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The Effectiveness of Butterfly Hug Therapy on Insomnia Among Undergraduate Students at Institut Teknologi Kesehatan Malang Widya Cipta Husada

Muhammad Taufiqul Akbar[1*], Zilvi Fuadiyah Nur[2], Angriani Newa Lapur[3]

[1]Program Studi Profesi Ners, Institut Teknologi Kesehatan Malang Widya Cipta Husada, Kota Malang, Indonesia
[2,3]Program Studi S1 Ilmu Keperawatan, Institut Teknologi Kesehatan Malang Widya Cipta Husada, Kota Malang, Indonesia
Corresponding author: taufiqulakbar120@gmail.com

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ABSTRACT

Insomnia is a prevalent sleep disorder characterized by dissatisfaction with sleep quality and duration, leading to difficulty initiating sleep, frequent awakenings, early morning waking, and impaired daytime functioning. Non-pharmacological interventions, such as the butterfly hug technique, help improve sleep quality. The butterfly hug involves self-administered positive suggestions to promote relaxation and comfort. These studies examining the effectiveness of the butterfly hug among university students are still limited; therefore, based on the aforementioned background, the researcher is encouraged to conduct this study. This quasi-experimental study employed a nonequivalent control group design. A total of 54 final-year university students were recruited and divided into two groups: an intervention group and a control group. The intervention group received butterfly hug therapy, while the control group did not. The study was conducted over 14 consecutive nights. Insomnia levels were assessed using the KSPBJ-IRS questionnaire. Data normality was assessed using the Kolmogorov-Smirnov test, which revealed a non-normal distribution ($p = 0.000 < 0.05$). Therefore, the Mann-Whitney U test was used for hypothesis testing. The Mann-Whitney U test revealed a statistically significant difference between the intervention and control groups ($p = 0.031$, $p < 0.05$). This finding suggests that butterfly hug therapy was effective in reducing insomnia levels in the intervention group compared to the control group. Butterfly hug therapy has a significant effect on reducing insomnia among university students and may be considered a practical non-pharmacological intervention to improve sleep quality.

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INTRODUCTION

Undergraduate students are individuals pursuing higher education in a university study program. According to the *Kamus Praktis Bahasa Indonesia*, a student is someone who studies at a university or

institute. Students are expected to be independent in various aspects of life, make informed decisions, and develop knowledge and skills in the field in which they are engaged (Setia, 2021). The phenomenon that occurs is that students often face various obstacles that can affect their learning process and mental health.

Obstacles experienced by students can come from internal and external factors. Internal factors include anxiety about the future, low motivation and personal commitment, lack of confidence, and inability to manage stress. External factors are often related to high academic pressure, demands for specific achievements, intense competition among students, difficulty balancing time between academic and organizational activities, unhealthy lifestyle choices, social pressure, limited family support, and the expectation to complete final projects promptly. This combination of internal and external pressures often triggers stress that impacts students' physical and mental health (Kountul et al., 2018).

One of the impacts of high academic stress is sleep disorders. Students who face heavy academic loads, such as stacking assignments and exam preparation, often experience sleep disorders, especially insomnia (Lubis et al., 2021). Symptoms that appear include decreased concentration, unstable emotions, a tendency to give in easily, and dependence on others. Academic stress can cause symptoms such as difficulty concentrating, decreased memory, changes in eating patterns, irritability, excessive anxiety, nervousness, and sleep disorders (Setia, 2021).

Insomnia is a common sleep disorder that many students experience. This condition is characterized by dissatisfaction with the quality and quantity of sleep, including difficulty falling asleep, waking up frequently at night, waking up too early, or being unable to return to sleep after waking up. The impact is in the form of fatigue during the day, concentration disorders, and decreased productivity (Oryza, 2016). Persistent sleep disturbances have the potential to reduce students' academic achievement. For example, research at the Indonesian Christian University shows that poor sleep quality is significantly related to decreased student learning achievement (Yekti & Rambe, 2021).

Globally, insomnia is a significant problem among college students. Based on a systematic review that examined more than 16,000 college students from various countries, it was found that approximately 18.5% of the students experienced insomnia, a figure significantly higher than that of the general population (Xiao et al., 2015). A recent international study involving more than 20,000 college students from 60 countries found that over half of the

respondents (57.6%) experienced insomnia, while approximately 27% reported daytime sleepiness. Factors such as gender, major, and economic conditions of the country play a role in the risk of sleep disorders; in addition, students who experience insomnia and daytime sleepiness report a significant decrease in quality of life (Babicki et al., 2023).

Sleep disorders in college students are not only found in Western countries but also in Southeast Asia. An international study involving more than 20,000 students from 27 universities in 26 countries reported varying prevalence of nighttime sleep problems. In Indonesia, approximately 32.9% of students experience problems sleeping at night, whereas in Thailand, the prevalence is only about 3% (Léger et al., 2008). These variations are likely influenced by culture, lifestyle, academic pressure, and socioeconomic conditions. These findings confirm that insomnia is a globally relevant problem in Southeast Asia, underscoring the importance of prioritizing student sleep health.

The results of research at the local level support these global findings. Research at Tribhuwana Tunggadewi University Malang indicates that the majority of students (64.4%) experience insomnia during the Final Semester Exam. This study also found a significant relationship between students' anxiety levels and the incidence of insomnia (Yudha et al., 2024). Based on this, insomnia is not only a global issue, but also a real one in the Indonesian student environment, so prevention and treatment efforts are very important.

Initial research conducted at the Malang Institute of Health Technology Widya Cipta Husada in January 2025 utilized the KSPBJ-IRS Questionnaire to assess the level of insomnia among college students. Based on the results of 10 final-year students, it was shown that eight people experienced insomnia, ranging from mild to very severe. In comparison, only two students did not experience sleep disturbances. These findings highlight that high academic pressure can increase the risk of insomnia among final-year students (Oktari, 2023).

Treatment of insomnia can be done through pharmacological and non-pharmacological therapies. Pharmacological therapy utilizes medications to enhance the duration and quality of sleep. However, it has a risk of side effects, dependence, tolerance, and high cost, so it must be medically supervised (Madari et al., 2021). Alternative procedures, non-pharmacological therapies are safer, easier to apply, and less dependent. Some of the effective non-pharmacological interventions include Cognitive Behavioural Therapy for insomnia (CBT-I), music therapy,

aromatherapy, yoga, meditation, and breathing exercises (Chan et al., 2021).

One practical non-pharmacological approach is the Butterfly Hug technique, which involves patting both hands alternately in front of the chest to reduce anxiety and induce relaxation (Girianto et al., 2024). This technique also has the potential to improve emotional comfort and sleep patterns in patients with certain sleep disorders (Satyani et al., 2025). The Butterfly Hug was introduced within the framework of Eye Movement Desensitisation and Reprocessing (EMDR), which effectively calms individuals, reduces anxiety, and enhances psychological well-being.

This technique incorporates the concept of self-healing, which involves self-understanding without external assistance, allowing for easy application independently (Zulkefli et al., 2024). Based on this, this method is very relevant for students who are prone to experiencing sleep disorders due to academic stress and irregular lifestyles.

Butterfly Hug therapy has the potential to be an alternative non-pharmacological intervention for overcoming insomnia in students; however, its effectiveness has not been widely researched, especially among students of the Malang Institute of Health Technology Widya Cipta Husada. This study aims to investigate the effectiveness of Butterfly Hug therapy in reducing insomnia and improving the quality of students' sleep, thereby contributing to the development of safe and practical academic stress management strategies.

RESEARCH METHODS

Methods

This research was conducted on the campus of the Malang Institute of Health Technology (ITKM) Widya Cipta Husada, utilizing a quantitative approach with a quasi-experimental design. The quasi-experimental method is a research design that utilizes a control group and an intervention group. The design chosen was a nonequivalent control group design, which allowed researchers to compare the group that received the intervention with the group that did not. This design was chosen because the research was conducted in real-world conditions in the field, so the grouping of samples could not be done entirely at random.

Population and Sample

The research population comprises all final-year students at the Malang Widya Cipta Husada Institute of Health Technology, totalling 119 individuals, including 55 male students and 64 female students. The sampling technique employs purposive sampling, which involves selecting respondents based on specific criteria relevant to the research objectives.

These criteria include final-year students who are cooperative as respondents and final-year students who experience insomnia due to academic stress.

Based on the inclusion criteria, 54 students were selected as research samples. The sample was then divided into two groups, namely the intervention group and the control group, each consisting of 27 respondents. The independent variable of the study was butterfly hug therapy, while the dependent variable was the level of insomnia in college students.

Data Collection

The research instrument used was the KSPBJ-Insomnia Rating Scale (IRS). This instrument was chosen because it has good validity and reliability in assessing the level of insomnia among students. The questionnaire was administered twice: once before the intervention (pre-test) and again after the intervention (post-test), allowing for the precise measurement of the change in insomnia level in each group.

Data Analysis

The collected data were then analyzed using the Mann-Whitney U test. The selection of this nonparametric test was based on the results of the normality test using the Kolmogorov-Smirnov, which showed that the data were not normally distributed. This analysis was conducted to determine the significant difference in insomnia rates between the intervention group that received butterfly hug therapy and the control group that did not receive the treatment.

RESULTS AND DISCUSSION

Characteristics of Respondents by Age

Table 1 shows that the majority of respondents aged 22-24 years are 30 respondents (55.5%), and the minority of respondents aged > 24 years old is one respondent (1.9%). Based on **Table 1**, most of the respondents were in the age range of 22–24 years; namely, as many as 30 people (55.5%) experienced insomnia.

In this study, the age of 22-24 years dominated the number of respondents because this age is generally included in the category of early adulthood, who psychologically and physiologically are in a period of active adaptation to academic, occupational or social pressure, where at this age the range of experiencing sleep disorders such as insomnia that arises due to excessive stress or anxiety. Students at this stage face heavy academic demands, including thesis, trials, and practicums. This pressure can increase stress, which leads to sleep disorders such as mild or severe insomnia.

Table 1. Frequency Distribution of Respondents by Age (N=54)

Age	Frequency	Presentation (%)
19-21 years old	23	42.60
22-24 years old	30	55.50
>24 years old	1	1.90
Total	54	100.00

Table 2. Frequency Distribution of Intervention Group Respondents Before Butterfly Hug Therapy (N=27)

Gender	Frequency	Presentation (%)
Man	9	16.70
Woman	45	83.30
Total	54	100.00

The results of this study are in line with the research conducted by Saraswati et al. (2021), which showed that young adults have a higher tendency to experience mild to moderate anxiety disorders that can trigger insomnia, and butterfly hug therapy has been shown to lower anxiety levels significantly.

Butterfly hug therapy in the study was shown to be able to reduce anxiety levels significantly. Butterfly hug therapy is conducted at 20:00 WIB for 14 days, resulting in a positive impact on sleep quality. Researchers argue that early adulthood is a critical stage in the development of healthy sleep patterns; therefore, non-pharmacological interventions, such as butterfly hugs, are particularly relevant for this age group.

Characteristics of Respondents by Gender

Table 2 shows that most respondents were female, specifically 45 people (83.3%). These results are in line with the research of Gunawan et al. (2022), which found that women have a higher percentage in the insomnia category than men. Research by Juwita et al. (2023) also supports these findings, stating that women tend to report higher levels of anxiety than men. It can be explained by women's tendency to process emotions deeply, overthink and consider the opinions of others before acting.

Researchers argue that insomnia in women is more influenced by psychological factors, such as strong emotional responses to stress, excessive anxiety, and the habit of worrying about various risks. In contrast, men rely more on logic, optimism, and the courage to take risks, so the impact of stress on their sleep tends to be lower. These findings underscore the importance of psychological interventions tailored to individual characteristics, particularly for women who are more susceptible to academic and social pressures.

Insomnia Levels Before Intervention

Before receiving butterfly hug therapy, the majority of respondents (34 people, 63%) experienced mild insomnia, as shown in **Tables 3** and **4**. These findings confirm that insomnia is a common problem among college students, particularly in the final year of their studies. The leading cause is thought to be related to psychological factors, such as an irrational mindset and a tendency to overthink academic tasks and responsibilities.

Irrational mindsets and overthinking are other psychological factors that contribute to insomnia. Students who tend to think about various negative possibilities or focus too much on things that have not yet

happened, such as thesis revisions or upcoming assignment deadlines, often struggle with starting or maintaining sleep. A study at the Surakarta Health Polytechnic found that final year students who tend to overthink are more prone to insomnia, which shows a relationship between maladaptive cognitive processes and sleep disorders (Surakarta Health Polytechnic, 2020).

The researchers argue that the high rate of mild insomnia in final year students indicates the need for appropriate psychological interventions. Butterfly hug therapy is considered effective because it is simple, easy to practice, and provides a relaxation effect that reduces stress and anxiety, which can cause sleep disorders.

Insomnia Rates After Intervention

Table 5 shows significant changes in the intervention group after being given butterfly hug therapy. The majority of respondents reported a decrease in insomnia rates, with 16 people (59.3%) falling into the non-insomnia category. These results are in line with the research of Aulia et al. (2024), which shows that butterfly hug therapy is effective as a simple non-pharmacological therapy to reduce anxiety that has an impact on insomnia, because it can provide relaxation, emotional calm, and comfort effects through bilateral stimulation (alternating clap movements on the chest). This intervention can help adolescents/students maintain emotional balance when dealing with psychological stress and stressful situations.

The post-test results showed that only one respondent (3.7%) still experienced severe insomnia, while the rest experienced a decrease in insomnia symptoms.

Butterfly hug therapy has been shown to alleviate emotional distress while enhancing sleep quality. This simple technique can be performed independently as an alternative to non-pharmacological intervention through bilateral stimulation on the left and right sides of the body or brain. Bilateral stimulation also aims to desensitize distressing memories, feelings, and beliefs, and to increase the replacement of negative and positive belief memories (Amano et al., 2016).

Table 5. Frequency Distribution of Intervention Group Respondents After Butterfly Hug Therapy (N=27)

Levels of Insomnia	Frequency	Percentage (%)
No Insomnia	16	59.30
Mild Insomnia	10	37.00
Severe Insomnia	1	3.70
Total	27	100.00

Table 6. Frequency Distribution of Respondents in the Control Group Without Treatment (N=27)

Levels of Insomnia	Frequency	Percentage (%)
No insomnia	9	33.30
mild insomnia	18	66.70
Total	27	100.00

Results in the Control Group

Table 6 shows that the control group, which did not receive the intervention, still experienced mild insomnia in 18 people (66.7%), while nine people (33.3%) did not experience insomnia during the same time period. These findings confirm that in the absence of interventions, a significant reduction in insomnia does not occur. This finding is consistent with the research of Schlarb et al. (2017), which suggests that many sleep problems in college students will not improve without structured interventions. Cognitive-behavioural-based interventions and relaxation techniques have proven to be most effective. The psychotherapy method that is in line with the intervention in this study is EMDR (Eye Movement Desensitisation and Reprocessing) to overcome psychological disorders. EMDR does not use drugs or hypnosis. It is a simple, painless therapy that involves the participation of both the therapist and the patient, allowing for effective healing (Amano et al., 2016).

Statistical Analysis

The results of the Mann-Whitney U test (**Table 7**) from the post-test of the intervention group and the control group showed a significance value of 0.031 ($\alpha < 0.05$), so that H1 was accepted and H0 was rejected. It indicates that there is a significant influence of butterfly hug therapy on the level of student insomnia.

Table 2. Mann-Whitney U test results to compare the results of the intervention group and the control group post-test

	Result
Mann-Whitney U	241.000
Asymp. Sig. (2-tailed)	0.031

These findings align with the research of Ramdhiani et al. (2024), which suggests that butterfly hugs are effective in reducing stress and promoting calmness, and can be easily applied without the need for additional media. This therapy also helps regulate emotions, boosts self-confidence, and makes individuals feel more at ease.

Butterfly hug therapy can be a non-pharmacological alternative for final year students who are prone to insomnia due to academic stress and social pressure. The routine implementation of this therapy can reduce insomnia symptoms, improve sleep quality, and improve psychological well-being. The study lacked blinding, the sample was limited to only one institution, and generalizations were therefore limited. Additionally, there were no controls for other activities that might affect sleep, and the duration of follow-up was short for respondents.

CONCLUSION

Butterfly hug therapy contributes significantly to reducing insomnia symptoms in final year students at the Malang Institute of Health Technology

Widya Cipta Husada. After the intervention, most of the treatment group respondents moved to the category of not experiencing insomnia, while the control group remained dominated by mild insomnia. The Mann-Whitney U test showed a significant value (<0.05), indicating a noticeable difference between the two groups. This therapy is effective as a simple, safe, and self-reliant non-drug strategy to improve sleep quality through emotional stabilization and anxiety reduction. Therefore, butterfly hugs can be used as an initial intervention for students facing academic pressure and have the potential to be applied more widely to similar populations. The researchers recommend the integration of this technique in campus counselling programs or as a self-help tool, as well as follow-up research with RCT design, objective measurements such as actigraphy, and long-term effectiveness studies or comparisons with other non-pharmacological interventions.

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