus. This study used a quantitative descriptive design to present an empirical reveal of students' adoption of healthy lifestyles based on collected data. Eighty students from the Mechanical Engineering Study Program at Universitas Negeri Surabaya were selected using purposive sampling based on relevant research criteria. The findings indicate that students generally lead a fairly healthy lifestyle and understand the importance of maintaining it. Several indicates, particularly diet, air quality, and psychosocial well-being, showed relatively positive results. This suggests that students have begun to incorporate healthy practices into their daily lives, although not fully. However, some indicators remain suboptimal, especially physical activity, sleep habits, and sunlight exposure, indicating inconsistency in maintaining a healthy lifestyle. This inconsistency is likely influenced by academic pressure, sedentary behavior, and frequent use of digital devices. Therefore, more effective physical education approaches are needed to promote sustainable healthy behaviors alongside cognitive development. Contextual and applied learning methods are expected to motivate students to consistently implement healthy lifestyle principles in daily life.

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INTRODUCTION

Maintaining and improving one's quality of life is highly dependent on a healthy lifestyle, especially for students (Sofro et al., 2022). A deliberate, planned, and sustainable pattern of behavior aimed at maintaining and improving one's physical, mental, and social well-being is known as a healthy lifestyle (Ashadi et al., 2025). A balanced diet, adequate exercise, adequate sleep, and general health-promoting behaviors are essential components of adopting a healthy lifestyle (Ramdani et al., 2024). From a health perspective, living a healthy lifestyle is crucial for improving physical fitness, maintaining the balance of body processes, and preventing various diseases, both infectious and non-infectious (Handyani & Alfarizi, 2024). On the other hand, living an unhealthy lifestyle can reduce the overall quality of life and increase the risk of metabolic disorders and degenerative diseases (Isni et al., 2020). A healthy lifestyle conceptually consists of several interrelated and integrated elements (Luh et al., 2018). Maintaining a healthy metabolism and cardiovascular system, as well as improving physical fitness, all depend on physical activity (Nugrahaningtyas & Utami, 2025). Regular exercise can prevent excessive weight gain, maintain energy balance, and improve heart and lung function (Lin, 2022). Furthermore, a balanced and healthy diet is essential to meeting the body's nutritional needs (Hermawati et al., 2022). In addition to encouraging physical activity, a healthy diet helps maintain organ function and boosts immunity against disease (Manuel, 2024). Furthermore, a proper sleep and rest schedule is crucial for the body's healing process and for maintaining a healthy nervous system (Ibrahim et al., 2025). Lack of sleep can lead to decreased concentration, fatigue, and other health problems (Inan et al., 2025). A healthy lifestyle also includes exposure to sunlight, especially for the production of vitamin D, which is essential for the immune system and bone health (Grant et al., 2025). Optimal health is also influenced by healthy habits, including maintaining good personal hygiene, avoiding smoking, and managing stress effectively (Raheli & Klobuˇ, 2024).

College students, who are in the early stages of adulthood, are characterized by increasing personal and academic responsibilities (Hamzah et al., 2024). They must complete a number of challenging tasks during this phase, including laboratory work, lectures, and academic assignments. Their lifestyles may be affected by this, particularly in terms of exercise, nutrition, and sleep quality. Students often struggle with time and energy management, which can lead to a tendency to neglect important elements of a healthy lifestyle (Fu et al., 2025). This prolonged state of affairs can negatively impact students' physical and mental health, including increased fatigue, stress, and weakened immunity. Students in non-sports majors, such as mechanical engineering, typically lead sedentary lifestyles and spend a significant amount of time sitting (Bramansyah et al., 2025). Most of these activities take place indoors and involve computer use, laboratory experiments, and academic assignments. This sedentary lifestyle can reduce sunlight exposure and daily physical activity levels. High academic pressure can also affect students' sleep and eating habits, leading to unhealthy lifestyles (Al-jawarneh et al., 2025). Student habits are also affected by a lack of awareness and understanding of the importance of maintaining good health (Id et al., 2024). Physical education is crucial in helping students develop and instill healthy lifestyle habits in the

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context of higher education (Zhang et al., 2025). In addition to improving physical skills, physical education seeks to promote positive attitudes about the importance of maintaining physical fitness, raising awareness, and establishing health goals (Ahmed & Al, 2024). Students are required to understand the concepts of a healthy lifestyle and apply them in their daily lives through an organized and systematic learning approach (Liu et al., 2026). Increasing students' physical activity, reducing the risk of diseases caused by a sedentary lifestyle, and improving their overall quality of life can be achieved through physical education learning activities (Teuber et al., 2024).

Even after attending physical education classes, the reality on the ground shows that not all students are able to fully embrace healthy lifestyle concepts (Wang et al., 2024). This indicates a gap between what is learned and what is actually implemented in daily life. Therefore, a comprehensive scientific investigation is needed to examine students' lifestyle habits in relation to physical education instruction on campus, especially for students. (Wang et al., 2025). Robust and reliable measurement tools are needed to obtain an objective picture of students' adoption of a healthy lifestyle (Sayili et al., 2024). The Healthy Lifestyle Questionnaire is one such tool that measures various markers of health behaviors, including sun exposure, physical activity, diet, and quality of rest (Svenšek & Štiglic, 2025). With the help of this tool, researchers can collect data methodically, quantitatively, and structured, thus providing a comprehensive picture of how well students are living healthy lives. The success of physical education teaching is strongly correlated with a healthy lifestyle (Salmanov et al., 2025). Students who live a healthy lifestyle typically have better physical health, allowing them to engage optimally in learning activities (Mahfouz et al., 2024). Furthermore, living a healthy lifestyle improves focus, stamina, and physical readiness (Altermann & Gröpel, 2024). On the other hand, living an unhealthy lifestyle can result in fatigue, decreased concentration, and a higher risk of injury during physical education (Chen et al., 2022). Consequently, living a healthy lifestyle is crucial for the success of the educational process and achieving optimal learning outcomes in a university environment (Heller et al., 2024). This description serves as the basis for analyzing a study of students' lifestyle behaviors during physical education classes on campus. These findings are expected to provide an empirical summary of the extent to which students adopt a healthy lifestyle and can be used as assessment material by relevant stakeholders in initiatives to improve the standards of physical education teaching and general student health.

METHODS

Research Design

This study employed a descriptive and quantitative methodology. This method was used because the data collected was numerical and then analyzed statistically. The purpose of this descriptive study was to accurately, honestly, and methodically characterize the conditions or phenomena under study, specifically the lifestyles of college students during physical education classes on campus.

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Data were collected through a survey method, which involved distributing questionnaires to participants. This approach was chosen because, based on respondents' responses, it offers an unbiased overview of the level of healthy lifestyle adoption by college students.

Participant and Sampling

The population of this study consisted of students in the Mechanical Engineering Study Program at Universitas Negeri Surabaya. A portion of this population was selected to reflect the characteristics of the entire population and served as the research sample. The sampling strategy used in this study was purposive sampling, which selects the sample based on specific criteria relevant to the research objectives. Students who actively participated in physical education classes and were willing to participate as research respondents met the research criteria. Eighty Mechanical Engineering students who met the requirements for respondents formed the research sample size using this method.

Instrument

The Healthy Lifestyle Questionnaire, designed to measure students' healthy lifestyles within the framework of physical education instruction, served as a research tool. This tool was used because it was necessary to collect measurable, systematic, and objective data on students' health-related behaviors. The single research variable of students' healthy lifestyles was operationalized into several key indicators, such as exercise, nutrition, sleep habits, sun exposure, and health-related behaviors. To ensure a comprehensive depiction of respondents' healthy lifestyles, the questionnaire was methodically structured based on these parameters. Each indicator was divided into several elements based on the characteristics of children's daily routines and activities. To ensure that respondents could provide answers that accurately reflected their circumstances, the instrument was designed with linguistic clarity, contextual appropriateness, and the ability to measure each factor studied.

Strongly Agree, Agree, Disagree, and Strongly Disagree were the four response options on the Likert scale used in this research questionnaire. Respondents' attitudes, perceptions, and behavioral tendencies were measured quantitatively using the Likert scale. Depending on the extent to which respondents agreed with the statement, each response option was assigned a specific score. A total score representing the students' level of healthy lifestyle was then calculated by summing the results for each statement. Furthermore, superior instrument development criteria such as content validity, construct clarity, and suitability for the research objectives were considered when designing this research instrument. Before the instrument was used for data collection, validity and reliability tests were conducted to ensure its quality. Reliability tests aimed to ensure the instrument's consistency in measuring the same variables at different points in time, while validity tests aimed to determine the extent to which the instrument could measure what it was intended to measure. As a result, this research instrument is expected to measure students' healthy lifestyles with a high degree of accuracy and reliability.

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Procedures

The data collection method in this study involved distributing questionnaires to pre-selected respondents. Based on predetermined indicators, such as physical activity, diet, rest patterns, sun exposure, and health behaviors, questionnaires served as the primary tool for collecting data on healthy lifestyles among university students. Because questionnaires allow for effective data collection from a large number of respondents in a relatively short time and allow for quantitative and measurable data, they were used in this study. The questionnaires were distributed methodically, providing respondents with precise instructions on how to complete each statement to ensure they understood each question.

Answers reflecting respondents' daily circumstances and routines were requested. This ensured that the information collected accurately reflected the students' healthy lifestyles. A documentation approach was used as an additional data collection method besides the questionnaire. Student numbers, attendance information, and other details related to respondents' characteristics were among the written or archival data relevant to the study collected using documentation procedures. The research findings were strengthened and complemented by this documentation material, allowing for more thorough examination. It is hoped that this study will be able to collect comprehensive, accurate, and scientifically reliable data by combining questionnaire and documentation methods.

Data Analysis

Quantitative descriptive statistical analysis was the data analysis method used in this study. Data reduction, tabulation, and scoring were performed on primary data collected using a Healthy Lifestyle questionnaire with a Likert scale (1-4). For each statement indicator, percentages and averages (means) were calculated as part of the data processing process. To identify patterns in students' routines, data on physical activity frequency and sedentary time were then examined using frequency distributions. The Benchmark Assessment Method (BAP) was used to convert the total score, used to measure general lifestyle patterns, into healthy lifestyle categories, such as Very Healthy, Fairly Healthy, and Less Healthy. Microsoft Excel software assisted in the overall data analysis process.

RESULTS

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The Healthy Lifestyle Questionnaire was used to collect healthy lifestyle data from 80 Mechanical Engineering students at Universitas Negeri Surabaya, and descriptive statistical methods were used for analysis. According to the summary of findings in Table 1, students generally live a moderately healthy lifestyle.

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Tabel 1. Descriptive Statistics

	Question	N	Min	Max	Mean	Sd
Sunlight						
1.	I go outside for the sun at least 10 minutes a day.	80	1.00	4.00	2.7375	0.83808
2.	I use a sun protection (sunscreen, shade, hat, etc.) properly.	80	1.00	4.00	2.4875	1.01873
3.	When sleeping at night, it is dark and there is no light.	80	1.00	4.00	3.0750	1.13377
4.	I work in a place where the amount of sunlight is good.	80	1.00	4.00	2.7000	0.81753
Water						
5.	I drink 8 glasses of water daily.	80	1.00	4.00	3.3625	0.79943
6.	I have easy access to clean, drinkable water.	80	1.00	4.00	3.5375	0.74534
7.	I drink water during the meals.	80	1.00	4.00	3.1750	0.92470
8.	I drink caffeinated drinks (coffee, tea, supplements, energy drinks, etc.).	80	1.00	4.00	2.7125	0.94392
Air						
9.	I do deep breathing throughout the day	80	1.00	4.00	3.0875	1.04571
10.	I open the window for fresh air daily.	80	1.00	4.00	3.1500	1.05662
11.	I am in an area with polluted air.	80	1.00	4.00	2.2625	0.97752
12.	I smoke or exposed to second-hand smoking.	80	1.00	4.00	2.2000	1.16271
Rest						
13.	I sleep for 7 to 8 hours.	80	1.00	4.00	2.5500	0.87004
14.	I use electronic devices after midnight.	80	1.00	4.00	2.5625	0.89787
15.	I stay on a regular healthy sleep-wake pattern.	80	1.00	4.00	2.6875	0.88007
16.	I feel sluggish and tired most of the time.	80	1.00	4.00	2.1875	0.99484
Exercise						
17.	I exercise for more than 30 minutes every day.	80	1.00	4.00	2.4375	0.79307
18.	I usually sweat when I exercise.	80	1.00	4.00	3.3625	0.79943
19.	I enjoy physical activity whenever I have time.	80	1.00	4.00	3.0125	0.83429
20.	When I work, I stay in one position for a long period of time.	80	1.00	4.00	2.4500	0.85536
Nutrition						
21.	I eat a healthy breakfast	80	1.00	4.00	2.8125	0.82820
22.	I eat meals regularly.	80	1.00	4.00	2.7125	0.97037
23.	I eat food slowly and chew it well	80	1.00	4.00	3.0500	0.85536
24.	I eat a balanced diet.	80	1.00	4.00	2.7000	0.90568
Temperance						
25.	I do not over eat.	80	1.00	4.00	2.8750	0.87692
26.	I drink alcohol.	80	1.00	4.00	1.2125	0.65010

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27.	I get angered and/or annoyed easily.	80	1.00	4.00	1.9500	0.93997
28.	I easily fall into temptation.	80	1.00	4.00	1.7375	0.83808
Trust						
29.	I generally trust people.	80	1.00	4.00	2.6500	0.94266
30.	I am hopeful about the future.	80	1.00	4.00	3.5875	0.70610
31.	I feel trusted by my family and friends.	80	1.00	4.00	3.1750	0.77582
32.	I am satisfied with my daily life.	80	1.00	4.00	3.0125	0.90699
Physical Condition						
33.	There has been little change in my weight over the past year.	80	1.00	4.00	2.6500	1.03239
34.	I did not catch a cold or flu for one year.	80	1.00	4.00	1.9125	1.00874
35.	My blood pressure and blood sugar are in the normal range.	80	1.00	4.00	2.9875	0.97427
36.	I do bowel movements at least once a day.	80	1.00	4.00	2.8375	1.02431

The average scores for most indicators, which were within the range of 3, indicate that, in general, students' healthy lifestyles were in the fair category, according to the descriptive data analysis. This suggests that although students understand the value of living a healthy lifestyle, they are still unable to practice it regularly.

The average score for sun exposure was 2.75, which is within the appropriate range. However, this score tended to be in the low range, indicating that students do not get enough sunlight daily. Contributing factors include the prevalence of indoor academic activities and the lack of outdoor recreation. Sun exposure is essential for increasing vitamin D production, which affects the immune system and bone health.

Furthermore, the average score for water consumption was 3.20, which is within the fair to good range. This indicates that most students have relatively good habits in meeting their body's fluid needs. One important aspect is having access to sufficient clean water. However, there are still variations in behavior, such as the use of caffeinated beverages, which, if not properly managed, can impact body fluid balance.

The average score for air quality (air) is considered good. The habit of opening the vents or breathing deeply indicates that students understand the value of clean air. However, direct and indirect exposure to cigarette smoke and air pollution persists, which can worsen respiratory health. Contributing variables include social and residential aspects.

The average score for the remaining elements was 2.50, falling within the adequate but somewhat low category. This indicates that students' sleep patterns, both in terms of duration and quality, are still less than ideal. High academic pressure and the habit of using electronic devices late at night are considered key factors affecting sleep patterns. Reduced concentration, fatigue, poor academic performance, and overall health can all be consequences of sleep deprivation.

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The average score for physical activity (exercise) was 2.82, which is considered adequate. This indicates that although students have participated in physical activity, it has not been consistent or at the recommended intensity level. Even though some students enjoy physical activity and exhibit physiological reactions such as sweating, the frequency and duration of exercise are still not ideal. One of the biggest barriers to improving physical fitness is a sedentary lifestyle, which includes prolonged sitting.

Furthermore, the average score for the nutrition component was 2.82, placing it in the acceptable category. This indicates that students understand the value of a balanced diet and a good breakfast. However, meal plans remain inconsistent, and nutritional balance is not adequately addressed. Energy levels, focus, and long-term health can all be affected by these unhealthy eating behaviors.

The average score for the self-control (moderation) component was 1.94, which is considered low. These findings indicate that students continue to struggle with managing health-related behaviors, such as regulating emotions and proneness to temptation. Although alcohol consumption is considered moderate, emotional and self-control issues remain issues that need to be addressed. Consistent implementation of healthy habits can be affected by a lack of self-control.

The trust and life satisfaction (trust) aspect had an average score of 3.11, which is in the positive category, unlike the previous aspect. This indicates that students are generally in a good psychological state, including satisfaction with daily life, hope for the future, and trust in their social environment. This positive psychological state can support the sustainable adoption of a healthy lifestyle.

Finally, the average score for physical condition was 2.60, which is in the satisfactory range. This indicates that, although generally adequate, students' physical condition is still not optimal. There is still room for improvement in several parameters, including health stability and endurance. Other factors that are not yet ideal, such as sleep habits, exercise, and diet, are strongly associated with this disease.

Overall, the results of this study indicate that students are in a transitional stage in adopting a healthy lifestyle, where awareness and understanding have grown but implementation remains uneven. Therefore, strategic initiatives are needed, particularly in the form of more relevant, contextualized physical education training focused on habit formation. In this way, students will not only understand the idea of healthy living, but they will also be able to integrate it sustainably into their daily lives.

DISCUSSION

The study results indicate that college students generally lead relatively healthy lives. However, this situation suggests that students have not regularly incorporated healthy lifestyle practices into their daily routines, despite recognizing the importance of maintaining good health. Given that college students are in a transitional period toward adulthood, often characterized by lifestyle changes, increased academic responsibilities, and complex social dynamics, this phenomenon makes sense (Mouchrek & Benson, 2023).

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Students with engineering backgrounds, such as those enrolled in the Mechanical Engineering Study Program, are more likely to face demanding academic demands, such as project-based learning, lab projects, and tight deadlines (Pham et al., 2021). These circumstances can impact students' ability to control their daily actions, particularly when it comes to maintaining regular healthy habits. Relatively low scores on indicators of physical activity and rest may indicate difficulties in behavioral regulation, particularly in balancing academic obligations with health-related habits, although this study did not specifically test self-control.

It appears that students have not integrated regular exercise into their daily routines, based on the low average scores on the physical activity index. Heavy academic loads and sedentary habits, such as prolonged use of digital devices, may contribute to this condition (Febriyadin et al., 2024). The study results indicate that although physical education is offered on campus, it has not been entirely successful in fostering long-term physical activity habits outside the classroom. This underscores the need for physical education programs to take a more practical and habit-oriented approach (Muhajirin & Sudirman, 2024).

Furthermore, the relatively low sleep indicator rankings indicate that students' sleep quantity and quality are still below ideal levels (Ibrahim et al., 2024). Lifestyle choices such as excessive electronic use right before bed and academic pressure may be key factors (Machado & Padilla, 2024). Lack of sleep can negatively impact concentration, increase fatigue, decrease academic performance, and impair overall well-being (Muro et al., 2023).

Furthermore, students with less exposure to sunlight may spend more time indoors, which can impact their physical health, particularly regarding vitamin D production and immune system function (Kuncara & Afriansya, 2023). Consequently, supporting outdoor activities is crucial to helping students adopt healthier lifestyles.

However, the dietary pattern indicator, which is in the "fairly good" range, reflects students' understanding of nutritional intake. Improvement is still needed, particularly in maintaining regular eating patterns and ensuring balanced nutrition, although this indicates a minimum level of knowledge. Maintaining a healthy diet is crucial for academic success and cognitive function, in addition to physical health (Afifah et al., 2025).

From a psychosocial perspective, students demonstrated relatively high levels of self-confidence and life satisfaction (Zhao, 2025). This suggests that despite experiencing challenges with their physical health, their mental health is generally good. Strong psychological well-being can be a valuable internal resource that encourages the adoption and maintenance of healthy habits (Cedillo et al., 2025).

It is important to note that this study used a descriptive methodology and therefore did not examine statistical correlations or causal relationships between factors such as sleep duration and academic workload. However, the combination of low sleep markers and high academic expectations suggests a possible relationship that merits further investigation in future studies using inferential statistical techniques.

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Overall, the study's findings support the strategic role of physical education in encouraging students to adopt a healthy lifestyle. However, more practical, contextual, and habit-forming methods should be employed to enhance the effectiveness of physical education (Resmana et al., 2024). In addition to acquiring knowledge, students are expected to internalize and consistently implement healthy lifestyle behaviors in their daily lives.

CONCLUSION

Based on research findings, students in the Mechanical Engineering Study Program at Universitas Negeri Surabaya generally lead a relatively healthy lifestyle. These results indicate that students have demonstrated relatively good behavior across a number of parameters, including diet, air quality, and psychosocial well-being, suggesting a sufficient level of understanding of the importance of maintaining good health. However, several key metrics, including sunlight exposure, rest patterns, and physical activity, remain below ideal levels. This situation suggests that students have not regularly and consistently implemented healthy lifestyle practices in their daily lives. Furthermore, research findings indicate that students' involvement in physical education classes has not been fully successful in helping them create long-term healthy lifestyle choices outside of the classroom. High academic demands and the dominance of sedentary activities, such as prolonged use of digital devices, are thought to contribute to low levels of physical activity and poor-quality rest. Furthermore, students' tendency to spend most of their time indoors reduces exposure to sunlight, which is crucial for maintaining good health.

Based on these findings, it is recommended that educational institutions, especially those utilizing physical education, create more creative and effective learning models that focus on changing student behavior. In addition to emphasizing physical activity during lectures, this learning method is expected to motivate students to absorb and independently apply healthy living concepts in their daily lives. Furthermore, it is necessary to continue educating the public about the importance of regular exercise, a healthy diet, and efficient rest time management. Furthermore, it is hoped that students will be more aware, motivated, and dedicated to implementing a healthy lifestyle in their daily lives. This effort can be achieved by scheduling regular exercise, establishing a consistent and healthy sleep schedule, and utilizing free time for outdoor activities. It is hoped that the quality of students' healthy lifestyles will improve significantly through the synergy between the functions of educational institutions and individual awareness, which ideally promotes health, fitness, and academic achievement.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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