

Received : June, 5 2026

Revised : July, 6 2026

Accepted : Agust, 28 2026

Published:October, 11 2026

The Relationship Between Sedentary Lifestyle And Mental Health Among Eighth Grade Adolescents At Mts Hasyim Asy'ari Malang City

Silvi Faulina^{1*}, Sena Wahyu Purwanza²

^{1,2} Maharani Malang College of Health Sciences

Corresponding author : cafdeum@gmail.com

ABSTRACT

Background: Sedentary lifestyles among adolescents are on the rise and potentially impact mental health, particularly in Islamic junior high schools, which often feature distinct activity patterns and lifestyle characteristics. Objective: This study aimed to examine the relationship between sedentary lifestyles and mental health among adolescents at MTs Hasyim Asy'ari in Malang City. **Methods:** A cross-sectional correlational design was employed, utilizing a total population sample of 54 respondents. Data were collected using the Adolescent Sedentary Activity Questionnaire (ASAQ) and the Depression, Anxiety, and Stress Scale (DASS-21). Data analysis was performed using the Spearman Rank correlation test. **Results:** The findings indicated that respondents predominantly exhibited a moderate sedentary lifestyle (20 respondents; 37.0%) and experienced severe stress (39 respondents; 72.2%); a significant relationship was found between lifestyle and adolescent mental health. **Conclusion:** Consequently, the school should consider implementing programs that encourage active lifestyles and promote mental health among adolescents.

Keywords: sedentary behavior; adolescent mental health; stress; DASS-21; physical activity

Background

Adolescence is a transitional stage marked by rapid biological, psychological, emotional, and social changes, including hormonal maturation, identity formation, and heightened social adaptation demands. These changes can considerably affect mental health, making adolescents a vulnerable population due to simultaneous exposure to academic pressure, social expectations, peer influences, and emotional challenges.

Globally, mental health among adolescents is a growing public health concern. The World Health Organization reports that approximately one in seven adolescents experiences mental health disorders, with anxiety, stress, and depression being the most prevalent. In Indonesia, the 2022 Indonesia National Adolescent Mental Health Survey (I-NAMHS) found that nearly 35% of adolescents face mental health challenges, with higher prevalence in urban regions. In East Java, particularly in Malang City, emotional and psychological disorders among adolescents exceed the provincial average. Affected adolescents often report stress, anxiety, emotional exhaustion, sleep disturbances, and impaired emotional regulation, potentially affecting academic performance, social interactions, and quality of life if unaddressed.

Sedentary behavior, defined as low-energy activities performed while sitting or lying down for extended periods (e.g., studying, smartphone use, gaming, and screen time), has been identified as a factor associated with mental health problems. Technological advancements have increased screen-based activity, contributing to reduced physical activity and outdoor engagement among adolescents.

Previous research indicates that prolonged sedentary behavior may adversely impact psychological well-being. Extended sedentary activity can elevate stress and emotional fatigue due to diminished physical activity and impaired coping mechanisms (1). Found consistent associations between sedentary behavior, low physical activity, and higher levels of stress, anxiety, and depression (2). Also observed that greater sedentary duration correlates with increased depressive symptoms and emotional disturbances. However, evidence remains inconsistent, particularly regarding anxiety and depression, which are influenced by complex social, environmental, and emotional factors (3).

Preliminary observations at MTs Hasyim Asy'ari indicated that most students spend extended periods engaging in sedentary activities such as studying while seated, smartphone use, gaming, and social media engagement. Students frequently reported difficulties concentrating, emotional fatigue, irritability, and stress-related symptoms, suggesting that sedentary behavior may contribute to mental health

challenges in this school population.

This study aims to examine the relationship between sedentary behavior and mental health among eighth-grade students at MTs Hasyim Asy'ari, providing evidence to guide preventive and promotive interventions in school settings.

Methods

A cross-sectional correlational design was used in this study, conducted at MTs Hasyim Asy'ari, Malang City in 2026. The total population of eighth-grade students ($N = 54$) was included using total sampling. Sedentary behavior was measured using the Adolescent Sedentary Activity Questionnaire (ASAQ), while stress, anxiety, and depression were assessed with the Depression Anxiety Stress Scale-21 (DASS-21). Spearman's rho correlation analysis was applied to determine associations, with significance set at $p < 0.05$.

Results

Table 1. Characteristics of Respondents

Variable	Category	N	%
Gender	Male	22	40.7
	Female	32	59.3
Parental Occupation	Unemployed/Housewife	3	5.5
	Farmer	3	5.5
	Private employee	25	46.2
	Self-employed	12	22.2
	Civil servant	11	20.3
Parental Education	No formal education	4	7.4
	Elementary school	6	11.1
	Junior high school	14	25.9
	Senior high school	21	38.8
	Higher education	8	14.8

A total of 54 eighth-grade students from MTs Hasyim Asy'ari Malang City participated in this study. Female students accounted for 59.3% of the sample, whereas male students made up 40.7%. Regarding parental occupation, private-sector employment was most prevalent (46.2%), followed by self-employment (22.2%) and civil service positions (20.3%). Concerning educational background, the majority of parents had completed senior high school education (38.8%), followed by junior high school (25.9%), higher education (14.8%), elementary education (11.1%), and no formal education (7.4%).

Table 2. Distribution of Sedentary Lifestyle among Respondents

Sedentary Duration	N	%
< 4 hours/day	16	29.6
4–8 hours/day	20	37.0
> 8 hours/day	18	33.3
Total	54	100.0

The distribution of sedentary behavior showed that most students spent 4–8 hours per day in sedentary activities (37.0%). Meanwhile, 33.3% reported more than 8 hours per day, and 29.6% less than 4 hours per day. This indicates that moderate-to-high sedentary behavior was common among the participants.

Table 3. Distribution of stress levels among respondents

Stress Level	Score Range	N	%
Normal	0–14	0	0.0

Stress Level	Score Range	N	%
Mild	15–18	0	0.0
Moderate	19–25	0	0.0
Severe	26–33	39	72.2
Extremely Severe	>34	15	27.8
Total		54	100.0

Most participants were classified as experiencing severe stress (72.2%), while 27.8% were categorized as extremely severe. No respondents were in the normal, mild, or moderate stress categories, indicating a high prevalence of stress symptoms among these adolescents.

Table 4. Distribution of anxiety levels among respondents

Anxiety Level	Score Range	N	%
Normal	0–14	0	0.0
Mild	15–18	0	0.0
Moderate	19–25	5	9.3
Severe	26–33	34	63.0
Extremely Severe	>34	15	27.8
Total		54	100.0

The majority of respondents experienced severe anxiety (63.0%), while (27.8%) had extremely severe anxiety. No participants were classified within normal, mild, or moderate anxiety categories, highlighting the considerable presence of anxiety symptoms.

Table 5. Distribution of depression levels among respondents

Depression Level	Score Range	n	%
Normal	0–9	2	3.7
Mild	10–13	25	46.2
Moderate	14–20	18	33.3
Severe	21–27	1	1.8
Extremely Severe	>28	8	14.8
Total		54	100.0

Depression levels were more varied. Almost half of the respondents were classified as having mild depression (46.2%), followed by moderate depression (33.3%). A smaller proportion exhibited extremely severe depression (14.8%), severe depression (1.8%), or normal levels (3.7%).

Cross-tabulation of sedentary lifestyle and mental health

Cross-tabulation revealed that depression symptoms were generally mild to moderate across sedentary duration groups, but students with higher sedentary duration (>8 hours/day) tended to exhibit more severe depressive symptoms. For stress, lower sedentary duration (<4 hours/day) was associated with higher stress levels, while moderate and high sedentary groups showed lower stress, suggesting an inverse relationship. Anxiety levels did not show a consistent pattern across sedentary categories, with moderate to severe anxiety distributed in all groups.

Table 6. Correlation between sedentary lifestyle and mental health outcomes

Variables	N	Correlation Coefficient (r)	p-value
Sedentary lifestyle and stress	54	-0.826	0.001
Sedentary lifestyle and anxiety	54	0.024	0.866
Sedentary lifestyle and depression	54	0.051	0.717

Spearman's rho analysis examined the relationships between sedentary lifestyle and mental health outcomes. There was no significant correlation between sedentary behavior and depression ($r = 0.051$, $p = 0.717$) or anxiety ($r = 0.024$, $p = 0.866$), indicating that sedentary duration was not strongly associated with these conditions. In contrast, a significant negative correlation was observed between sedentary lifestyle and stress levels ($r = -0.826$, $p = 0.001$), indicating that adolescents who spent less time in sedentary activities reported higher stress.

Discussion

The discussion in this study indicates that sedentary lifestyle among adolescents cannot be separated from daily activities involving the interaction of individual, environmental, and social factors. Adolescents tend to have a moderate level of sedentary behavior as they remain engaged in various physical activities, including school-related tasks, household responsibilities, and social interactions with peers. Such involvement plays a role in limiting time spent in low-energy expenditure activities, reflecting a relatively active lifestyle. This finding aligns with the concept that sedentary behavior is influenced by the balance between physical activity and screen time exposure in daily life (4)(5)(6).

On the other hand, sedentary behavior remains an integral part of adolescents' lives, particularly in the context of academic activities and digital media use. Learning activities, gadget usage, and screen-based entertainment are common forms of sedentary behavior in this age group. However, participation in physical activities and supportive environments can act as protective factors in controlling excessive sedentary duration (7)(6)(8).

Adolescent mental health in this study shows a considerable level of vulnerability, particularly in terms of anxiety and stress, while depression tends to be at a milder level. This condition reflects adolescence as a transitional period characterized by biological, psychological, and social changes. Academic pressure, social relationships, and emotional instability contribute to the emergence of mental health problems among adolescents (5)(9)(10)(11). Furthermore, environmental factors such as family support, parenting patterns, and social interactions also play a significant role in shaping adolescents' psychological conditions (8)(12).

The relationship between sedentary lifestyle and mental health suggests that sedentary behavior is associated with stress, where certain sedentary activities may function as temporary coping mechanisms to reduce psychological pressure. Activities such as digital media use or entertainment can provide relaxation effects that help adolescents manage stress in the short term (13)(14). However, this relationship is not consistent across all mental health aspects. Depression is not directly associated with sedentary behavior, as it is influenced by more complex factors, including emotional conditions, life experiences, and social support (6). Similarly, anxiety shows inconsistent associations, as it may trigger different responses in individuals, including increased motor activity that does not always correspond with sedentary behavior (15).

Overall, sedentary behavior and adolescent mental health are interrelated phenomena influenced by multidimensional factors. Although certain sedentary activities may offer temporary coping benefits, excessive duration may lead to negative impacts on both physical and psychological health, particularly when not balanced with sufficient physical activity (16)(2). Therefore, maintaining a balance between sedentary and physical activities, as well as strengthening family and school support systems, is essential to promote optimal adolescent mental health. Research findings indicate that regular physical activity can mitigate the negative effects of sedentary behavior (17). However, there are differences in the sedentary behavior of elementary school students based on their area of residence for instance, between villages in Indramayu District and Arahman District (18). This is strongly linked to their understanding of physical activity and sedentary lifestyles. Research findings indicate a relationship between physical activity and sedentary behavior among students at the Faculty of Sports Science, State University of Makassar, with a correlation coefficient of 0.844 and a significance level of 0.000. These findings suggest that the better students understand the importance of physical activity, the more positive their approach to managing their lifestyle becomes in terms of avoiding excessive sedentary behavior (19). Consequently, it is crucial to conduct education on sedentary behavior across all age groups to improve physical and mental health (20) nbjk.

Conclusions and Recommendations

This study indicates that sedentary behavior among adolescents is generally maintained at a

moderate level, reflecting a balance between low-energy activities and active daily engagements. Adolescents remain involved in academic, physical, and social activities that limit the dominance of sedentary behavior in their routines.

However, adolescent mental health demonstrates considerable vulnerability, particularly in relation to stress and anxiety, while depressive symptoms tend to be less prominent. These findings highlight the psychological challenges associated with developmental transitions, academic demands, and social pressures experienced during adolescence.

An association between sedentary behavior and mental health is identified, suggesting that daily activity patterns may influence psychological well-being. Certain sedentary activities may serve as temporary coping mechanisms for stress, yet maintaining a balance with physical activity remains essential to prevent adverse health outcomes.

It is recommended that adolescents adopt more active lifestyles to support overall health. Schools should strengthen physical activity programs and integrate mental health promotion and preventive strategies. Health professionals are encouraged to develop interventions that emphasize active behavior. Future research is warranted to employ more rigorous designs and broader populations to further elucidate effective approaches in improving adolescent mental health.

Ethical Consideration and Competing Interest

This research has undergone a research ethics review by the Ethics Committee of Noor Huda Mustofa University (UNHM) and has been declared Ethically Appropriate, with registration number 3337/KEPK/UNIV-NHM/EC/IV/2026.

In terms of research ethics, this study adhered to fundamental ethical principles, including informed consent, confidentiality, and voluntary participation. All participants were informed about the purpose and procedures of the study prior to data collection, and their consent was obtained before conducting interviews. The anonymity of participants was maintained by ensuring that personal identities were not disclosed in the reporting of findings. Furthermore, all data collected were used solely for research purposes, ensuring respect for participants' right and maintaining the integrity of the research process. There is no conflict of interest related to this publication.

Acknowledgment

The author gratefully acknowledges the support of College of Health Sciences Maharani Malang and expresses sincere appreciation to MTs Hasyim Asy'ari Malang for facilitating this research. The author also thanks the academic supervisors and examiners for their valuable guidance and constructive feedback. Appreciation is extended to all participants, including teachers, students, and parents, for their cooperation. The author further acknowledges the support and encouragement from family and colleagues throughout the completion of this study.

References

1. Hu D, Xie P, Xia L, Hou H, Wang H, Zheng X, et al. The associations between sedentary behavior and risk of depression : a systematic review and dose response meta-analysis. BMC Public Health. 2025;25(2254). <https://doi.org/10.1186/s12889-025-23418-4>
2. María Rodríguez-Ayllon, Neumann A, Hofman A, L. Neurobiological, Psychosocial, and Behavioral Mechanisms Mediating Associations Between Physical Activity and Psychiatric Symptoms in Youth in the Netherlands. JAMA Pscytry. 2023;80(5). <https://doi.org/10.1001/jamapsychiatry.2023.0294>
3. Hoare E, Milton K, Foster C, Allender S. The associations between sedentary behaviour and mental health among adolescents : a systematic review. Int J Behav Nutr Phys Act. 2016;13(108). <https://doi.org/10.1186/s12966-016-0432-4>
4. Bull FC, Al- SS, Biddle S, Borodulin K, Buman MP, Cardon G, et al. World Health Organization 2020 guidelines on physical activity and sedentary behaviour. Brithis J Sport Med. 2020;54(24):1451–62. <https://doi.org/10.1136/bjsports-2020-102955>
5. Organization WH. Mental health of adolescents. Geneva: WHO; 2020.
6. Zhang T, Lu G, Wu XY. Associations between physical activity , sedentary behaviour and self-rated health among the general population of children and adolescents : a systematic review and. BMC Public Health. 2020;30(1343):1–16. <https://doi.org/10.1186/s12889-020-09447-1>

7. Lopes R, Rey-lo JP, Fornias L, Rezende M De. Sedentary Behavior and Health Outcomes : An Overview of Systematic Reviews. Plose one. 2014;9(8). <https://doi.org/10.1371/journal.pone.0105620>
8. Supini P, Gandakusumah ARP, Asyifa N, Auliya ZN, Ismail DR. Faktor-Faktor yang Mempengaruhi Kesehatan Mental pada Remaja. JERUMI J Educ Relig Humanit Multidiciplinary. 2024;2(1):166–72. <https://doi.org/10.57235/jerumi.v2i1.1760>
9. Alamolhoda SH, Zare E, HakimZadeh A, Zalpour A, Vakili F, Mohammadi R, et al. Adolescent mental health during covid-19 pandemics: a systematic review. De Gruyter Brill. 2022;35(1). <https://doi.org/10.1515/ijamh-2022-0058>
10. Racine N, McArthur BA, Cooke JE. Global Prevalence of Depressive and Anxiety Symptoms in Children and Adolescents During COVID-19 A Meta-analysis. JAMA Pediatr. 2021;175(11). <https://doi.org/10.1001/jamapediatrics.2021.2482>
11. Magson NR, Fardouly J, Freeman JYA, Rapee RM, Richardson CE, Oar EL. Risk and Protective Factors for Prospective Changes in Adolescent Mental Health during the COVID-19 Pandemic. J Youth Adolesc. 2021;50:44–57. <https://doi.org/10.1007/s10964-020-01332-9>
12. Rahmawaty F, Silalahiv R, Berthiana T, Mansyah B. Factors affecting mental health in adolescents. J Surya Med. 2022;8(3). <https://doi.org/10.33084/jsm.v8i3.4522>
13. Zhang I, Yang SX, Wang L, Han LH, Wu XY. The influence of sedentary behaviour on mental health among children and adolescents: A systematic review and meta-analysis of longitudinal studies. J Affect Disord. 2022;306. <https://doi.org/10.1016/j.jad.2022.03.018>
14. Zhu L, She ZG, Cheng X, Qin JJ, Zhang XJ, Cai J, et al. Association of Blood Glucose Control and Outcomes in Patients with COVID-19 and Pre-existing Type 2 Diabetes. Cell Metab. 2020;31(6):1068-1077.e3. <https://doi.org/10.1016/j.cmet.2020.04.021>
15. Liu M, Wu L, Yao S. Dose – response association of screen time-based sedentary behaviour in children and adolescents and depression : a meta-analysis of observational studies. 2016;1252–8. <https://doi.org/10.1136/bjsports-2015-095084>
16. Oswald TK, Rumbold AR, Sophie G. E. Kedzior, Moore VM. Psychological impacts of “screen time” and “green time” for children and adolescents: A systematic scoping review. Plose one. 2020;4. <https://doi.org/10.1371/journal.pone.0237725>
17. Shah MA, Ketaren, Siburian MF, Arrafi M, Nasution HA, Manalu N. LITERATUR REVIEW : HUBUNGAN POLA HIDUP SEDENTER DENGAN PENURUNAN KEBUGARAN JASMANI PADA MAHASISWA. J Ilm Pendidik dasar. 2025;10(4). doi:<https://doi.org/10.23969/jp.v10i04.37085>
18. Husni TZ, Slamet S. Perbandingan Level Aktivitas Fisik dan Perilaku Sedenter Siswa Berdasarkan Wilayah Domisili dan Status Ekonomi Orang Tua. J Mhs Pendidik Olah Raga. 2024;5(1):181–204. doi:<https://doi.org/10.55081/jumper.v5i1.2784>
19. Indah N, Anwar A, Syafruddin MA, Makassar UN. Tingkat pemahaman mahasiswa tentang pentingnya aktivitas fisik dan hubungannya dengan gaya hidup sedenter. J Ilm Spirit. 2026;26(1):226–31. <https://doi.org/10.36728/jis.v26i1.5765>
20. Farindra, Irmawan R, El-Maida W. Penyuluhan Gaya Hidup Sedenter (Diabetes Mellitus, Obesitas, dan Pola Diet). Community Dev J. 2018;2(1).