# THE EFFECTS OF PHYSICAL ACTIVITY ON LIFESTYLE AMONG SCHOOL-AGED CHILDREN

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## ABSTRACT

The purpose of this study is to examine the effect of physical activity on lifestyle among school students. The sample selection consisted of 310 students, and purposive systematic random sampling was used in this study. The International Physical Activity Questionnaire (IPAQ) was used to identify the level of physical activity, while the Fantastic Lifestyle Assessment (FLA) was used to identify the lifestyle status. Statistical Package for Social Science (SPSS) version 26.0 was used to analyze all data in this study. Both descriptive and inferential analyses were conducted to determine the level, differences in gender, and age group of physical activity and lifestyle. Pearson's correlation was employed, indicating there is no significant relationship between physical activity and lifestyle among Sekolah Menengah Kebangsaan Bandar Saujana Putra students ($r = -.028$, $p = .625$). In addition, the independent samples T-Test analysis found no difference between physical activity ($t (308) = 0.87$, $p > .05$) but a significant difference in lifestyle between genders $t (308) = 0.017$, $p < .05$). The one-way ANOVA test indicates that there is no difference in physical activity based on age group ($p<.05$ level, $F (3,306) = .219$, $p=.883$) however, a difference in lifestyle is observed in the 16-year-old age group compared to other age groups ($M = 2.48$, $SD =.885$). Thus, it is essential to conduct further research on this phenomenon, examining it across different age groups and genders.

**Keywords:** Gender, Physical Activity, Lifestyle, Students' Health, Well-being

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## INTRODUCTION

The World Health Organization (WHO) defines PA as an activity that uses skeletal muscle to move in various situations that contributes to the energy expenditure in leisure time, day-to-day activity, and working sessions (World Health Organization, 2024). These movements are included in various activities, such as walking, exercising, running, jumping, swimming, and playing sports, as well as gardening, cleaning the house, and other physical activities that can be beneficial to human health. The involvement in physical activity plays a crucial role in the health and well-being of individuals, making it essential to develop behaviors and habits that sustain physical activity. Physical activity plays a vital role in avoiding non-communicable diseases and preventing early mortality, since many studies have proved the effect of PA on individual health, also improving psychological and physiological well-being in individuals (Edelmann et al., 2022; Lonati et al., 2024). Despite its benefits for all ages, many children and adolescents still do not meet the requirements of physical activity per week (Feter et al., 2023; Grao-Cruces et al., 2020), and this trend is worrying since this age group contributes to an important transition to the level of physical activity in adulthood. Data shows a decrease in participation in PA worldwide, with 80% of adolescents aged 11-17 years old not meeting the minimum requirement in PA and an estimated reduction of up to 15% by 2030 (World Health Organization, 2024). Additionally, it was found that 90% of girls in 27 countries worldwide did not achieve the minimum level of participation in physical activity, and 2 countries for boys (Andaki et al., 2024; Guthold et al., 2020). In the Southeast Asia region, this trend of obesity also shows an increment in the estimation of 21 million children and adolescents aged between 5 and 19 years old will become obese in 2030 (EU-ASEAN Business Council, 2023), and this trend was related to poor engagement in healthy lifestyles. Furthermore, according to the Association of Southeast Asian Nations (2022), Malaysia had the highest rate of obesity and overweight in children and adolescents, with 29.8%, followed by Brunei, Singapore, and Thailand, each with 27% and 22% for both countries. This trend was related to the choice of lifestyle that children and adolescents choose, resulting in an urgency to identify the factors related to lifestyle among them, so that any intervention can be implemented early due to this worrying trend across the globe.

A healthy lifestyle consists of a few components, such as nutrition, hygiene, habits, physical activity, and sleep behavior, and those factors are intended to improve and maintain health (Ab Rahman et al., 2023; Sokolova et al., 2021). Furthermore, the current global trend that shifts into obesogenic lifestyles due to technological entertainment such as computer games and gadgets has decreased the level of participation in physical activity among children and adolescents (Tomaz et al., 2020; Zulaily et al., 2024). Lifestyle can affect either positively or negatively, depending on the habits of individuals. Children and adolescents were vulnerable, as their lifestyle choices could reflect their future lifestyle as adults. A positive lifestyle, such as engagement in physical activity, proper nutrition intake, proper drinking habits, and positive stress management actions, could lead to a better life, while a negative lifestyle could lead to health problems such as obesity, diabetes, and non-communicable disease (NCD). Furthermore, in a review of the literature, physical activity was always mentioned as the main component of positive lifestyles, and due to that, it can be assumed that

PA was the prominent factor in measuring the healthy lifestyles among individuals (Ibrahim et al., 2022; Rodríguez, 2023; Zaman et al., 2019). However, in current technological advances, the lifestyles of children and adolescents have changed swiftly, with more time spent on gadgets and entertainment, increasing the sedentary behaviors (Maftei & Merlici, 2023). Additionally, the screen time also affects the eating behaviors among them by consuming more fast foods and junk food rather than nutritional food due to the more time spent on the screen, resulting in health problems among them. Identifying the proper lifestyle is very important for everyone, especially for children, as they will grow up to live a life. To ensure children lead a good lifestyle, everyone, including the workplace or institution, should play their role so that they will be more alert. However, gender factors need to be considered when implementing appropriate interventions to promote PA among children and adolescents.

A study done by Shirzadi et al. (2025) found that the level of PA between males and females is different, with males posting higher PA levels due to the gender role in which male was encouraged to engage in PA or sports activities, whereas, in contrast, females are discouraged from engaging in physical activity due to social expectations and sex roles. In contrast, a study done by Boraita et al. (2020) found that although females were low in participation in PA, they had a higher intake of a vegetable diet and more satisfaction with their education status. This study indicates that there is a different objective in engaging in lifestyle among sexes, such as females were more concerned regarding body image and looks, resulting in them to eat dietary diet such as vegetables. Thus, the gap in PA level between genders needs to be addressed with different interventions due to the different needs of physiological and psychological needs among them.

This trend is also prevalent in the age group for which they are some studies have reported a decrease in PA level with the age of adolescents (Aira et al., 2021; Duarte et al., 2020). A study done by Shao & Zhou (2023) also finds that the physical activity among adolescents was also affected by age, in that the older they get, the less engagement in PA. The reason for this phenomenon is that the PA standards in schools are gradually reduced from elementary to middle school, with a larger decrease in high school and college. In education in Malaysia, school students are required to participate in 1 Sukan 1 Murid and co-curricular activities as a requirement in education (Mohd Yaakob, 2018). In addition, sports activities such as school sports, district sports, state-level sports, and national-level sports are held throughout the year while in school, and are compulsory for students to participate in. This obligation decreases as they get older, where at 17 years old, they will face the Malaysian Certificate of Education (SPM) examination, and they will focus more on academics. This consequently increases the sedentary habits of adolescents in sitting, learning, classroom due to the obligation towards examination. Another study by Ahmad et al. (2021) indicates that the decline in PA level starts in younger age, between 9 – 12 years old, compared to males 13 – 16 years old. This trend is due to a few factors, of which parents' support was the dominant factor towards the level of PA among adolescents. Other factors, such as the environment of the neighbourhood with insufficient facilities and safety risks, also contribute to the decline of PA levels among adolescents. Furthermore, the motivation for adolescents based on age towards PA was influenced by opportunity and situation factors, such as categories of sports

tournaments. The common practice in school sports in Malaysia is that 16- and 17-year-olds are in the same category, while 13-, 14-, and 15-year-olds are in the same category. Therefore, competition between 16- and 17-year-olds is easier because there are only 2 age categories compared to 13-, 14-, and 15-year-olds. Therefore, there may be a decrease in the under-15-year-old category regarding their motives to get involved in physical activities because the opportunities for them to represent the school in certain sports are more intense. This may indirectly change their motives, and this factor needs to be given attention by the authorities in encouraging regular physical activity among school students.

The interconnected relationship between PA and lifestyle should have been given more attention, as it promotes numerous benefits for adolescents. Thus, it is important to determine factors related to engagement in PA concerning lifestyles among children and adolescents so that we can promote better healthy lifestyles towards them for health and better mental strength in the future.

**METHOD**

This study was a quantitative approach to identify the effect of physical activity on lifestyle among Sekolah Menengah Kebangsaan Bandar Saujana Putra students. 310 samples were used in this study, with the sample size referred to the Morgan and Krejcie table. According to Hair et al. (2019) and Sekaran & Bougie (2016), the number of samples was a minimum of 100 samples in behavioral studies, with mostly Type II errors if exceeding 500. Furthermore, the analysis considers factors such as gender (male/female), with the minimum value of samples of each factor being at least 30 samples (Roscoe, 1975). Therefore, the number of samples in this study was within the recommendation and considered enough for the analysis that was done in this study. Data was collected using structured questionnaires, the International Physical Activity Questionnaire (IPAQ) to measure activity levels, and the Fantastic Lifestyle Assessment (FLA) to evaluate lifestyle status. Short versions, consisting of 9 items in total, were used for IPAQ, while FLA consists of 24 items. This study proposed two variables, namely the independent and dependent variables. Independent variables consist of the student's level of physical activity. Meanwhile dependent variable is the student's lifestyle status. The data was analyzed using SPSS 26.0, with descriptive analysis, an independent sample T Test, One-Way ANOVA, and Two-Way ANOVA test was applied to examine the differences between the variables. A pilot study was conducted to ensure the internal data were consistent, which involved ensuring the measurement scales of the questionnaire's variables were accurate and reliable.

**RESULTS**

Based on the demographic data in Table 1, little difference in terms of number between genders, where males are 53.9% (N=167), and females are 46.1 (N=143). The total number of respondents in this research is 310 students. The highest age group in this study is 16 years old, which is 31.3% (N=97), followed by the 17 years old age group, which is 26.1% (N=81), and the 14 years old age group is 25.8% (N=80). Moreover, the least among the age group was 15

years old, as it represented 16.8% (N=52). Besides, the BMI data are categorized into 4 groups. The highest BMI group was from normal, 72.6% (N=225), followed by the overweight group, which was 13.2% (N=41), and 12.6% (N=39) for the underweight group. Thus, the least among the BMI group was obesity, as it represented 1.6% (N=5).

**Table 1.** Demographic data of Sekolah Menengah Kebangsaan Bandar Saujana Putra

|  |  | **Total** | **Percent** |
|---|---|---|---|
| **Gender** | Male | 167 | 53.9 |
|  | Female | 143 | 46.1 |
|  | Total | 310 | 100.0 |
| **Age** | 14 | 80 | 25.8 |
|  | 15 | 52 | 16.8 |
|  | 16 | 97 | 31.3 |
|  | 17 | 81 | 26.1 |
|  | Total | 310 | 100.0 |
| **BMI** | Underweight | 39 | 12.6 |
|  | Normal | 225 | 72.6 |
|  | Overweight | 41 | 13.2 |
|  | Obesity | 5 | 1.6 |
|  | Total | 310 | 100.0 |

students

Table 2 below shows the data analysis using the Pearson Correlation test in determining the relationship between physical activity and lifestyle among Sekolah Menengah Kebangsaan Bandar Saujana Putra. The result found that r = -.028 and alpha 0.625, which is bigger than 0.05. This means that there is no significant relationship between the two variables.

**Table 2.** Relationship Between Physical Activity and Lifestyle
Correlations

|  |  | IPAQ Score | FLA Score |
|---|---|---|---|
| IPAQ Score | Pearson Correlation | 1 | -.028 |
|  | Sig. (2-tailed) |  | .625 |
|  | N | 310 | 310 |
| FLA Score | Pearson Correlation | -.028 | 1 |
|  | Sig. (2-tailed) | .625 |  |
|  | N | 310 | 310 |

Table 3 shows the level of physical activity between male and female students at Sekolah Menengah Kebangsaan Bandar Saujana Putra. An Independent Sample T-test analysis in table 4 was conducted to determine the difference between male and female levels of physical activity. Based on the result, it was found that t (306.275) = 1.748, p = 0.082 was no significant difference in the t-test score between gender, which is males (M = 1.16, SD = .364)

and females (M = 1.09, SD = .288).  In other words, male and female students have a similar level of physical activity with a small difference of (0.065).

**Table 3.** Difference in Physical Activity Among Genders

|  | Gender | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PA | Male | 167 | 1.16 | .364 | .028 |
|  | Female | 143 | 1.09 | .288 | .024 |

**Table 4.** Independent Samples Test

| Independent Samples Test | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Significance | | | | 95% Confidence Interval of the Difference | |
| | | | | | | One-Sided p | Two-Sided p | Mean Difference | Std. Error Difference | | |
| | | F | Sig. | t | df | | | | | Lower | Upper |
| PA | Equal variances assumed | 12.339 | <.001 | 1.717 | 308 | .043 | .087 | .065 | .038 | -.009 | .139 |
| | Equal variances not assumed | | | 1.748 | 306.275 | .041 | .082 | .065 | .037 | -.008 | .138 |

Table 5 shows whether male and female students among Sekolah Menengah Kebangsaan Bandar Saujana Putra significantly differ in their lifestyle status. An independent sample t-test in table 6 was conducted, and the result is shown in Table 4. Based on the result, it was found that t (308) = -2.40, p = 0.017. This result indicates that there is a significant difference in the t-test score between gender which is males (M = 2.21, SD = .911) and females (M = 2.45, SD = .878). In other words, male and female students have different lifestyles throughout their daily lives. However, females score higher in lifestyle compared to males, with a difference of (-0.245).

**Table 5.** Difference in Lifestyle Status Among Genders

|  | Gender | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Lifestyle | Male | 167 | 2.21 | .911 | .070 |
|  | Female | 143 | 2.45 | .878 | .073 |

**Table 6.** Independent Samples Test

| Independent Samples Test | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Significance | | | | 95% Confidence Interval of the Difference |
| | | | | | | | One-Sided p | Two-Sided p | Mean Difference | Std. Error Difference | |
| | | F | Sig. | t | df | | | | | | Lower | Upper |
| Lifestyle | Equal variances assumed | .013 | .908 | -2.400 | 308 | .008 | .017 | -.245 | .102 | -.446 | -.044 |
| | Equal variances not assumed | | | -2.407 | 303.681 | .008 | .017 | -.245 | .102 | -.445 | -.045 |

Table 7 demonstrates the students' level of physical activity among Sekolah Menengah Kebangsaan Bandar Saujana Putra students. 3 types of norms that are categorized, low is the highest in this research, which is 87.4% (N=271), followed by moderate, which is 12.6% (N=39). Moreover, the least number is high category, which is 0% (N=0).

**Table 7.** Kruskal-Wallis Tests for Athlete's Background on Emotion

| | Frequency | Percent | Valid Percent |
|---|---|---|---|
| Low | 271 | 87.4 | 87.4 |
| Moderate | 39 | 12.6 | 12.6 |
| High | 0 | 0 | 0 |

Table 8 demonstrates the students' lifestyle status among Sekolah Menengah Kebangsaan Bandar Saujana Putra. 4 types of norms are categorized: good work is the highest in this research, which is 41.3% (N=128), followed by fair, which is 29.0% (N=90), and congratulations 18.8% (N=58). Moreover, the least number is somewhat low, which is 11.0% (N=34).

**Table 8.** Lifestyle Status

|  | Frequency | Percent | Valid Percent |
|---|---|---|---|
| **Congratulations** | 58 | 18.7 | 18.7 |
| **Good Work** | 128 | 41.3 | 41.3 |
| **Fair** | 90 | 29.0 | 29.0 |
| **Somewhat Low** | 34 | 11.0 | 11.0 |
| **Total** | 310 | 100.0 | 100.0 |

Table 9 below shows whether there is a difference in the mean IPAQ score for students between the ages of 14, 15, 16, and 17 among students in Sekolah Menengah Bandar Saujana Putra. A One-way ANOVA test in table 10 was conducted, and the analysis shows no significant difference in the IPAQ scores at the $p<.05$ level, $F (3,306) = .219$, $p=.883$. These findings indicate that there is no difference between the age levels of 14 (M = 1.14, SD = .347), age 15 (M = 1.13, SD = .345), age 16 (M = 1.10, SD = .306), and age 17 (M = 1.14, SD = .345) regarding involvement in physical activity.

**Table 9.** Difference in IPAQ score based on age

Descriptives
IPAQ

|  | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | Lower Bound | Upper Bound |  |  |
| 14 years old | 80 | 1.14 | .347 | .039 | 1.06 | 1.21 | 1 | 2 |
| 15 years old | 52 | 1.13 | .345 | .048 | 1.04 | 1.23 | 1 | 2 |
| 16 years old | 97 | 1.10 | .306 | .031 | 1.04 | 1.16 | 1 | 2 |
| 17 years old | 81 | 1.14 | .345 | .038 | 1.06 | 1.21 | 1 | 2 |
| Total | 310 | 1.13 | .332 | .019 | 1.09 | 1.16 | 1 | 2 |

**Table 10.** A One-way ANOVA test

ANOVA
IPAQ

|  | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | .073 | 3 | .024 | .219 | .883 |
| Within Groups | 34.020 | 306 | .111 |  |  |
| Total | 34.094 | 309 |  |  |  |

Table 11 below shows whether there is a difference in the mean FLA score for students between the ages of 14, 15, 16, and 17 among students in Sekolah Menengah Bandar Saujana Putra. A One-way ANOVA test in table 12 was conducted, and the analysis shows a significant difference in the FLA scores at the $p<.05$ level, $F(3,306) = 3.246$, $p=.002$. In table 13, Post Hoc comparisons using the Tukey test showed that the mean FLA score of 16-year-old students (M = 2.48, SD =.885) was significantly different from that of 17-year-old students (M = 2.07, SD =.919), while for other age groups, there was no significant difference.

**Table 11.** Difference in FLA score between ages

Descriptives
FLA

|  | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean Lower Bound | 95% Confidence Interval for Mean Upper Bound | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| 14 years old | 80 | 2.34 | .899 | .101 | 2.14 | 2.54 | 1 | 4 |
| 15 years old | 52 | 2.38 | .911 | .126 | 2.13 | 2.64 | 1 | 4 |
| 16 years old | 97 | 2.48 | .855 | .087 | 2.31 | 2.66 | 1 | 4 |
| 17 years old | 81 | 2.07 | .919 | .102 | 1.87 | 2.28 | 1 | 4 |
| Total | 310 | 2.32 | .903 | .051 | 2.22 | 2.42 | 1 | 4 |

**Table 12.** A One-way ANOVA test

ANOVA
FLA

|  | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 7.764 | 3 | 2.588 | 3.246 | .022 |

| | | | | |
|---|---|---|---|---|
| Within Groups | 243.978 | 306 | .797 | |
| Total | 251.742 | 309 | | |

**Table 13.** Post Hoc comparisons

Multiple Comparisons
Dependent Variable: FLA

| | | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| | (I) Age | (J) Age | | | | | |
| Tukey HSD | 14 years old | 15 years old | -.047 | .159 | .991 | -.46 | .36 |
| | | 16 years old | -.147 | .135 | .696 | -.50 | .20 |
| | | 17 years old | .263 | .141 | .242 | -.10 | .63 |
| | 15 years old | 14 years old | .047 | .159 | .991 | -.36 | .46 |
| | | 16 years old | -.100 | .153 | .915 | -.50 | .30 |
| | | 17 years old | .311 | .159 | .207 | -.10 | .72 |
| | 16 years old | 14 years old | .147 | .135 | .696 | -.20 | .50 |
| | | 15 years old | .100 | .153 | .915 | -.30 | .50 |
| | | 17 years old | .410* | .134 | .013 | .06 | .76 |
| | 17 years old | 14 years old | -.263 | .141 | .242 | -.63 | .10 |
| | | 15 years old | -.311 | .159 | .207 | -.72 | .10 |
| | | 16 years old | -.410* | .134 | .013 | -.76 | -.06 |
| Dunnett C | 14 years old | 15 years old | -.047 | .161 | | -.47 | .38 |
| | | 16 years old | -.147 | .133 | | -.50 | .20 |
| | | 17 years old | .263 | .143 | | -.11 | .64 |
| | 15 years old | 14 years old | .047 | .161 | | -.38 | .47 |
| | | 16 years old | -.100 | .153 | | -.50 | .31 |
| | | 17 years old | .311 | .162 | | -.12 | .74 |

| | | | | | |
|---|---|---|---|---|---|
| 16 years old | 14 years old | .147 | .133 | -.20 | .50 |
| | 15 years old | .100 | .153 | -.31 | .50 |
| | 17 years old | .410* | .134 | .06 | .76 |
| 17 years old | 14 years old | -.263 | .143 | -.64 | .11 |
| | 15 years old | -.311 | .162 | -.74 | .12 |
| | 16 years old | -.410* | .134 | -.76 | -.06 |

Table 14 below shows Two-Way ANOVA test was conducted to see if there was a significant difference between male and female students aged 14, 15, 16, and 17 years. This analysis also aimed to see the effect of gender and age on lifestyle. Male and female students were divided into four age groups, namely 14, 15, 16, and 17 years. The analysis in table 15 showed that there was a significant main effect of age group at the $p < .05$ level, $F_{(1,302)} = 4.015$, $p = 0.046$, with a small effect size (eta square = .013). In table 16 Post hoc comparison using Tukey's test showed that the mean healthy lifestyle score of students aged 17 years (M = 2.07, SD = .919) was significantly different from that of students aged 16 years (M = 2.48, SD = .855). Students aged 14 (M = 2.34, SD = .899) and age 15 (M = 2.38, SD = .911) did not show a significant difference from any other age group. The main effect of gender $F_{(1,302)} = 4.105$, $p = 0.046$ and the interaction effect $(3,302) = .910$, $p = .437$ are not significant.

**Table 14.** The difference between genders among students age

Descriptive Statistics
Dependent Variable:  Lifestyle

| Gender | Age | Mean | Std. Deviation | N |
|---|---|---|---|---|
| Male | 14 years old | 2.19 | .877 | 37 |
| | 15 years old | 2.41 | 1.010 | 27 |
| | 16 years old | 2.42 | .842 | 53 |
| | 17 years old | 1.90 | .886 | 50 |
| | Total | 2.21 | .911 | 167 |
| Female | 14 years old | 2.47 | .909 | 43 |
| | 15 years old | 2.36 | .810 | 25 |
| | 16 years old | 2.57 | .873 | 44 |

|  |  |  |  |  |
|---|---|---|---|---|
|  | 17 years old | 2.35 | .915 | 31 |
|  | Total | 2.45 | .878 | 143 |
| Total | 14 years old | 2.34 | .899 | 80 |
|  | 15 years old | 2.38 | .911 | 52 |
|  | 16 years old | 2.48 | .855 | 97 |
|  | 17 years old | 2.07 | .919 | 81 |
|  | Total | 2.32 | .903 | 310 |

**Table 15.** Tests of Between-Subjects Effects

Dependent Variable: Lifestyle

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Noncent. Parameter | Observed Power[b] |
|---|---|---|---|---|---|---|---|---|
| Corrected Model | 13.830[a] | 7 | 1.976 | 2.508 | .016 | .055 | 17.555 | .877 |
| Intercept | 1574.283 | 1 | 1574.283 | 1998.359 | <.001 | .869 | 1998.359 | 1.000 |
| Gender | 3.163 | 1 | 3.163 | 4.015 | .046 | .013 | 4.015 | .515 |
| Age | 5.782 | 3 | 1.927 | 2.446 | .064 | .024 | 7.339 | .606 |
| Gender * Age | 2.150 | 3 | .717 | .910 | .437 | .009 | 2.729 | .249 |
| Error | 237.912 | 302 | .788 |  |  |  |  |  |
| Total | 1924.000 | 310 |  |  |  |  |  |  |
| Corrected Total | 251.742 | 309 |  |  |  |  |  |  |

a. R Squared = .055 (Adjusted R Squared = .033)

b. Computed using alpha = .05

**Table 16.** Post hoc comparison

Multiple Comparisons

Dependent Variable: Lifestyle

Tukey HSD

| (I) Age | (J) Age | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval Lower Bound | Upper Bound |
|---|---|---|---|---|---|---|
| 14 years old | 15 years old | -.05 | .158 | .991 | -.46 | .36 |
|  | 16 years old | -.15 | .134 | .692 | -.49 | .20 |
|  | 17 years old | .26 | .140 | .238 | -.10 | .62 |

| 15 years old | 14 years old | .05 | .158 | .991 | -.36 | .46 |
|---|---|---|---|---|---|---|
| | 16 years old | -.10 | .153 | .914 | -.49 | .29 |
| | 17 years old | .31 | .158 | .202 | -.10 | .72 |
| 16 years old | 14 years old | .15 | .134 | .692 | -.20 | .49 |
| | 15 years old | .10 | .153 | .914 | -.29 | .49 |
| | 17 years old | .41$^*$ | .134 | .012 | .07 | .76 |
| 17 years old | 14 years old | -.26 | .140 | .238 | -.62 | .10 |
| | 15 years old | -.31 | .158 | .202 | -.72 | .10 |
| | 16 years old | -.41$^*$ | .134 | .012 | -.76 | -.07 |

Based on observed means.
 The error term is Mean Square (Error) = .788.
*. The mean difference is significant at the .05 level.

## DISCUSSION

This study investigated the relationship between physical activity and lifestyle among students at Sekolah Menengah Kebangsaan Bandar Saujana Putra. The findings revealed no statistically significant correlation between the two variables, challenging the widely held belief that increased physical activity inherently leads to a healthier lifestyle. This unexpected outcome suggests that lifestyle choices among adolescents are influenced by a complex interplay of factors beyond just exercise habits. While physical activity is universally recognized for its benefits, including improved cardiovascular health, enhanced cognitive function, stress reduction, and better emotional well-being, this study indicates that its impact on overall lifestyle may be moderated by other influential elements. Subsequently, the methodological issues and sample-related factors also may contribute to the findings in this study. This discussion outlines the potential factors contributing to the results and presents recommendations for future improvements relating to this study.

Firstly, the findings show no significant correlation between PA and lifestyle, which may be attributed to the fact that the IPAQ instrument uses a self-assessment method by the samples (Ahn et al., 2015), contributing to potential bias in answering it, such as overestimation/underestimation of activity levels. As an example, the item "how much time did you usually spend doing vigorous physical activities on one of those days?" may lead to confusion since maybe the students were not able to recall the memory of doing it on last 7 days. Consequently, the FLA is an instrument that captures a multidimensional component relating to a broad range definition of lifestyle, such as family and friends, activity, nutrition, tobacco, alcohol, and others (Batista et al., 2023), which may result in a weak or non-significant

association with PA. Additionally, only the 3 items were allocated towards activity and association components, which may not be enough to capture the PA level among samples. This self-assessment limitation may weaken the accuracy of data in assessing the PA level within the samples related to the lifestyle assessments. In terms of sample-related factors, the samples that have similar demographic attributes, such as educational background or the same institutional setting, can affect the statistical capability in analyzing and detecting meaningful relationships, although they might exist among the samples.

Secondly, the term lifestyle was considered broad, including food and nutrition intake, physical activity, substance usage such as tobacco, alcohol, and drugs, leisure time, self-care, medical health, sexual activities, social relations, sleep, and psychological being (Del Castillo & García Del Castillo Rodríguez, 2023; Zambrano Bermeo et al., 2024). The classification of healthy lifestyle habits includes several factors, and because of that, students may not understand that these factors are related to each other. For them, it may be enough to just take care of their diet or have enough sleep to contribute to good lifestyle habits, while other factors, such as social relations, medical health, and others, are also needed in a healthy lifestyle. Some students might think that physical activity is not related to their lifestyle and may not fully realize the importance of physical activity. It can be seen in the findings of this study that the level of PA is mostly at a low level, indicating that the perceptions towards PA were not related to lifestyle. In contrast with the level of lifestyles most students were in "Good Work", indicating that they might believe that factors that contribute to a better lifestyle may not be significantly related to PA level.

This study also indicates that the level of physical activity was similar between genders among Sekolah Menengah Kebangsaan Bandar Saujana Putra students. Apart from the sample-related factors mentioned above, the type of motivation also contributes to engagement in PA. A study by Kamal et al. (2024) indicates that it is important to identify the motives among genders in participating in PA, since it can be a determining factor in promoting PA towards gender. According to Knapik et al. (2025) and Zartaloudi et al. (2023), factors such as body image can enhance the motivation of female students, since studies indicate there is a relationship between PA and body image. Tey et al. (2025), body image was among other components that contribute to the involvement in PA and nutrition intake among adolescents due to the factor in enhancing self-image. Socioeconomic background is also one of the factors that contribute to the low level of PA, with people who have a higher socioeconomic background being able to spend more time on gadgets or electronic devices, as they can afford to purchase them, compared to individuals with a lower socioeconomic background that was not able to provide these things. It can be seen in the study by Choudary et al (2024) and Twenge et al. (2019) that most adolescent spends an average of 4.5 to 5.5 hours a day on screens, exceeding the recommendation of 2 hours a day. This type of behaviour is also prevalent among youth in Selangor, where they spend almost 5 hours a day in sedentary lifestyles such as watching television, computer activity, reading, and homework (Mansor et al., 2017). Since the COVID-19 outbreak at the end of 2019, learning was done using online classes, and it can be assumed that most of the students in Malaysia have their devices, resulting in more time spent on devices (Hadi et al., 2023).

In addition, the age factor is also an important factor in promoting PA towards a healthy lifestyle among adolescents. Although these findings indicate that there is no difference in PA level among ages, a few studies conducted by Hafsteinsson Östenberg et al. (2022) discovered that there is a decreasing level of PA in both genders in 14 to 18-year-olds. It may be due to a few circumstances, such as the situation of the school session as mentioned above, the implementation of the 1 sport 1 student policy is still being carried out in Malaysia, including the co-curricular policy. Thus, these policies may contribute towards the same level of PA among the students in the sample. In addition, tournaments involving sports take place throughout the year, from the district level to the national level, and this may affect the results of this study.  In addition, studies indicate that the age of 16 years old and above was a crucial stage in reinforcing healthy lifestyle habits since it is a key transitional life stage for adolescents (Bhatti et al., 2020) due to factors such as cognitive development, which is puberty, and cognitive abilities are improving, as well as more independence and responsibility towards oneself. Due to that, it supports the findings in this research where there is a difference in lifestyle between students aged 16 to 17 years old since they have achieved maturity and can create a reason to motivate themselves towards a healthy lifestyle.

For future research, this study can be expanded using longitudinal studies, such as tracking students over several years, which could reveal whether physical activity has delayed effects on lifestyle habits.  The data can be gained using qualitative insights, such as interviews or focus groups with students, which could uncover personal barriers (e.g., lack of time, low self-efficacy) that surveys may not capture. Additionally, the use of sampling to broaden the demographic, including rural vs. urban schools, different socioeconomic groups, and varying education systems, would enhance generalizability regarding this issue.

**CONCLUSION**

Nevertheless, the main point is that the factors that contribute towards PA and lifestyle should be examined closely in children and adolescents due to the benefits and correlation between those two components. Schools and health educators should adopt comprehensive wellness programs that address not only physical activity but also nutrition, mental health, sleep hygiene, stress management, and other factors related to a healthy lifestyle. A balanced lifestyle requires attention to all these aspects rather than an overemphasis on exercise alone. Secondly, there are factors of socioeconomic background and cognitive capacities that also play important roles in the relationship between PA and lifestyle to promote PA and healthy lifestyles among children and adolescents. Thirdly, there are seasonal and motivational factors that, as noted, physical activity engagement fluctuates based on seasons, academic schedules, and school sports events. To sustain participation, schools could implement year-round fitness initiatives, indoor exercise alternatives during unfavorable weather, and motivational programs to maintain student interest.

While this study did not establish a direct link between physical activity and lifestyle, it opens important discussions about how children's and adolescents' health should be approached. Encouraging physical activity remains vital, but it must be part of a broader

strategy that includes education, environmental support, and personalized motivation. Schools, policymakers, and families must collaborate to create an ecosystem where students are empowered to make healthier choices, not just in exercise, but in all aspects of their daily lives. Ultimately, fostering a generation that values holistic well-being requires persistent effort, evidence-based interventions, and a societal commitment to prioritizing health. Future research should continue refining strategies to ensure that physical activity translates into sustainable, positive lifestyle changes for students.

## DISCLOSURE STATEMENT

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