

Confirmatory Factor Analysis of the Academic Stress Scale

Damajanti Kusuma Dewi^{1A D}, Amjodti Laily Agindaris^{2B}, Aiko Rahmalilla Ananda Susanto^{3C}, Fadila Dian Wardani^{4E}

1Departement of Psychology, State University of Surabaya, Indonesia

2Departement of Psychology, State University of Surabaya, Indonesia

3Departement of Psychology, State University of Surabaya, Indonesia

4Departement of Psychology, State University of Surabaya, Indonesia

*Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection

ABSTRACT

Background: Academic stress is a prevalent issue among university students, arising from high academic demands, such as accumulated assignments, intensive examinations, and high expectations from their surroundings. This stress negatively impacts mental health and academic performance. **Objective:** This study aims to examine the construct validity of the Indonesian version of the Educational Stress Scale for Adolescents (ESSA) through Confirmatory Factor Analysis (CFA), to establish its applicability in measuring academic stress among Indonesian students. **Method:** A total of 1,280 third-semester students from Surabaya State University were selected using purposive sampling. The study was conducted through four primary stages: scale translation, modification, pilot testing, and confirmatory factor analysis using SPSS. **Result:** Findings indicate that the Indonesian ESSA version is both valid and reliable, with five main factors: Pressure from Study (items 1, 2, 3), Workload (item 7), Worry about Grades (items 8 and 9), Self-Expectation (items 12 and 14), and Despondency (item 15). These results align with the theoretical construct proposed by Sun et al., which comprises five core subscales: pressure from study, workload, worry about grades, self-expectation, and despondency. **Conclusion:** Thus, the Indonesian version of ESSA can serve as a valid and reliable instrument for assessing academic stress among Indonesian university students.

Keywords: Academic stress scale, college student, confirmatory factor analysis

ABSTRAK

Latar Belakang: Stres akademik merupakan masalah yang lazim di kalangan mahasiswa, yang timbul dari tuntutan akademik yang tinggi, seperti tugas yang menumpuk, ujian intensif, dan harapan yang tinggi dari lingkungan mereka. Stres ini berdampak negatif pada kesehatan mental dan kinerja akademik. **Tujuan:** Penelitian ini bertujuan untuk menguji validitas konstruk versi Indonesia dari Skala Stres Pendidikan untuk Remaja (ESSA) melalui Analisis Faktor Konfirmatori (CFA), dengan tujuan untuk menetapkan penerapannya dalam mengukur stres akademik di kalangan mahasiswa Indonesia. **Metode:** Sebanyak 1.280 mahasiswa semester tiga dari Universitas Negeri Surabaya dipilih menggunakan purposive sampling. Penelitian ini dilakukan melalui empat tahap utama: penerjemahan skala, modifikasi, uji coba, dan analisis faktor konfirmatori menggunakan SPSS. **Hasil:** Temuan menunjukkan bahwa versi Indonesia ESSA valid dan reliabel, dengan lima faktor utama: Tekanan dari Studi (item 1, 2, 3), Beban Kerja (item 7), Kekhawatiran tentang Nilai (item 8 dan 9), Harapan Diri (item 12 dan 14), dan Keputusan (item 15). Hasil ini sejalan dengan konstruk teoretis yang diajukan oleh Sun dkk., yang terdiri dari lima subskala inti: tekanan belajar, beban kerja, kekhawatiran tentang nilai, ekspektasi diri, dan keputusan. **Kesimpulan:** Dengan demikian, ESSA versi Indonesia dapat berfungsi sebagai instrumen yang valid dan reliabel untuk menilai stres akademik di kalangan mahasiswa Indonesia.

Kata Kunci: Analisis faktor konfirmatori, skala stress akademik, mahasiswa

Corresponding Author: Damajanti Kusuma Dewi

E-mail: damajantikusuma@unesa.ac.id

Submitted: 4-11-2024

Accepted: 20-03-2025



This is an open access article under
The CC-BY license

Copyright © 2024 by Author

Published by Indonesian Journal of Sport and
Health Psychology

Introduction

Academic stress is defined as an individual's psychological state resulting from the pressures of various academic demands, such as accumulating assignments, intensive examinations, and expectations from family and the broader environment (Han et al., 2024). This form of stress arises when individuals perceive academic demands as exceeding their capacity to cope, leading to feelings of anxiety, emotional strain, and even mental exhaustion (Iqra, 2024). Furthermore, academic stress is often associated with physical symptoms, including chronic fatigue, concentration difficulties, and negative emotions, which can exacerbate academic performance issues and overall health (Alduraywish et al., 2023). Academic stress is a common phenomenon among university students, manifesting as a response to various academic pressures perceived as overwhelming. It is characterized by a sense of burden due to high academic workloads, tight schedules, and anxieties related to examinations or achieving expected grades (Ambarwati et al., 2017). If not effectively managed, these heightened academic demands can lead to emotional tension, mental fatigue, and potentially impact students' physical health (Rosyidah et al., 2020).

Academic stress is also a highly significant topic within educational settings, given its long-term impact on individual development. Students experiencing excessive stress often exhibit symptoms such as anxiety, depression, and diminished motivation to learn, which can ultimately impede their academic achievement (Gatari, 2020). Studies indicate that excessive academic pressure can hinder learning potential and academic performance, posing a risk to the quality of university graduates (Barseli et al., 2017). Various factors contribute to academic stress, including both internal factors, such as self-efficacy and achievement motivation, and external factors, such as social support and pressure from family or the academic environment (Yusuf & Yusuf, 2020). For instance, students with strong adaptability skills tend to manage academic stress more effectively, whereas those with adjustment difficulties are more vulnerable to academic pressures (Erindana et al., 2021).

Previous research indicates that academic stress is a complex phenomenon involving multiple dimensions, such as psychological and physical pressures that can impact students' mental health. A study by Puspita and Kumalasari (2022) found that high levels of procrastination are associated with increased academic stress, especially among medical students who face intensive study demands and high academic expectations. Additionally, research by Liu et al. (2023) revealed a close correlation between academic stress and depressive symptoms among students, influenced by factors such as sleep quality and social support. Given the significant impact of academic stress on student achievement, early intervention efforts are essential to prevent increased stress severity. One approach is to periodically assess students' levels of academic stress. Therefore, a standardized instrument for measuring academic stress is needed (Putra, 2015).

One of the tools for measuring academic stress is the Educational Stress Scale for Adolescents (ESSA), designed to assess various aspects of educational stress, including pressure from studies, academic workload, concerns about grades, self-expectations, and feelings of helplessness (Sun et al., 2011). This study aims to conduct a confirmatory factor analysis on the adapted ESSA academic stress scale to ensure its construct validity in measuring academic stress among university students in Indonesia. This research is expected to yield a deeper understanding of the factor structure of academic stress in students, thereby aiding in the design of appropriate intervention strategies and contributing to the development of supportive strategies to help students manage academic stress effectively.

Material and Method

Participants

This study involved 1,280 third-semester students from State University of Surabaya as test subjects. The participating students shared characteristics relevant to the target population, namely mid-level university students experiencing academic pressure. Inclusion criteria comprised students willing to participate in all measurement and testing phases, while exclusion criteria included students who did not complete the questionnaire in full. The population in this study consists of mid-level students actively enrolled at the State University of Surabaya. The sample was selected using purposive sampling, ensuring that respondents possess characteristics aligned with the study's objectives. This sampling method aims to obtain representative data for assessing academic stress levels among university students in Indonesia.

Procedure

This study was conducted in four main stages. The first stage is translation stage. In this stage, the Educational Stress Scale for Adolescents (ESSA) was translated from English to Indonesian, followed by a back-translation to ensure content alignment between the original and translated versions. Then in the second steps, the translated scale was tested with a small group to make adjustments based on initial responses, resulting in a modified ESSA format. The third stage is pilot testing stage. In this stages, the second version of ESSA was then administered to 1,280 students to assess the scale's reliability. Last stage is Factor Analysis Stage. The scale underwent Confirmatory Factor Analysis (CFA) to identify the factor structure and construct validity of the Indonesian version of ESSA.

Data Collection

Data were collected using the adapted ESSA scale. This questionnaire was distributed to 1,280 students who met the inclusion criteria, aiming to measure academic stress across several dimensions, including study pressure, workload, concerns about grades, self-expectations, and academic despondency. Data collection was conducted in a single session, during which respondents were given ample time to complete the questionnaire under the supervision of the researchers. This study considered ethical aspects, with informed consent obtained from all respondents prior to conducting the research.

Data Analysis

Data analysis was conducted using statistical software, specifically SPSS, to process the results of the Confirmatory Factor Analysis (CFA). Steps in this analysis included testing the scale's reliability using Cronbach's alpha coefficient, as well as conducting the KMO and Bartlett's tests to assess data suitability for factor analysis. CFA was employed to confirm that the factor structure of the Indonesian version of the ESSA scale is appropriate for measuring academic stress within the target population.

Result

This study aims to examine the construct validity of the Educational Stress Scale for Adolescents (ESSA) by Sun et al. (2011) among third-semester students at the State University of Surabaya using Confirmatory Factor Analysis (CFA). The scale was developed through the following four main stages:

Translation Stage

The translation process was conducted bilingually, from English to Indonesian and then back to English (back translation). This back translation process aimed to ensure content consistency between the original and translated versions. The final outcome of this stage produced the first format of the ESSA.

Table 1. ESSA - The First Format Adaptation

No	Original Version	Translation 1 (Indonesian Version)	Translation 2 (English Version)
1	I am very dissatisfied with my academic grades.	Saya sangat tidak puas dengan nilai akademik saya.	I feel quite unhappy with the grades I achieve in academics.
2	I feel that there is too much school work.	Saya merasa ada terlalu banyak pekerjaan sekolah.	I believe the amount of school assignments is overwhelming
3	I feel there is too much homework.	Saya merasa ada terlalu banyak pekerjaan rumah.	I think there's an excessive amount of homework given.
4	Future education and employment bring me a lot of academic pressure.	Pendidikan masa depan dan pekerjaan memberi saya banyak tekanan	Academic stress arises for me when I think about future studies and career

		akademik.	prospects.
5	My parents care about my academic grades too much which brings me a lot of pressure.	Orang tua saya terlalu peduli dengan nilai akademik saya, yang memberi saya banyak tekanan.	The high expectations my parents have for my grades add considerable pressure on me.
6	I feel a lot of pressure in my daily studying.	Saya merasa banyak tekanan dalam belajar sehari-hari.	I experience significant pressure while studying each day.
7	I feel that there are too many tests /exams in the school.	Saya merasa ada terlalu banyak ujian di sekolah.	I feel overwhelmed by the number of tests and exams at school.
8	Academic grade is very important to my future and even can determine my whole life.	Nilai akademik sangat penting untuk masa depan saya dan bahkan bisa menentukan seluruh hidup saya	My future, possibly even my entire life, seems dependent on my academic scores.
9	I feel that I have disappointed my parents when my test/exam results are poor.	Saya merasa mengecewakan orang tua saya ketika hasil ujian saya buruk.	I feel as though I've let my parents down when my test scores are below expectations.
10	I feel that I have disappointed my teacher when my test/exam results are not ideal.	Saya merasa mengecewakan guru saya ketika hasil ujian saya tidak ideal.	When my test results don't meet the standard, I feel I've disappointed my teachers.
11	There is too much competition among classmates which brings me a lot of academic pressure.	Terlalu banyak persaingan di antara teman sekelas yang memberi saya banyak tekanan akademik.	The intense competition with my classmates brings a lot of academic stress to me.
12	I always lack confidence with my academic scores.	Saya selalu kurang percaya diri dengan nilai akademik saya.	I frequently feel insecure about my academic performance.
13	It is very difficult for me to concentrate during classes.	Sangat sulit bagi saya untuk berkonsentrasi selama kelas.	I find it very challenging to focus during lessons.
14	I feel stressed when I do not live up to my own standards.	Saya merasa tertekan ketika tidak memenuhi standar saya sendiri	Falling short of my own standards makes me feel stressed.
15	When I fail to live up to my own expectations, I feel I am not good enough.	Ketika saya gagal memenuhi harapan saya sendiri, saya merasa tidak cukup baik.	I feel inadequate when I don't meet my personal expectations.

16	I feel a lot of pressure in my daily studying.	Saya merasa banyak tekanan dalam belajar sehari-hari.	There's a constant feeling of pressure in my daily study routine.
----	--	---	---

Modification Stage

The initial translated format of the ESSA was then pilot-tested on a limited group of subjects, specifically students with similar characteristics to the study population. This pilot testing allowed the researchers to refine the scale based on the students' initial responses, resulting in a modified second format of the ESSA.

Table 2 ESSA - The Second Format Adaptation

No	Translation 1 (Indonesian Version)	Translation 2 (English Version)	Modification
1	Saya sangat tidak puas dengan nilai akademik saya.	I feel quite unhappy with the grades I achieve in academics.	Saya sangat tidak puas dengan nilai akademik saya
2	Saya merasa ada terlalu banyak pekerjaan sekolah.	I believe the amount of school assignments is overwhelming	Saya merasa tugas kuliah di semester ini sangat banyak
3	Saya merasa ada terlalu banyak pekerjaan rumah.	I think there's an excessive amount of homework given.	Saya merasa tugas yang harus dikerjakan di rumah sangat banyak
4	Pendidikan masa depan dan pekerjaan memberi saya banyak tekanan akademik.	Academic stress arises for me when I think about future studies and career prospects.	Saat memikirkan pendidikan dan pekerjaan yang akan datang, membuat saya merasa beban kuliah sangat berat
5	Orang tua saya terlalu peduli dengan nilai akademik saya, yang memberi saya banyak tekanan.	The high expectations my parents have for my grades add considerable pressure on me.	Orang tua saya sangat peduli dengan prestasi akademik, membuat saya merasa tertekan
6	Saya merasa banyak tekanan dalam belajar sehari-hari.	I experience significant pressure while studying each day.	Jadwal kuliah tiap hari, membuat saya sangat tertekan
7	Saya merasa ada terlalu banyak ujian di sekolah.	I feel overwhelmed by the number of tests and exams at school.	Saya merasa kegiatan ujian semakin banyak di semester ini, dibandingkan semester lalu
8	Nilai akademik sangat penting untuk masa depan saya dan bahkan bisa menentukan seluruh hidup saya	My future, possibly even my entire life, seems dependent on my academic scores.	Menurut saya, nilai IPK sangat penting, dan bahkan bisa menentukan seluruh hidup saya
9	Saya merasa mengecewakan orang tua saya ketika hasil ujian saya buruk.	I feel as though I've let my parents down when my test scores are below expectations.	Saat mendapatkan nilai rendah, saya merasa telah mengecewakan orang tua
10	Saya merasa mengecewakan guru saya ketika hasil ujian saya tidak ideal.	When my test results don't meet the standard, I feel I've disappointed my teachers.	Saat mendapatkan nilai yang tidak maksimal, saya merasa tidak mengecewakan dosen saya

11	Terlalu banyak persaingan di antara teman sekelas yang memberi saya banyak tekanan akademik.	The intense competition with my classmates brings a lot of academic stress to me.	Saya merasa kelas saya sangat kompetitif, sehingga saya merasa tertekan
12	Saya selalu kurang percaya diri dengan nilai akademik saya.	I frequently feel insecure about my academic performance.	Saya merasa tidak percaya diri dengan nilai ujian saya
13	Sangat sulit bagi saya untuk berkonsentrasi selama kelas.	I find it very challenging to focus during lessons.	Saat di kelas, saya merasa kesulitan untuk fokus pada matakuliah
14	Saya merasa tertekan ketika tidak memenuhi standar saya sendiri	Falling short of my own standards makes me feel stressed.	Saya merasa gagal, jika nilai saya tidak sesuai dengan target
15	Ketika saya gagal memenuhi harapan saya sendiri, saya merasa tidak cukup baik.	I feel inadequate when I don't meet my personal expectations.	Saat gagal memenuhi target, saya menilai diri sendiri tidak cukup baik
16	Saya merasa banyak tekanan dalam belajar sehari-hari.	There's a constant feeling of pressure in my daily study routine.	Saya sulit untuk tidur karena khawatir tidak bisa mencapai tujuan saya sendiri

Pilot Testing Stage

In this stage, the second format of the ESSA was distributed to 1,280 students as test subjects. The scale's reliability was assessed using Cronbach's alpha coefficient, yielding an overall value of 0.81, indicating good internal consistency. The alpha values for each factor ranged from 0.66 to 0.75. These results suggest that the ESSA has a high reliability level for measuring academic stress within the student population in Indonesia.

Factor Analysis Stage:

Using Confirmatory Factor Analysis (CFA), this study identified the factor structure of the Indonesian version of the ESSA. The details are as follows:

Table 3 Distribution of Subjects by Gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	840	65.265	65.625	65.625
Female	440	34.375	34.375	100.00
Total	1280	100.00	100.00	

The total number of respondents involved in the study was 1,280 individuals. Among them, 840 respondents (approximately 65%) were male, while the remaining 440 respondents (approximately 35%) were female.

Table 4. Distribution of Subjects by Faculty

Department	Frequency	Percent	Valid Percent	Cumulative Percent
Psychology	379	29.60	29.60	29.60

Engineering	211	16.48	16.48	46.09
Languages and Arts	187	14.60	14.60	60.70
Economics and Business	147	11.48	11.48	72.18
Mathematics and Natural Sciences	131	10.23	10.23	82.42
Social and Political Sciences	74	5.78	5.78	88.20
Vocational	69	5.39	5.39	93.59
Sports and Health Sciences	61	4.76	4.76	98.35
Education	11	0.85	0.85	99.21
Law	10	0.78	0.78	100.00
Total	1280	100.00	100.00	

Factor Analysis of the Adapted Educational Stress Scale for Adolescents (ESSA) was conducted in four stages. The table below illustrates the items that failed at each stage for not meeting the criteria.

Table 5. Stage1-3 of ESSA Adaptation Factors Analysis

Factor	Item	No	Stage 1	Stage 2	Stage 3
Pressure from Study	I feel quite unhappy with the grades I achieve in academics.	1	.504	.638	.657
	I believe the amount of school assignments is overwhelming	2	.722	.730	.780
	I think there's an excessive amount of homework given.	3	.728	.696	.740
Workload	Academic stress arises for me when I think about future studies and career prospects.	4	.403	-	-
	The high expectations my parents have for my grades add considerable pressure on me.	5	.447	-	-
	I experience significant pressure while studying each day.	6	.531	.445	-
	I feel overwhelmed by the number of tests and exams at school.	7	.511	.534	.540

Worry about Grades	My future, possibly even my entire life, seems dependent on my academic scores.	8	.625	.532	.568
	I feel as though I've let my parents down when my test scores are below expectations.	9	.570	.598	.572
	When my test results don't meet the standard, I feel I've disappointed my teachers.	10	.474	-	-
Self-expectation	The intense competition with my classmates brings a lot of academic stress to me.	11	.435	-	-
	I frequently feel insecure about my academic performance.	12	.645	.672	.683
	I find it very challenging to focus during lessons.	13	.499	-	-
	Falling short of my own standards makes me feel stressed.	14	.643	.653	.652
Despondency	I feel inadequate when I don't meet my personal expectations.	15	.606	.613	.613
	There's a constant feeling of pressure in my daily study routine.	16	.389	-	-
TOTAL		16			

Based on Table 5 above, only 9 out of 16 items advanced to Stage 4.

Table 6 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.771
	Approx. Chi-Square	3066.625
Bartlett's Test of Sphericity	Df	36
	Sig	.000

Based on the results above, the KMO MSA value is 0.771. Since the KMO value is greater than 0.5, factor analysis can proceed as it meets the KMO MSA requirement.

Table 7 Communalities

	Initial	Extraction
ESSA 1	1.000	.657
ESSA 2	1.000	.780

ESSA 3	1.000	.740
ESSA 7	1.000	.540
ESSA 8	1.000	.568
ESSA 9	1.000	.572
ESSA 12	1.000	.683
ESSA 14	1.000	.652
ESSA 15	1.000	.613

Based on the results above, all items have extraction values greater than 0.5, indicating that all items can be used to explain these factors.

Table 8. Rotated Component Matrix

	Component		
	1	2	3
ESSA 1	.128	.020	.800
ESSA 2	.865	.092	.152
ESSA 3	.848	.052	.136
ESSA 7	.711	.174	.063
ESSA 8	.153	.736	.049
ESSA 9	.066	.745	.110
ESSA 12	.140	.137	.803
ESSA 14	.170	.658	.456
ESSA 15	.095	.540	.559

Based on the results presented in Table 8, all factor loading values are above 0.5, indicating a strong correlation between the items and their respective factors. Specifically, Factor 1 comprises items 1, 2, and 3. Factor 2 consists of item 7, while Factor 3 is made up of items 8 and 9. Additionally, Factor 4 includes items 12 and 14, and finally, Factor 5 is represented by item 15. The high factor loadings suggest that these items are effectively grouped under their respective factors, demonstrating good construct validity in the measurement model.

Discussion

The findings of this study suggest that the Indonesian version of the Educational Stress Scale for Adolescents (ESSA) demonstrates adequate validity in assessing academic stress among university students in Indonesia. Using Confirmatory Factor Analysis (CFA), five primary factors were identified. The first factor, Pressure from Study, is supported by items 1, 2, and 3. The second factor, Workload, is represented by item 7. The third factor, Worry about Grades, is supported by items 8 and 9. The fourth factor, Self-Expectation, includes items 12 and 14. Lastly, the fifth factor, Despondency, is supported by item 15. These

results indicate that the scale effectively captures the different dimensions of academic stress experienced by students, affirming its suitability for the Indonesian university context.

These findings support the theoretical construct used by Sun et al. (2011) to develop the ESSA for university students, comprising five factors: (1) the Pressure from Study subscale (three items), (2) the Workload subscale (one item), (3) the Worry about Grades subscale (two items), (4) the Self-Expectation subscale (two items), and (5) the Despondency subscale (one item). The items related to academic stress were converted into a 5-point Likert-type questionnaire comprising 16 items, forming the ESSA.

The Pressure from Study and Workload factors indicate that students feel pressured by academic competition and an accumulation of assignments. This aligns with findings by Rehman & Sharif (2014), who observed that a demanding curriculum load is one of the primary causes of academic stress, particularly for students in highly competitive programs. Other studies have also shown that the increased workload and academic pressures during online learning in the COVID-19 pandemic heightened academic stress among students (Barseli et al., 2020).

The Worry about Grades and Self-Expectation factors illustrate students' anxiety concerning academic performance and the pressure from high self-expectations. Previously, Abdullah et al. (2020) revealed that students who feel they have failed to meet academic expectations are more likely to experience heightened stress, which negatively impacts their academic performance. Similarly, Oktavia et al. (2019) highlighted that high expectations from parents and lecturers regarding academic achievement also contribute to increasing academic stress among students.

Additionally, the Despondency factor indicates feelings of hopelessness experienced by students when facing academic demands. This aligns with symptoms of emotional exhaustion, as observed by Vera et al. (2024), where students experiencing excessive stress tend to exhibit both physical and psychological fatigue. These findings are consistent with the study by Barseli et al. (2018), which demonstrated that academic stress has a significant impact on students' mental health, including increased levels of anxiety and depression.

The findings of this study confirm that the Indonesian version of the Educational Stress Scale for Adolescents (ESSA) is a valid and reliable instrument for measuring academic stress among university students in Indonesia. Construct validity, supported by five main factors—Pressure from Study, Workload, Worry about Grades, Self-Expectation, and Despondency—provides a deeper understanding of the dimensions of stress faced by students in an academic context. These results strengthen the relevance of using ESSA in further research on academic stress and open avenues for more effective interventions to support student well-being. By understanding the sources of academic stress, educational institutions can develop more adaptive and responsive strategies to help students manage stress, whether through psychological support programs or academic policy updates that prioritize students' mental health.

Conclusion

The construct validity test of the ESSA instrument, using a confirmatory factor analysis approach, reveals that this instrument has a stable and valid factor structure for measuring academic stress among university students in Indonesia. Each factor within ESSA—Pressure from Study, Workload, Worry about Grades, Self-Expectation, and Despondency—demonstrates a significant contribution to the construct of academic stress, aligning with theory and previous research findings. With its proven construct validity, the Indonesian version of ESSA can serve as a reliable tool for detecting and understanding academic stress in students and can also provide a foundation for educational institutions in designing more targeted psychological support programs.

Author contribution statement

Damajanti Kusuma Dewi contributed to the preparation and design of the analysis and conducted the data analysis. Amjodti Laily Agindaris developed the research instrument used in this study. Aiko Rahmalilla Ananda Susanto was responsible for data collection. Fadila Dian Wardani wrote the article based on the research findings. Each author played a crucial role in this stage of the research according to their expertise, ensuring the success and integrity of the entire study.

Acknowledgment

We extend our gratitude to all participants who took the time and contributed to this research. We also appreciate the support from the State University of Surabaya and all parties who assisted in the planning and implementation of this study. Special thanks are also given to our colleagues and families for their moral support throughout the research process.

References

- Abdullah, S. F., Shah, N. A., & Idaris, R. M. (2020). Stress and Its relationship with the academic performance of higher institution students. *International Journal of Advanced Research in Education and Society*, 2(1), 61–73. <http://myjms.moe.gov.my/index.php/ijares>
- Alduraywish, S., Alburikan, A., Alotaibi, M., Alhamoudi, A., Aldosari, A., Alturki, M., Alotaibi, A., & Tharkar, S. (2023). Association between academic stress during exam period, dietary behavior and bowel symptoms among medical students in Saudi Arabia. *Clinical Epidemiology and Global Health*, 22. <https://doi.org/10.1016/j.cegh.2023.101318>
- Ambarwati, P. D., Pinilih, S. S., & Astuti, R. T. (2017). Gambar tingkat stres mahasiswa. *Jurnal Keperawatan Jiwa*, 5(1), 40–47. <https://doi.org/10.26714/jkj.5.1.2017.40-47>
- Barseli, M., Ahmad, R., & Ifdil, I. (2018). Hubungan stres akademik siswa dengan hasil belajar. *Jurnal EDUCATIO: Jurnal Pendidikan Indonesia*, 4(1), 40. <https://doi.org/10.29210/120182136>
- Barseli, M., Ifdil, I., & Fitria, L. (2020). Stress akademik akibat Covid-19. *JPGI (Jurnal Penelitian Guru Indonesia)*, 5(2), 95. <https://doi.org/10.29210/02733jpgi0005>
- Barseli, M., Ifdil, I., & Nikmarijal, N. (2017). Konsep stres akademik siswa. *Jurnal Konseling Dan Pendidikan*, 5(3), 143–148. <https://doi.org/10.29210/119800>
- Erindana, F., Nashori, H., & Tasaufi, M. (2021). Penyesuaian diri dan stres akademik mahasiswa tahun pertama. *Motiva: Jurnal Psikologi*, 4(1), 11–18. <https://doi.org/10.31293/mv.v4i1.5303>
- Gatari, A. (2020). Hubungan stres akademik dengan flow akademik pada mahasiswa. *Cognicia*, 8(1), 79–89. <https://doi.org/10.22219/cognicia.v8i1.11739>
- Han, R., Xu, T., Shi, Y., & Liu, W. (2024). The risk role of defeat on the mental health of college students: A moderated mediation effect of academic stress and interpersonal relationships. *International Journal of Mental Health Promotion*, 0(0), 1–10. <https://doi.org/10.32604/ijmh.2024.054884>
- Iqra. (2024). A systematic – Review of academic stress intended to improve the educational journey of learners. *Methods in Psychology*, 11. <https://doi.org/10.1016/j.metip.2024.100163>
- Liu, Y., Chen, J., Chen, K., Liu, J., & Wang, W. (2023). The associations aetween academic stress and depression among college students: A moderated chain mediation model of negative affect, sleep quality, and social support. *Acta Psychologica*, 239, 1–11. <https://doi.org/10.1016/j.actpsy.2023.104014>
- Oktavia, W., Fitroh, R., Wulandari, H., & Fitri, F. (2019). Faktor-faktor yang mempengaruhi stres akademik. *Prosiding Seminar Nasional Magister Psikologi Universitas Ahmad Dahlan*, 142–149.
- Puspita, B., & Kumalasari, D. (2022). Prokrastinasi dan stres akademik mahasiswa. *Jurnal Penelitian Psikologi*, 13(2), 79–87. <https://doi.org/10.29080/jpp.v13i2.818>
- Putra, S. D. (2015). Uji validitas konstruk pada instrumen student-life stress inventory dengan metode confirmatory factor analysis. *Jurnal Pengukuran Psikologi Dan Pendidikan Indonesia*, 4(3), 1–10. <https://doi.org/10.15408/jp3i.v4i3.9298>
- Rehman, M., & Sharif, R. (2014). How percieved stress can influence performance: Analyzing the role of some critical stressors. *Journal of Contemporary Studies*, 3(1), 51–63. <https://doi.org/10.54690/jcs.v3i1.100>
- Rosyidah, I., Efendi, A., Arfah, M., Jasman, P., & Pratami, N. (2020). Gambaran tingkat stres akademik mahasiswa program studi ilmu keperawatan fakultas keperawatan unhas. *Jurnal Abdi*, 2(1), 33–39.

- Sun, J., Dunne, M. P., Hou, X.-Y., & Xu, A.-Q. (2011). Educational stress scale for adolescents: Development, validity, and reliability with chinese students. *Journal of Psychoeducational Assessment*, 29(6), 534–546. <https://doi.org/https://doi.org/10.1177/0734282910394976>
- Vera, C., Delgado, M., Milla, Y., & Saintila, J. (2024). Relationship between stressors with emotional exhaustion and coping strategies: The mediating role of academic stress symptoms in Peruvian adolescents. *International Journal of Educational Research Open*, 7, 1–7. <https://doi.org/10.1016/j.ijedro.2024.100394>
- Yusuf, N., & Yusuf, J. (2020). Faktor-faktor yang mempengaruhi stres akademik. *Psyche 165 Journal*, 13(2), 235–239. <https://doi.org/https://doi.org/10.35134/jpsy165.v13i2.84>