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Associations of academic stress and parental social support with psychosomatic symptoms among adolescents

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Abstract

Background: Adolescence is a critical developmental period in which academic demands may contribute to stress and psychosomatic symptoms. Parental social support may help adolescents cope with stress and protect their well-being.

Purpose: To determine the associations of academic stress and parental social support with psychosomatic symptoms among adolescents.

Method: A quantitative observational analytic study with a cross-sectional design was conducted among 81 students at an integrated Islamic junior high school in Indonesia. Participants were selected using simple random sampling. Academic stress, parental social support, and psychosomatic symptoms were assessed using the Educational Stress Scale for Adolescents (ESSA), the parent-support subscale of the Child and Adolescent Social Support Scale (CASSS), and the Indonesian Somatic Symptom Scale-8 (ISSS-8), respectively. Data were analyzed using Fisher's exact test with a significance level of $p < 0.05$.

Results: Most respondents were male (60.5%), aged 13 years (30.9%), and in Grade 7 (39.5%). Moderate academic stress was most common (69.1%), while 60.5% reported high parental social support. Academic stress was significantly associated with psychosomatic symptoms ($p = 0.010$), as was parental social support ($p = 0.030$).

Conclusion: Academic stress and parental social support were significantly associated with psychosomatic symptoms among adolescents. School-based screening and collaboration with parents are recommended to support adolescent well-being.

Keywords: Academic Stress; Adolescents; Parental Social Support; Psychosomatic Symptoms; School Health.

INTRODUCTION

Adolescence is a critical developmental period spanning 10–19 years and is characterized by substantial physical, biological, cognitive, and socio-emotional changes that may increase vulnerability to physical and mental health problems (World Health Organization, 2024; Axelta & Abidin, 2022). During this period, adolescents face increasing academic demands, including workload, examinations, performance expectations, and competition, which may contribute to academic stress. Academic stress occurs when adolescents perceive academic

demands as exceeding their perceived abilities or available coping resources (Khoirudin et al., 2023). When persistent or inadequately managed, psychological stress may be accompanied by physical manifestations, including psychosomatic symptoms such as headache, fatigue, chest discomfort, gastrointestinal complaints, and sleep disturbances (Mariska et al., 2023; Afrizal et al., 2024). These symptoms may occur without an adequate medical explanation and can negatively affect concentration, school attendance, academic

performance, social functioning, and overall quality of life (Koen et al., 2023; Mahirah et al., 2025).

Psychosomatic symptoms among adolescents represent an important global health concern. The World Health Organization estimates that approximately one in seven adolescents aged 10–19 years experiences a mental health condition, with psychological distress potentially manifesting through physical complaints (World Health Organization, 2024). In Ethiopia, 25.24% of adolescents reported psychosomatic symptoms, including headache, dizziness, and gastrointestinal complaints, with stress and anxiety identified as important associated factors (Gebreegziabher et al., 2024). In Indonesia, the Indonesia National Adolescent Mental Health Survey reported that 34.9% of adolescents experienced a mental health problem within the previous 12 months, indicating a substantial burden of psychological vulnerability among Indonesian adolescents (Wahdi et al., 2022). These findings highlight the importance of examining psychosocial factors that may increase or reduce adolescents' vulnerability to stress-related physical symptoms.

Academic stress may be particularly important in understanding psychosomatic symptoms during adolescence. Persistent academic demands have been associated with sleep disturbance, fatigue, impaired concentration, and physical complaints that may reflect prolonged stress responses (Gao, 2023; Souza-Lima et al., 2025). However, the impact of academic stress may vary according to the psychosocial resources available to adolescents. Parental social support is one potentially important protective factor. Emotional, instrumental, informational, and appraisal support may provide adolescents with reassurance, guidance, practical assistance, and constructive feedback, thereby strengthening coping and emotional regulation (Galugu & Pajarianto, 2025). Previous studies have reported that greater parental or social support is associated with lower academic stress among students (Ayodani & Wibowo, 2023; Efendi & Nurmina, 2025). Nevertheless, the extent to which parental support is associated with physical manifestations of stress, particularly psychosomatic symptoms among younger adolescents, remains insufficiently understood.

Stress has been associated with psychiatric and psychosomatic symptoms among adolescents in

European populations. However, much of the existing literature has focused on university students, general psychological outcomes, or social support as a broad construct rather than specifically examining parental support. Evidence integrating academic stress and parental social support in relation to psychosomatic symptoms among junior high school students remains limited, particularly in culturally specific educational contexts characterized by intensive academic demands (Thorsén et al., 2022).

This research gap is particularly relevant in integrated Islamic schools, where students may experience simultaneous academic and religious learning demands. Preliminary observations and interviews conducted at SMPIT Darul Hasani indicated that students experienced substantial academic and religious demands within a full-day school system, including intensive coursework, academic examinations, and religious achievement requirements such as Qur'an memorization. Several students reported physical complaints, including dizziness, fatigue, and sleep difficulties, particularly during examination periods. These preliminary observations suggest that psychosomatic symptoms may occur even among adolescents who generally perceive their parental social support as adequate, raising important questions regarding the relationship between academic stress, parental support, and physical manifestations of psychological distress.

RESEARCH METHOD

This study employed a quantitative observational analytic approach with a cross-sectional design. The study was conducted among students at SMPIT Darul Hasani, Indonesia. The study population consisted of 101 students, from which 81 respondents were selected using simple random sampling. The inclusion criteria were students enrolled at the school who were willing to participate in the study and able to complete the research questionnaire. Students who were unable to complete the questionnaire were excluded.

Three instruments were used to measure the study variables. Academic stress was assessed using the 9-item Educational Stress Scale for Adolescents (ESSA). Parental social support was measured using the 12-item parent-support subscale of the Child and Adolescent Social Support Scale (CASSS). Psychosomatic symptoms were assessed using the

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8-item Indonesian Somatic Symptom Scale-8 (ISSS-8).

All instruments used Likert-type response scales. Higher ESSA scores indicated greater academic stress, higher CASSS scores indicated greater perceived parental social support, and higher ISSS-8 scores indicated greater psychosomatic symptom severity. The categorization of each variable followed the scoring criteria established for the respective instruments. The internal consistency of the instruments was acceptable, with Cronbach's alpha coefficients of 0.706 for ESSA, 0.898 for CASSS, and 0.774 for ISSS-8.

Data analysis consisted of univariate and bivariate analyses. Univariate analysis was used to describe respondent characteristics and the distribution of the

study variables. Bivariate analysis was conducted to examine the association between academic stress and psychosomatic symptoms and between parental social support and psychosomatic symptoms. Fisher's exact test was used because several cells in the contingency tables had expected frequencies below five. Statistical significance was established at $p < 0.05$.

The study procedures were conducted after obtaining permission from the relevant institution. Participants were informed about the study objectives and procedures before completing the questionnaire, and participation was voluntary. Confidentiality of participants' information was maintained throughout the study.

RESEARCH RESULTS

Table 1. Characteristics of Respondents (N=81)

Variable	Results
Age (Mean±SD) (Years) (Range)	(13.53 ± 1.06 (12–15))
12	16/19.8
13	25/30.9
14	21/25.9
15	19/23.4
Gender (n/%)	
Male	49/60.5
Female	32/39.5
Class (n/%)	
7	32/39.5
8	19/23.5
9	30/37.0

Table 1. presents the demographic characteristics of the respondents. The respondents had a mean age of 13.53 ± 1.06 years, with an age range of 12–15 years. The largest proportion of respondents was aged 13 years (30.9%), followed by 14 years (25.9%), 15 years (23.4%) and 12 years (19.8%). Regarding gender, 49 respondents (60.5%) were male, while 32 respondents (39.5%) were female. Based on class level, most respondents were in Class 7 (39.5%), followed by Class 9 (37.0%) and Class 8 (23.5%).

Table 2. Bivariate Associations of Academic Stress and Parental Social Support with Psychosomatic

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Symptoms Among Adolescents (N = 81)

Variables	Psychosomatic Symptoms					P-value
	Minimal (n=19)	Low (n=24)	Medium (n=13)	High (n=13)	Very High (n=12)	
Parental Social Support (n/%)						0.030
Low	0/0	0/0	0/0	3/23.0	1/8.3	
Medium	5/36.3	11/45.8	2/15.4	6/46.0	4/16.7	
High	14/73.7	13/54.2	11/84.6	4/31.0	7/58.3	
Stress Academic (n/%)						0.010
Low	5/36.3	7/29.2	0/0	1/7.7	0/0	
Medium	14/73.7	15/62.5	11/84.6	9/69.2	7/58.3	
High	0/0	2/8.3	2/15.4	3/23.1	5/41.7	

Table 2. shows the association between parental social support, academic stress, and psychosomatic symptoms among respondents. There was a statistically significant association between parental social support and psychosomatic symptoms ($p = 0.030$). Respondents with high parental social support were more commonly found in the minimal (73.7%), low (54.2%), and medium (84.6%) psychosomatic symptom categories. In contrast, among respondents with high psychosomatic symptoms, the proportion with high parental social support was 31.0%.

There was also a statistically significant association between academic stress and psychosomatic symptoms ($p = 0.010$). Most respondents with minimal, low, and medium psychosomatic symptoms had moderate academic stress, accounting for 73.7%, 62.5%, and 84.6%, respectively. Meanwhile, among respondents with very high psychosomatic symptoms, the proportion experiencing high academic stress increased to 41.7%. These findings indicate that parental social support and academic stress are significantly associated with the level of psychosomatic symptoms among respondents.

DISCUSSION

The 81 participants in this study were early adolescents aged 12–15 years, with the largest proportion aged 13 years and enrolled in Grade 7.

Male students accounted for 60.5% of the sample, while female students accounted for 39.5%. This demographic profile reflects a developmental period characterized by substantial biological, emotional, social, and academic transitions. The concentration of participants in Grade 7 is particularly relevant because the transition to junior high school requires adaptation to new learning environments, increased academic demands, and changing social expectations. These contextual factors may increase adolescents' vulnerability to psychological stress and the development of somatic complaints. However, given the cross-sectional design and single-school setting, these characteristics should be interpreted as contextual features of the sample rather than causal determinants.

Psychosomatic symptoms were identified across all severity categories, with 46.8% of participants falling within the moderate-to-very-high symptom categories. This finding indicates that a substantial proportion of students experienced physical complaints that may be associated with psychological distress. Psychosomatic symptoms, including fatigue, headaches, sleep disturbances, and gastrointestinal complaints, are common manifestations of psychological distress during adolescence (Shukla & Upadhyay, 2024). The finding is also relevant to the Indonesian context, where the Indonesia National Adolescent Mental Health Survey (I-NAMHS) reported substantial mental health vulnerability

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among adolescents (Wahdi et al., 2022). Nevertheless, the prevalence of psychosomatic symptoms in this study should not be directly compared with the prevalence of mental health problems reported by I-NAMHS because the two studies assess different constructs using different measurement approaches. Therefore, the findings are more appropriately interpreted as evidence that psychosomatic symptoms constitute an important health concern among adolescents and may serve as an indicator warranting further psychosocial assessment.

Academic stress was predominantly classified as moderate (69.1%), indicating that academic pressure was a common experience among the participants but was potentially manageable for most students. However, the presence of students with high levels of academic stress demonstrates considerable individual variation in how adolescents perceive and respond to educational demands. Academic stress is influenced not only by the objective demands of education but also by the individual's appraisal of those demands and the coping resources available to manage them. Recent evidence indicates that academic stress is a significant concern among secondary-school students and is associated with adverse consequences for psychological well-being and school functioning, emphasizing the need for early identification and preventive interventions within educational settings (Jagiello et al., 2025). In the present study, the relatively high academic demands associated with a full-day school environment and the broader educational expectations of an integrated Islamic school may represent contextual factors contributing to students' perceptions of academic pressure. However, these factors were not directly measured and should therefore be considered possible contextual explanations rather than established determinants.

Parental social support was generally high, with 60.5% of participants reporting high levels of support, 34.6% reporting moderate support, and only 4.9% reporting low support. This distribution suggests that most adolescents perceived their parents as an important source of psychosocial support. Supportive parent-adolescent relationships may enhance adolescents' capacity to cope with academic stress by providing emotional reassurance, guidance, practical assistance, and a secure relational

environment. Longitudinal evidence has shown that positive parent-adolescent relationships are associated with more adaptive coping with academic stressors over time (Zimmer-Gembeck et al., 2023). Nevertheless, parental support should not be considered an absolute protective factor, because its effectiveness may depend on the quality of the relationship, the intensity and persistence of stressors, and the adolescent's broader psychological and social resources.

The analysis demonstrated a statistically significant association between academic stress and psychosomatic symptoms (Fisher's exact test, $p = 0.010$). This finding suggests that the distribution of psychosomatic symptoms differed significantly according to the level of academic stress experienced by adolescents. The result is consistent with the broader literature indicating that academic stress may be associated with both psychological distress and physical complaints among students. Persistent psychological stress can activate autonomic and neuroendocrine stress-response systems, potentially contributing to symptoms such as fatigue, headache, sleep disturbance, and gastrointestinal complaints. However, the cross-sectional design of this study does not allow a causal interpretation. The observed association may reflect complex interactions among stress appraisal, physiological responses, coping strategies, emotional regulation, sleep, and other unmeasured contextual factors. Accordingly, academic stress should be understood as an important correlate of psychosomatic symptoms rather than as a proven direct cause.

A statistically significant association was also found between parental social support and psychosomatic symptoms (Fisher's exact test, $p = 0.030$). This finding indicates that adolescents with different levels of perceived parental support also demonstrated different distributions of psychosomatic symptoms. The result is consistent with evidence that supportive parent-adolescent relationships may facilitate more adaptive coping with academic stress and contribute to better emotional regulation (Zimmer-Gembeck et al., 2023). Parental support may therefore function as an important psychosocial resource by reducing the perceived burden of stress and helping adolescents manage demanding situations more adaptively. However, the direction and mechanisms of this association remain uncertain.

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Lower parental support may contribute to greater vulnerability to psychosomatic symptoms, but adolescents experiencing substantial psychological or physical distress may also perceive or report parental support differently. Furthermore, parental support may not fully offset the effects of persistent or excessive academic demands.

Taken together, the findings indicate that academic stress and parental social support are both significantly associated with psychosomatic symptoms among early adolescents. These results support a biopsychosocial perspective in which adolescent physical complaints are considered within the broader context of psychological stress, family relationships, coping resources, and the school environment. From a school health perspective, recurrent physical complaints should not be considered solely as isolated physical problems, particularly when they occur in the context of significant academic stress. Collaboration among school nurses, health professionals, counselors, teachers, and parents may facilitate early identification of adolescents at risk and the provision of appropriate psychosocial support. Future research should use larger and multisite samples and preferably longitudinal or prospective designs to clarify the temporal relationships among academic stress, parental social support, coping, and psychosomatic symptoms.

CONCLUSION

This study demonstrated that academic stress and parental social support were significantly associated with psychosomatic symptoms among early adolescents at SMPIT Darul Hasani. Academic stress was predominantly at a moderate level, while most participants reported high parental social support. Nevertheless, a substantial proportion of adolescents experienced moderate-to-very-high psychosomatic symptoms. The significant associations between academic stress and psychosomatic symptoms, as well as between parental social support and psychosomatic symptoms, highlight the importance of considering both school-related stressors and family-based psychosocial resources in understanding adolescent health. These findings support a biopsychosocial approach to adolescent health promotion, in which recurrent physical complaints are assessed alongside

psychological stress and the quality of social support. However, the cross-sectional design and single-school setting limit causal interpretation and generalizability. Therefore, the findings should be interpreted as evidence of significant associations rather than causal relationships.

SUGGESTION

Schools should strengthen integrated school-based health promotion and early screening programs that address academic stress and psychosomatic symptoms among adolescents. School nurses, counselors, teachers, and parents should collaborate to identify students with persistent physical complaints or elevated academic stress and provide appropriate psychosocial support, coping-skills education, and referral when further assessment is needed. Parents are also encouraged to maintain supportive, responsive, and open communication with adolescents to strengthen their coping resources. Future research should involve larger and multisite samples representing different educational contexts and use longitudinal or prospective designs to clarify the temporal relationships among academic stress, parental social support, coping strategies, and psychosomatic symptoms. Further studies may also examine additional factors, such as sleep quality, emotional regulation, peer support, family functioning, and school climate, to provide a more comprehensive understanding of psychosomatic symptoms among adolescents.

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