

FACTORS ASSOCIATED WITH STRESS LEVELS AMONG ADOLESCENT GIRLS

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ABSTRACT : FAKTOR FAKTOR YANG BERKAITAN DENGAN TINGKAT STRES PADA REMAJA PUTRI

Latar Belakang: Gangguan kesehatan mental pada remaja terus meningkat secara global, dengan stres dan kecemasan sebagai masalah yang paling sering dialami. Penggunaan media sosial yang tinggi, tekanan akademik, rendahnya aktivitas fisik, dan kualitas tidur yang buruk sering dikaitkan dengan tingkat stres pada remaja putri.

Tujuan: Mengetahui hubungan antara penggunaan media sosial, tekanan akademik, aktivitas fisik, dan kualitas tidur dengan tingkat stres pada remaja putri di SMA Muhammadiyah 1 Palembang.

Metode: Penelitian kuantitatif dengan desain *cross-sectional* dilakukan pada 87 remaja putri yang dipilih menggunakan teknik *stratified random sampling* dari populasi 633 siswi SMA Muhammadiyah 1 Palembang tahun 2025. Data dikumpulkan menggunakan kuesioner dan dianalisis secara univariat serta bivariat menggunakan uji Chi-Square dengan tingkat signifikansi $\alpha = 0,05$.

Hasil: Terdapat hubungan yang signifikan antara penggunaan media sosial dengan tingkat stres ($p < 0,001$), tekanan akademik dengan tingkat stres ($p = 0,002$), aktivitas fisik dengan tingkat stres ($p = 0,037$), dan kualitas tidur dengan tingkat stres ($p = 0,002$).

Kesimpulan: Terdapat hubungan secara bivariat antara penggunaan media sosial, tekanan akademik, aktivitas fisik, dan kualitas tidur dengan tingkat stres pada remaja putri di SMA Muhammadiyah 1 Palembang.

Saran: Remaja putri perlu mengelola stres dengan baik melalui pembatasan penggunaan media sosial, peningkatan aktivitas fisik, dan perbaikan kualitas tidur. Penelitian selanjutnya disarankan menggunakan cakupan sampel yang lebih luas serta mempertimbangkan variabel lain yang berhubungan dengan tingkat stres.

Kata Kunci : Penggunaan Media Sosial, Tekanan Akademik, Aktivitas Fisik, Kualitas Tidur, Tingkat Stres

ABSTRACT

Background: Mental health problems among adolescents continue to increase globally, with stress and anxiety being the most commonly experienced issues. High social media use, academic pressure, low levels of physical activity, and poor sleep quality are frequently associated with stress levels among adolescent girls.

Purpose: To determine the relationship between social media use, academic pressure, physical activity, and sleep quality and stress levels among adolescent girls at SMA Muhammadiyah 1 Palembang.

Methods: A quantitative study with a cross-sectional design was conducted among 87 adolescent girls selected through stratified random sampling from a population of 633 female students at SMA Muhammadiyah 1 Palembang in 2025. Data were collected using questionnaires and analyzed through univariate and bivariate analyses using the Chi-Square test with a significance level of $\alpha = 0.05$.

Results: Significant relationships were found between social media use and stress levels ($p < 0.001$), academic pressure and stress levels ($p = 0.002$), physical activity and stress levels ($p = 0.037$), and sleep quality and stress levels ($p = 0.002$).

Conclusion: There were bivariate relationships between social media use, academic pressure, physical activity, and sleep quality and stress levels among adolescent girls at SMA Muhammadiyah 1 Palembang.

Suggestions : Adolescent girls should manage stress effectively by limiting social media use, increasing physical activity, and improving sleep quality. Future studies are recommended to involve a broader sample and consider additional variables related to stress levels.

Keywords: Social Media Use, Academic Pressure, Physical Activity, Sleep Quality, Stress Levels Article Contents

INTRODUCTION

Adolescence is a transitional period from childhood to adulthood characterized by physical, emotional, and social changes. During this period, adolescents are vulnerable to various mental health problems, one of which is stress. Stress in adolescents can arise due to internal and external factors, such as academic demands, social relationships, lifestyle changes, and excessive use of technology and social media (WHO, 2024; Riskesdas, 2018).

The increasing use of social media among adolescents has become one of the factors associated with mental health problems. Excessive social media use may trigger emotional pressure, social comparison, anxiety, and cyberbullying, which can increase stress levels among adolescents. In addition, academic pressure experienced by students due to assignments, examinations, and achievement demands may also contribute to increased stress levels (Rahmah et al., 2023; Hikmah et al., 2024).

Physical activity and sleep quality are also important factors affecting adolescent mental health. Low physical activity may reduce emotional stability and increase the risk of stress, while poor sleep quality can affect concentration, emotional control, and psychological well-being. Adolescents with irregular sleep patterns tend to experience higher stress levels compared to those with good sleep quality (Frida Dwi Ayunda et al., 2023).

World Health Organization (WHO) reported that in 2021 around 13% of adolescents worldwide experienced mental health disorders and increased to around 14% in 2024. In Indonesia, Riskesdas 2018 showed that the prevalence of emotional mental disorders in adolescents aged ≥ 15 years reached 9.8% and continues to increase. Therefore, it is important to identify factors related to stress levels among adolescent girls to prevent more serious mental health problems.

RESEARCH METHODS

This study employed a quantitative research design with a cross-sectional approach and was conducted at SMA Muhammadiyah 1 Palembang, Indonesia, from April to August 2025. The target population consisted of 633 female students enrolled at the school. The sample size was calculated using the Slovin formula with a 10% margin of error, resulting in a minimum sample size of 87 respondents. Participants were selected using proportionate stratified random sampling based on grade level and class strata. The number of respondents in each stratum was determined

proportionally using the formula $(n_i = (N_i/N) \times n)$, followed by simple random sampling within each stratum.

The inclusion criteria were female students aged 13–18 years, enrolled at SMA Muhammadiyah 1 Palembang, present during data collection, healthy, and willing to participate in the study. Students who were undergoing treatment for or had a history of neurological disorders were excluded. Before data collection, participants received an explanation regarding the study objectives, procedures, benefits, confidentiality, and their rights as research subjects. Written informed consent was obtained from all participants prior to questionnaire administration. The study was conducted after obtaining approval from the school administration and ethical clearance from the relevant research ethics committee.

Primary data were collected using standardized and validated questionnaires. Stress levels were measured using the Depression Anxiety Stress Scale-21 (DASS-21) and categorized as normal (0–14), mild (15–18), moderate (19–25), and severe (≥ 26). Social media use was assessed using the Social Media Use Integration Scale (SMUIS) and categorized as low (11–25), moderate (26–40), and high (41–55). Academic stress was measured using the Perception of Academic Stress Scale (PASS) and classified as low (T-score ≤ 50) or high (T-score > 50). Physical activity was evaluated using the International Physical Activity Questionnaire (IPAQ) and categorized as low (< 600 MET-minutes/week), moderate (600–3000 MET-minutes/week), and high (> 3000 MET-minutes/week). Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI), with scores ≤ 5 indicating good sleep quality and scores > 5 indicating poor sleep quality.

Data were analyzed using univariate, bivariate, and multivariate methods. Univariate analysis was performed to describe the frequency distribution of each variable. Bivariate analysis used the Chi-square test with a significance level of $\alpha = 0.05$ to examine the association between social media use, academic stress, physical activity, sleep quality, and stress levels. Prior to analysis, the assumptions of the Chi-square test were evaluated by examining expected cell frequencies. If more than 20% of cells had expected counts below 5 or any cell had an expected count below 1, category merging or an alternative statistical test was considered. Furthermore, multivariate analysis was conducted using ordinal logistic regression to determine the simultaneous effects of the independent variables on stress levels. The results

were presented as Odds Ratios (ORs), 95% Confidence Intervals (95% CIs), and p-values, with

statistical significance set at $p < 0.05$.

RESEARCH RESULTS

Univariate analysis

Variable	Category	Severe n (%)	Moderate n (%)	Mild n (%)	Normal n (%)	Total n (%)	p-value	Cramer's V
Social Media Use	High	6 (75.0)	2 (25.0)	0 (0.0)	0 (0.0)	8 (100)	<0.001	0,394
	Moderate	8 (11.4)	21 (30.0)	16 (22.9)	25 (35.7)	70 (100)		
	Low	0 (0.0)	1 (11.1)	3 (33.3)	5 (55.6)	9 (100)		
Academic Pressure	High	13 (21.0)	19 (30.6)	16 (25.8)	14 (22.6)	62 (100)	0.002	0,406
	Low	1 (4.0)	5 (20.0)	3 (12.0)	16 (64.0)	25 (100)		
Physical Activity	Low	11 (31.4)	11 (31.4)	4 (11.4)	9 (25.7)	35 (100)	0.037	0,277
	Moderate	2 (7.4)	7 (25.9)	8 (29.6)	10 (37.0)	27 (100)		
	High	1 (4.0)	6 (24.0)	7 (28.0)	11 (44.0)	25 (100)		
Sleep Quality	Poor	13 (27.7)	9 (19.1)	13 (27.7)	12 (25.5)	47 (100)	0.002	0,417
	Good	1 (2.5)	15 (37.5)	6 (15.0)	18 (45.0)	40 (100)		

Interpretasi ukuran efek Cramer's V: 0,10-0,29= kecil, 0,30-0,49 = sedang, $\geq 0,50$ = besar

DISCUSSION

This study found that social media use, academic pressure, physical activity, and sleep quality were significantly associated with stress levels among adolescent girls at SMA Muhammadiyah 1 Palembang. These findings reinforce the view that stress among adolescents is a multifactorial phenomenon influenced by various behavioral, academic, and lifestyle-related factors that interact with one another.

The significant association between social media use and stress levels indicates that the higher the intensity of social media use, the greater the risk of adolescents experiencing stress. This finding is consistent with studies by Laras Pristiwati and Handayani (2021) and Kwak et al. (2022), which reported that excessive internet and social media use is associated with increased mental health problems among adolescents. One possible mechanism underlying this relationship is the phenomenon of social comparison and Fear of Missing Out (FOMO). Adolescents often compare themselves with the lifestyles, appearances, and achievements displayed by others on social media, which may lead to dissatisfaction with themselves. Furthermore, the pressure to remain constantly connected, gain social validation through likes and comments, and exposure to cyberbullying may increase vulnerability to stress (Duling, 2022). Biologically, these experiences may activate the amygdala and the Hypothalamic-Pituitary-Adrenal (HPA) axis, leading to increased cortisol production as part of the stress response (Novita & Utami, 2024). However, this relationship is not absolute. Some respondents with high social media use did not experience severe stress. This suggests that the

impact of social media depends largely on how it is used. Social media can also serve as a source of social support, information, and entertainment that helps adolescents manage psychological pressures. Therefore, the quality and purpose of social media use may be as important as the duration of use itself.

The findings also revealed a significant relationship between academic pressure and stress levels. This result is consistent with previous studies by Rahmah et al. (2023) and Larasati (2025), which identified academic demands as one of the primary sources of stress among adolescents. Various demands, including school assignments, examinations, academic achievement expectations, and pressure from parents and teachers, can create psychological burdens that exceed an individual's adaptive capacity. According to the stress appraisal theory, stress occurs when individuals perceive environmental demands as greater than their available coping resources. In the context of secondary school students, the pressure to achieve high academic performance and prepare for future educational opportunities may become a persistent source of concern. Nevertheless, this study also found that some respondents with low academic pressure still experienced moderate to severe stress. This finding suggests that stress is not solely influenced by academic factors but may also be affected by family relationships, socioeconomic conditions, sleep quality, social media use, and individual coping mechanisms. Therefore, academic pressure should be viewed as one risk factor among many contributors to adolescent stress.

This study further demonstrated a significant association between physical activity and stress

levels. Respondents with higher levels of physical activity tended to report lower levels of stress. This finding is in line with studies conducted by Christina et al. (2023), Widohardhono et al. (2024), and Zhang et al. (2022), which highlighted the positive role of physical activity in promoting mental health and reducing stress. Physiologically, physical activity stimulates the release of endorphins, serotonin, and dopamine, which contribute to improved mood and reduced emotional tension. Physical activity also enhances sleep quality, boosts self-confidence, and provides a healthy outlet for negative emotions (Wicaksono, 2021). However, this study also identified a small number of respondents with high levels of physical activity who still experienced severe stress. This suggests that physical activity alone may not fully protect individuals from stress when other risk factors, such as high academic demands, family problems, social conflicts, or economic difficulties, are present. Therefore, physical activity should be regarded as an important component of stress management rather than a single solution.

A significant relationship was also observed between sleep quality and stress levels. This finding supports previous studies by Handoko (2022), Hikmah et al. (2024), and Alamsyah et al. (2023), which reported that poor sleep quality is associated with increased stress among adolescents. Sleep plays a crucial role in physical and psychological recovery, including emotional regulation, memory consolidation, and cognitive functioning. Poor sleep quality may increase amygdala activity, making individuals more sensitive to emotional stimuli and less capable of regulating stress effectively (Syahidin et al., 2024). In addition, sleep disturbances may activate the HPA axis, resulting in elevated cortisol levels. Nevertheless, this study found that some respondents with good sleep quality still experienced stress, while several respondents with poor sleep quality reported normal stress levels. These findings, which are not entirely consistent with the general pattern, suggest the influence of other factors not measured in this study, such as family support, academic achievement, socioeconomic conditions, actual sleep duration, personality traits, and coping strategies used to deal with daily challenges.

Overall, the findings indicate that stress among adolescents cannot be explained by a single factor but rather results from the interaction of behavioral, psychological, social, and environmental influences. Consequently, efforts to prevent and manage adolescent stress should be comprehensive. Schools may develop mental health

promotion programs, counseling services, and stress management interventions integrated into academic activities. Parents play an important role in providing emotional support, monitoring social media use, and encouraging healthy lifestyles through regular physical activity and adequate sleep habits. Furthermore, healthcare professionals and adolescent health services should conduct early screening and preventive interventions to reduce the risk of mental health problems among adolescents.

Several limitations should be considered when interpreting the findings of this study. First, the cross-sectional design does not allow causal relationships between variables to be established. Second, the use of self-reported questionnaires may introduce information bias due to respondents' subjective perceptions. Third, the relatively small sample size and the inclusion of participants from only one school may limit the generalizability of the findings. Finally, several potential confounding variables, including family support, socioeconomic status, academic achievement, sleep duration, and coping mechanisms, were not measured and may have influenced the observed relationships. Future studies are therefore recommended to employ longitudinal designs and incorporate these additional variables to provide a more comprehensive understanding of the determinants of stress among adolescents.

CONCLUSION

There were significant relationships between social media use, academic pressure, physical activity, and sleep quality with stress levels among adolescent girls at SMA Muhammadiyah 1 Palembang in 2025. Adolescents with high social media use, high academic pressure, low physical activity, and poor sleep quality tended to have higher stress levels.

SUGGESTION

It is recommended to improve stress management, limit excessive social media use, maintain adequate sleep quality, and increase physical activity to reduce stress levels among adolescent girls. Future studies are expected to include additional variables and use broader research designs.

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