

Interventions to reduce anxiety among college students In Indonesia: A scoping review

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Abstract

Background: Anxiety among college students is a growing mental health concern, particularly in Indonesia, where students face academic pressure, challenges related to academic major selection, performance demands, transition to adulthood, and career uncertainty. These stressors are compounded by limited access to formal psychological services, mental health stigma, and financial barriers, resulting in a substantial treatment gap.

Purpose: To identify and map evidence-based interventions used to reduce anxiety and psychological distress among college students in Indonesia across various academic majors and fields of study.

Methods: This scoping review followed the Population–Concept–Context (PCC) framework. Relevant studies were identified through PubMed, Scopus, CINAHL, and Google Scholar using keywords related to intervention, anxiety, college students, and Indonesia. Studies were included if they involved college student populations, examined interventions targeting anxiety or psychological distress, and were published in Indonesian or English.

Results: The database search yielded 269 reports. After title, abstract, and full-text screening, 15 studies met the inclusion criteria and were included in the final analysis. Five key themes emerged: (1) a predominant focus on academic-related anxiety; (2) dominance of Cognitive Behavioral Therapy (CBT), Acceptance and Commitment Therapy (ACT), and mindfulness-based interventions; (3) benefits of brief relaxation, art-based, and expressive approaches; (4) feasibility of digital, counselor-guided, and culturally adapted programs, including Self-Help Plus; and (5) the use of efficient, mostly quasi-experimental designs with short intervention durations. Overall, the interventions demonstrated reductions in anxiety and psychological distress among college students.

Conclusions: Reducing anxiety among college students in Indonesia requires a multimodal and holistic approach that integrates evidence-based psychological therapies with culturally responsive and accessible strategies. The growing use of brief, digital, and culturally adapted interventions offers a promising pathway to address mental health service gaps in Indonesian higher education.

Keywords: anxiety; college students; Indonesia; intervention; reduce; scoping review

Introduction

In the academic and social spheres, pupils and students often face various challenges that can trigger anxiety. This anxiety is not only temporary but can have a long-term impact on their mental health (Efstathiou et al., 2025). This condition is exacerbated by academic pressure, social pressure, and the transition to a more independent phase of life, making anxiety a crucial issue that needs to be taken seriously (Joheshi et al., 2025). Anxiety is an emotional experience that arises due to a threat that has no clear cause, either originating from outside or within the individual when carrying out

 OPEN ACCESS

Jurnal Keperawatan
Padjadjaran (JKP)

Volume 14(1), 148-159
© The Author(s) 2026
<http://dx.doi.org/10.24198/jkp.v14i1.2600>

Article Info

Received : August 28, 2024
Revised : February 09, 2026
Accepted : March 13, 2026
Published : April 22, 2026

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Citation

Abdillah, H., Rahayuwati, L., & Yosep, I. (2026). Interventions to reduce anxiety among college students In Indonesia: A scoping review. *Jurnal Keperawatan Padjadjaran*, 14(1), 148-159. <http://dx.doi.org/10.24198/jkp.v14i1.2600>

Website

<http://jkp.fkep.unpad.ac.id/index.php/jkp>

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E-ISSN: 2442-7276
P-ISSN: 2338-5324

Abdillah, H., et al. (2026)

various tasks and activities in academic situations (Mohamed et al., 2024).

Epidemiological data demonstrate that anxiety is a prevalent mental health concern among young adults and student populations. A survey conducted by the American College Health Association (2022) reported that 25.9% of college students experienced anxiety, while 31.9% reported high levels of stress. Based on the Indonesian Health Survey (SKI) 2023, the prevalence of mental health problems among individuals aged ≥ 15 years was approximately 2.0%, as measured using the Self-Reporting Questionnaire-20 (SRQ-20). In the same survey, the prevalence of depression in the general population aged ≥ 15 years was reported to be 1.4%, with variations across age groups and regions (Kemenkes RI, 2023). Anxiety was common among college students, with 25% reporting mild anxiety, 60% moderate anxiety, and 15% severe anxiety, highlighting the relevance of anxiety as a significant issue within higher education settings (Suyamto et al., 2019). A meta-analysis of 121 studies reported that nursing students commonly experienced mild to moderate anxiety, with pooled prevalence estimates ranging approximately 19.4% to 25.1% across diverse educational settings (Vo et al., 2023). In a cross-sectional survey of 247 nursing students in Indonesia during the COVID-19 pandemic, 35.3% of participants exhibited mild to severe anxiety symptoms as assessed by standardized measures (Zukhra et al., 2021).

Anxiety among college students has wide-ranging consequences that extend beyond emotional distress and directly affect academic functioning and daily life. Students experiencing anxiety often encounter difficulties in maintaining concentration and motivation, which may negatively influence academic performance and participation in social activities (Yazici & Ökten, 2022). Persistent anxiety can also contribute to social withdrawal and increase vulnerability to depressive symptoms (Savitsky et al., 2023). Furthermore, anxiety is frequently associated with disruptions in sleep and eating patterns, leading to additional physical health concerns (Hikmat et al., 2025). These interconnected effects emphasize the need for intervention strategies that not only alleviate anxiety symptoms but also promote students' overall psychological and physical well-being in a comprehensive manner (Lin et al., 2020).

Various interventions have been developed to reduce anxiety in college students, including counseling, cognitive behavioral therapy, and relaxation and mindfulness programs (Yosep et al., 2023). Interventions to reduce anxiety in college students include a variety of approaches designed to address the causes and manifestations of anxiety in the academic environment. These approaches may take the form of psychological therapy, such as cognitive behavioral therapy (CBT), which helps students identify and challenge negative thought patterns that contribute to their anxiety (Simsek-

Cetinkaya & Cakir, 2023). Stress management programs and relaxation techniques, such as mindfulness and meditation, have also been shown to be effective in reducing anxiety levels by increasing mental awareness and presence (Amira et al., 2021). Additionally, interventions can include peer support and mentoring programs, which provide a space for students to share experiences and coping strategies, as well as strengthen their social support networks.

A literature review of interventions to reduce anxiety in college students is a crucial step in understanding the effectiveness of various intervention strategies and identifying areas that require further research. This literature review allows the aim of evaluating the existing evidence regarding different approaches, ensuring that the interventions implemented are based on best practices supported by empirical research. This makes the author interested in conducting a literature review regarding interventions to reduce anxiety in students.

Materials and Methods

Design

This study employed a scoping review design to comprehensively map the literature on interventions aimed at reducing anxiety in college students (Arksey & O'Malley, 2005). The scoping review method was chosen because it allows the reviewer to broadly map and synthesize the available literature, including identifying types of evidence, uncovering gaps in research, and determining the extent of research progress in the area of college student mental health interventions. This scoping review was specifically designed to explore and categorize various interventions that have been tested for their effectiveness in reducing anxiety among college students.

Search Strategy and Eligibility Criteria

The search strategy was developed systematically based on the PCC (Population, Concept, Context) framework. Within this framework, the study focuses on college students as the target population, as this group faces unique academic, developmental, and psychosocial challenges that increase vulnerability to anxiety. The concepts sought are various psychological or psychoeducational interventions, and the context is anxiety reduction efforts. The literature search was conducted through leading scientific databases, namely Scopus, CINAHL, and PubMed, expanded by the use of the academic search engine Google Scholar. The primary keywords used in the search were a combination of "interventions," "anxiety," and "students." (See Supplementary File 1).

The inclusion criteria for this scoping review stipulated that studies must address interventions to reduce anxiety in college students, be written in English or Indonesian, and be published in a peer-reviewed journal. Furthermore, the studies must

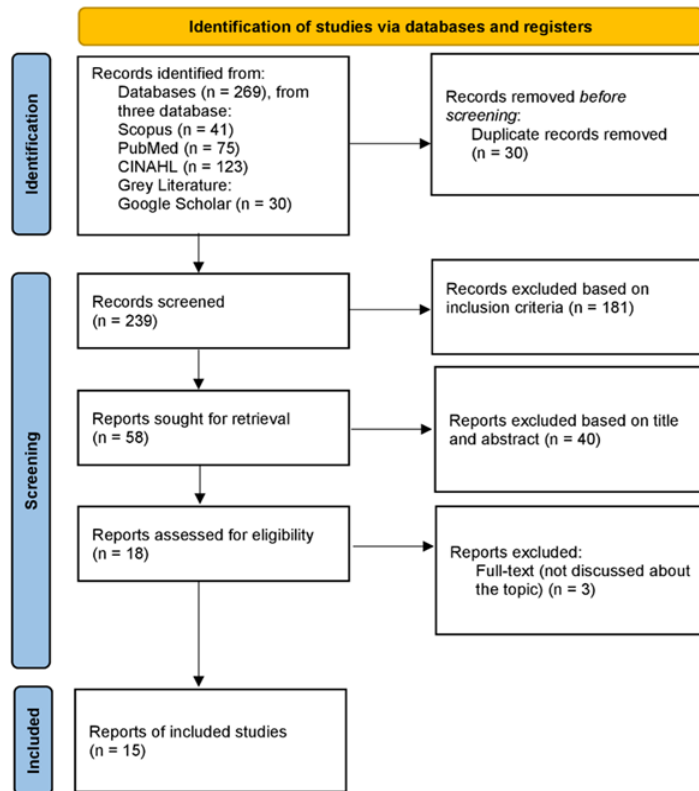


Figure 1. PRISMA Flow Diagram

be specifically conducted in Indonesia to ensure contextual relevance. Studies must be published between 2014 and 2025. Conversely, exclusion criteria included studies not focused on college students, as well as non-empirical reports such as editorials or commentaries. The application of these inclusion and exclusion criteria aimed to ensure that the scoping review focused only on the most relevant and high-quality evidence. The overall results of the article search process are reported using the PRISMA flowchart (Figure 1).

Data Extraction

The data extraction process followed a standard scoping review protocol. After initial identification of articles through database searches, two reviewers independently screened titles and abstracts to determine study eligibility. Studies meeting the eligibility criteria were subjected to full-text review. Information extracted from selected studies included key details such as sample details, study design and methods, description of the interventions implemented, outcomes measured, and key study conclusions. This extraction step was crucial to ensure that all relevant data was carefully collected before in-depth analysis.

Data Analysis

Data analysis was conducted through a thematic narrative synthesis of the findings from the selected studies. This approach allowed researchers to holistically integrate qualitative and quantitative

data, resulting in a comprehensive overview of the various interventions used to reduce anxiety in college students. This narrative analysis involved several stages, including extracting key themes dominant in the literature, identifying patterns and methodological gaps in the research, and synthesizing the effectiveness of the interventions (Arksey & O'Malley, 2005).

Results

Study selection

Records were identified from databases ($n = 269$; Scopus = 41, PubMed = 75, CINAHL = 123) and grey literature via Google Scholar ($n = 30$). After removing duplicates ($n = 30$), 239 records were screened. 181 were excluded by inclusion criteria, leaving 58 reports sought for retrieval. Title and abstract screening excluded 40, so 18 full texts were assessed. 3 full texts were off-topic, yielding 15 included studies.

Included evidence

The 15 studies examined CBT/third-wave approaches, brief relaxation and expressive methods, and culturally adapted digital programs. All reported reductions in academic anxiety or psychological distress. In completed empirical studies, sample sizes ranged from 6 to 72 students; planned RCTs reported target enrolments up to 296 (see Table 1).

Based on the 15 articles analyzed, research on

Table 1. Characteristics of Included Study

Authors, Year	Objective	Design	Sample	Intervention	Results
I. Cognitive Behavioral Therapy (CBT)					
(Grahata-ma et al., 2022)	The effectiveness of group CBT in reducing anxiety in students procrastinating on their thesis.	Quasi-Experiment (Non-equivalent Control Group).	10 students.	Group CBT (based on the intervention model of Bieling et al., 2006). Consisting of several group sessions with a focus on cognitive restructuring and behavioral changes related to procrastination.	Group CBT is effective in reducing anxiety students by 45% (significant decrease).
(Luzanil & Menaldi, 2021)	Effectiveness of Group CBT to reduce worry in out-of-town students with academic anxiety.	Descriptive with pre-post measurements.	6 students from out of town.	Group CBT delivered via teleconference over 5 sessions. Focused on identifying and modifying thought patterns that trigger academic anxiety.	There was a significant decrease in worry.
(Machmudati & Diana, 2017)	The effectiveness of positive thinking training in reducing anxiety when writing a thesis.	Pre-test Post-test Control Group Design.	24 students (12 Experimental, 12 Control) with moderate-high anxiety.	Positive Thinking Training (consisting of structured sessions, focusing on optimism training and changing pessimistic explanatory styles). Duration is not specific.	There was a significant decrease in anxiety scores in the experimental group (p=0.002).
(Bahiyah et al., 2024)	To determine if positive thinking therapy or positive affirmations can reduce anxiety levels and increase relaxation and self-confidence among students.	Quantitative experimental research using a One-Group Pre-test-Posttest Design.	20 third-semester psychology students from Raden Fatah Islamic University (17 females, 3 males) who screened high for anxiety.	Positive Thinking Therapy, which involves filling the mind with positive content and affirmations to counter negative thoughts.	The therapy was effective in reducing anxiety levels, with 19 out of 20 participants showing a decrease in scores. Statistical analysis (Paired Sample T-test) confirmed a significant decrease with a p-value < 0.001.
(Adrian-syah et al., 2017)	Reduction in career anxiety in students after being given Positive Thinking, CBT, and MHMMD therapy.	Quasi-Experiment (comparing 3 treatments).	45 students with high levels of career anxiety.	Divided into 3 groups, each receiving: (1) Positive Thinking Therapy, (2) CBT, or (3) Life Management and Future Planning Training (MHMMD).	CBT(sig=0.048) and MHM-MD Training (sig=0.002) significantly reduced career anxiety.
(Sari et al., 2021)	The effect of thought stopping on reducing anxiety in students writing theses.	Pre-test Post-test Control Group Design.	Students who are writing their thesis.	Thought Stopping: Train clients to cut off disturbing thoughts (such as worrying about failing their thesis) by saying 'stop' and immediately replacing them with positive thoughts.	The experimental group experienced a significant decrease in anxiety (p=0.009).

Cont. Table 1. Characteristics of Included Study

Authors, Year	Objective	Design	Sample	Intervention	Results
II. Relaxation, Mindfulness, & Art Interventions					
(Rinera & Retnowati, 2020)	The effect of Mindfulness Based Stress Reduction (MBSR) training on anxiety in new students.	Experimental (Untreated Control Group).	16 new students.	MBSR training, consisting of eight sessions over eight weeks, is conducted by trained facilitators and includes both formal and informal meditation techniques (such as body scans and sitting meditation).	MBSR training can significantly reduce the anxiety level of new students (P=0.001).
(Hidayat, 2018)	The effect of progressive relaxation therapy on reducing anxiety levels when facing student competency tests.	Quasi Experimental Pre-Post Test with Control Group.	72 third-year students of AKPER.	Progressive Relaxation Therapy. Clients are trained to systematically tense and relax muscle groups. The duration and frequency are determined by the researcher/therapist.	There is a significant effect of progressive relaxation therapy on reducing anxiety levels (p<0.05).
(Listiyandini et al., 2024)	Feasibility, acceptability, and mental health outcomes of a culturally adapted internet-based mindfulness intervention.	Open Pilot Trial (Single arm Pre-post-test).	40 Indonesian students with high distress.	Internet-Based Mindfulness Intervention for 4 weeks (including mindfulness modules accessible online). The intervention was guided by a counselor through online communication.	The intervention was feasible and acceptable. There was a significant improvement in well-being and a decrease in distress.
(Faradina et al., 2019)	The effect of coloring mandalas on reducing anxiety in students.	Quasi Experiment Pre-test Post-test Control Group.	20 students.	Mandala Coloring (Experimental Group). Participants were given mandala pattern paper and asked to color it according to instructions.	There is a significant effect of coloring mandalas on reducing anxiety (p=0.005).
(Pujiati et al., 2022)	The effect of laughter therapy on the anxiety levels of final year students in writing their theses.	Pre-test Post-test Control Group Design.	Final year student of Flora Health College.	Laughter Therapy. Given for 30 minutes, with the aim of triggering the release of endorphins. Conducted by researchers.	There is a significant influence of laughter therapy on reducing the level of thesis anxiety (p=0.000).

interventions for anxiety and psychological distress in college students in Indonesia concentrated on five main interrelated themes. After the data extraction process, the characteristics of the included studies were mapped to identify patterns across intervention targets, theoretical approaches, delivery formats, and methodological characteristics. The mapping revealed several recurring patterns. First, most studies focused on academic-related anxiety, particularly anxiety associated with thesis writing and academic performance. Second, many interventions were derived from cognitive-behavioral frameworks, including traditional CBT and emerging third-wave approaches such as mindfulness and ACT. Third,

several studies implemented brief experiential or expressive interventions, such as relaxation techniques, mandala coloring, and laughter therapy. In addition, more recent studies emphasized digital delivery formats and culturally adapted programs to increase accessibility. Finally, methodological patterns indicated that most studies used quasi-experimental pre-post designs with relatively small samples, with newer studies proposing larger randomized controlled trials. Based on this evidence mapping, five interrelated themes were identified to synthesize the current landscape of intervention research for anxiety and psychological distress among college students in Indonesia.

Cont. Table 1. Characteristics of Included Study

Authors, Year	Objective	Design	Sample	Intervention	Results
III. Feasibility Study & Latest Research Protocol					
(Gunawan & Oriza, 2023)	Assessing the feasibility of Acceptance and Commitment Therapy (ACT) in a group setting to increase self-efficacy in college students with social anxiety.	Feasibility Study.	Students with social anxiety.	ACT Group (replicating the module from Fleming & Kocovski, 2014) consists of 4 sessions with a 1 week break between sessions.	The research focuses on the feasibility of implementing ACT in groups.
(Rahmadiana et al., 2019)	Pilot Trial Protocol: Assessing the feasibility and acceptability of a culturally adapted internet-based transdiagnostic intervention.	Pilot Test Protocol.	50 students with mild to moderate depression or anxiety.	Internet-Based Transdiagnostic Intervention (8 online sessions). The intervention is guided by a therapist/facilitator to increase adherence.	Research Protocol to guide future randomized controlled trials (RCTs).
(Andriani et al., 2025)	RCT Protocol: Assessing the effectiveness and cost-effectiveness of Self-Help Plus (SH+) for reducing psychological distress.	Randomized Controlled Trial (RCT) Protocol.	296 Indonesian students with symptoms of psychological distress.	Self-Help Plus (SH+): A guided group-based stress management intervention developed by WHO and adapted culturally.	Research Protocol (to test effectiveness and cost effectiveness).
(Yan et al., 2025)	RCT Protocol: Investigating the effects of a brief 14-day online mindfulness intervention on reducing stress, anxiety, depression, and RNT.	Randomized Controlled Trial (RCT) Protocol.	Indonesian undergraduate students.	Brief Online Mindfulness Intervention for 14 days. Compared with psychoeducational and waitlist conditions.	Research Protocol (The results are expected to provide evidence of the effectiveness of a brief online mindfulness intervention).

Theme 1: Academic Anxiety as a Primary Intervention Target

The majority of studies identify academic anxiety as a major problem among college students. Research specifically targets anxiety related to thesis writing (Grahatama et al., 2022; Machmudati & Diana, 2017; Pujiati et al., 2022; Sari et al., 2021), which is often exacerbated by issues such as procrastination (Grahatama et al., 2022). Furthermore, research also addresses anxiety related to career demands and transitions, such as freshman anxiety (Rinera & Retnowati, 2020) and competency test anxiety (Hidayat, 2018). For instance, third-semester psychology students have been identified as a vulnerable group experiencing these pressures during their academic progression (Bahiyah et al., 2024). This sharp focus on academic issues suggests that the Indonesian higher education environment creates unique pressures and requires contextual solutions.

Theme 2: The Dominance of the Cognitive-Behavioral Approach (CBT) and Its Development

The most widely tested interventions are derived from the theoretical frameworks of CBT and Third Wave Therapy. Cognitive Behavioral Therapy (CBT), both in individual and group formats, has been shown to be effective in reducing general anxiety (Adriansyah et al., 2017), career anxiety, and academic worry (Luzanil & Menaldi, 2021). The cognitive component of these interventions has also been explored separately, with Positive Thinking Training (Machmudati & Diana, 2017) and specific techniques such as Thought Stopping (Sari et al., 2021) demonstrating significant effectiveness in breaking the cycle of negative rumination. Progress toward the Third Wave is demonstrated by testing the effectiveness of Mindfulness-Based Stress Reduction (MBSR) (Rinera & Retnowati, 2020) and assessing the feasibility of Acceptance and Commitment Therapy (ACT) in a group setting

for social anxiety (Gunawan & Oriza, 2023). The efficacy of cognitive components is further supported by research on Positive Thinking Therapy, which successfully reduced anxiety levels in the majority of participants by replacing negative rumination with positive affirmations. While this therapy is effective independently ($p < 0.001$), it is suggested to be even more powerful when juxtaposed with Cognitive Behavioral Therapy (CBT) to maximize results, particularly for students experiencing severe or very severe anxiety (Bahiyah et al., 2024).

Theme 3: Effectiveness of Brief Relaxation, Arts, and Expressive Interventions

Several studies provide strong evidence that simple, non-formal psychotherapeutic interventions focused on somatic experiences can be powerful tools. Progressive Relaxation Therapy (Hidayat, 2018) effectively reduces anxiety by targeting physical tension. Furthermore, interventions involving creative expression or the release of positive emotions, such as Mandala Coloring (Faradina et al., 2019) and Laughter Therapy (Pujiati et al., 2022), have been statistically proven to reduce anxiety. These findings suggest that easily accepted and enjoyable interventions could be a first-line option to reduce stigma for students who are reluctant to seek more intensive psychological help.

Theme 4: Future Trends: Digital Accessibility and Cultural Adaptation

More recent research suggests a strategic focus on increasing access to mental health services through technology. A counselor-led, internet-based mindfulness intervention demonstrated high feasibility and acceptability, as well as positive outcomes in reducing psychological distress (Listiyandini et al., 2024). This trend is reinforced by a large number of randomized controlled trial (RCT) protocols (Andriani et al., 2025; Rahmadiana et al., 2019; Yan et al., 2025) that plan to systematically test digital and group-based interventions. These protocols explicitly emphasize the importance of cultural adaptation (Andriani et al., 2025; Rahmadiana et al., 2019) to ensure global interventions, such as Self-Help Plus (SH+), are relevant and acceptable in the Indonesian context.

Theme 5: Characteristics of Intervention Methodology and Efforts for Efficiency

The majority of studies used a Quasi-Experimental Pre-test Post-test Control Group design, which is a practical option for testing effectiveness in educational settings (Faradina et al., 2019; Hidayat, 2018). In terms of duration, there is a clear effort to improve efficiency. While classic interventions such as MBSR require 8 weeks (Rinera & Retnowati, 2020), many studies tested shorter interventions: 5-session group CBT (Luzanil & Menaldi, 2021), 4-session ACT (Gunawan & Oriza, 2023), or even digital interventions lasting only 4 weeks (Listiyandini et al., 2024) to 14 days (Yan et al.,

2025), demonstrating the drive to develop solutions that are fast, efficient, and fit students' busy academic schedules.

Discussion

Interventions found included Cognitive Behavioral Therapy (CBT), positive thinking, mandala coloring, laughter therapy, and progressive muscle relaxation. CBT interventions focus on cognitive restructuring to help students process and cope with psychological stress caused by academic anxiety (Grahatama et al., 2022; Luzanil & Menaldi, 2021). Positive thinking, which directs individuals to focus on the positive aspects of their situation, is helpful in reducing negative thoughts that contribute to anxiety (Zhang et al., 2024). Mandala coloring is also considered a form of active meditation, so it can provide an opportunity to calm the mind and reduce stress (Faradina et al., 2019). Laughter, as a form of natural therapy, can stimulate the release of endorphins, which improve mood (Pujiati et al., 2022). Furthermore, progressive muscle relaxation, which uses a technique of sequentially tensing and relaxing muscles, can help reduce physical tension often associated with anxiety (Hidayat, 2018).

The analysis found that a wide range of interventions have been reported to be associated with reductions in anxiety among college students across the included studies. Cognitive-based interventions, such as Cognitive Behavioral Therapy (CBT) and thought stopping, were frequently described as helping students develop more adaptive coping strategies for managing academic and emotional stress (Luzanil & Menaldi, 2021; Sari et al., 2021). Interventions promoting positive thinking were commonly linked to improvements in emotional regulation and perceived psychological well-being (Ross et al., 2025). In addition, expressive and relaxation-based activities, including coloring (Faradina et al., 2019) and laughter therapy, were described as contributing to decreased self-reported anxiety levels (Pujiati et al., 2022). Progressive muscle relaxation was also identified as an intervention frequently used to address the physical manifestations of anxiety, particularly in examination-related contexts (Hidayat, 2018). Overall, the findings highlight the diversity of intervention approaches applied to manage academic anxiety rather than establishing their comparative or statistical effectiveness.

Factors influencing the effectiveness of anxiety-reduction interventions include the suitability of the intervention type to individual needs and preferences, the intensity and duration of the intervention, and the context in which the intervention is implemented (Primasari et al., 2025). In the Indonesian context, particularly for internet-based and digitally delivered interventions, counselor guidance and cultural adaptation play a critical role in supporting engagement and ensuring that intervention content is perceived as relevant and acceptable to students'

cultural values and daily experiences (Irawan et al., 2024; Listiyandini et al., 2024). In addition, social support from family members, peers, and educational institutions can strengthen intervention outcomes by fostering motivation, emotional safety, and sustained participation (Yosep et al., 2024).

Students' openness and willingness to engage in interventions represent key individual-level factors that influence intervention success (Mohamed et al., 2024). Openness refers to students' readiness to acknowledge psychological distress, reduce stigma-related resistance, and accept mental health support, while willingness reflects their motivation to actively participate in the intervention process (Liu et al., 2024). This includes consistent attendance, completion of assigned exercises or self-help activities, responsiveness to counselor guidance, and the application of learned coping strategies in academic and social situations (Wang et al., 2022). When students demonstrate high levels of openness and willingness, interventions are more likely to be implemented as intended and to produce meaningful reductions in anxiety (Onieva-Zafra et al., 2020). Therefore, fostering these attitudes is essential for maximizing the effectiveness of anxiety-reduction interventions among college students.

Implemented interventions have a broad impact on students' mental health, not only reducing anxiety but also improving other aspects such as emotional well-being and stress resilience (Listiyandini et al., 2024). Mindfulness-based interventions such as MBSR (Rinera & Retnowati, 2020) have been shown to increase self-awareness, which contributes to increased self-efficacy and psychological flexibility (Gunawan & Oriza, 2023). Positive thinking interventions have shown significant benefits, not only in reducing anxiety levels but also in promoting a healthier mental attitude, which can help students face academic and personal challenges (Laker et al., 2022). Various interventions, from CBT to laughter therapy, have been shown to be effective in reducing anxiety among students in Indonesia (Grande et al., 2022). Therefore, higher education institutions and mental health practitioners in Indonesia are advised to implement and support these interventions as part of a comprehensive mental health strategy for students.

Studies in Indonesia also reflect a global trend in bridging the mental health treatment gap through innovative and scalable solutions. Trial protocols focused on guided, internet-based interventions (da Silva et al., 2022; Listiyandini et al., 2024; Yan et al., 2025) are a direct response to the high costs, social stigma, and limited availability of mental health professionals in low- and middle-income countries (LMICs). Digital interventions enable service delivery to a broader and more anonymous student population, addressing psychological barriers to seeking help (El-Monshed et al., 2022). The testing of Self-Help Plus (SH+) (Andriani et al., 2025), an intervention developed by the WHO, demonstrates institutional commitment to adopting and adapting

evidence-based stress management programs to the specific needs of Indonesian students. The future success of implementing these interventions will depend largely on the effectiveness of cultural adaptation and its cost-effectiveness compared to standard care.

Indonesian cultural and social context plays a central role in how anxiety manifests and interventions are received. The phenomenon of high anxiety among out-of-town students (Luzanil & Menaldi, 2021) highlights profound adaptation challenges beyond family support, where social pressures to succeed and maintain family honor (face-saving) may exacerbate distress. On the other hand, adaptations of global interventions such as Mindfulness (Listiyandini et al., 2024) and SH+ (Andriani et al., 2025) explicitly require adjustments to accommodate strong collectivist and religious values. Group-based interventions may be preferred and effective in cultures that value togetherness and social support (Andriani et al., 2025), while interventions such as coloring and laughter therapy may be successful because they are non-invasive and do not require deep emotional disclosure, which may conflict with norms of politeness or avoid the social stigma attached to mental illness.

The analysis of the included studies suggests that various intervention approaches have been described as beneficial in supporting college students' efforts to manage anxiety. Expressive writing interventions were frequently discussed as helping students process academic and emotional stress by encouraging emotional expression and cognitive organization (Hikmat et al., 2025). Similarly, approaches that promote positive thinking were associated with improved emotional regulation and a more adaptive psychological outlook (Simpson & Sawatzky, 2020). Creative and affective activities, such as coloring and laughter-based interventions, were commonly reported as facilitating relaxation and reducing perceived anxiety by creating a positive emotional state (Vo et al., 2023). In addition, progressive muscle relaxation was highlighted as an approach aimed at alleviating the somatic manifestations of anxiety, particularly tension-related symptoms (Simsek-Cetinkaya & Cakir, 2023). Collectively, these findings underscore the relevance of diverse coping-oriented strategies in addressing academic anxiety, rather than demonstrating definitive or comparative intervention effectiveness.

Factors that influence the effectiveness of interventions include the match between the type of intervention and individual preferences, the intensity and duration of the intervention, and the environment in which the intervention is implemented (El-Monshed et al., 2022; Robertson et al., 2021). Students' openness and willingness to be involved in the intervention also plays an important role. Additionally, social support from family, friends, and educational institutions increases the benefits of the intervention. A holistic and personalized approach

is important for interventions to be more effective in reducing student anxiety (Hamaideh et al., 2022).

The interventions implemented have a broad impact on students' mental health, not only reducing anxiety but also improving other aspects of mental health such as self-confidence, emotional well-being, and resilience to stress (Deliviana et al., 2021; Rahmawati, 2021). Positive thinking interventions have shown significant benefits, not only in reducing anxiety levels but also in promoting a healthier mental attitude, which can help students face academic and personal challenges (Khaira et al., 2023; Lee & Park, 2023).

Various interventions, namely expressive writing, positive thinking, coloring, laughing, and progressive muscle relaxation, have been proven effective in reducing anxiety among students in Indonesia. The importance of selecting interventions that suit individual needs, along with adequate social support, is key in overcoming academic anxiety (Amira et al., 2021). Therefore, higher education institutions and mental health practitioners in Indonesia are advised to implement and support these various interventions as part of a comprehensive mental health strategy for students.

Conclusions

This study explores a variety of interventions proven effective in reducing academic anxiety among college students in Indonesia. Successful interventions can be categorized into two main types: structured, evidence-based therapies, such as Cognitive Behavioral Therapy (CBT), Acceptance and Commitment Therapy (ACT), and Mindfulness-Based Interventions (MBSR); and simple, expressive strategies with high acceptance, such as positive thinking, laughter therapy, mandala coloring, and progressive muscle relaxation. The effectiveness of these interventions confirms that coping strategies that stimulate positive emotional and physical responses are powerful tools for addressing academic stress. Furthermore, research trends point to a crucial shift toward efficient and scalable solutions, particularly guided, internet-based interventions, as a direct response to the high cost, stigma, and limited professional resources in Indonesia.

The success of these diverse interventions suggests that educational institutions must implement multi-modal and personalized mental health support strategies. Determinants of successful interventions include matching individual preferences, adequate social support, and environmental suitability. To strengthen future scientific evidence, research should prioritize Randomized Controlled Trials (RCTs) to assess the long-term effectiveness and cost-effectiveness of digital and brief interventions. Most importantly, comparative studies should focus on the cultural adaptation of global interventions in the highly diverse Indonesian context, to ensure that programs like Self-Help Plus (SH+) are not only

clinically effective but also relevant and sustainable within the local social and cultural ecosystem.

Declaration of Interest

The authors declare no conflict of interest

Acknowledgment

The authors thank to Universitas Padjadjaran who has facilitated us to make this study.

Funding

This research has not external funding

Data Availability

Not applicable

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