SEHATMAS (Jurnal Ilmiah Kesehatan Masyarakat)
https://journal.literasisains.id/index.php/SEHATMAS
e-ISSN 2809-9702 | p-ISSN 2810-0492
Vol. 4 No. 1 (Januari 2025) 240-250
DOI: 10.55123/sehatmas.v4i1.4775
Submitted: 13-12-2024 | Accepted: 18-01-2025 | Published: 25-01-2025

Exploring the Effectiveness of Self-Healing Butterfly Technique for Anxiety Management: A Systematic Review

Tata Mahyuvi[1*], Sukma Cahya Ramadhan[2]
[1*]Surabaya Islamic Hospital, Surabaya, Indonesia
[2]Faculty of Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Surabaya, Indonesia
Email: [1*]mahyuvi1922@gmail.com, [2]1130021125@student.unusa.ac.id

Abstract

The study aims to analyze the effects of butterfly hug therapy on anxiety levels through a systematic review of relevant studies. Journal searches were conducted using Semantic Scholar and Google Scholar, focusing on articles published between 2020 and 2024 in English and Indonesian. Inclusion criteria required full-text accessibility in PDF format, with keywords combining "Anxiety OR Anxiety Disorder" AND "Butterfly hug OR Butterfly hug Therapy" applied consistently across databases. After screening, eight studies met the criteria and were systematically reviewed. Butterfly hug therapy is identified as a simple, cost-effective, and accessible intervention that significantly reduces anxiety levels across various populations. The included studies highlighted its efficacy in managing anxiety caused by medical stress, academic challenges, and other stressors. By integrating rhythmic, bilateral physical stimulation, butterfly hug therapy helps individuals achieve emotional regulation and a sense of comfort, making it a versatile tool for anxiety management. This review concludes that butterfly hug therapy is a promising non-pharmacological intervention for reducing anxiety, emphasizing its potential for broader application in clinical and community settings.

Keywords: *Anxiety, Butterfly Hug, Mental Health, Self-Healing.*

INTRODUCTION

Anxiety and depression are interconnected mental disorders (Goodwin & Stein, 2021). Anxiety is an excessive worry that lasts almost every day for at least six months (Ksiksou et al., 2023). A person suffering from anxiety disorder is more prone to experiencing other chronic illnesses compared to someone without an anxiety disorder (DeGeorge et al., 2022). If not addressed, anxiety can impact the happiness of teenagers, reduce self-confidence, academic performance, and social relationships (Farhan Ahmed et al., 2024). Prolonged anxiety is at risk of developing into major depression, mood disorders, and increasing the potential for suicide in the future (Girianto et al., 2021). Generalized anxiety disorder affects about 3–5% of adults, with a prevalence twice as high in women, and often appears in childhood or adolescence (N. A. P. Astuti, 2024).

According to (WHO, 2024), anxiety disorders (such as panic attacks or excessive worry) are the most common in this age group and are more frequently experienced by older teenagers compared to younger ones. It is estimated that 4.4% of adolescents aged 10–14 years and 5.5% of adolescents aged 15–19 years' experience anxiety disorders.

The results of the I-NAMHS survey in 2022 indicate that in the past 12 months, 26.7% of adolescents aged 10-17 experienced mental health issues, particularly anxiety, which is equivalent to 1,514 individuals. Anxiety is more frequently experienced by adolescent girls (28.2%) compared to adolescent boys (25.4%). Among other mental disorders, anxiety disorders have the highest prevalence rate at 3.7%. (Aulia et al., 2024).

Anxiety treatment can be done with pharmacological and non-pharmacological therapy (Jiang et al., 2024). Non-drug therapy is often chosen because it is more affordable, safe, and easily accessible (A. W. Astuti et al., 2024). One of the non-pharmacological therapies that can be applied is the butterfly hug therapy. Several studies have shown that the butterfly hug can reduce anxiety, provide a sense of safety and comfort, and improve concentration, thereby helping individuals feel more at ease. Butterfly hug is a technique derived from the Eye Movement Desensitization and Reprocessing (EMDR) approach, a psychological therapy aimed at processing traumatic experiences and reducing the emotional burden they cause. This technique involves alternating hand movements across the chest, mimicking the motion of butterfly wings, while focusing on emotionally soothing experiences. In the context of EMDR, butterfly hug is used to help individuals access internal emotional resources, enhance feelings of safety, and reduce anxiety intensity. Studies show that this technique is not only effective in reducing anxiety but also improves concentration and provides comfort to individuals who use it (A. W. Astuti et al., 2024).

The 2020–2024 publication timeframe was chosen because it reflects the latest developments related to butterfly hug therapy and anxiety disorders. During this period, numerous studies have incorporated technology and evidence-based practices, making the data more relevant to current clinical needs and advancements in nursing science. Therefore, the author aims to analyze several related studies to determine the effect of the butterfly hug on anxiety levels and how effective is butterfly hug therapy in reducing anxiety levels across different populations?.

METHOD

The article search strategy uses the PRISMA guidelines to ensure the quality and clarity of the research process. The search for journals was conducted through several databases, namely Semantic Scholar and Google Scholar. The search is limited to journals published in the last five years, specifically between 2020 and 2024, in English and Indonesian. Only articles with full access in PDF format are considered for inclusion. The keywords used in the search are the combination of the words "Anxiety OR Anxiety Disorder," AND "Butterfly hug OR Butterfly hug Therapy." The same keywords are applied to search for journals in each relevant database. The inclusion criteria for the review were clearly defined. Articles eligible for inclusion were those published within the specified timeframe, written in English or Indonesian, and focused on butterfly hug therapy in relation to anxiety or anxiety disorders. Full-text accessibility in PDF format and primary research designs, such as experimental or quasi-experimental studies, were also required. Conversely, articles categorized as literature reviews, editorials, case reports, or those unrelated to anxiety or butterfly hug therapy were excluded. Studies with insufficient methodological details or duplicate entries were also omitted during the screening process. To ensure the quality of the studies included in this systematic review, each article was assessed using a standardized appraisal tool. Tools such as the Critical Appraisal Skills Programme (CASP) checklist or the Joanna Briggs Institute (JBI) critical appraisal tools were utilized to evaluate key aspects of the studies. These evaluations focused on the study design, methodology, sample size, statistical analysis, and overall relevance to the research objectives. Only studies that met quality benchmarks were

considered for inclusion. The software Zotero was employed to facilitate the management and organization of references. All retrieved articles were imported into Zotero, which efficiently identified and removed duplicate entries. Following this, the titles and abstracts of the remaining articles were screened to exclude those not meeting the inclusion criteria. This systematic and streamlined process ensured that only high-quality and relevant studies were incorporated into the review. By adhering to these steps, the review focuses on articles that are not only of high quality but also align closely with the research objective of evaluating the effectiveness of butterfly hug therapy in addressing anxiety.

RESULTS

The systematic review process begins with the identification stage, where 287 articles were found through databases, namely 7 articles from PubMed, 160 articles found in Semantic Scholar, and 120 articles from Open Alex. After the initial screening process to remove duplicate articles, the number of articles was reduced to 115. The next stage is screening based on title relevance, which eliminates 67 articles, leaving 48 articles for further analysis. At the feasibility stage, the articles were thoroughly examined through their abstracts and full texts. Out of the 48 articles, 19 were removed because they did not meet the inclusion criteria. In the final stage, 8 articles were deemed to meet the inclusion criteria and possessed the desired quality, thus included in the systematic review. This process reflects a systematic selection aimed at choosing high-quality literature relevant to the research topic.

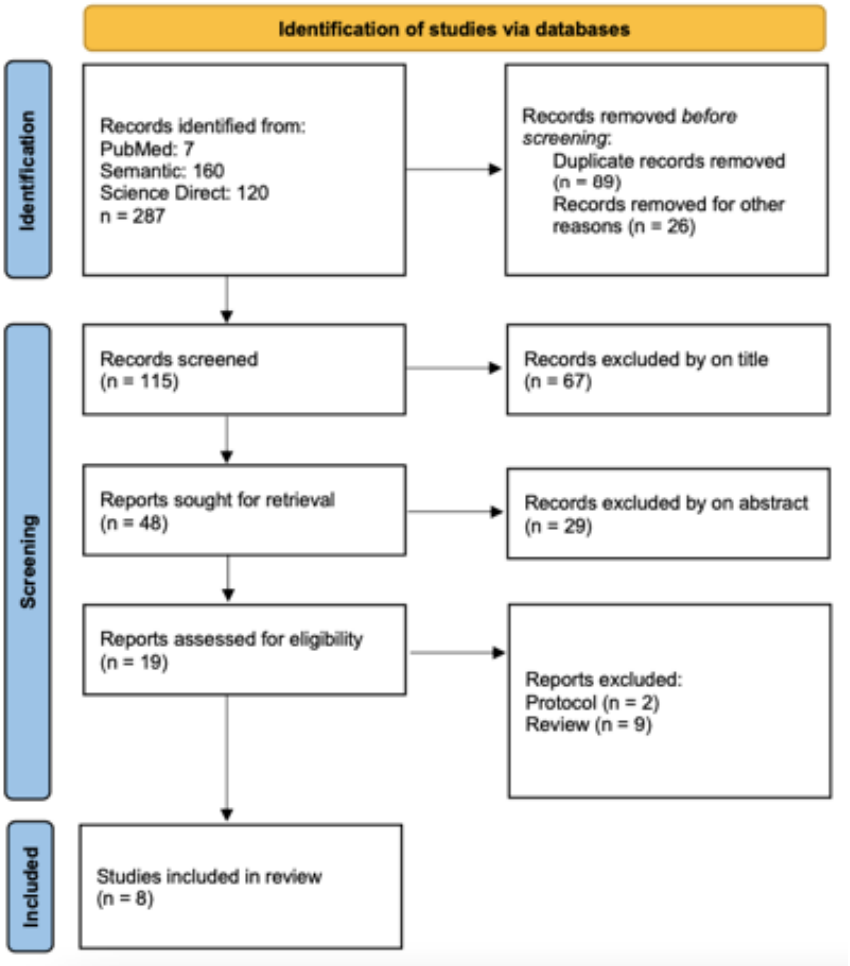

Figure 1. PRISMA Flow Chart

Table 1. Characteristic of included studies

Authors (year)	Aim	Design	Sample	Variable	Instruments	Result
(A. W. Astuti et al., 2024)	Measuring the effectiveness of butterfly hug therapy in reducing anxiety and improving hemodynamic conditions before undergoing the DSA procedure.	Quasi experiment pretest-posttest control group	• This study involved 52 participants who were randomly divided into intervention and control groups. The inclusion criteria were participants aged over 18 years and able to communicate effectively.	• Butterfly hug effect • Anxiety level • Hemodynamic stability	• Zung Self-rating Anxiety Scale (ZSAS) • An observational sheet instrument consisting of average blood pressure, pulse rate, and respiratory rate.	Analysis shows a significant difference in anxiety levels and hemodynamic stability between the intervention group and the control group. The anxiety levels of respondents who received the butterfly hug therapy were lower compared to the control group ($p<0.05$), and the hemodynamic stability of respondents who received the butterfly hug therapy was more stable compared to the control group ($p<0.05$).
(Cagaoan et al., 2023)	Measuring the impact of the butterfly hug method on the mental health condition of the elderly.	Randomized controlled trial	• N = 10 respondents (5 respondents in the treatment group and 5 respondents in the control group) • Participants aged 60 and above, both men and women, who do not have mental health disorders and are not undergoing	• Butterfly hug effect • Mental health level of the elderly	• Patient Health Questionnaire - 9 (PHQ-9) • Generalized Anxiety Disorder	The test shows that the Butterfly Hug method is effective in reducing the levels of depression and anxiety among participants. For depression, the test results ($t = 4.129$, $p = 0.007$) indicate significance at the 0.025 level, meaning this method reduces depression. Similarly, for anxiety, the test results ($t = 7.483$, $p = 0.001$) indicate significance at the 0.025 level, which means this method also reduces

			treatment related to mental health.			participants' anxiety.
(Caturini et al., 2023)	Measuring the effectiveness of butterfly hug therapy in reducing anxiety due to long-distance relationships with parents among nursing students.	Quasi experiment pretest-posttest control group	• N = 60 respondents (30 respondents in the treatment group and 30 respondents in the control group) • Nursing students who are separated from their parents (LDR).	• Butterfly hug effect • Anxiety level	• Zung Self-rating Anxiety Scale (ZSAS)	The butterfly hug therapy has proven effective in reducing anxiety among nursing students who are separated from their parents. In the control group, the anxiety levels did not show a significant difference (p=0.274, p≥0.05), while in the intervention group, there was a significant effect (p=0.000). The results of the independent sample t-test between the control group and the intervention group showed a p-value of 0.001 (p<0.05), indicating a significant difference between the two groups.
(Erik Adik Putra Bambang Kurniawan & I Wayan Sudarta, 2024)	Assessing the effectiveness of Butterfly Hug Therapy in reducing stress and anxiety experienced by students during exams in the anatomy laboratory.	Quasi experiment pretest-posttest control group	• This research involves all 48 students from the Level I, Diploma Nursing Study Program.	• Butterfly hug effect • Stress and anxiety levels	• Perceived Stress Scale (PSS) • Test Anxiety Inventory (TAI-G)	The results of the Wilcoxon test show that the Asymp. Sig (2-tailed) for stress is 0.025 (P < 0.05), thus Hα is accepted, and Ho is rejected. Meanwhile, for anxiety, the Asymp. Sig (2-tailed) is 0.127 (P > 0.05), thus Hα is rejected, and Ho is accepted. In conclusion, the butterfly hug therapy is effective in reducing stress, but not effective

						in reducing anxiety among students during the anatomy lab exam.
(Girianto et al., 2021)	Assessing the effectiveness of the butterfly hug in reducing anxiety in the elderly.	Quasi experiment pretest-posttest control group	• N = 18 respondents • Elderly individuals experiencing anxiety, elderly individuals without physical disabilities, elderly women, and elderly individuals aged 60 and above.	• Butterfly hug effect • Mental health level of the elderly	• Geriatric Anxiety Inventory (GAI)	The pre-test results showed that (50.0%) of the respondents experienced severe anxiety, while (50.0%) of them experienced moderate anxiety. The post-test results indicated that (50.0%) of the respondents experienced moderate anxiety, and (50.0%) of them experienced mild anxiety. With a p-value of 0.003 and α = 0.05 (0.003 < 0.05), these results indicate an effect of the butterfly hug therapy on the anxiety levels of the elderly.
(Loren Julia Simanjuntak et al., 2024)	Evaluating how butterfly hug therapy affects the anxiety levels of nursing students when writing their thesis.	Quasi experiment pretest-posttest control group	• This study involves 20 nursing students who are currently working on their thesis and were selected using purposive sampling technique.	• Butterfly hug effect • Student anxiety levels	• Zung Self-rating Anxiety Scale (ZSAS)	The results of the bivariate analysis indicate that the butterfly hug therapy has an effect on reducing anxiety in nursing students during thesis preparation, with an average anxiety reduction of 15.4 and a P-Value of 0.000 (<0.05).
(N. A. P. Astuti, 2024)	Knowing the influence of the Butterfly hug method on	Quasi experiment pretest-posttest control group	• Sampel dalam the research involved 18 responde	• Butterfly hug effect • Teen anxiety levels	• No mention	Statistical analysis with the marginal homogeneity test yielded a p-value of 0.002, which is less than 0.05,

	changes in anxiety levels in adolescents.		nts who are junior high school students			meaning that the H1 hypothesis is accepted and H0 is rejected. This indicates that the combination of the Butterfly hug method can cause significant changes in anxiety levels among adolescents.
(Aulia et al., 2024)	Identifying the influence of Butterfly Hug Therapy on anxiety levels in adolescents	Quasi experiment pretest-posttest control group	• N = 42 respondents • Students from grades X, XI, and XII; anxiety score >14; and willing to be research respondents. The exclusion criteria include adolescents who are ill and currently taking anti-anxiety medication..	• Butterfly hug effect • Teen anxiety levels	• HARS (Hamilton Anxiety Rating Scale)	The results of the pre-test and post-test showed that before the Butterfly Hug Therapy was conducted, most of the anxiety levels among adolescents fell into the mild category, with 23 respondents (54.8%). However, there were 2 respondents (4.8%) who experienced severe anxiety. After the therapy, it was observed that the majority of respondents had no anxiety, amounting to 64.3%, and there were no respondents who experienced severe or very severe anxiety (0%). The Butterfly hug therapy has an effect on the anxiety levels of adolescents with a result of p 0.000 (p<0.05).

Research Characteristics

The results of the literature review in Table 1 show similarities in the research objectives, which aim to analyze the effectiveness of the Butterfly hug therapy in reducing anxiety and supporting emotional regulation across various population groups. Based on the analyzed research objectives, each study has a specific focus, ranging from measuring

the impact on psychological parameters such as anxiety and stress to physiological aspects like hemodynamic stability.

Most studies use a quasi-experimental pretest-posttest design with a control group. This design allows researchers to measure changes that occur before and after the intervention, both in the treatment and control groups. Some studies, such as by (A. W. Astuti et al., 2024), (Caturini et al., 2023), and (Loren Julia Simanjuntak et al., 2024), using this design to evaluate differences in anxiety levels between groups. In addition, there are also studies with a randomized controlled trial (RCT) design, such as those conducted by (Cagaoan et al., 2023). This design provides a higher level of control over bias by randomizing the respondents. However, although it is methodologically stronger, its use is more limited to studies with small sample sizes.

There is a significant similarity in the use of research instruments, the administration of the butterfly hug intervention, and the effectiveness of the butterfly hug intervention on individuals' mental health. The instruments used in several studies show similarities in measuring the variable of anxiety levels, using the Zung Self-Rating Anxiety Scale (ZSAS), as can be seen in the research (A. W. Astuti et al., 2024), (Caturini et al., 2023), and (Loren Julia Simanjuntak et al., 2024). This scale allows for a specific assessment of anxiety in respondents and provides well-measured results. Whereas in the geriatric population, the instrument used to measure anxiety levels is the Hamilton Anxiety Rating Scale as mentioned in the study (Aulia et al., 2024).

Besides measuring anxiety levels in the research conducted by (Aulia et al., 2024), also used a vital signs observation sheet to evaluate hemodynamic stability in patients undergoing digital subtraction angiography. In another study, the use of instruments to evaluate the anxiety levels of the elderly was done using the Geriatric Anxiety Inventory (GAI), as mentioned in the study conducted by (Girianto et al., 2021). Additional instruments such as the Patient Health Questionnaire-9 (PHQ-9) and Generalized Anxiety Disorder (GAD) for the elderly (Cagaoan et al., 2023), and the Perceived Stress Scale (PSS) and Test Anxiety Inventory (TAI-G) among students in the conducted study (Erik Adik Putra Bambang Kurniawan & I Wayan Sudarta, 2024), shows the flexibility of the measuring instrument used to adapt to specific contexts. The similarity in the selection of measurement tools reflects a consistent approach in assessing the impact of the butterfly hug therapy on anxiety and other psychological conditions.

Overall, the research results show the effectiveness of the Butterfly Hug therapy in reducing anxiety levels across various populations. Study from (A. W. Astuti et al., 2024) and (Caturini et al., 2023), showed significant results, where the anxiety levels of the intervention group respondents decreased significantly compared to the control group. In nursing students facing academic pressure, the butterfly hug therapy also provided a significant reduction in anxiety, as reported by (Loren Julia Simanjuntak et al., 2024). In the elderly population in the study conducted (Girianto et al., 2021), noted a decrease in anxiety from severe to moderate or mild after the intervention. Even in different contexts, such as hemodynamic stability in the conducted study (A. W. Astuti et al., 2024), shows that this therapy not only reduces anxiety but also improves physiological parameters, such as blood pressure, pulse rate, and respiratory rate. However, there are slight differences in effectiveness regarding stress and anxiety. For example, research (Erik Adik Putra Bambang Kurniawan & I Wayan Sudarta, 2024), found that this therapy is more effective in reducing stress compared to anxiety in students during anatomy lab exams. This indicates that the effectiveness of the Butterfly hug therapy may vary depending on the psychological context of the respondents.

DISCUSSION

Butterfly hug therapy is a simple yet effective technique designed to induce bilateral stimulation in the brain through self-hugging movements and alternating finger tapping on the arms in a relaxed state (Pristianto et al., 2022). This approach was first introduced by Lucina Artigas and Ignacio Jarero as part of EMDR (Eye Movement Desensitization and Reprocessing) therapy, which has long been used to address trauma and anxiety (Zalsa Dwi Ramdhani & Siti Rahma Soleman, 2023). The main goal is to activate the emotion regulation process through sensorimotor integration, which plays a crucial role in calming the stress response in the nervous system (Craig, 2024). Bilateral stimulation produced through the Butterfly Hug technique is believed to affect communication between the brain hemispheres, enhancing connectivity between the brain areas responsible for emotion processing (amygdala) and executive functions. (korteks prefrontal). According to (Suara & Retnaningsih, 2023), Bilateral stimulation can help reduce the intensity of negative emotions and enhance a sense of calm by modulating activity in the sympathetic nervous system (Liu et al., 2022).

However, although its effectiveness has been proven in several populations, further research is needed to expand the scope and evaluate the application of this therapy in other groups. For example, the population of children could be an interesting subject to explore, considering they often face unique anxieties such as pre-operative anxiety or academic pressure (Seshabela & Shakwane, 2024). Research on this population can help identify how the butterfly hug technique can be adapted to be more engaging and relevant for them. Additionally, this therapy also has the potential to be applied to individuals with specific psychological disorders, such as generalized anxiety disorder (GAD) or post-traumatic stress disorder (PTSD).

In-depth research on this population can provide new insights into the extent to which this method can be used as part of a more comprehensive treatment strategy. Long-term studies are also needed to evaluate the effects of therapy over a longer duration and to identify the need for re-intervention. Additionally, the combination of Butterfly Hug with other relaxation techniques, such as meditation or mindfulness, can be evaluated to see if this combination enhances the effectiveness of the therapy.

CONCLUSION AND SUGGESTIONS

The butterfly hug therapy is a simple intervention that has proven effective in reducing anxiety in various populations, ranging from patients with medical stress to individuals with academic stress. Its effectiveness is supported by the mechanism of bilateral brain stimulation, which helps regulate emotions and calm the nervous system. Nevertheless, the variation in outcomes in some contexts indicates the need for further research, especially in child populations, individuals with specific psychological disorders, and in combination with other relaxation techniques. With the expansion of research coverage, this therapy has great potential to become an important part of a broader anxiety management strategy.

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