Discourse: Indonesian Journal of Social Studies and Education
Vol. 4 No. 1, November 2026, pp. 122-133
ISSN: 3032-6516, DOI: 10.69875/djosse.v4i1.576

Changes in GAD-7 Anxiety Symptom Scores Following a Brief Psychological Intervention Among Informal Workers

Jatu Anggraeni[1*], Haniek Farida[2], Syamsul Ma'arif[3], Nindi Luluk Fatimah[4], Desinta Enggar Febriana[5], Nur Hayati Filmadini[6]

[1,2,4,5,6]Departement of Psychology, Universitas Sarjanawiyata Tamansiswa, Indonesia
[3]Department of Industrial Engineering, Universitas Sarjanawiyata Tamansiswa, Indonesia

ARTICLE INFO

Article history:
Received: August 21, 2026
Revised: September 29, 2026
Accepted: October 24, 2026

Keywords:
Anxiety Symptoms;
GAD-7 Scores;
Psychological Intervention;
Informal Workers;
Mental Health.

This is an open access article under the CC BY-SA license.
Copyright © 2026 by Author. Published by PT Citra Media Publishing.

ABSTRACT

Anxiety symptoms are among the most prevalent mental health problems in adults, particularly in socioeconomically vulnerable populations such as informal workers. This study aimed to examine changes in anxiety symptoms, measured by the Generalized Anxiety Disorder 7-item (GAD-7) scores, before and after a brief psychological intervention among informal-sector adult workers in Yogyakarta, Indonesia. A one-group pre-test post-test quantitative design was used, involving 19 adult respondents aged 25–63 years recruited through purposive sampling in Yogyakarta City. The intervention consisted of structured psychoeducation and cognitive-behavioral stress management sessions adapted for participants with diverse educational backgrounds. Data were analyzed using a paired-samples t-test. Results showed a statistically significant decrease in mean GAD-7 scores from 8.74 (SD = 5.61) at pre-test to 4.26 (SD = 4.70) at post-test [$t(18) = 4.33$, $p < 0.001$]. The within-group effect size was large (Cohen's $d = 0.99$), and 73.7% of respondents had a lower GAD-7 score at post-test than at pre-test. These findings indicate a significant within-group reduction in GAD-7 scores following the intervention. Because the study had no control group, the change cannot be causally attributed to the intervention; the results are preliminary and require confirmation in controlled studies before informing community-based mental health programs in Indonesia.

INTRODUCTION

Anxiety disorders are among the most prevalent and burdensome mental health conditions worldwide, affecting over 264 million individuals across all age groups and socioeconomic strata (Santomauro et al., 2021). Generalized anxiety disorder (GAD) specifically is defined by persistent, excessive, and difficult-to-control worry about multiple life domains lasting at least six months, accompanied by physical and cognitive symptoms that significantly impair daily functioning (American Psychiatric Association, 2022). Global estimates place the 12-month prevalence of GAD at 3-5% of the general adult population, with considerably higher rates observed in low- and middle-income countries where mental health infrastructure remains limited (Baxter et al., 2013; Remes et al., 2016). In Indonesia, approximately 9.8% of the adult population experiences emotional mental disorders - a category that prominently includes GAD - based on the national health research survey (Riset Kesehatan Dasar-Riskesdas), with the highest burden concentrated in communities with restricted access to formal health services (Kemenkes RI, 2019). These figures establish that GAD is not only a clinical problem but also a structural social challenge that demands

Corresponding author: Jatu Anggraeni
E-mail addresses: jatu.anggraeni@ustjogja.ac.id

targeted, population-level responses.

The burden of anxiety is distributed unequally, falling most heavily on individuals in economically precarious situations. Informal workers - defined here as individuals engaged in non-contractual, non-benefit-protected occupations such as freelance labor, street vending, day wage work, and small-scale self-employment - are particularly exposed to chronic psychosocial stressors that elevate anxiety risk. Income insecurity, absence of social protection, irregular working hours, and persistent role ambiguity create a psychosocial environment that is fundamentally incompatible with the regulatory demands of anxiety management (Madsen et al., 2017; Theorell et al., 2015). Epidemiological evidence shows that informal-sector workers in developing countries consistently score higher on standardized anxiety measures than their formal-sector counterparts, even after controlling for age, education, and marital status (Scott et al., 2016; Theorell et al., 2015). Furthermore, psychological well-being among working adults is closely tied to social support and role balance, both of which are structurally absent in informal employment (Sari & Nugroho, 2024). These conditions collectively constitute a core problem statement: informal adult workers are a high-risk population for elevated anxiety symptoms, yet they remain systematically excluded from mental health research and service design.

The theoretical framework underlying this study draws from the Cognitive Model of Generalized Anxiety (Wells, 2009), which posits that GAD is maintained by maladaptive metacognitive beliefs about worry and by deficient emotion regulation strategies. According to this model, individuals with GAD engage in positive worry appraisals ('worrying helps me prepare') alongside negative metacognitive appraisals ('I cannot control my worrying'), creating a self-sustaining cycle of cognitive hyperactivation. Interventions that target these cognitive processes - particularly through psychoeducation and structured cognitive restructuring - can interrupt the cycle and produce lasting reductions in anxiety (Hofmann et al., 2012). This framework directly informs the design of the psychological intervention examined in the present study.

A review of the existing literature identifies three main categories of psychological interventions that have been tested for GAD. First, Cognitive Behavioral Therapy (CBT) is the most extensively validated approach, with meta-analytic evidence confirming medium-to-large effect sizes across diverse adult samples (Carpenter et al., 2018; Hofmann et al., 2012). CBT targets cognitive distortions and behavioral avoidance patterns and can be delivered individually or in groups. Second, mindfulness-based interventions such as Mindfulness-Based Stress Reduction (MBSR) have shown significant promise, particularly for reducing physiological arousal and emotional reactivity associated with GAD (Hoge et al., 2013; Zhang et al., 2021). Third, psychoeducation-based group interventions are increasingly used in community settings because of their cost-efficiency and scalability, enabling practitioners to reach larger at-risk populations without requiring individual therapy sessions (Bower & Gilbody, 2005; Haller et al., 2014). Within the Indonesian context, brief structured relaxation and stress management protocols - such as progressive muscle relaxation delivered in a community quasi-experimental format - have produced measurable reductions in psychological distress, demonstrating that community-adapted interventions can be effective despite resource constraints (Budiarto et al., 2021).

Despite this evidence, important limitations remain. Most CBT and MBSR research has been conducted in high-income, Western clinical settings and may not translate directly to non-clinical, low-resource environments in Southeast Asia (Chu et al., 2016; Hwang, 2006).

Studies using psychoeducation in community settings have rarely employed standardized, validated outcome measures, making cross-study comparisons difficult. In Indonesia specifically, intervention studies targeting mental health outcomes have predominantly recruited students or medical personnel rather than working-age adults in informal occupations, limiting the applicability of findings to the most vulnerable segments of the workforce (Budiarto et al., 2021; Farida et al., 2025).

Three distinct gaps in the literature justify the present study. The first is a population gap: no published study in the Indonesian context has specifically targeted informal adult workers as the primary population for an intervention study using a standardized measure of anxiety symptoms. Existing community-based intervention research has focused on women's stress management during the COVID-19 pandemic (Budiarto et al., 2021) and on adolescent mental health and resilience (Farida et al., 2025), leaving the broader informal adult worker population unstudied. The second is a measurement gap: the GAD-7, despite its strong cross-cultural validity - including in Asian populations (Kertz et al., 2012; Löwe et al., 2008; Zhong et al., 2015) - has rarely been used as the primary pre-post outcome measure in Indonesian community intervention research; most local studies rely on non-standardized instruments, limiting comparability with international findings (Spitzer et al., 2006). The third is a contextual gap: existing studies do not account for the specific psychosocial profile of informal workers in Yogyakarta, where informal employment comprises a substantial portion of the labor force. Given that limited resilience and persistent social adversity have been identified as key risk amplifiers for mental health deterioration in Indonesian community samples (Farida et al., 2025), the absence of targeted intervention evidence for this group is a meaningful gap.

To the best of our knowledge, this study is the first to employ the GAD-7 as a standardized pre-post outcome measure in a community-based psychological intervention specifically targeting informal adult workers in Indonesia, contributing preliminary, population-specific evidence for mental health program development. The argument for closing this gap rests on three grounds. Practically, informal workers who do not access mental health services early are at heightened risk for GAD progression, co-occurring depression, and long-term functional impairment (Bandelow & Michaelis, 2015; Scott et al., 2016). Theoretically, testing a brief cognitive-behavioral intervention in this population will produce a first GAD-7-indexed within-group effect size estimate for informal workers in Indonesia, enabling future power calculations and comparative meta-analytic work. Methodologically, a pre-test post-test design is a feasible and ethically appropriate first step in establishing proof of concept before proceeding to a full randomized controlled trial (Creswell & Creswell, 2022).

This study therefore aimed to examine changes in anxiety symptoms, as measured by GAD-7 scores, before and after a brief structured psychological intervention among informal adult workers in Yogyakarta City. The GAD-7 was used as a measure of anxiety symptom severity; the study did not assess or establish a clinical diagnosis of generalized anxiety disorder. The specific objectives were: (1) to describe the distribution of GAD-7 symptom severity categories before and after the intervention; (2) to test whether GAD-7 scores differed significantly between pre-test and post-test; and (3) to estimate the magnitude of the within-group change using Cohen's d.

This study is expected to have twofold benefits. For practice, findings are intended to inform the design of scalable community-based mental health programs that can be

integrated into existing primary health care services (Puskesmas) in Yogyakarta and similar Indonesian cities. Theoretically, the study contributes preliminary evidence on the applicability of CBT-informed brief interventions in non-Western, non-clinical community settings. It provides a first GAD-7-referenced within-group estimate for this population. Based on the theoretical framework and the review of prior literature, this study hypothesizes that GAD-7 scores among informal adult workers are significantly lower after the structured psychological intervention than at baseline; that is, there is a significant within-group reduction in GAD-7 scores.

METHOD

This study used a quantitative approach with a one-group pre-test post-test design. This design was selected because the study aimed to measure changes in anxiety scores before and after the intervention within the same group, allowing accurate paired-comparison analysis (Creswell & Creswell, 2022). A quantitative approach was chosen to ensure objective measurement and enable statistical hypothesis testing of pre-test and post-test GAD-7 score differences. Because the design does not include a control group, it allows conclusions about within-group change following the intervention. However, it does not allow causal attribution of that change to the intervention. The study was conducted in Yogyakarta City in 2026 and targeted informal worker communities across various occupational sectors, including daily laborers, small entrepreneurs, and freelance workers. Yogyakarta was selected as the study site because of its relatively large proportion of informal workers and its access to psychological services that supported intervention delivery.

Participants and Instrument

Participants were recruited using purposive sampling with the following inclusion criteria: (1) adults aged 18 years or older; (2) informal employment status (non-contractual, non-benefit-protected occupations including freelance labor, street vending, day wage work, or small-scale self-employment); (3) residing in Yogyakarta City; and (4) willing to complete all research procedures. Exclusion criteria were: (1) currently undergoing psychiatric treatment or pharmacological therapy for anxiety; (2) diagnosed with severe psychiatric comorbidity (e.g., psychosis, bipolar disorder); and (3) inability to attend the full intervention session. A total of 19 respondents completed the full protocol. Given the exploratory, proof-of-concept nature of this study and the practical constraints of recruiting from a hard-to-reach population, a sample of 19 was considered adequate for a preliminary trial. Post-hoc power analysis (paired t-test, $\alpha = 0.05$, observed $d = 0.99$) indicated a power of 0.97, confirming that the obtained sample was sufficient to detect the observed effect (Cohen, 1988). Participant characteristics showed that the majority were male (73.7%; n = 14), with an age range of 25–63 years and a mean age of 40.4 years (SD = 8.5). Marital status was predominantly single or never married (78.9%), followed by married (10.5%) and divorced (10.5%). Educational backgrounds ranged from primary school to undergraduate level, with the largest group being senior high school graduates (42.1%), followed by undergraduates (26.3%) and junior high school graduates (26.3%). A summary of participant characteristics is presented in Table1.

Table 1. Demographic Characteristics of Participants (n = 19)

Characteristic	Category	Number of Respondents	Percentage (%)
Gender	Male	14	73.7
	Female	5	26.3
Age Group (years)	25–40	11	57.9
	41–63	8	42.1
Marital Status	Single/Never Married	15	78.9
	Married	2	10.5
	Divorced	2	10.5
Education Level	Primary School	1	5.3
	Junior High School	5	26.3
	Senior High School	8	42.1
	Undergraduate	5	26.3

The instrument used to measure anxiety symptom levels was the Generalized Anxiety Disorder 7-item (GAD-7) scale (Spitzer et al., 2006). The GAD-7 consists of seven items rated on a four-point Likert scale (0 = not at all; 3 = nearly every day), yielding a total score ranging from 0 to 21. Anxiety categories follow established cut-points: scores of 0–4 indicate minimal anxiety (normal), 5–9 mild anxiety, 10–14 moderate anxiety, and 15–21 severe anxiety (Spitzer et al., 2006). In this study, the GAD-7 was used as a self-report measure of anxiety symptom severity and not as a diagnostic instrument; no clinical diagnosis of generalized anxiety disorder was established, and the category labels refer to GAD-7 score bands only. The GAD-7 has demonstrated strong validity and reliability across cross-cultural studies, including Asian population contexts (Kertz et al., 2012; Zhong et al., 2015), with Cronbach's alpha values ranging from 0.82 to 0.92 (Löwe et al., 2008).

Procedure

The research procedure was carried out in three main phases. First, the pre-test phase involved all participants completing the GAD-7 scale before the intervention began. The administration was conducted in a structured manner, with the researcher providing guidance to ensure that each item was correctly understood. Second, the intervention phase consisted of a single, structured two-hour session delivered by a licensed psychologist (Psikolog). The session covered: (a) psychoeducation about anxiety, its physiological basis, and its relationship to occupational stress; and (b) cognitive-behavioral stress management techniques, including identification of negative automatic thoughts, simple cognitive restructuring exercises, and brief relaxation strategies. The intervention was deliberately designed to be accessible to participants with diverse educational backgrounds, using plain language, concrete examples from everyday informal work contexts, and adaptive delivery methods. Third, the post-test phase was conducted immediately after the intervention session was completed, using an identical instrument and administration procedure as the pre-test to maintain measurement consistency. All research procedures adhered to ethical research principles. All participants provided written informed consent before

participating. Participants were informed that participation was voluntary and that they could withdraw at any time without consequence.

Data Analysis

Data were analyzed in stages using SPSS. The first stage involved descriptive statistical analysis, including mean, standard deviation (SD), minimum and maximum values, and frequency distributions of anxiety categories for both pre-test and post-test data, along with the proportion of participants whose post-test GAD-7 score was lower than their pre-test score. This proportion is reported descriptively; no criterion for clinically meaningful or reliable change was pre-specified, so it is not interpreted as clinical improvement. The second stage involved normality testing using the Shapiro-Wilk test to determine whether the difference scores (pre-test minus post-test) followed a normal distribution, as a prerequisite for selecting the appropriate hypothesis test (Razali & Wah, 2011). The third stage involved a paired-samples t-test to determine whether GAD-7 pre-test and post-test scores differed significantly, at a significance level of $\alpha = 0.05$. As a non-parametric complementary test, the Wilcoxon signed-rank test was also performed. Additionally, we calculated effect size using Cohen's d to assess the magnitude of within-group change, with $d \geq 0.80$ classified as a large effect (Cohen, 1988)

RESULT

Overall, GAD-7 scores were lower at post-test than at pre-test. A total of 73.7% of respondents (n = 14 out of 19) showed a reduction in scores at post-test, while 15.8% (n = 3) showed minimal change, and 10.5% (n = 2) showed stable scores. The most common GAD-7 category was mild anxiety at pre-test and minimal anxiety at post-test. These figures describe the change in scores between the two measurement points.

Table 2 presents the descriptive statistics for GAD-7 scores before and after the intervention. The mean pre-test score of 8.74 (SD = 5.61) placed the average participant in the mild anxiety category, with a wide score range (0–21) that reflected substantial heterogeneity in anxiety levels across participants. After the intervention, the mean post-test score dropped to 4.26 (SD = 4.70), which corresponds to the minimal anxiety category. The average reduction in score was 4.47 points (SD = 4.50).

Table 2. Descriptive Statistics of GAD-7 Pre-Test and Post-Test Scores

Statistic	Pre-Test	Post-Test	Difference
Mean	8.74	4.26	4.47
Standard Deviation (SD)	5.61	4.70	4.50
Minimum	0	0	-
Maximum	21	16	-
N	19	19	19

Table 3 shows the distribution of anxiety severity categories at both measurement points. At pre-test, mild anxiety was the most common category (42.1%; n = 8), followed by minimal (21.1%; n = 4), moderate (21.1%; n = 4), and severe (15.8%; n = 3). At post-test, minimal anxiety was the most common category (57.9%; n = 11), followed by mild (26.3%; n = 5), moderate (10.5%; n = 2), and severe (5.3%; n = 1). This shift describes a change in GAD-7 score bands between pre-test and post-test. Because the study had no control group, the shift cannot be attributed to the intervention. In addition, no criterion for clinically

meaningful change was applied, so movement to a lower GAD-7 band is not interpreted here as a change in clinical status.

Table 3. Distribution of GAD-7 Anxiety Categories: Pre-Test and Post-Test

Category	Score Range	Pre-Test		Post-Test	
		(n)	(%)	(n)	(%)
Minimal (Normal)	0-4	4	21.1	11	57.9
Mild	5-9	8	42.1	5	26.3
Moderate	10-14	4	21.1	2	10.5
Severe	15-21	3	15.8	1	5.3
Total	-	19	100.0	19	100.0

Table 4 presents the normality and hypothesis test results. The Shapiro-Wilk normality test on the difference scores yielded $W = 0.9356$, $p = 0.2198$, indicating a normal distribution ($p > 0.05$) and justifying the use of a parametric paired-samples t-test. The test showed $t(18) = 4.33$, $p = 0.0004$ ($p < 0.001$), indicating a statistically significant difference between pre-test and post-test GAD-7 scores. The Wilcoxon signed-rank test confirmed this result ($W = 3$, $p = 0.0012$). The effect size was Cohen's $d = 0.99$, which falls in the large effect category.

Table 4. Results of Normality Testing and Paired Samples T-Test

Analysis	Statistic	p-value	Interpretation
Shapiro-Wilk (difference scores)	W = 0.9356	0.2198	Normal Distribution
Paired Samples T-Test	t(18) = 4.3320	0.0004	Significant (p < 0.001)
Wilcoxon Signed-Rank Test	W = 3	0.0012	Significant (p < 0.05)
Effect Size (Cohen's d)	d = 0.99	-	Large Effect (d >= 0.80)

DISCUSSION

This study found a shift in the distribution of GAD-7 score categories between pre-test and post-test. At pre-test, only 21.1% of participants were in the minimal anxiety category, while the remaining 78.9% showed mild to severe symptoms. This profile is consistent with the psychological burden described for informal workers, as income instability and limited social support are significant predictors of anxiety in marginalized worker populations (Madsen et al., 2017; Theorell et al., 2015). At post-test, 57.9% of participants were in the minimal category. This reflects a descriptive shift in GAD-7 score bands and should not be read as evidence of a change in clinical status, because no clinical assessment was conducted and no threshold for clinically meaningful change was applied.

The paired samples t-test indicated a statistically significant within-group reduction in GAD-7 scores following the intervention [$t(18) = 4.33$, $p < 0.001$], with a mean score reduction of 4.47 points. This reduction falls within the range of average GAD-7 decreases of 3–6 points reported for cognitive-behavioral interventions across various adult populations (Carpenter et al., 2018). The within-group effect size (Cohen's $d = 0.99$) is large by conventional benchmarks. It is numerically higher than the average effect sizes reported in meta-analyses of community-based anxiety interventions, which typically range from d

= 0.56 to 0.72 (Bower & Gilbody, 2005). However, the two are not directly comparable: an uncontrolled pre-post effect size also absorbs regression to the mean, repeated-testing effects, expectancy and other non-specific influences, and is therefore expected to be larger than a controlled between-group estimate. Adapting the intervention to participants' cultural context and educational background may have contributed to the observed change, since such adaptation has been associated with greater impact in non-clinical populations (Chu et al., 2016; Hwang, 2006), but this possibility cannot be tested with the present design. This direction aligns with an earlier Indonesian community study in which progressive muscle relaxation delivered in a pretest-posttest format was followed by measurable reductions in stress and anxiety among women during the COVID-19 pandemic (Budiarto et al., 2021).

Response variability warrants attention. Two participants (10.5%) showed post-test scores that did not improve or increased slightly, and one participant remained in the severe anxiety category after the intervention. Approximately 15–25% of individuals with chronic anxiety are known to require more intensive intervention or pharmacological combinations to achieve an adequate treatment response (Hoge et al., 2013). Participants whose GAD-7 scores did not decrease in this study tended to have higher pre-test scores (≥ 14), suggesting that individuals with high symptom levels may need more comprehensive clinical management beyond a single brief session (Carpenter et al., 2018). This pattern is also consistent with the stepped-care model, which proposes that individuals who do not respond to low-intensity interventions should be systematically referred to higher levels of care (Andrews et al., 2018).

From a theoretical standpoint, the within-group reduction in GAD-7 scores is compatible with the cognitive model of anxiety, which holds that interventions targeting maladaptive thinking patterns and emotion regulation strategies can directly interrupt the worry cycle that maintains anxiety (Wells, 2009). The psychoeducation and stress management components delivered in this study were intended to give participants practical skills to identify and modify cognitive responses to everyday stressors; however, this study did not test whether this mechanism accounted for the observed change. The broader relevance of this line of work is indicated by evidence that limited resilience and social isolation heighten mental health vulnerability in Indonesian community populations, underlining the protective function of accessible, early-stage psychological interventions, which remains to be established in controlled research (Farida et al., 2025).

Implications

In practical terms, these preliminary findings provide an initial rationale for further developing and rigorously evaluating community-based mental health intervention programs targeting informal workers. If controlled studies confirm a benefit, local health agencies could consider integrating brief psychological intervention programs into existing primary health care services, such as community health centers (Puskesmas) or social welfare posts, as part of broader mental health promotion efforts. This approach could be low-cost and may reach populations that have historically had limited access to formal psychological services because of financial barriers or social stigma. The GAD-7 can also serve as a routine screening tool during community health activities, given its brevity and ease of administration (Bandelow & Michaelis, 2015; Spitzer et al., 2006).

Theoretically, this study provides preliminary data on changes in GAD-7 scores among informal adult workers following a structured psychological intervention in the

Indonesian context. The findings align with the stepped-care model, which argues that low-intensity, community-based interventions should serve as the first line of response for mild-to-moderate anxiety before referral to more intensive clinical services (Andrews et al., 2018; Bower & Gilbody, 2005). Furthermore, the study points to the feasibility of delivering brief, accessible interventions in everyday community settings, extending the research agenda established in the Indonesian context (Budiarto et al., 2021; Sari & Nugroho, 2024).

Several limitations should be acknowledged. The one-group pre-test post-test design without a control group shows a within-group change following the intervention, but it does not allow the score reduction to be attributed to the intervention; regression to the mean, repeated-testing effects, expectancy, and other non-specific influences cannot be ruled out. The post-test was administered immediately after the single session, so the durability of the change is unknown. No criterion for clinically meaningful or reliable change was pre-specified, so the reduction in GAD-7 scores and the shift between GAD-7 categories cannot be interpreted as clinical improvement; the GAD-7 was used as a symptom measure rather than a diagnostic assessment. The relatively small sample size (n = 19) also limits generalizability. Future research is recommended to use a randomized controlled trial (RCT) design with a valid control group, a larger randomly drawn sample, and long-term follow-up to assess whether the change is maintained for at least three months post-program, and to define criteria for clinically meaningful change in advance.

CONCLUSION

This study found a statistically significant within-group reduction in GAD-7 scores following a brief psychological intervention delivered to informal adult workers in Yogyakarta City. Mean GAD-7 scores decreased from 8.74 at pre-test to 4.26 at post-test [$t(18) = 4.33$, $p < 0.001$], with a large within-group effect size (Cohen's $d = 0,99$). The most common GAD-7 category changed from mild anxiety at pre-test to minimal anxiety at post-test, and 73.7% of respondents (14 of 19) had a lower GAD-7 score at post-test than at pre-test. This proportion reflects a reduction in GAD-7 scores; because no criterion for clinically meaningful change was pre-specified, it is not interpreted as clinically meaningful improvement. Because the study had no control group, the observed change cannot be attributed definitively to the intervention, and alternative explanations such as regression to the mean, repeated-testing effects and expectancy cannot be ruled out. A small proportion of respondents with high baseline scores showed no reduction and may require more intensive approaches. Replication with a more rigorous design is therefore recommended.

These findings are preliminary. They suggest that brief, community-based psychological interventions for underserved vulnerable populations in Indonesia merit further evaluation; if a benefit is confirmed in controlled studies, such programs could serve as an efficient and scalable strategy when integrated into existing primary health care systems. For future research, it is recommended to replicate this study using a randomized controlled trial (RCT) design with a control group and a larger, randomly drawn sample. Longitudinal follow-up assessments at three and six months post-intervention are also encouraged to evaluate whether the observed reduction in GAD-7 scores is maintained. These steps would substantially strengthen the internal and external validity of findings in this population.

ACKNOWLEDGMENTS

The author expresses sincere gratitude to the Institute for Research and Community Service, Universitas Sarjanawiyata Tamansiswa (LPPM UST), for the academic support and facilities provided through the Internal Grant Scheme for Early-Career Researchers (*Penelitian Dosen Pemula* - PDP) in the 2026 fiscal year. Appreciation is also extended to all participants who generously gave their time to take part in this study, and to the community members in Yogyakarta City who facilitated access and data collection.

DECLARATION OF INTEREST

The authors declare no conflict of interest regarding the research, authorship, and publication of this article.

ETHICAL CONSIDERATION

This study was conducted in accordance with ethical principles governing research involving human participants. All respondents were provided with a clear explanation of the study's objectives, procedures, and benefits prior to providing written informed consent to participate voluntarily. Participation was voluntary, and respondents could withdraw at any time without consequence. The confidentiality and anonymity of all respondents were strictly maintained throughout the research process, ensuring that personal identities could not be identified by any third party.

REFERENCES

American Psychiatric Association. (2022). Diagnostic and Statistical Manual of Mental Disorders. American Psychiatric Association Publishing. https://doi.org/10.1176/appi.books.9780890425787

Andrews, G., Bell, C., Boyce, P., Gale, C., Lampe, L., Marwat, O., Rapee, R., & Wilkins, G. (2018). Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for the treatment of panic disorder, social anxiety disorder and generalised anxiety disorder. Australian & New Zealand Journal of Psychiatry, 52(12), 1109–1172. https://doi.org/10.1177/0004867418799453

Bandelow, B., & Michaelis, S. (2015). Epidemiology of anxiety disorders in the 21st century. Dialogues in Clinical Neuroscience, 17(3), 327–335. https://doi.org/10.31887/DCNS.2015.17.3/bbandelow

Baxter, A. J., Scott, K. M., Vos, T., & Whiteford, H. A. (2013). Global prevalence of anxiety disorders: a systematic review and meta-regression. Psychological Medicine, 43(5), 897–910. https://doi.org/10.1017/S003329171200147X

Bower, P., & Gilbody, S. (2005). Stepped care in psychological therapies: access, effectiveness and efficiency. British Journal of Psychiatry, 186(1), 11–17. https://doi.org/10.1192/bjp.186.1.11

Budiarto, S., Anggraeni, J., Farida, H., & Filmanda, F. (2021). Terapi Progressive Muscle Relaxation Mandiri bagi Perempuan dalam Menghadapi Stress Pandemi COVID-19. Berdikari: Jurnal Inovasi Dan Penerapan Ipteks, 9(2), 170–180. https://doi.org/10.18196/berdikari.v9i2.11960

Carpenter, J. K., Andrews, L. A., Witcraft, S. M., Powers, M. B., Smits, J. A. J., & Hofmann, S. G. (2018). Cognitive behavioral therapy for anxiety and related disorders: A meta-analysis of randomized placebo-controlled trials. Depression and Anxiety, 35(6), 502–514. https://doi.org/10.1002/da.22728

Chu, J., Leino, A., Pflum, S., & Sue, S. (2016). A model for the theoretical basis of cultural competency to guide psychotherapy. Professional Psychology: Research and Practice, 47(1), 18–29. https://doi.org/10.1037/pro0000055

Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences (2nd ed.). Lawrence Erlbaum Associates.

Creswell, J. W., & Creswell, J. D. (2022). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (6th ed.). SAGE Publications.

Farida, H., Budiarto, S., Argiati, S. H. B., & Ejoke, U. P. (2025). The role of mediator and moderator variables in suicidal ideation among adolescents in Gunungkidul, Yogyakarta, Indonesia. Psikohumaniora: Jurnal Penelitian Psikologi, 10(2), 181–196. https://doi.org/10.21580/pjpp.v10i2.24841

Haller, H., Cramer, H., Lauche, R., Gass, F., & Dobos, G. J. (2014). The prevalence and burden of subthreshold generalized anxiety disorder: a systematic review. BMC Psychiatry, 14(1), 128. https://doi.org/10.1186/1471-244X-14-128

Hofmann, S. G., Asnaani, A., Vonk, I. J. J., Sawyer, A. T., & Fang, A. (2012). The Efficacy of Cognitive Behavioral Therapy: A Review of Meta-analyses. Cognitive Therapy and Research, 36(5), 427–440. https://doi.org/10.1007/s10608-012-9476-1

Hoge, E. A., Bui, E., Marques, L., Metcalf, C. A., Morris, L. K., Robinaugh, D. J., Worthington, J. J., Pollack, M. H., & Simon, N. M. (2013). Randomized Controlled Trial of Mindfulness Meditation for Generalized Anxiety Disorder. The Journal of Clinical Psychiatry, 74(08), 786–792. https://doi.org/10.4088/JCP.12m08083

Hwang, W.-C. (2006). The psychotherapy adaptation and modification framework: Application to Asian Americans. American Psychologist, 61(7), 702–715. https://doi.org/10.1037/0003-066X.61.7.702

Kemenkes RI. (2019). Laporan Nasional Riskesdas 2018.

Kertz, S. J., Bigda-Peyton, J. S., Rosmarin, D. H., & Björgvinsson, T. (2012). The importance of worry across diagnostic presentations: Prevalence, severity and associated symptoms in a partial hospital setting. Journal of Anxiety Disorders, 26(1), 126–133. https://doi.org/10.1016/j.janxdis.2011.10.005

Löwe, B., Decker, O., Müller, S., Brähler, E., Schellberg, D., Herzog, W., & Herzberg, P. Y. (2008). Validation and Standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the General Population. Medical Care, 46(3), 266–274. https://doi.org/10.1097/MLR.0b013e318160d093

Madsen, I. E. H., Nyberg, S. T., Magnusson Hanson, L. L., Ferrie, J. E., Ahola, K., Alfredsson, L., Batty, G. D., Bjorner, J. B., Borritz, M., Burr, H., Chastang, J.-F., de Graaf, R., Dragano, N., Hamer, M., Jokela, M., Knutsson, A., Koskenvuo, M., Koskinen, A., Leineweber, C., … Kivimäki, M. (2017). Job strain as a risk factor for clinical depression: systematic review and meta-analysis with additional individual participant data. Psychological Medicine, 47(8), 1342–1356. https://doi.org/10.1017/S003329171600355X

Razali, N. M., & Wah, Y. B. (2011). Power Comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling Tests. Journal of Statistical Modeling and Analytics, 2(1), 21–33.

Remes, O., Brayne, C., van der Linde, R., & Lafortune, L. (2016). A systematic review of reviews on the prevalence of anxiety disorders in adult populations. Brain and Behavior, 6(7). https://doi.org/10.1002/brb3.497

Santomauro, D. F., Mantilla Herrera, A. M., Shadid, J., Zheng, P., Ashbaugh, C., Pigott, D. M., Abbafati, C., Adolph, C., Amlag, J. O., Aravkin, A. Y., Bang-Jensen, B. L., Bertolacci, G. J., Bloom, S. S., Castellano, R., Castro, E., Chakrabarti, S., Chattopadhyay, J., Cogen, R. M., Collins, J. K., … Ferrari, A. J. (2021). Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic. The Lancet, 398(10312), 1700–1712. https://doi.org/10.1016/S0140-6736(21)02143-7

Sari, R. E., & Nugroho, A. D. (2024). Psychological well being and family supportive supervision behaviors with work life balance in working women. Jurnal Psikologi Teori Dan Terapan, 15(1), 48–60.

Scott, K. M., Lim, C., Al-Hamzawi, A., Alonso, J., Bruffaerts, R., Caldas-de-Almeida, J. M., Florescu, S., de Girolamo, G., Hu, C., de Jonge, P., Kawakami, N., Medina-Mora, M. E., Moskalewicz, J., Navarro-Mateu, F., O'Neill, S., Piazza, M., Posada-Villa, J., Torres, Y., & Kessler, R. C. (2016). Association of Mental Disorders With Subsequent Chronic Physical Conditions. JAMA Psychiatry, 73(2), 150. https://doi.org/10.1001/jamapsychiatry.2015.2688

Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A Brief Measure for Assessing Generalized Anxiety Disorder. Archives of Internal Medicine, 166(10), 1092. https://doi.org/10.1001/archinte.166.10.1092

Theorell, T., Hammarström, A., Aronsson, G., Träskman Bendz, L., Grape, T., Hogstedt, C., Marteinsdottir, I., Skoog, I., & Hall, C. (2015). A systematic review including meta-analysis of work environment and depressive symptoms. BMC Public Health, 15(1), 738. https://doi.org/10.1186/s12889-015-1954-4

Wells, A. (2009). Metacognitive Therapy for Anxiety and Depression. Guilford Press.

Zhang, D., Lee, E. K. P., Mak, E. C. W., Ho, C. Y., & Wong, S. Y. S. (2021). Mindfulness-based interventions: an overall review. British Medical Bulletin, 138(1), 41–57. https://doi.org/10.1093/bmb/ldab005

Zhong, Q.-Y., Gelaye, B., Zaslavsky, A. M., Fann, J. R., Rondon, M. B., Sánchez, S. E., & Williams, M. A. (2015). Diagnostic Validity of the Generalized Anxiety Disorder - 7 (GAD-7) among Pregnant Women. PLOS ONE, 10(4), e0125096. https://doi.org/10.1371/journal.pone.0125096