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Cognitive Behavioral Therapy to Reduce Academic Stress among Nursing Students: A Quasi-Experimental Study

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ABSTRACT

Background: Academic stress was commonly experienced by university students as a result of high academic demands and workload. Cognitive Behaviour Therapy (CBT) is one of the methods that can help individuals identify irrational thought and replace them with adaptive cognitions so they can assess academic situation more realistically and rationally.

Purpose: The purpose of this study was to analyze the effectiveness of CBT in reducing academic stress among nursing students.

Methods: A quasi-experimental pre–post-test design was applied with 141 participants selected through simple random sampling, consisting of 70 respondents in the experimental group and 71 in the control group. The intervention group received a two-week CBT program based on the ABCDE model and cognitive restructuring techniques. The Student Life Stress Inventory (SSI) was administered before and after the intervention. Data were analyzed using the Wilcoxon Signed Rank Test and Mann–Whitney U Test. All procedures of this study were approved by the Research Ethics Committee of STIKes Hang Tuah Surabaya Number PE/50/II/2025/KEP/SHT

Results: The Wilcoxon test showed a significant reduction in stress levels in the experimental group ($Z = –3.088$, $p = 0.002$), while no significant difference was found in the control group ($Z = –0.765$, $p = 0.444$). The Mann–Whitney U Test revealed a significant difference in post–pre score changes between groups ($U = –3.017$, $p = 0.003$), indicating that CBT was effective in decreasing stress levels.

Conclusion: CBT effectively reduced academic stress among nursing students.CBT also can be used as an effective non-pharmacological nursing intervention in stress management.

Keywords: cognitive behavioral therapy, nursing student, stress academic

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BACKGROUND

Globally, the prevalence of stress among students remains high. Recent studies reported that 3.2% of the students were moderately to highly stressed (Olson et al., 2025). In Indonesia, several studies also found a high prevalence of academic stress among university students, ranging from 36.7% to 71.6% (Setyarini et al., 2024). A study West Java reported that 78.8% of students experienced moderate stress and 16.7% experienced severe stress (Mamlukah & Kumalasari, 2022). These findings indicate that stress remains a significant mental health concern among university students, particularly in Indonesia.

Stress among university students is often closely related to academic factors such as workload, examinations, performance expectations, and learning difficulties. This condition is commonly referred to as academic stress. Academic stress is likely to develop as students face academic pressures and failures throughout their educational process (Zhang et al., 2024). These pressures often arise from unmet needs, unsatisfactory academic performance, inability to sustain achievement, or challenges encountered during learning activities (Alharbi et al., 2025; Liu et al., 2024). Due to higher expectations, students tend to exert greater effort to achieve their goals, which may consequently increase academic stress.

Academic stress can affect one's cognition, behavior, and emotions. Its cognitive impact may lead to difficulties in concentration and mental tension, which eventually disrupt learning activities (Zhang et al., 2024). Moreover, academic stress also influences psychological well-being (Cheng et al., 2025), one of which is the decline in sleep quality (Ozdemir et al., 2024; Setyarini & Sitanggang, 2024; Zapata-López et al., 2024), which in turn may induce anxiety and reduce concentration levels.

Students experiencing academic stress require effective strategies to cope with it. One such strategy that can be implemented is Cognitive Behavioral Therapy (CBT) (Budiman et al., 2020; Khurshid et al., 2025; Utami et al., 2020). In this study, CBT comprises two main components: the application of the ABCDE model and the use of cognitive restructuring techniques. The ABCDE model, consists of five components, that were activating Events (A), Beliefs (B), Consequences (C), Disputation (D), and Effects (E) (Eneogu et al., 2024). This model helps individuals understand the relationship between events, beliefs, and resulting emotional consequences, and also training to reject irrational thoughts. Meanwhile, cognitive restructuring focuses on identifying and modifying negative thought patterns into more rational and adaptive ones (Manansingh et al., 2019; Mulyati, 2023; Nuraeni et al., 2024). The combination of these two approaches is expected to enhance students' ability to manage academic stress more effectively and maintain emotional well-being. This integrated approach has not been widely applied in reducing academic stress. Therefore, based on this rationale, the present study aims to analyze the effectiveness of CBT in reducing academic stress among university students.

OBJECTIVE

Objective of this study was to analyze the effectiveness of Cognitive Behavioral Therapy (CBT) in reducing academic stress among nursing students.

METHODS

Design and samples

A quasi-experimental pre–post-test design was employed in this study. Data collection was conducted from January 20 to 29, 2025. The study population comprised undergraduate nursing students at STIKes Hang Tuah Surabaya. Participants were required to meet the following inclusion criteria: being an active student of STIKes Hang Tuah Surabaya, enrolled

in the Bachelor of Nursing program at either the first or final year of study, and willing to participate in the research. Students who were on academic leave or inactive during the data collection period were excluded from participation. The sample size was calculated using the Slovin formula, total sampel in this study was 141, with 70 respondents allocated to experimental group and 71 respondents to control group. A simple random sampling technique was employed to ensure that each eligible participant had an equal probability of being included in the study.

Research instrument and data collection

The Student Life Stress Inventory (SSI) was used to assess students' stress levels. This inventory consists of 51 items to measure sources of stress and reactions to stress. The sources of stress category include five subscales—frustration (7 items), conflict (3 items), pressure (4 items), change (3 items), and self-imposed stress (6 items). The reactions to stress category comprise four subscales: physiological reactions (14 items), emotional reactions (4 items), behavioral reactions (8 items), and cognitive reactions (2 items). Each item is rated on a five-point Likert scale ranging from 1 ("never") to 5 ("very often" or "always"). The total score of the Student Life Stress Inventory (SSI) is categorized into three levels of stress: mild stress (total score range 51–119), moderate stress (total score range 120–145), and severe stress (total score greater than 145) (Gadzella, 1991). Cronbach alpha of this inventory was 0.96.

The intervention consisted of a two-week Cognitive Behavioral Therapy (CBT) program aimed at reducing students' stress levels. On the first day, participants completed the Student Life Stress Inventory (SSI) as a pre-test, followed by CBT sessions conducted over two weeks. On the 14th day, participants completed the SSI again as a post-test to assess changes in stress levels after the intervention. Control group did not receive any intervention.

Cognitive Behavioral Therapy (CBT) is a therapeutic approach based on the assumption that emotions and behaviors are products of cognitive processes. It aims to reduce maladaptive thoughts and behaviors by helping individuals identify and modify irrational thinking patterns into more rational and constructive ones. The intervention focuses on promoting self-awareness, encouraging logical evaluation of thoughts, and developing adaptive coping strategies to improve mental well-being. The CBT intervention in this study employed the ABCDE model, which includes five components: Activating events (A), Beliefs (B), Consequences (C), Disputation (D), and Effects (E). The process was further supported by cognitive restructuring techniques, which guide individuals to replace negative self-statements with rational and positive thoughts. The intervention was conducted in five structured sessions: establishing commitment, relaxation training, cognitive restructuring, behavioral activation, and evaluation (Table 1). Through these steps, participants learned to manage stress effectively by identifying negative thoughts, practicing relaxation, engaging in meaningful activities, and assessing their progress after two weeks of therapy.

Table 1. Topics Of Cognitive Behavioral Therapy (CBT) Intervention

Session	Session	Indicators
1	Commitment and orientation session	Pretest Focusing on building therapeutic rapport, explaining the CBT framework, and helping participants identify personal stressors and goals
2	Relaxation training session	Deep breathing to reduce physiological stress responses
3	Cognitive restructuring session	Identifying irrational beliefs using the ABCDE framework and practicing disputation of maladaptive thoughts

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4	Behavioral activation session	Encouraging participants to engage in meaningful and goal to enhance positive emotions and coping
5	Evaluation	Reviewing cognitive and behavioral changes Post test

Data collection was conducted after obtaining institutional permission and ethical clearance. The researcher approached first-year and final-year undergraduate nursing students to explain the purpose and procedures of the study. Informed consent was obtained from all participants prior to data collection, and each session took approximately ten minutes to complete.

Participants were asked to fill out a demographic questionnaire and the Student Life Stress Inventory (SSI) as a pre-test to measure their baseline stress levels. They then received a two-week Cognitive Behavioral Therapy (CBT) intervention delivered through a structured daily activity module implemented independently at home. On the 14th day, participants completed the SSI again as a post-test to assess changes in their stress levels after the intervention.

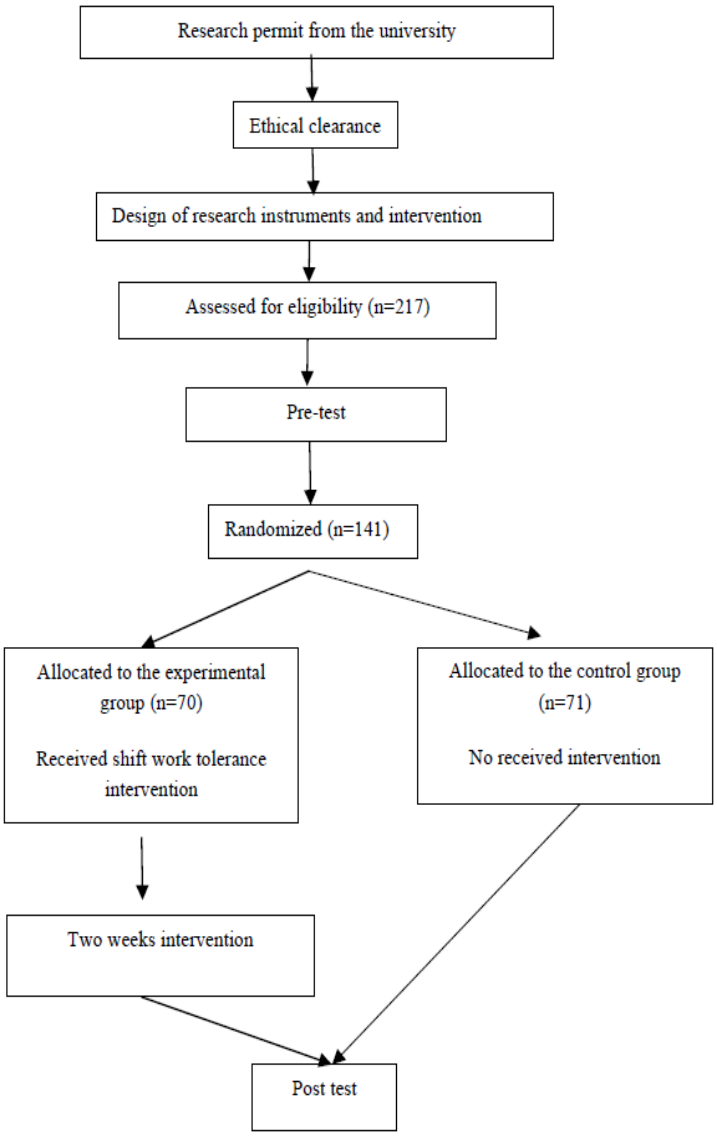

Figure 1. Flow chart of Study

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Data analysis

Data was analyzed using SPSS 25 and using both descriptive and inferential statistics. Descriptive analysis was employed to summarize participants' demographic characteristics, including age, gender, and educational background, using measures such as mean, median, quartiles, and standard deviation. Inferential statistics were applied to evaluate the effect of the intervention on students' stress levels. The Wilcoxon signed-rank test was used to compare pre-test and post-test scores within groups, while the Mann–Whitney U test was used to compare differences between independent groups.

Ethical consideration

All procedures of this study were approved by the Research Ethics Committee of STIKes Hang Tuah Surabaya Number PE/50/II/2025/KEP/SHT.

RESULTS

Table 2 presented the characteristics of respondents in the experimental and control groups. Most respondents were aged 18–23 years (94.3%) and were predominantly female (77.3%). Nearly half of the respondents had a family income between Rp 3,000,001–Rp 5,000,000 (49.6%), indicating that most came from middle-income families. In terms of the number of siblings, the largest proportion of respondents had two siblings (43.4%). Regarding the reason for choosing the study program, the majority (61.7%) reported that it was based on parental decision. Overall, the characteristics of respondents were relatively similar between the experimental and control groups.

Table 2. Characteristic of Respondents

Variables	Experimental n= 70		Control n=71		Total	
	Frequency	%	Frequency	%	Frequency	%
Age (years)						
18-20	33	47.1	36	50.7	69	48.9
21-23	33	47.1	31	43.7	64	45.4
24-26	4	5.8	4	5.6	8	5.7
Total	70	100.0	71	100.0	141	100.0
Gender						
Male	14	20.0	18	25.4	32	22.7
Female	56	80.0	53	74.6	109	77.3
Total	70	100.0	71	100.0	141	100.0
Family income (Rupiah)						
< 1.000.000	3	4.3	3	4.2	6	4.3
1.000.000 – 3.000.000	22	31.5	15	21.1	37	26.2
3.000.001 – 5.000.000	26	37.1	44	62.0	70	49.6
>5.000.000	19	27.1	9	12.7	28	19.8
Total	70	100.0	71	100.0	141	100.0
Number of siblings						
1	24	34.3	18	25.4	42	29.8
2	27	38.6	34	47.9	61	43.4
3	10	14.3	11	15.5	21	14.9
4	4	5.7	5	7.0	9	6.5
5	0	0	0	0.0	0	0.0
6	0	0	1	1.4	1	1.4

Variables	Experimental n= 70		Control n=71		Total	
	Frequency	%	Frequency	%	Frequency	%
No sibling	5	7.1	2	2.8	7	5.0
Total	70	100.0	71	100.0	141	100.0
Reason for choosing the study program						
Self-decision	21	30.0	33	46.5	54	38.3
Parental decision	49	70.0	38	53.5	87	61.7
Total	70	100.0	71	100.0	141	100.0
Type of residents						
Dormitory	3	4.3	0	0	3	2.1
Boarding house	56	32.9	60	84.5	116	82.3
Family home	11	15.7	11	15.5	22	15.6
Total	70	100.0	71	100.0	141	100.0

Table 3 presented the distribution of stress levels in the experimental and control groups. In the experimental group, most respondents showed a moderate level of stress (47.9%) at pretest, which slightly decreased after the intervention, while the proportion of those with low stress increased.

Table 3. Descriptive Statistics Of Variables

Level of Stress	Experimental (n=70)				Control (n=71)			
	Pretest		Post-test		Pretest		Post-test	
	f	%	f	%	f	%	f	%
Low	18	25.3	26	36.6	27	38.6	43	61.4
Moderate	34	47.9	25	35.2	21	30.0	20	28.4
Severe	19	26.8	20	28.2	22	31.4	7	10.0
Total	71	100.0	71	100.0	70	100.0	70	100.0

Table 4 presented the results of the Wilcoxon Signed Rank Test and Mann–Whitney U Test based on stress scores. The Wilcoxon Signed Rank Test showed a significant difference in the experimental group ($Z = –3.088$, $p = 0.002$), indicating a reduction in stress levels after the intervention. In contrast, the control group showed no significant change ($Z = –0.765$, $p = 0.444$). The Mann–Whitney U Test comparing the post–pre differences between groups also showed a significant result ($U = –3.017$, $p = 0.003$), suggesting that the intervention was effective in reducing stress levels compared to the control group.

Table 4. Results of Wilcoxon Signed Rank Test (within groups) and Mann-Whitney U Test based on Insomnia Score (between groups)

	Group	N	Statistic (Z/U)	*p*-value	Interpretation
Wilcoxon Signed Rank Test	Experimental	70	Z= -3.088	0.002	Significant
	Control	71	Z= -0.765	0.444	Not significant
Mann-Whitney U test	Δ (post-pre)	30	U= -3.017	0.003	Significant

DISCUSSION

The findings of this study indicate that Cognitive Behavioral Therapy (CBT) was effective in reducing academic stress among nursing students at STIKes Hang Tuah Surabaya, Indonesia. The results of the Wilcoxon test revealed a significant decrease in stress levels in the experimental group after the two-week CBT intervention, whereas no significant change was observed in the control group. This suggests that CBT, which combines the ABCDE model and cognitive restructuring techniques, can assist students to manage academic stress.

These results are consistent with previous studies showing the effectiveness of CBT in decreasing stress and anxiety among university students (Eneogu et al., 2024; Jagiello et al., 2024; Khurshid et al., 2025; Shafran et al., 2021). CBT helps participants identify irrational thoughts and replace them with more rational and adaptive cognitions, which in turn improves emotional regulation and coping strategies. The ABCDE model supports this process by helping individuals understand the link between activating events, beliefs, and emotional consequences (Turner, 2022), while cognitive restructuring reinforces adaptive thinking patterns. Through this combination, students are better equipped to reinterpret stressful situations and apply constructive coping mechanisms.

The significant reduction in academic stress among the intervention group also demonstrates that CBT can be effectively implemented in non-clinical settings. Previous studies have mainly focused on clinical populations (Bergvall et al., 2024; Reavell et al., 2018), while this study provides evidence that CBT is also beneficial for managing everyday academic stress among nursing students. This finding is particularly important, given that nursing education is characterized by high academic demands and emotional workload due to clinical practice requirements.

The findings showed that Cognitive Behavioral Therapy could be used as a preventive and promotive strategy in academic settings. Educators and counselors could include CBT-based programs to help students recognize irrational thoughts, develop positive thinking, and manage academic pressure. Regular workshops or group counseling using the ABCDE model could also improve students' coping skills and emotional well-being.

CONCLUSION

Cognitive Behavioral Therapy, through the ABCDE model and cognitive restructuring techniques, significantly reduced academic stress among nursing students. CBT can be used as an effective non-pharmacological nursing intervention in stress management. CBT helps participants identify irrational thoughts and replace them with more rational and adaptive cognitions, which in turn improves emotional regulation and coping strategies.

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CONFLICTS OF INTEREST

There is no conflict of interest.

REFERENCES

Alharbi, H. F., Abaoud, A. F., Almutairi, M., Alzahrani, N. S., Almarwani, A. M., Alenezi, A., & Alhowaymel, F. M. (2025). Gender differences in acute and perceived stress, bullying, and academic motivation among nursing and midwifery students. *BMC Nursing*, *24*(1), 26. https://doi.org/10.1186/s12912-024-02666-6.

Bergvall, H., Linde, J., Alfonsson, S., Sunnhed, R., Barber, J. P., Lundgren, T., . . . Bohman, B. (2024). Quality of cognitive-behavioural therapy in routine psychiatric care:

therapist adherence and competence, and patient outcomes for depression and anxiety disorders. *BMC Psychiatry*, *24*(1), 887. https://doi.org/10.1186/s12888-024-06328-4.

Budiman, R., Purwanto, E., & Murtadho, A. (2020). Cognitive Behavioral Therapy to Improve Self-Efficacy and Reduce Academic Procrastination. *Jurnal Bimbingan Konseling*, *9*(3), 145-151.

Cheng, R., Yang, L., & Kang, S.-J. (2025). A study on the relationship between high school students' sleep quality, physical exercise, academic stress, and subjective well-being. *BMC Psychology*, *13*(1), 180. https://doi.org/10.1186/s40359-025-02497-3.

Eneogu, N. D., Ugwuanyi, C. K., & Ugwuanyi, C. S. (2024). Efficacy of Cognitive Behavioral Therapy on Academic Stress Among Rural Community Secondary School Economics Students: A Randomized Controlled Evaluation. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, *42*(2), 245-262. https://doi.org/10.1007/s10942-023-00508-z.

Gadzella, B. M. (1991). Student-Life Stress Inventory.

Jagiello, T., Belcher, J., Neelakandan, A., Boyd, K., & Wuthrich, V. M. (2024). Academic Stress Interventions in High Schools: A Systematic Literature Review. *Child Psychiatry & Human Development*. https://doi.org/10.1007/s10578-024-01667-5.

Khurshid, K., Mushtaq, R., Rauf, U., Anwar, N., Abbas, Q., Aljhani, S., . . . Shahzadi, M. (2025). Cognitive behavior therapy for academic burnout, procrastination, self-handicapping behavior, and test anxiety among adolescents: a randomized control trial. *BMC Psychology*, *13*(1), 94. https://doi.org/10.1186/s40359-025-02371-2.

Liu, X., Li, Y., & Cao, X. (2024). Bidirectional reduction effects of perceived stress and general self-efficacy among college students: a cross-lagged study. *Humanities and Social Sciences Communications*, *11*(1), 271. https://doi.org/10.1057/s41599-024-02785-0.

Mamlukah, M., & Kumalasari, I. (2022). Stress Level of University Students in West Java Indonesia During Early Covid-19 Pandemic. *Journal of Educational, Health and Community Psychology*, *11*(2), 443-459. https://doi.org/10.12928/jehcp.v11i2.23887.

Manansingh, S., Tatum, S. L., & Morote, E.-S. (2019). Effects of relaxation techniques on nursing students' academic stress and test anxiety. *Journal of Nursing Education*, *58*(9), 534-537.

Mulyati, S. (2023). Counseling with Cognitive Behavioral Therapy Approach to Manage Student Academic Stress. *Proceedings of Siliwangi Annual International Conference on Guidance and Counselling*, *2*(1), 44-49. https://doi.org/10.64420/saicgc.v2i1.47.

Nuraeni, L., Samsudin, A., & Annisa, D. F. (2024). Penerapan Layanan Bimbingan Kelompok Dengan Teknik Cognitive Restructuring Dalam Menurunkan Stres Akademik Siswa Tingkat X Smkn 3 Cimahi. *FOKUS: Kajian Bimbingan dan Konseling dalam Pendidikan*, *7*(3), 240-247.

Olson, N., Oberhoffer-Fritz, R., Reiner, B., & Schulz, T. (2025). Stress, student burnout and study engagement – a cross-sectional comparison of university students of different academic subjects. *BMC Psychology*, *13*(1), 293. https://doi.org/10.1186/s40359-025-02602-6.

Ozdemir, E., Yazarkan, Y., & Pehlivanoglu, B. (2024). Medical Students' Stress Levels Are Correlated with Their Sleep Quality and Life Satisfaction. *International Journal of Medical Students*, *12*(1), 53-59. https://doi.org/10.5195/ijms.2024.2239.

Reavell, J., Hopkinson, M., Clarkesmith, D., & Lane, D. A. (2018). Effectiveness of Cognitive Behavioral Therapy for Depression and Anxiety in Patients With Cardiovascular Disease: A Systematic Review and Meta-Analysis. *Psychosom Med*, *80*(8), 742-753. https://doi.org/10.1097/psy.0000000000000626.

Setyarini, K. I., Makaba, S., Hasmi, H., Bouway, D. Y., Tingginehe, R. M., & Anggai, M. M. (2024). Revealing Academic Stress in Medical Students of Cenderawasih University, Jayapura, Papua Province, Indonesia. *Formosa Journal of Science and Technology*, *3*(8), 1727-1738. https://doi.org/10.55927/fjst.v3i8.10553.

Setyarini, K. I., & Sitanggang, P. A. (2024). The Correlation between Poor Sleep Quality with Academic Stress Level in Medical Profession Students of Cenderawasih University, Jayapura. *Asian Journal of Healthcare Analytics*, *3*(2), 83-92. https://doi.org/10.55927/ajha.v3i2.12192.

Shafran, R., Myles-Hooton, P., Bennett, S., & Öst, L.-G. (2021). The concept and definition of low intensity cognitive behaviour therapy. *Behaviour Research and Therapy*, *138*, 103803. https://doi.org/https://doi.org/10.1016/j.brat.2021.103803.

Turner, M. (2022). *The rational practitioner: The sport and performance psychologist's guide to practicing rational emotive behaviour therapy*. Routledge.

Utami, M. S., Shalihah, M. a., Adhiningtyas, N. P., Rahmah, S., & Ningrum, W. K. (2020). Gratitude cognitive behavior therapy (G-CBT) to reduce college students' academic stress. *Jurnal Psikologi*, *47*(2), 137-150.

Zapata-López, J. S., Gutierrez-Arce, K., Bojórquez-Castro, L., & Betancourt-Peña, J. (2024). *Academic stress and sleep quality in university students in two latin american countries* Sociedad Española para el Estudio de la Ansiedad y el Estrés-SEAS.-Colegio …].

Zhang, S., Rehman, S., Zhao, Y., Rehman, E., & Yaqoob, B. (2024). Exploring the interplay of academic stress, motivation, emotional intelligence, and mindfulness in higher education: a longitudinal cross-lagged panel model approach. *BMC Psychology*, *12*(1), 732. https://doi.org/10.1186/s40359-024-02284-6.