



The Effectiveness of Doodling Art Therapy as an Intervention in Reducing Academic Stress Among 12th-Grade Students

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Abstract

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Twelfth-grade students face heavy academic demands that place them at risk of academic stress, yet brief school-based interventions that need no specialized equipment remain scarce in Indonesia. This study examined changes in academic stress among 12th-grade students after a brief doodling art therapy program. A one-group pretest-posttest design was applied to 23 students aged 17 to 18 years at SMAN 8 Surabaya, selected through purposive sampling. The program consisted of a stress management education session and three 20-minute doodling sessions delivered within one week. Academic stress was measured with the Educational Stress Scale for Adolescents before and after the program and analyzed with a paired-samples *t*-test. The mean score decreased from 56.65 to 52.26, a mean difference of 4.39 points (95% CI [3.23, 5.55]), $t(22) = 7.87$, $p < .001$, Cohen's $d_z = 1.64$. The small sample, the absence of a control group, and the lack of a follow-up measurement limit causal inference. The findings offer preliminary evidence that a brief doodling program is accompanied by lower mean academic stress scores and warrants controlled testing in school counseling settings.

INTRODUCTION

Academic stress arises when students appraise educational demands as taxing or as exceeding the resources available to them (Lazarus & Folkman, 1984). It is linked to adverse consequences for mental health and academic functioning among students in secondary and higher education (Hosseinkhani et al., 2020; Pascoe et al., 2020). Twelfth-grade students are an especially exposed group because they prepare for final examinations while deciding on university entry or employment, and senior high school students in Korea who prepare for the competitive college entrance examination report

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excessive academic stress (Park & Kim, 2018). Indonesian studies treat academic demands, social support, classroom climate, and school well-being as correlates of academic stress among secondary school students (Muhid & Ferdiyanto, 2020; Ramli & Hasibuan, 2022), and the Educational Stress Scale for Adolescents (ESSA) has been used to examine academic stress among high school adolescents (Pillai et al., 2023).

Brief, low-cost activities that students can complete during school hours are attractive candidates for school-based stress reduction. Art-based activities allow students to express and regulate emotion without relying on verbal disclosure. Doodling, used here to mean spontaneous drawing without evaluation of the product, requires only paper and a pen. A scoping review of 16 empirical studies found mixed cognitive effects of doodling but favorable affective outcomes in seven studies, including stress reduction, relaxation, and improved emotion regulation (Stickley et al., 2025). In school settings, doodling research has focused largely on learning performance (Tadayon & Afhami, 2017).

Evidence on art-based interventions for children, adolescents, and students is accumulating but remains uneven. A meta-analysis of 17 articles with 1,548 students reported a small to moderate reduction in anxiety after mindfulness-based art interventions (Hedges' $g = 0.39$), although effects were larger in single-group studies than in controlled studies (Zhu et al., 2025). Mandala coloring and free coloring were both followed by lower test anxiety among 193 Grade 8 students (Carsley & Heath, 2018), and further syntheses address art therapy for anxiety in children and adolescents (Zhang et al., 2024) and in school settings for children aged 5 to 12 years (Moula, 2020). In Indonesia, drawing and coloring training was followed by lower academic stress scores in 46 of 69 ninth-grade students (Astuti et al., 2022), and a single-subject study reported greater calm before examinations after drawing therapy combined with family psychoeducation (Triana & Meiyutariningsih, 2021).

The transactional model of stress and coping suggests that doodling may serve as an emotion-focused coping activity that allows nonverbal expression and a brief shift of attention away from stressors, which could soften the appraisal of academic demands as threatening (Lazarus & Folkman, 1984). Three gaps remain. Doodling has rarely been tested against academic stress in school settings, because most doodling studies were conducted in laboratories or targeted cognition and mood (Stickley et al., 2025; Tadayon & Afhami, 2017). School-based art studies mostly address anxiety or test anxiety or include younger children, so evidence on academic stress among final-year senior high school students measured with a standardized scale is scarce (Carsley & Heath, 2018; Moula, 2020; Zhang et al., 2024). Definitions of doodling also differ across studies, and single-group results can overstate effects (Stickley et al., 2025; Zhu et al., 2025). This study therefore offers contextual rather than theoretical novelty: it examines a fully specified, brief doodling program with 12th-grade students in an Indonesian public senior high school, uses a standardized measure, and reports the effect size with its confidence interval. It was hypothesized that posttest ESSA scores would be lower than pretest

scores.

METHOD

Research Design

A one-group pretest-posttest design ($O_1 \times O_2$) was used, with academic stress measured before and after the intervention in a single group without a comparison group. This design is vulnerable to history, maturation, testing, instrumentation, and regression to the mean (Shadish et al., 2002), so observed changes cannot be attributed to the intervention with certainty. It suits an initial, small-scale examination of a new school-based program.

Participants and Sample Size

Participants were 23 12th-grade students of SMAN 8 Surabaya (17 female and 6 male) aged 17 to 18 years, selected through purposive sampling. The inclusion criteria were (1) active 12th-grade students at SMAN 8 Surabaya, (2) aged 17 to 18 years, and (3) willing to take part in the doodling sessions scheduled by the researchers. Participants were not selected on the basis of a particular stress category, and no ESSA cut-off score was applied at recruitment. Academic stress was first measured at pretest, where scores ranged from 38 to 72 (Table 3), so the sample covers a range of baseline stress levels and not a group screened for high stress. The exclusion criteria were (1) a severe psychological disorder or psychiatric diagnosis requiring specialized professional treatment, (2) inability to complete the research process because of illness, school transfer, or other reasons, and (3) not completing the stress questionnaire. No a priori power analysis was performed. A sensitivity analysis for a two-tailed paired-samples *t*-test ($N = 23$, $\alpha = .05$, power = .80) in *GPower* showed that the design could detect a standardized mean difference (d^*_z) of at least 0.61.

Instrument

Academic stress was measured with the ESSA (Sun et al., 2011), a 16-item self-report scale with five dimensions: pressure from study, workload, worry about grades, self-expectation, and despondency. Higher total scores indicate greater academic stress. In the original validation with Chinese adolescents, the ESSA showed adequate internal consistency, two-week test-retest reliability, satisfactory concurrent validity, and acceptable fit in confirmatory factor analysis (Sun et al., 2011). The Indonesian version of the ESSA was administered to the participants. A confirmatory factor analysis of a translated and modified Indonesian version with 1,280 university students reported a five-factor structure consistent with the original scale (Dewi et al., 2025).

Intervention Protocol

The program consisted of a brief stress management education session followed by three 20-minute doodling sessions delivered within one week. In each session, participants drew freely according to their feelings, and the drawings were not judged or evaluated. Table 1 summarizes the protocol.

Table 1. Overview of the Intervention Protocol

Component	Timing	Duration	Content and instructions
Pretest	Before the education session	10 minutes	Individual completion of the ESSA
Stress management education	Before doodling session 1	30 minutes	Brief psychoeducation on academic stress and stress management
Doodling sessions 1 to 3	Three sessions within one week	20 minutes each	Free drawing based on current feelings, without evaluation of the product
Posttest	After doodling session 3	10 minutes	Individual completion of the ESSA

Ethical Considerations

The study followed the ethical principles of the Declaration of Helsinki (World Medical Association, 2013). The study was conducted with the permission of SMAN 8 Surabaya and did not undergo formal ethical review by a research ethics committee. Participants aged 17 years were minors, so their parents or legal guardians gave written informed consent and the students gave written assent, whereas participants aged 18 years gave their own written informed consent. Participation was voluntary, and participants could withdraw at any time without consequence.

Data Analysis

Data were analyzed with IBM SPSS Statistics. Normality of the pretest and posttest scores was examined with the Shapiro-Wilk test. Pretest and posttest scores were compared with a two-tailed paired-samples *t*-test at $\alpha = .05$. The effect size was Cohen's *d_z*, the mean difference divided by the standard deviation of the differences, interpreted with the benchmarks of (Cohen, 1988). Frequencies and percentages described the respondents.

RESULTS AND DISCUSSION

Characteristics of Respondents

The study involved 23 students from SMAN 8 Surabaya who participated in the research. Respondents' characteristics were identified based on gender and age to provide an overview of the demographic composition of the study participants. The distribution of respondents according to these characteristics is presented in Table 2.

Table 2. Characteristics of Respondents (N = 23)

Characteristic	Frequency (f)	Percentage (%)
Gender: Male	6	26 %
Gender: Female	17	74 %
Age: 17 years	14	61 %
Age: 18 years	9	39 %

Table 2 shows that, of the 23 respondents, 17 students (74%) were female and 6 students (26%) were male, and that 14 students (61%) were 17 years old and 9 students (39%) were 18 years old. Participants aged 17 years were minors, which is why parental consent and student assent were required.

Changes in Academic Stress Scores

Changes in academic stress scores were examined by comparing the pretest and posttest results of the 23 participants using the Educational Stress Scale for Adolescents (ESSA). Descriptive statistics, including the mean, standard deviation, minimum score, and maximum score, were calculated to describe the distribution of academic stress scores at both measurement points. The results are presented in Table 3.

Table 3. Descriptive Statistics of ESSA Scores (N = 23)

Measurement	<i>M</i>	<i>SD</i>	Min.	Max.
Pretest	56.65	8.71	38	72
Posttest	52.26	10.25	26	66

The Shapiro-Wilk test showed no significant departure from normality for pretest scores, $W(23) = .955$, $p = .364$, or for posttest scores, $W(23) = .935$, $p = .143$, so a parametric test was considered appropriate. The paired-samples *t*-test is reasonably robust to moderate departures from normality at this sample size. As shown in Table 3, mean ESSA scores decreased from 56.65 ($SD = 8.71$, range 38 to 72) at pretest to 52.26 ($SD = 10.25$, range 26 to 66) at posttest, and the dispersion of scores was slightly larger at posttest than at pretest. Pretest and posttest scores were strongly correlated, $r = .965$, $p < .001$, which indicates that students largely kept their relative standing.

To determine whether the difference between pretest and posttest scores was statistically significant, a paired-samples *t*-test was conducted. This analysis was used to examine changes in academic stress scores among the same participants across the two measurement points. The results of the statistical analysis are presented in Table 4.

Table 4. Results of the Paired-Samples *t*-Test (Pretest Minus Posttest)

Statistic	Value
Mean difference	4.39
<i>SD</i> of differences	2.68
<i>SE</i> of the mean difference	0.56
95% CI of the mean difference	[3.23, 5.55]
$t(22)$	7.87
p (two-tailed)	< .001
Cohen's d_z [95% CI]	1.64 [1.00, 2.27]
Pretest-posttest correlation	$r = .965$, $p < .001$

Note. *SD*, *SE*, and confidence intervals were derived from the mean difference (4.391), t (7.872), and $N = 23$.

The paired-samples *t*-test showed that the mean difference of 4.39 points was statistically significant, 95% CI [3.23, 5.55], $t(22) = 7.87$, $p < .001$ (Table 4). The standardized effect was large, $d_z = 1.64$, 95% CI [1.00, 2.27]. Because the *p*-value was below the significance level of .05, the null hypothesis of no mean difference was rejected. This result describes a change in scores between two measurements and does not by itself establish that the intervention caused the change.

Discussion

The mean ESSA score decreased significantly after the program, and the standardized effect was large ($d_z = 1.64$), which supports the hypothesis that posttest scores would be lower than pretest scores. This direction agrees with reports that drawing, coloring, and other art-based activities are followed by lower academic stress or anxiety among students (Astuti et al., 2022; Carsley & Heath, 2018; Zhu et al., 2025) and with the favorable affective outcomes of doodling summarized by Stickley et al. (2025). The present finding differs from this literature in two respects. It concerns academic stress measured with a standardized scale among final-year senior high school students, whereas earlier school-based studies mostly addressed test anxiety, learning performance, or younger students (Carsley & Heath, 2018; Moula, 2020; Tadayon & Afhami, 2017). The intervention was also short, with three 20-minute sessions, which suggests that a measurable change in self-reported stress may not require a long program, although this suggestion needs controlled testing. Astuti et al. (2022) reported lower scores in 46 of 69 students (66.7%). The present data describe the mean change only. Under a normal distribution of differences, the reported mean and standard deviation of the differences imply that most students scored lower at posttest, but this could not be confirmed at the individual level.

The size of the effect should not be taken at face value. Zhu et al. (2025) found larger effects in single-group studies than in controlled studies, and the present design had no control group. The confidence interval for d_z is wide (1.00 to 2.27) because of the small sample. The magnitude of d_z also depends on the variability of the change scores. The pretest-posttest correlation was very high ($r = .965$), and the standard deviation of the differences (2.68) was small relative to the mean difference (4.39), which means that students' scores shifted by similar amounts. A uniform shift of this kind can yield a large d_z even when the raw change is modest, and it may also reflect a shared influence on all students, such as a common event or a practice effect, rather than an individual response to doodling. A mean decrease of 4.39 points is statistically reliable, but no established threshold for a meaningful change on the ESSA was applied, so its practical importance remains uncertain.

The transactional model of stress and coping offers one way to interpret the decrease (Lazarus & Folkman, 1984). In this model, stress depends on how students appraise academic demands and whether they judge their coping resources to be adequate. Doodling may provide an emotion-focused coping opportunity in which students express feelings nonverbally and briefly shift attention away from stressors, which could ease the perceived burden of academic demands. Art therapy has been described as a cathartic

outlet for negative emotions (Li, 2025; Triana & Meiyutariningsih, 2021), and lower cortisol levels after art making (Kaimal et al., 2016) suggest a possible physiological route. These explanations are tentative because appraisal, coping, emotional expression, and physiological arousal were not measured.

For theory, the results are compatible with the transactional model but do not test it. A study that measures primary and secondary appraisal before and after doodling, and that analyzes the five ESSA dimensions separately, could show whether the change lies in perceived workload, worry about grades, self-expectation, or despondency. Only total scores were analyzed here, so the dimensions that changed remain unknown. Doodling also leaves the academic demands themselves untouched, which means that any reduction in stress is likely to reflect a change in how demands are experienced and not a change in the demands, and it may fade when examination pressure rises again.

The education session delivered before the doodling sessions may have contributed to the change independently of doodling. Brief psychoeducation on stress can by itself alter how students understand and manage academic demands, and the present design cannot separate this component from the drawing sessions. A dismantling design that compares education alone, doodling alone, and the combined program would show which component carries the change.

Alternative explanations cannot be excluded. Without a control group, history (for example, changes in school workload or the proximity of examinations during the week of the program), testing effects from repeated administration of the ESSA, expectancy and social desirability in self-report, and regression to the mean among students with relatively high baseline scores could each account for part of the decrease (Shadish et al., 2002). The short interval between pretest and posttest limits the influence of maturation, but it also means that nothing is known about how long the change lasts.

Several measurement issues also limit interpretation. Item-level data were no longer available at revision, so internal consistency could not be estimated for the present sample and the normality of the difference scores could not be tested. The reliability of the ESSA scores in this sample therefore remains unknown. Descriptive statistics of both measurements, including the standard deviations, are reported in Table 3. Because no ESSA cut-off score was applied in this study, students were not classified into stress categories, and categorical results are not reported. The inference in this article rests on the continuous ESSA scores, whose mean difference matches the difference between the reported pretest and posttest means. Evidence on the validity of the Indonesian ESSA comes from earlier studies (Dewi et al., 2025; Sun et al., 2011) and not from the present sample.

From a practical perspective, the program is short and needs only paper and drawing materials, so it may be a candidate component of school counseling services once it has been evaluated in controlled studies. Studies in Al-Musyrif have examined spiritual and cognitive approaches to stress, anxiety, and academic resilience (Dzikra et al., 2025; Farmawati et al., 2025; Fawaid et al., 2024; Zahara et al., 2026), and doodling could be explored as a complementary nonverbal medium within Islamic guidance and counseling.

A nonverbal medium may suit students who find it difficult to put academic pressure into words, a possibility that qualitative work could examine. A brief protocol with a defined sequence, education followed by free drawing without evaluation of the product, is also easier for school counselors to replicate and audit than informal drawing activities.

Implementation in schools should also attend to student safety. Free drawing invites the expression of feelings, and a student may disclose distress through a drawing or a questionnaire response. School counselors who adopt the protocol should therefore have a clear route for referring students, particularly minors, whose distress exceeds what a brief program can address.

The conclusions are constrained by several limitations: the small and predominantly female sample ($N = 23$; 74% female), which limits generalization to male students, the one-group pretest-posttest design without a control group, the absence of a follow-up assessment, the reliance on self-report, and the unavailability of item-level data at revision. Future studies should use controlled or randomized designs, larger and more balanced samples with an a priori power analysis, archived raw data, and follow-up measurements to assess whether effects last. Measures of the proposed mechanisms, such as appraisal, coping, and emotional expression, would allow these explanations to be tested.

CONCLUSION

This study examined changes in academic stress among 23 12th-grade students at SMAN 8 Surabaya after a brief doodling art therapy program consisting of a stress management education session and three 20-minute doodling sessions. Mean ESSA scores decreased significantly from 56.65 to 52.26, $t(22) = 7.87$, $p < .001$, $d_z = 1.64$, which supports the hypothesis that posttest scores would be lower than pretest scores. Item-level data were no longer available at revision, so internal consistency and the normality of difference scores could not be examined, and the conclusions rest on the continuous ESSA scores. The findings should be read as preliminary evidence, and not as conclusive evidence of effectiveness, and the proposed mechanisms of catharsis and nonverbal expression were not measured. For psychology as a science, the study contributes a fully specified, brief school-based art protocol and an effect size with its confidence interval, which later controlled studies can use to plan sample sizes and to test the mechanisms proposed by the transactional model of stress and coping. For practice, doodling may be considered a low-cost option for school counseling services, but it should be adopted more widely only after controlled evaluation. Future research should use controlled or randomized designs, larger and more balanced samples, and follow-up measurements to determine whether the effect lasts. Future studies should also measure the proposed psychological mechanisms, such as appraisal, coping, and emotional expression, directly, so that the causal pathways underlying the observed change can be evaluated.

DECLARATION OF AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

In the preparation of this manuscript, the authors utilized Claude (Anthropic) as an auxiliary tool to assist with reading and reviewing journal literature for reference, as well as for language editing, sentence restructuring, and punctuation correction. The authors have reviewed and verified all AI-assisted content and take full responsibility for the accuracy, originality, and integrity of the manuscript.

AUTHOR CONTRIBUTION STATEMENT

Esa Wahyu Nur Fadila: conceptualization, methodology, investigation, formal analysis, and writing of the original draft. Hamim Rosyidi: supervision, validation, and review and editing. Estri Kusumawati: supervision, validation, and review and editing.

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DATA AVAILABILITY STATEMENT

The dataset supporting the findings of this study is not publicly available due to ethical and privacy restrictions. However, the summary statistics supporting the findings are reported in this article.

DECLARATION OF INTERESTS

The authors declare no financial, personal, professional, or other competing interests related to this study.

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REFERENCES

- Astuti, A. M. C. P. S., Kirana, A. N., Linardo, T. L., Widyawati, E. P., Putri, K. A. M. N., & Wideasavitri, P. N. (2022). Menggambar dan mewarnai sebagai bentuk implementasi art therapy dalam manajemen stres akademik. *Jurnal Psikologi Udayana*, 2(9), 171–183. <https://doi.org/https://doi.org/10.24843/JPU/2022.v09.i02.p07>
- Carsley, D., & Heath, N. L. (2018). Effectiveness of Mindfulness-Based Colouring for Test Anxiety in Adolescents. *School Psychology International*, 39(3), 251–272. <https://doi.org/10.1177/0143034318773523>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

- Dewi, D. K., Agindaris, A. L., Susanto, A. R. A., & Wardani, F. D. (2025). Confirmatory Factor Analysis of the Academic Stress Scale. *Indonesian Journal of Sports and Health Psychology*, 1(1), 26–37. <https://doi.org/10.26740/ijshp.v1i1.35777>
- Dzikra, O. C., Umayah, U., Meidyansyah, R., Zubaidah, Z., Adam, Y., & Iloakasia, A. J. (2025). Islamic Spirituality-Based Self-Guidance Model for Managing Stress among Working College Students. *Al-Musyrif: Jurnal Bimbingan Dan Konseling Islam*, 8(1), 90–104. <https://doi.org/10.38073/almusyrif.v8i1.2502>
- Farmawati, C., Mutohharoh, A., & Idris, S. (2025). Handling Stress in Hospitalized Patients: Integration of Islamic Counseling and Dhikr. *Al-Musyrif: Jurnal Bimbingan Dan Konseling Islam*, 8(1), 12–25. <https://doi.org/10.38073/almusyrif.v8i1.2388>
- Fawaid, M. B., Fahmi, L., & Nuha, Moch. S. (2024). Terapi Sayyidul Istighfar Guna Mengurangi Kecemasan Akademik. *Al-Musyrif: Jurnal Bimbingan Dan Konseling Islam*, 7(2), 239–251. <https://doi.org/10.38073/almusyrif.v7i2.1906>
- Hosseinkhani, Z., Hassanabadi, H., & Parsaeian, M. (2020). Health Among Adolescents In Iran : A Multilevel Analysis. *Journal of Education and Health Promotion*, 1–6. <https://doi.org/https://doi.org/10.4103/jehp.jehp>
- Kaimal, G., Ray, K., & Muniz, J. (2016). Reduction of Cortisol Levels and Participants' Responses Following Art Making. *Art Therapy*, 33(2), 74–80. <https://doi.org/10.1080/07421656.2016.1166832>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, Appraisal, And Coping*. Springer Publishing Company.
- Li, X. (2025). Effects of art therapy on mental health and learning motivation in children and adolescents. *SHS Web of Conferences*, 222, 04007. <https://doi.org/10.1051/shsconf/202522204007>
- Moula, Z. (2020). A Systematic Review of The Effectiveness of Art Therapy Delivered in School-based Settings to Children Aged 5–12 Years. *International Journal of Art Therapy*, 25(2), 88–99. <https://doi.org/10.1080/17454832.2020.1751219>
- Muhid, A., & Ferdiyanto, F. (2020). Stres akademik pada siswa: Menguji peranan iklim kelas dan school well-being. *Persona: Jurnal Psikologi Indonesia*, 9(1), 140–156. <https://doi.org/10.30996/persona.v9i1.3523>
- Park, S. H., & Kim, Y. (2018). Ways of coping with excessive academic stress among Korean adolescents during leisure time. *International Journal of Qualitative Studies on Health and Well-Being*, 13(1). <https://doi.org/10.1080/17482631.2018.1505397>
- Pascoe, M. C., Hetrick, S. E., & Parker, A. G. (2020). The Impact of Stress on Students in Secondary School and Higher Education. *International Journal of Adolescence and Youth*, 25(1), 104–112. <https://doi.org/10.1080/02673843.2019.1596823>
- Pillai, J., Jose, S., Velukutty, B. A., & Riyaz, A. (2023). Academic stress and coping in high school adolescents. *International Journal of Contemporary Pediatrics*, 10(2), 153–157. <https://doi.org/10.18203/2349-3291.ijcp20230027>

- Ramli, & Hasibuan, A. (2022). Hubungan Antara Tuntutan Akademik, Dukungan Sosial, dan Tingkat Stress Akademik pada Siswa Kelas XII. *Jurnal Psikologi Klinis Dan Kesehatan Mental*, 11(2), 101–115.
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal inference*. Houghton Mifflin.
- Stickley, K. S., Valldejuli, K., & Kaimal, G. (2025). The Impact of Doodling on Cognition and Affect: A Scoping Review. *The Arts in Psychotherapy*, 96, 102368. <https://doi.org/10.1016/j.aip.2025.102368>
- Sun, J., Dunne, M. P., Hou, X., & Xu, A. (2011). Educational Stress Scale for Adolescents. *Journal of Psychoeducational Assessment*, 29(6), 534–546. <https://doi.org/10.1177/0734282910394976>
- Tadayon, M., & Afhami, R. (2017). Doodling Effects on Junior High School Students' Learning. *International Journal of Art & Design Education*, 36(1), 118–125. <https://doi.org/10.1111/jade.12081>
- Triana, D. G. A. N., & Meiyutariningsih, T. (2021). Efektivitas Art Therapy Sebagai Katarsis untuk Mengurangi Tingkat Kecemasan Akademik pada Remaja. *Syntax Literate: Jurnal Ilmiah Indonesia*, 6(10). <https://doi.org/10.36418/syntax-literate.v6i10.4263>
- World Medical Association. (2013). World Medical Association Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects. *JAMA*, 310(20), 2191. <https://doi.org/10.1001/jama.2013.281053>
- Zahara, W., Masril, M., Tas'adi, R., Silvianetri, S., & Dasril, D. (2026). The Effectiveness of Islamic Integrative Cognitive Restructuring Group Counseling Techniques in Improving Students' Academic Resilience. *Al-Musyrif: Jurnal Bimbingan Dan Konseling Islam*, 9(1), 80–92. <https://doi.org/10.38073/almusyrif.v9i1.4556>
- Zhang, B., Wang, J., & Abdullah, A. binti. (2024). The Effects of Art Therapy Interventions on Anxiety in Children and Adolescents: A meta-analysis. *Clinics*, 79, 100404. <https://doi.org/10.1016/j.clinsp.2024.100404>
- Zhu, Z., Xiao, L., Ahmad, N. A., Roslan, S., Burhanuddin, N. A. N., Gao, J., & Huang, C. (2025). Mindfulness-Based Art Interventions for Students: A Meta-Analysis Review of the Effect on Anxiety. *Behavioral Sciences*, 15(8), 1078. <https://doi.org/10.3390/bs15081078>