

## The Moderating Role of Social Support on the Effect of Academic Stress on Students' Engagement

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**ABSTRACT:** *This study aims to identify the relationship between academic stress and students' engagement among santri in Islamic Boarding Schools and explore the moderating role of social support in mitigating the negative impact of academic stress on learning engagement. This research was conducted at SMP Muhammadiyah Boarding School Palopo. The population consisted of 207 students from grades VII to IX. A sample of 136 students was selected using the stratified random sampling technique. Data were collected using questionnaires measuring academic stress, social support, and student engagement, and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4 software. The results show that academic stress has a positive but not statistically significant effect on students' engagement. Conversely, social support has a positive and significant effect and is a considerable moderator that reduces the negative impact of academic stress on learning engagement. In other words, santri who receive strong social support tend to remain actively engaged in the learning process despite facing academic pressures. The limitation of this study lies in the small sample size and its focus on a single Islamic Boarding Schools. Therefore, the findings cannot be widely generalized.*

Penelitian ini bertujuan untuk mengidentifikasi hubungan antara stres akademik dengan keterlibatan siswa di kalangan santri di pesantren dan mengeksplorasi peran moderasi dukungan sosial dalam mengurangi dampak negatif stres akademik terhadap keterlibatan belajar. Penelitian ini dilakukan di SMP Muhammadiyah Boarding School Palopo. Populasi penelitian ini adalah siswa kelas VII sampai dengan IX sebanyak 207 siswa. Sampel sebanyak 136 siswa dipilih dengan menggunakan teknik stratified random sampling. Data dikumpulkan menggunakan kuesioner yang mengukur stres akademik, dukungan sosial, dan keterlibatan siswa, dan dianalisis menggunakan *Partial Least Squares Structural Equation Modeling (PLS-*

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SEM) dengan perangkat lunak SmartPLS 4. Hasil penelitian menunjukkan bahwa stres akademik memiliki pengaruh positif tetapi tidak signifikan secara statistik terhadap keterlibatan siswa. Sebaliknya, dukungan sosial memiliki pengaruh positif dan signifikan serta merupakan moderator yang cukup besar yang mengurangi dampak negatif stres akademik terhadap keterlibatan belajar. Dengan kata lain, santri yang menerima dukungan sosial yang kuat cenderung tetap terlibat aktif dalam proses pembelajaran meskipun menghadapi tekanan akademik. Keterbatasan penelitian ini terletak pada ukuran sampel yang kecil dan fokusnya pada satu pesantren. Oleh karena itu, temuannya tidak dapat digeneralisasikan secara luas.

**Keywords:** *Academic Stress, Social Support, Students' Engagement.*

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## I. INTRODUCTION

Education in Islamic Boarding Schools has unique dynamics that distinguish it from formal educational institutions. *Santri* (Islamic boarding school students) live within a highly structured and disciplined system, where they undergo dual education, both formal and religious. These complex academic demands often become a source of academic stress for *santri*. *Santri*, who live in dormitory environments with rigid schedules and dual responsibilities between religious and formal education, require adaptive support to remain optimally engaged in learning.

Students' engagement refers to a psychological condition in which learners not only experience a pleasant and fulfilling learning process but also exhibit a strong attachment to their studies and can maintain focus and energy throughout learning activities (Doggrell, 2023). Accordingly, student engagement is a psychological construct encompassing three key dimensions: cognitive, affective, and behavioral. Academic engagement is considered a significant determinant of students' academic achievement, making it a crucial element in assessing the quality of learning. Furthermore, engagement is essential in enhancing educational quality and supporting positive mental health within school environments (Liu, 2024).

*Santri* face dual challenges in pursuing their education at Islamic Boarding Schools. On one hand, they must meet the demands of a formal curriculum like other students in general; on the other hand, they must also follow a distinctive religious curriculum specific to Islamic Boarding Schools. The combination of formal and religious educational responsibilities can increase academic stress. *Santri* are expected to adapt to a highly structured environment, manage heavy academic workloads, and meet expectations such as memorizing the Qur'an, studying classical Islamic texts (*kitab kuning*), while simultaneously participating in general education, which can become a significant source of stress (Azmi & Rosiana, 2024; Khafifah et al., 2023; Latifa & Islami, 2020; Lutfiana & Zakiyah, 2021; Renata et al., 2023).

Academic stress is an emotional or mental state experienced by students during learning periods. It encompasses various pressures derived from learning experiences, such as frustration, conflict, pressure, change, and corresponding physical, emotional, and behavioral responses. This stress typically arises from students' perception of the volume of knowledge to be mastered within limited timeframes and the academic tasks

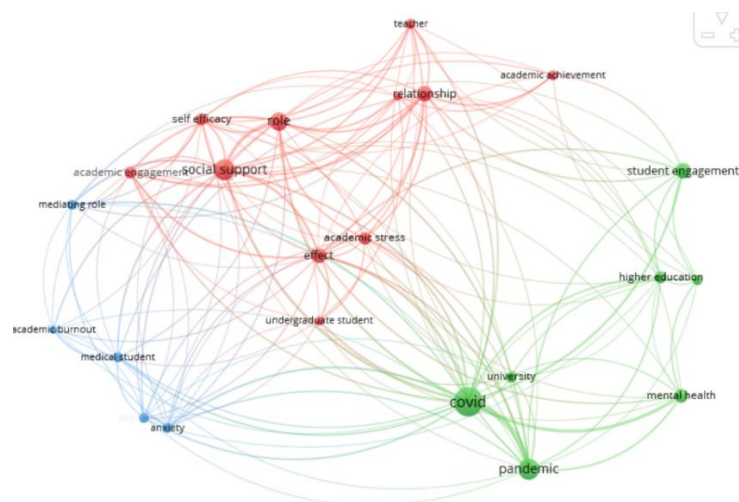
they undertake (Pajarianto et al., 2020). Academic stress is a form of psychological pressure resulting from academic demands that exceed the individual's capacity. Such stress may stem from heavy workloads, performance expectations, limited time, and external pressures from parents, teachers, or the surrounding environment (Gupta, 2020).

Academic stress among *santri* has increasingly drawn attention in educational psychology. *Santri*, who concurrently undergo formal and religious education, encounter complex academic demands. Elevated academic stress can negatively impact students' engagement. Based on this, it is assumed that social support can serve as a critical source of strength for *santri* in coping with academic stress within the Islamic Boarding Schools environment (Achmadin et al., 2024; Puspitasari & Sholihah, 2022).

Social support is the help individuals gain from others to manage stress. It is generally classified into actual (objective) support and perceived support. Objective support includes tangible aid such as financial assistance, practical help, or other resources provided by others. In contrast, perceived support is subjective and refers to the individual's personal experience and recognition of support received from others. In educational contexts, perceived social support is vital because it can foster students' motivation to learn, enhance their academic engagement, and ultimately contribute to better academic achievement (Wang et al., 2024).

Social support may include emotional, instrumental, informational, and evaluative support: 1) Emotional support refers to psychological assistance such as encouragement and empathy from family, peers, and teachers; 2) Instrumental support involves practical aid, such as financial resources, educational facilities, and academic materials; 3) Informational support comprises guidance and advice from educators and mentors to help students develop effective learning strategies and critical thinking skills; 4) Evaluative support is provided through constructive feedback from teachers, helping students improve academic competencies and build self-confidence (Putri, 2024). In this study, sources of social support are focused on parents, teachers, and peers.

While previous research has explored the interrelationship between student engagement, academic stress, and social support, a review of 500 publications indexed in Google Scholar between 2020 and 2025 reveals a research gap. The following visual represents the analysis using VOSviewer.



**Figure 1.** VOSviewer visualization

The VOSviewer visualization above demonstrates that student engagement is frequently associated with mental health issues such as stress and anxiety, as well as digital learning in higher education. However, the direct relationship between academic stress and student engagement appears not to have been the primary focus in prior studies (Barratt & Duran, 2021; Koob et al., 2021; Z. Li et al., 2021; Wester et al., 2021). The connection between these two variables in the bibliometric visual map appears weak, indicating a low research intensity explaining how academic pressure directly influences students' engagement.

Conversely, social support is widely acknowledged as a protective factor that can alleviate the adverse effects of stress. However, it has predominantly been explored as an independent or mediating variable in the link between stress and mental health, rather than as a moderating factor in the connection between academic stress and students' engagement (af Ursin et al., 2021; Chen et al., 2023). The moderating role of social support in this context remains rarely investigated, despite theoretical grounds suggesting that it can strengthen students' resilience in facing academic pressure and help maintain their optimal engagement.

Furthermore, studies concerning students' engagement and academic stress have primarily focused on general university students or formal school settings (Koob et al., 2021; Wester et al., 2021). There is a lack of explicit research examining the Islamic Boarding Schools based education context or Islamic educational institutions, where *santri* face not only academic stress from general subjects but also religious study obligations and high demands for discipline.

Based on the explanation above, a gap remains in the literature exploring the dynamics among academic stress, social support, and students' engagement within the *santri* context, especially in today's digital era. Accordingly, the objectives of this study are: 1) to examine the relationship between academic stress and student engagement; and 2) to investigate the moderating effect of social support on the link between academic stress and student engagement. By addressing these aims, the study seeks to bridge existing research gaps and offer insights into reducing academic stress, strengthening social support, and promoting greater student engagement. The VOSviewer above shows that student engagement is mainly related to mental health issues, such as stress and anxiety, and digital learning in higher education. However, the direct relation between academic stress and student engagement has not been the primary focus of previous research.

## II. METHOD

This study employed a quantitative approach with an explanatory research design to statistically examine the causal relationships among academic stress (X), social support as a moderating variable (Z), and student engagement (Y) among *santri* in a Islamic Boarding Schools environment. The research was conducted at Muhammadiyah Boarding School Palopo, with a population of 207 students from grades VII to IX. A sample of 136 students was selected using stratified random sampling to ensure proportional representation across grade levels.

Data were collected using structured questionnaires based on well-established theories and prior research. The academic stress questionnaire, adapted from Lin et al. (2020) includes four dimensions: workload, exam pressure, study time, and academic anxiety.

The social support scale Malecki & Demaray (2003), consists of four dimensions: emotional support, informational support, instrumental support, and appraisal support. The students' engagement instrument Gunuc & Kuzu (2015), measures three dimensions: behavioral, emotional, and cognitive engagement.

Validity and reliability of the constructs were rigorously tested using outer model analysis in SmartPLS 4 software. This process included evaluating outer loadings, Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE). Indicators with outer loading values below 0.5 were excluded to enhance construct validity. This step was not merely procedural but ensured that the retained indicators meaningfully reflected the latent constructs, particularly in the unique educational and psychological context of *santri*.

Following the confirmation of construct validity, the study proceeded with structural model (inner model) analysis to test direct and moderating effects between variables. The statistical technique used was Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS 4, which is appropriate for analyzing complex models involving latent variables and moderate sample sizes. The analysis involved three primary stages: 1) measurement model evaluation to confirm indicator reliability and validity, 2) structural model assessment to test hypothesized relationships, and 3) moderation analysis using interaction terms between academic stress and social support.

Path coefficients, t-values, and p-values were computed for each hypothesized link to determine the significance of the proposed effects, including the moderation effect. The model's goodness-of-fit was assessed using various indices such as the Standardized Root Mean Square Residual (SRMR), Normed Fit Index (NFI), and d\_ULS to confirm that the structural model accurately reflected the observed data.

### III. RESULT AND DISCUSSION

#### Outer Model

In the outer model test, the focus is on the validity and reliability of the constructs to provide quantitative information about the overall measurement quality of the constructs. Additionally, the outer loadings visually represent the extent to which each indicator contributes to the measured construct. This study analyzes the relationship between academic stress and students' engagement, moderated by social support.

#### *Construct Reliability and Validity*

Based on the data analysis results, the reliability and validity are presented as follows.

**Table 1. Construct reliability and validity**

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Academic Stress (X)	0.793	1.040	0.824	0.406
Social Support (Z)	0.799	0.810	0.852	0.452
Students' Engagement (Y)	0.750	0.752	0.827	0.444
X1*Z	1.000	1.000	1.000	1.000

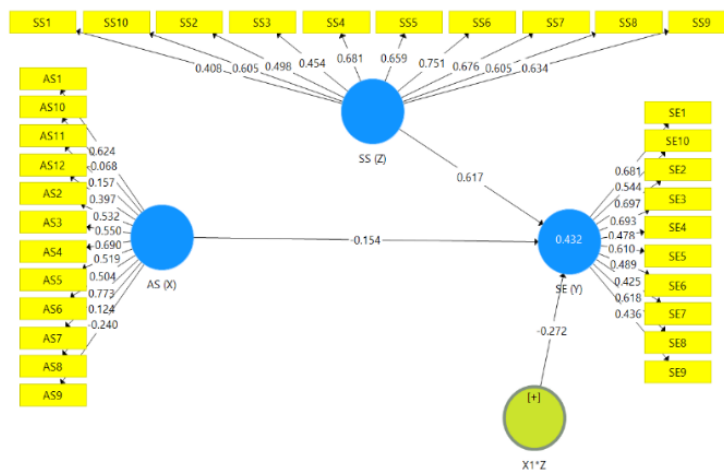
Source: Smart Pls Data Processing, 2025

Table 1 shows that the Cronbach's Alpha values indicate the internal reliability of each measured construct. A Cronbach's Alpha value greater than 0.7 suggests that the

construct is reliable and can be trusted to measure the intended variable. Rho\_A is an alternative to Cronbach's Alpha and is also used to assess construct reliability. Convergent validity, observed through the Average Variance Extracted (AVE) values, indicates that Academic Stress (AS), Social Support (SS), and Students' Engagement (SE) require improvement, as their AVE values are all below 0.5. This suggests that these constructs do not adequately explain the respective indicators' variance.

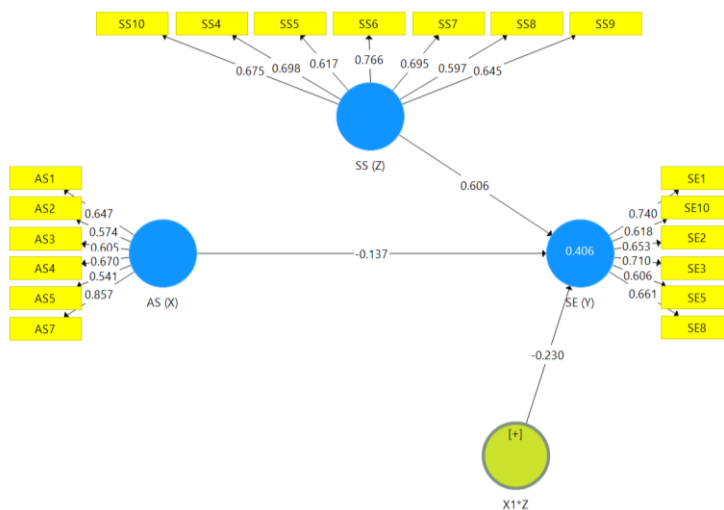
**Outer Loading**

Outer loading, or factor loading, is a coefficient that indicates the extent to which an indicator in the model measures or relates to the latent construct (latent variable). In Partial Least Squares (PLS) analysis, which is commonly used in SmartPLS, outer loading represents the strength of the relationship between the indicator and the measured construct. The outer loading can be seen in the figure below.



**Figure 2. Outer model**

From Figure 2 above, it can be observed that several indicators have outer loadings below 0.5. Indicators 8, 9, 10, 11, and 12 for the Academic Stress variable have outer loadings below 0.5. For the Students' Engagement variable, indicators 4, 6, 7, and 9 fall below this threshold. Meanwhile, indicators 1, 2, and 3 have outer loadings below 0.5 for the Social Support variable. These indicators should be removed before proceeding with the next testing phase.



**Figure 3. Outer model after removing invalid indicators**

Based on the figure above, it can be seen that all remaining outer loadings for the indicators used to measure academic stress, social support, and Student engagement among *santri* are at a reasonable level, greater than 0.5. This means that these indicators effectively measure the respective latent variables.

**Inner Model**

**Relationships Between Variables**

The Path Coefficients shown in Figure 2 above indicate that: 1) Academic Stress (AS) has a positive influence on Students' Engagement (SE) at a moderate level; 2) Social Support (SS) has a reasonably strong effect on Students' Engagement (SE) with a path coefficient of 0.606; 3) The pathway Academic Stress (X) → Students' Engagement (Y) through Social Support (Z) has a value of -0.137, indicating that Social Support (SS) exerts a negative moderating effect on the relationship between Academic Stress (AS) and Students' Engagement (SE). In other words, Social Support reduces the negative impact of Academic Stress on Students' Engagement; 4) Moderation (X1\*Z): The value of -0.230 indicates that Social Support (SS) moderates the relationship between Academic Stress (AS) and Students' Engagement (SE) with an adverse effect, meaning that when Social Support is high, the impact of Academic Stress on Students' Engagement decreases.

**Significance of Effects**

Significance testing has also been conducted on this model. The results of the significance tests are presented as follows.

**Tabel 2. Significance test results**

Path (Relationship)	Path Coefficient	t-Statistic	p-Value
AS → SE	0.406	1.729	0.084
SS → SE	0.606	8.656	0.000
AS → SE (Moderated)	-0.230	2.312	0.021

Source: Data processed using SmartPLS, 2025

Academic stress positively influences student engagement; however, this effect is not statistically significant, as indicated by a p-value exceeding 0.05. On the other hand, social support demonstrates a substantial association with student engagement. Likewise, the moderating role of social support in the relationship between academic stress and student engagement is statistically significant (p-value < 0.05). This implies that social support is a meaningful moderator in mitigating the adverse effects of academic stress on students' engagement.

**Model Fit Test**

The results of the model fit test can be seen in the following table.

**Table 3. Model Fit Test results**

Indicator	Saturated Model	Estimated Model	Interpretation
Chi-Square ( $\chi^2$ )	358.599	358.479	Small differences indicate that the model fits reasonably well, although there is a slight

			discrepancy between the estimated model and the saturated model.
d_ULS	1.780	1.779	The very similar d_ULS value suggests that the estimated model has a good fit with the saturated model.
NFI	0.590	0.590	A low NFI value (< 0.90) indicates that the model requires improvement to better fit the data.
d_G	0.485	0.485	The d_G value indicates that the estimated model is quite good compared to the saturated model, with a very small gap.
SRMR	0.097	0.097	An SRMR value greater than 0.08 indicates that the model needs refinement to better correspond with the data.

Source: Data processed using SmartPLS, 2025

The structural model analysis reveals that while academic stress positively affects student engagement, the effect is not statistically significant, as indicated by a path coefficient of 0.406 and a p-value of 0.084. This suggests insufficient statistical evidence to establish a direct link between academic stress and engagement among *santri*. Although the relationship between academic stress and student engagement is not statistically significant, the positive direction of the coefficient suggests a potential trend that deserves further attention. Academic stress is not necessarily harmful in Islamic Boarding Schools unique cultural and educational context, which emphasizes discipline, structured routines, and spiritual resilience. On the contrary, such stress may function as eustress, a positive form of pressure that motivates *santri* to remain focused and engaged.

Generally, many studies demonstrate that academic stress tends to have a negative impact on students' engagement. High stress often leads to anxiety, fatigue, and lack of motivation, all of which can diminish the quality of students' involvement in their learning. However, in some cases or studies, academic stress can act as a motivator or stimulus to become more engaged in education, especially for individuals who can manage stress effectively and receive adequate social support (H. Li, 2022; Pérez-Jorge et al., 2025; Zhao et al., 2023). However, this outcome can be explained through two complementary theoretical perspectives: the concept of eustress (positive stress) and the distinct cultural context of Islamic Boarding Schools.

First, eustress is a form of stress perceived as motivating and can enhance focus and energy when facing academic challenges. Eustress occurs when individuals interpret academic demands as manageable challenges rather than threats (Serpa-Barrientos et al., 2023). In this context, *santri* accustomed to rigorous schedules, high discipline, and clear academic targets may perceive structured academic pressure as a driver to improve learning performance. Rather than hindering them, such stress may foster greater academic engagement as part of their character and spiritual development.

Second, the educational culture in Islamic Boarding Schools is inherently unique. *Santri* live in communal environments rich with religious values, strict discipline, and a collective motivation to succeed. Within this cultural setting, academic challenges are often viewed as scholastic burdens, as part of a spiritual journey (*riyāḍah*), and personal growth. This perspective fosters academic resilience and can boost engagement despite

stress (Utari & Hamid, 2021). The presence of social support from peers and caregivers in the Islamic Boarding Schools can help manage stress positively and enhance their engagement in learning activities. Thus, although the direct effect of academic stress on engagement is statistically non-significant, the tendency toward a positive influence warrants attention, especially within the socio-cultural framework of Islamic education. This study highlights that cultural values and subjective perceptions of stress play a vital role in shaping students' academic engagement in Islamic Boarding Schools contexts.

*Santri* living in dormitories and facing various pressures or demands certainly require social support, especially from teachers or supervisors, parents, and fellow *santri*. Social support is the assistance and care received from others within one's social environment, functioning to help overcome stress, problems, or emotional and practical needs (Galugu & Samsinar, 2019). In this study, social support was found to strongly influence Students' Engagement (SE), with a path coefficient of 0.606. This finding is consistent with previous studies showing that social support is essential in increasing motivation and academic engagement (Barratt & Duran, 2021).

This research also indicates that the interaction between Academic Stress (X) and Student Engagement (Y) through Social Support (Z) yields a value of -0.137, suggesting that Social Support has a negative moderating influence on the relationship between Academic Stress and Student Engagement. In other words, Social Support mitigates the adverse effects of Academic Stress on engagement. Furthermore, the moderation coefficient (X1Z) of -0.230 reinforces that Social Support negatively moderates this relationship, meaning that higher levels of Social Support are associated with a weaker impact of Academic Stress on Student Engagement.

Previous studies have also proven that social support is a crucial protective factor in reducing the negative effects of academic stress (Soufi et al., 2014). When a *santri* feels pressured by academic demands or the strict Islamic Boarding Schools environment, emotional support from peers, caregivers, or family can help them remain engaged in learning and reduce feelings of despair or fatigue (Asri et al., 2024; Parikh et al., 2019).

Other research supports that social support not only plays a role in academic engagement but also impacts students' psychological well-being. When social support is high, students can better cope with stress, maintaining their learning motivation. This support can be emotional, informational, or practical assistance from friends, family, or lecturers (Yıldırım & Green, 2024). Social support provides a sense of security and acceptance that helps *santri* focus better on their studies. When they feel they are not alone in facing academic challenges, they become more motivated to overcome their stress and engage more actively in learning activities. This is especially important given that learning engagement is influenced not only by internal factors such as personal motivation but also by external factors, such as support from their social environment.

Although the AVE values for the constructs in this study remain low, the relationships between variables still demonstrate substantial and significant effects because the constructs' internal reliability is adequate, meaning the indicators consistently measure the intended constructs (Sarstedt et al., 2021). Furthermore, despite the indicators not being optimal in explaining the variance of the latent constructs, the latent constructs can still significantly influence other variables (Hair et al., 2012). The unique context of the study population and the relatively small sample size are suspected to be contributing factors to these results. Additionally, the moderation effects in the model

may strengthen the relationships between constructs, even though the measurement validity still requires improvement.

#### IV. CONCLUSION

This research underscores the significant role of social support as a moderating variable in the connection between academic stress and student engagement among *santri* in Islamic boarding schools. While the direct influence of academic stress on engagement was not statistically significant, social support effectively mitigated its adverse effects. This indicates that *santri* who receive substantial support from parents, educators, and peers are more likely to stay engaged in their learning despite experiencing academic pressure. These findings underscore the importance of Islamic Boarding Schools administrators in cultivating a supportive social environment through structured counseling, mentoring, and peer support initiatives. Such efforts not only foster academic engagement but also promote the psychological resilience and well-being of students. Future studies are recommended to enhance the structural model and expand the research scope across diverse Islamic Boarding Schools settings to ensure broader generalizability. For future research, it is advisable to improve the model used, particularly regarding the model fit aspects that still indicate a need for enhancement.

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