

Effect of Mindfulness Dhikr Breathing Therapy for Insomniacs on Quality of Life: A Randomized Controlled Trial

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Abstract

This study aims to investigate the impact of mindfulness dhikr breathing therapy on the quality of life among individuals suffering from insomnia. This study involved forty-seven participants who were randomly allocated into three groups: mindfulness dhikr breathing (MDB), progressive muscle relaxation (PMR), and a Control group that did not receive any treatment. The participants were adults aged between 20 and 35 years, with 78.72% female and 21.28% male. Among the participants, 91.49% were students, while 8.51% were employees. The treatment period spanned 28 days, with four sessions conducted every Saturday. The primary outcome measure was the assessment of the quality of life, which was evaluated using a valid and reliable World Health Organization-Quality of Life (WHOQOL) BREF questionnaire. Statistical analysis involved the utilization of various tests, including paired t-tests, Wilcoxon tests, independent t-tests, Mann-Whitney tests, and one-way ANOVA tests. Significant differences were observed in the effects of the three intervention groups on overall QoL ($p=.035$), general health ($p=.008$), physical well-being ($p=.006$), psychological well-being ($p=.000$), and environmental factors ($p=.007$), except for the social relationship domain ($p=.269$). However, no significant differences were found in the effects of MDB and PMR treatments on overall QoL ($p=.922$), general health ($p=.756$), physical well-being ($p=.497$), psychological well-being ($p=.883$), social relationships ($p=.569$), and environmental factors ($p=.618$). In conclusion, mindfulness dhikr breathing therapy has demonstrated its effectiveness in enhancing the quality of life for individuals with insomnia. It holds the potential to serve as a suitable alternative to commonly used insomnia therapies, such as progressive muscle relaxation.

INTRODUCTION

Sleep is an essential aspect of human life, with approximately one-third or 7-8 hours of an individual's daily life dedicated to sleeping. Sleep plays a crucial role in promoting both physical and psychological well-being. However, with the progression of time, an increasing number of people are reporting sleep-related issues (Sedky et al., 2020). One common sleep problem is insomnia, which differs from occasional sleep deprivation caused by difficulty falling asleep despite having the opportunity to do so (Levenson et al., 2015). Insomnia is typically characterized by dissatisfaction with the quantity and quality of sleep due to

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difficulties in initiating and maintaining sleep, frequent awakenings during the night, and challenges in returning to sleep, leading to symptoms such as daytime sleepiness, fatigue, reduced concentration, and impaired daily functioning (Taylor et al., 2014). The reported prevalence of insomnia varies across studies, influenced by different definitions and measurement methods used to assess insomnia. Several studies indicate that the prevalence of insomnia symptoms ranges from 33% to 50% among the adult population, with 10% to 15% experiencing clinical insomnia in the general population (Bollu & Kaur, 2019). In the context of Indonesia, research findings reveal that 33.3% of individuals exhibit symptoms of insomnia, while 11% experience moderate to severe clinical insomnia (Peltzer & Pengpid, 2019).

Initially, insomnia was primarily observed in the elderly population, often attributed to psychological, behavioral issues, and comorbid diseases (Patel et al., 2018). However, insomnia cases are also prevalent among adults, particularly among women (Madrid-Valero et al., 2017). Sleep problems in adulthood are frequently associated with various challenges in living and working environments (Lin et al., 2019; Watson et al., 2016; Lim et al., 2020; Deng et al., 2020). These sleep problems, including insomnia, can significantly disrupt daily activities and have adverse effects on physical and psychological well-being (Lo & Lee, 2012).

Individuals experiencing insomnia, characterized by poor sleep quality and psychological issues, are susceptible to a decline in their overall quality of life (Lim et al., 2020; Ishak et al., 2012). Chasanah and Supratman (2018) conducted a study revealing a relationship between sleep quality and the quality of life among the elderly population in Surakarta. Moreover, insomnia is frequently associated with poorer health conditions, increased healthcare expenses, greater utilization of healthcare resources, absenteeism, and an elevated risk of psychological disorders, particularly depression. These factors further contribute to a diminished quality of life in the absence of appropriate treatment for insomnia-related problems.

Insomnia can be effectively treated through various psychotherapies, among which Mindfulness Meditation has emerged as a promising approach. Studies have consistently demonstrated the efficacy of Mindfulness Meditation in mitigating insomnia symptoms, and it has garnered positive acceptance among patients (Martires & Zeidler, 2015). Additionally, an alternative treatment approach rooted in Islamic practices, known as dhikr therapy, has been extensively investigated across diverse populations. Research findings indicate that dhikr therapy yields significant benefits, including anxiety reduction (Sulistyawati et al., 2019) and stress alleviation (Rochdiat et al., 2013). Notably, dhikr therapy has also exhibited promising outcomes in addressing specific challenges encountered by individuals with insomnia, such as enhancing sleep quality (Fandiani et al., 2017) and reducing sleep latency (Purwanto, 2016).

Literature review

The concept of quality of life pertains to individuals' perception of their position in the world, taking into account their own objectives, aspirations, standards, concerns, as well as the cultural and value systems in which they are situated (WHOQOL Group, 1996). Quality of life is closely associated with health, specifically focusing on how somatic and psychological symptoms impact daily functioning and overall well-being (Costa et al., 2021). A high quality of life is characterized by good physical and psychological well-being, as well as positive social and environmental outcomes. Individuals grappling with insomnia are more likely to experience a diminished quality of life due to the absence of typical growth, energy restoration, and optimal psychological health, which are essential components of a high quality of life (Alimoradi et al., 2022). Assessing quality of life becomes crucial in evaluating any psychiatric or physical health issue, as poor quality of life is often cited as a motivating factor for seeking treatment. Based on systematic reviews by Wahyuni et al. (2022) that quality of life can be improved through treatment one of them is exercise therapy. In the context of depression, sleep disturbances can impede daily tasks and social interactions (Shimodera et al., 2014). Insomnia,

with its numerous detrimental physical, social, and psychological effects, has been linked to deficits in quality of life (Ishak et al., 2012).

Appropriate treatment of insomnia can significantly enhance quality of life (Dirksen & Epstein, 2008). A meta-analysis review study encompassing various quality-of-life measurement tools revealed that Cognitive Behavioral Therapy for Insomnia (CBT-I) demonstrates a moderate effect in improving quality of life (Alimoradi et al., 2022). Furthermore, in recent years, numerous studies have provided evidence supporting the efficacy of mindfulness-based therapies in reducing insomnia levels and enhancing sleep quality (Ong & Smith, 2017). However, research on the broader impact of this therapy on the quality of life of individuals with insomnia remains scarce. In practice, mindfulness training aims to cultivate non-judgmental awareness of present-moment experiences, including physical sensations, perceptions, affective states, thoughts, and images, with the ultimate goal of fostering stable and non-reactive consciousness. Although mindfulness itself does not directly enhance quality of life, mindfulness-based therapy is closely associated with a reduction in psychological stress and medical symptoms (Albyani & Al-Abyadh, 2023; Carmody et al., 2008), which are commonly experienced by individuals with insomnia. Mindfulness has been shown to alleviate symptoms of depression (Reangsing et al., 2021), anxiety (Burgstahler & Stenson, 2020), and fatigue (Green & Kinchen, 2021).

Research conducted by Márquez et al. (2021) examining police officers indicates that mindfulness-based interventions can effectively reduce daily work-related stress, enhance performance and quality of life, and foster emotional balance and empathy among law enforcement personnel. Another study conducted by Chang et al. (2018) confirms the positive effects of mindfulness meditation on improving the quality of life in individuals with cancer. According to Chang et al. (2018) mindfulness meditation demonstrates efficacy in alleviating sleep problems, reducing symptoms of stress and mood disorders, improving immune function, and enhancing the overall quality of life in cancer patients. The mindfulness meditation intervention primarily focuses on relaxation, mental training, and the reduction of psychological stress (Carmody et al., 2008). By training individuals to cultivate awareness and acceptance without judgment towards their experiences, mindfulness meditation promotes relaxation and a sense of calm.

Dhikr, recognized among Muslims as an act of praising and acknowledging the greatness of God through recitations like Tasbih, Tahlil, and Tahmid, encompasses various forms of verbal speech, heart movements, or limb movements. The recitation of dhikr, as taught by Allah and His Messenger, encompasses expressions of gratitude, praise, and prayers aimed at attaining inner peace, seeking closeness to Allah (taqarrub), salvation, and protection from divine punishment (Kusuma et al., 2020). Through the sacred words employed in dhikr, the practice facilitates mental concentration and induces bodily relaxation. This calming effect of dhikr therapy stimulates the hypothalamus, which, in turn, influences the pineal gland to release melatonin, thus facilitating the process of falling asleep. Relaxation, as one of the nursing interventions, holds particular importance for individuals experiencing sleep difficulties resulting from medical or psychological disorders, helping them obtain the necessary rest (Atiyaningsih & Wulandari, 2017). Slow breathing is one of the relaxation techniques that has been proven to be an alternative to non-pharmacological treatments that can lower blood pressure in hypertensive patients (Herawati et al., 2023).

The combination of dhikr and breath entails maintaining a state of awareness of Allah with each inhalation and exhalation. With every breath in, the recitation of "Huu Dhikr" accompanies it, and with every breath out, the faithful remembrance of Allah resonates. The integration of dhikr and breathing enhances relaxation during the transition into sleep. The fundamental principle underlying this practice lies in recognizing that each breath leads to a conscious transcendental awareness of Allah SWT. When individuals consciously focus on

their breath, they become attuned to its rhythm, enabling a profound acceptance of their bodily sensations. Embracing everything that unfolds during this process promotes mental and emotional serenity, as well as physical relaxation of the muscles. Conversely, stress arises from resisting and rejecting the present moment. Therefore, embracing the unfolding reality fosters a state of tranquility and may induce drowsiness in individuals (Purwanto et al., 2022).

Rationale of the Study

The presence of insomnia cases within the community has a profound impact on both human resources and quality of life. A study conducted in Iran (Askari et al., 2018) revealed that religious and spiritual therapy can effectively alleviate anxiety and depression while enhancing overall quality of life. Considering that the majority of the Indonesian population adheres to Islam, psychological therapy incorporating elements of Islamic beliefs is deemed suitable for Indonesian society (Fauzin et al., 2022). Dhikr, as an Islamic practice, holds potential as a therapeutic method for Muslims. Previous research has demonstrated its effectiveness in addressing various psychological issues such as anxiety and stress, which are commonly experienced by individuals with insomnia (Sudiarto, 2015; Atiyaningsih & Wulandari, 2017; Aftina et al., 2021). While mindfulness is historically rooted in Buddhism (Carmody et al., 2008), within an Islamic context, it is also embodied by the virtue of *muraqabah*, which denotes attentive observation and contemplation (Parrott, 2017). Moreover, a study by Kadafi et al. (2021) highlighted the effectiveness of Islamic counseling interventions in promoting mindfulness and reducing anxiety related to the COVID-19 pandemic, thereby potentially enhancing an individual's quality of life. However, research focusing on psychological therapy for insomnia that incorporates mindfulness techniques with an Islamic approach, as well as the impact of mindfulness therapy on the quality of life among individuals with insomnia, remains scarce.

Purpose and Hypotheses of the study

Therefore, the purpose of this study is to investigate the impact of mindfulness dhikr breathing therapy on enhancing the quality of life among individuals with insomnia. It is hypothesized that mindfulness dhikr breathing therapy will effectively enhance sleep quality and alleviate psychological distress experienced by individuals with insomnia, thereby leading to an improvement in their overall quality of life.

METHODS

Research Design

This study employed a randomized controlled trial design and obtained ethical approval from the research ethics committee of the National University of Malaysia under permit No.UKM.FSK.800-2/27/9(NN-2020-036). Randomization was conducted using the online application random.org by the study investigator, ensuring that there was no participant contact during the randomization process. This was done until all participants were assigned to their respective study arms.

Participants

The recruitment of participants took place between December 2021 and January 2022 through online advertisements for insomnia therapy via social media, considering the constraints posed by the COVID-19 pandemic. A total of 70 participants were enrolled for the insomnia therapy program. Trained research assistants conducted a screening process by contacting participants through WhatsApp messages for general screening purposes. Participants were also requested to complete the Insomnia Severity Index (ISI) via a Google

form to assess the severity of their insomnia. Inclusion criteria for participant selection were being of productive age, Muslim, and experiencing insomnia. Exclusion criteria included: (1) presence of uncontrolled medical conditions that could interfere with sleep, (2) use of sedating medication for insomnia, and (3) comorbid sleep disorders. After the eligibility screening and obtaining consent, a total of 63 participants were randomly assigned to one of the three study arms: (1) mindfulness dhikr breathing (MDB), (2) progressive muscle relaxation (PMR), and (3) control group (no treatment). Each group consisted of 21 participants, resulting in equal allocation. Written consent was obtained from all participants to confirm their willingness to participate in the study. A total of 47 participants completed the intervention and quality of life measurements (see Figure 1). The demographic characteristics of the participants indicated that they were adults, aged between 20 and 35 years, with a mean age of 22.5 years. Among the participants, 78.72% were female and 21.28% were male. Additionally, 91.49% were students, while 8.51% were employees.

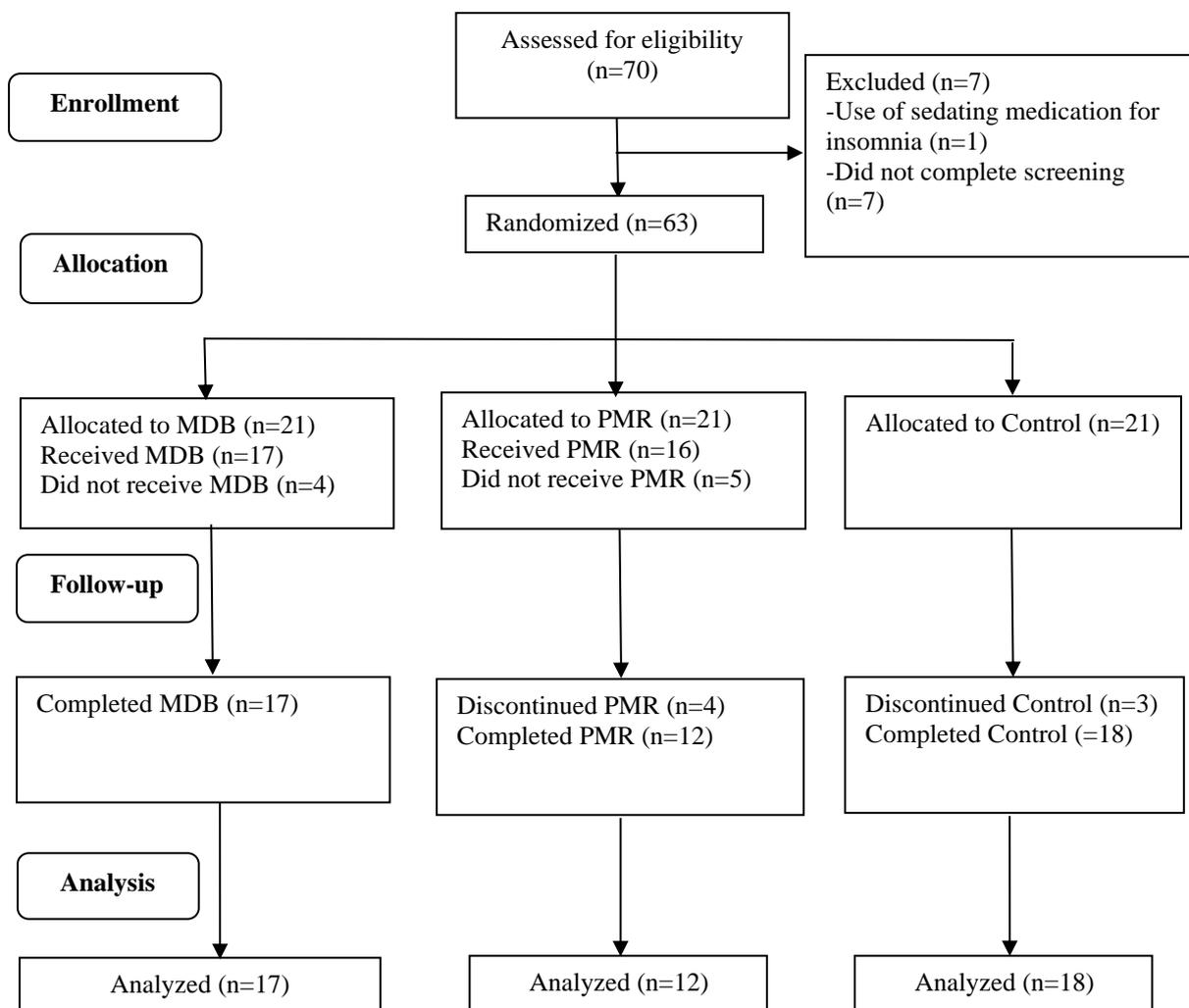


Figure 1. Participants flow diagram
 MDB= mindfulness dhikr breathing, PMR=progressive muscle relaxation

Instruments

The assessment of quality of life before and after the intervention was conducted using the World Health Organization Quality of Life-BREF (WHOQOL-BREF) questionnaire. The

WHOQOL-BREF is a shortened version of the original WHOQOL-100 instrument. In this study, the Indonesian version of the WHOQOL-BREF was utilized, which has demonstrated good agreement and high test-retest reliability (Purba et al., 2018). Previous studies have also employed this questionnaire to evaluate the quality of life in elderly individuals with insomnia (Bangun et al., 2020). The WHOQOL-BREF questionnaire consists of 26 items encompassing various domains, including overall quality of life (1 item), general health (1 item), and four specific domains: physical well-being (7 items), psychological well-being (6 items), social relationships (3 items), and environment (8 items). Participants were required to rate their responses on a 5-point Likert scale, ranging from 1 to 5 for positive questions and from 5 to 1 for negative questions. To calculate domain scores, the raw scores were transformed to a scale of 4-20. Subsequently, the transformed scores were further converted to a 0-100 scale following the guidelines provided by the WHOQOL-BREF (WHOQOL Group, 1996).

Intervention Procedures

The intervention period spanned 28 days in February 2022. The exercise treatments were conducted at the Audio Visual Laboratory of the Faculty of Psychology, Universitas Muhammadiyah Surakarta. Before commencing the treatments, participants in the MDB and PMR groups were required to complete the outcome measures as a pre-treatment assessment. The mindfulness dhikr breathing and progressive muscle relaxation treatments were facilitated by trained trainers who had received prior training for both interventions. The mindfulness dhikr breathing treatment comprised four stages: mindfulness body scan, mindfulness breath, dhikr meditation, and mindfulness dhikr breathing. Each stage was practiced at home for seven consecutive days. The MDB treatment sessions were held on Saturdays, where participants engaged in discussions on their progress in the treatment at home during the previous week (sessions 2-4). The sessions included presentations, exercises, and discussions on the results of the exercises. Throughout the intervention, participants received support via Whatsapp, including modules and audio recordings of therapies specifically designed for insomniacs.

Progressive Muscle Relaxation Therapy consisted of four sessions with repeated interventions over a four-week period. Participants were instructed to lie in a supine position and relax their muscles, starting from the head and progressing to the neck, shoulders, chest, abdomen, upper limbs, and lower limbs. Each muscle group was trained for 10-15 seconds of tension followed by 15-20 seconds of relaxation. This sequence was repeated three times for each muscle group. Audio recordings of relaxation therapies commonly used for insomniacs were provided every night before sleep via Whatsapp to assist participants in their Progressive Muscle Relaxation treatment. After completing the treatment period, participants in the MDB and PMR groups underwent a post-treatment assessment using the outcome measure provided.

The control group did not receive any treatment during the 28-day period. Control participants were monitored using outcome measures at baseline and on day 28. They attended an orientation session where the Control period was explained, and outcome measures for monitoring were provided. Control participants were required to complete the outcome measures as a pre-treatment assessment. During the Control period, there was no structured contact between the research staff and participants, except in cases where the outcome measures were not submitted on time or if participants had questions. After the Control period, control participants received the MDB treatment, which was not reported in this study. Following the treatment, they underwent a post-treatment assessment using the outcome measure provided.

Analysis Plan

The statistical analysis was conducted using SPSS for Windows version 25 (IBM Co., Armonk, New York, US). The data analyzed were quantitative, including participant characteristics such as age, gender, and job status; pretest and posttest scores of WHOQOL for

the MDB, PMR, and Control groups; and the effect of the interventions on the quality of life for these groups. The effect on quality of life was determined by calculating the gain score of WHOQOL, which is the mean posttest score minus the mean pretest score.

Descriptive tests were used to analyze the univariate data, and the results were presented in frequency distribution tables. The normality of the pretest and posttest scores of WHOQOL, as well as the gain score of WHOQOL, was assessed using the Shapiro-Wilk test since the number of data points was less than 50 per group. Bivariate analysis was conducted to examine the differences in quality of life before and after the interventions, using either the paired sample t-test (for normally distributed data) or the Wilcoxon test (for non-normally distributed data). The analysis also included determining the differences in the effect of treatment on quality of life among the MDB, PMR, and Control groups using the one-way ANOVA test (for normally distributed data). Furthermore, post hoc tests were performed to analyze the effects of treatment on quality of life between two treatment groups (MDB vs. Control, PMR vs. Control, and MDB vs. PMR). All statistical tests were two-sided, and a significance level of $p < .05$ was used.

RESULTS AND DISCUSSION

Results

This study analyzed data from 47 participants who completed the intervention and follow-up until the last session (see [Figure 1](#) for participant flow). The participants were divided into three groups: mindfulness dhikr breathing (MDB) treatment group ($n=17$), progressive muscle relaxation (PMR) treatment group ($n=12$), and control group ($n=18$) (Table 1). Some participants were excluded from the study due to reasons such as the use of medication for insomnia, incomplete screening, not receiving the MDB or PMR treatment, discontinuing the PMR treatment due to COVID-19 symptoms, or discontinuing the control treatment.

Demographic Characteristic

Table 1. Demographic characteristics of the MDB, PMR, and Control groups

Variable	MDB (N=17)	PMR (N=12)	Control (N=18)	Total (N=47)
Age (Mean±SD)	22.24±2.77	21.92±1.93	23.28±5.91	22.5±4.11
Sex n(%)				
Man	5(29.4)	3(25)	2(11.1)	10(21.28)
Woman	12(70.6)	9(75)	16(88.9)	37(78.72)
Job status n(%)				
College Student	16(94.1)	10(83.3)	17(94.4)	43(91.49)
Employee	1(5.9)	2(16.7)	1(5.6)	4(8.51)

[Table 1](#) presents the distribution of gender, age, and job status among the MDB, PMR, and control participants. The participants' ages ranged from 18 to 42 years, belonging to the productive adult age group. The mean age of the participants was 22.5 years, with a majority being female (78.72%), and most of them were college students (91.49%).

Pre- and Post-treatment of Quality of Life

The quality of life was assessed using the World Health Organization-Quality of Life BREF (WHOQOL BREF) questionnaire, capturing overall quality of life, health satisfaction, and specific domains including physical health, psychological well-being, social relationships, and environment. [Table 2](#) presents the pre- and post-treatment measurements of quality of life for the MDB, PMR, and control groups.

At the beginning of the intervention period, all groups exhibited similar levels of quality of life, indicating comparable conditions. Statistically, there were no significant differences in

all aspects of quality of life before treatment between the MDB, PMR, and control groups ($p > .05$), except for the psychological aspect ($p > .05$). However, after completing the MDB and PMR treatments, there was an improvement in all aspects of quality of life, whereas the control group experienced a decline in all aspects except for overall quality of life and social relationships.

Analyzing the differences between pre- and post-treatment quality of life in the MDB group, significant improvements were observed in overall quality of life, health satisfaction, and physical, psychological, and environmental health ($p < .05$). However, no significant difference was found in social relationships ($p > .05$). Similar findings were observed in the PMR group, with significant improvements in the four domains of quality of life ($p < .05$), while overall quality of life and health satisfaction did not show significant differences.

In contrast, the control group, which did not receive any treatment, showed no significant differences in any aspect of quality of life before and after the intervention period. This is expected since the control group did not undergo any specific treatment. After the completion of the treatment period, significant differences were only observed in the physical health aspect between the MDB, PMR, and control groups ($p < .05$), while the other six aspects did not show significant differences ($p > .05$).

Table 2. The Statistical of Aspect for Quality of Life of the Pre- and Post-treatment of the MDB, PMR, and SM groups

Variable	MDB	PMR	Control	p-value (between-group)
Overall QoL				
Pre (Mean±SD)	2.76±0.90	2.83±0.94	3.11±0.83	.355 ^d
Post (Mean±SD)	3.58±0.79	3.41±0.79	3.17±0.71	.117 ^d
p-value (within a group)	.002 ^b	.097 ^b	.782 ^b	
Health				
Pre (Mean±SD)	2.88±0.60	2.75±0.87	3.16±0.79	.080 ^d
Post (Mean±SD)	3.35±0.61	3.33±0.78	2.94±0.73	.117 ^d
p-value (within a group)	.021 ^b	.053 ^b	.157 ^b	
Physical				
Pre (Mean±SD)	61.24±10.46	56.33±8.87	61.00±12.05	.420 ^c
Post (Mean±SD)	68.82±11.24	66.91±8.40	58.83±10.52	.016 ^c
p-value (within a group)	.031 ^a	.001 ^a	.357 ^a	
Psychological				
Pre (Mean±SD)	51.53±14.88	46.33±12.39	58.33±13.71	.039 ^d
Post (Mean±SD)	64.06±10.02	59.58±11.55	54.22±12.93	.070 ^d
p-value (within a group)	.003 ^b	.005 ^b	.072 ^b	
Social Relationship				
Pre (Mean±SD)	54.06±18.78	50.50±20.55	52.72±18.74	.612 ^d
Post (Mean±SD)	61.88±15.87	62.42±18.67	54.11±12.38	.295 ^d
p-value (within a group)	.209 ^b	.003 ^a	.776 ^b	
Environment				
Pre (Mean±SD)	58.65±14.46	53.25±7.36	61.67±14.23	.104 ^d
Post (Mean±SD)	67.77±10.93	60.08±9.51	58.50±12.64	.056 ^d
p-value (within a group)	.015 ^a	.019 ^b	.128 ^b	

a= Paired t test, b= Wilcoxon test, c= ANOVA one way, d=Kruskal-Wallis

Effect of MBD and PMR treatment on Quality of Life

The impact of treatment on quality of life was assessed by comparing the gain scores, which represent the difference between the average WHOQOL scores (overall QoL, health

satisfaction, physical, psychological, social relationships, and environment) before and after the intervention. Table 3 presents the statistical overview of the average gain scores of WHOQOL scores for the MDB, PMR, and control groups.

The statistical analysis (refer to Table 3) revealed significant differences in the effect on overall quality of life, health satisfaction, physical health, psychological well-being, and environmental well-being among the MDB, PMR therapy, and control interventions ($p < .05$). However, no significant difference was found in the effect on social relationships between the three treatment groups. For a detailed overview of the mean gain scores of WHOQOL scores for the MDB and PMR groups, refer to Table 4.

Regarding the effect of treatment on all aspects of quality of life, there was no significant difference between MDB treatment and PMR treatment ($p > .05$). Both treatments demonstrated similar effectiveness in improving participants' quality of life across all aspects. However, it should be noted that MDB treatment had a greater impact on overall quality of life and the environment, as evidenced by higher gain scores compared to PMR treatment in these two aspects. On the other hand, PMR treatment showed higher gain scores in health satisfaction, physical health, psychological well-being, and social relationships compared to MDB treatment.

Table 3. Statistical overview of an average gain score of WHOQOL scores of MDB, PMR, and Control groups

Variable	BDM	PMR	Control	p-value
Overall QoL	0.82±0.73	0.58±1.44	0.06±0.87	.035 ^b
Health	0.47±0.72	0.58±0.90	-0.22±0.65	.008 ^b
Physical	7.58±13.21	10.58±8.52	-2.17±9.71	.006 ^b
Psychological	12.53±14.33	13.25±10.32	-4.11±9.35	.000 ^a
Social Relationship	7.82±22.76	11.92±10.77	1.38±15.87	.269 ^a
Environment	9.12±13.85	6.83±8.65	-3.17±10.34	.007 ^a

a= ANOVA one way, b=Kruskal-Wallis

Table 4. Statistical overview of a mean gain score of WHOQOL scores of MDB, and PMR groups

Variable	BDM	PMR	p-value
Overall QoL	0.82±0.73	0.58±1.44	.922 ^b
Health	0.47±0.72	0.58±0.90	.756 ^b
Physical	7.58±13.21	10.58±8.52	.497 ^a
Psychological	12.53±14.33	13.25±10.32	.883 ^a
Social Relationship	7.82±22.76	11.92±10.77	.569 ^a
Environment	9.12±13.85	6.83±8.65	.618 ^a

a= Independent t-test, b=Mann Whitney

Discussion

The objective of this study was to investigate the impact of mindfulness dhikr breathing therapy on the quality of life of individuals with insomnia. The participants included in the study were specifically selected as primary insomniacs without any other health conditions. This selection criterion was crucial in order to assess the direct effect of mindfulness dhikr breathing therapy on the quality of life of primary insomniacs, without any confounding factors from other health disorders. The average age of the participants was 22.5 years, with a majority of them being female (78.72%). It is worth noting that insomnia has a prevalence rate of 10-15% among adults, with a higher occurrence in women (Madrid-Valero et al., 2017). Sleep problems, such as insomnia, experienced during adulthood can significantly impact daily activities and both physical and psychological well-being (Lo & Lee, 2012). The majority of the participants in this study were college students (91.49%), with the remaining participants

being employed (8.51%). College students and individuals in high-stress jobs are known to be at a higher risk of experiencing mental health issues. If left unaddressed, these conditions can exacerbate sleep disorders and lead to poor sleep quality (Lim et al., 2020).

This randomized controlled trial aimed to investigate the effects of different interventions on the quality of life of individuals with insomnia. The study included three intervention groups: mindfulness dhikr breathing (MDB) treatment, progressive muscle relaxation (PMR) treatment, and a control group that did not receive any treatment. The quality of life was assessed using the Indonesian version of the WHOQOL BREF questionnaire, which measures various aspects including overall quality of life, general health, physical, psychological, social relationships, and environment (Purba et al., 2018).

The effectiveness of the interventions was determined by comparing the posttest and pretest scores using the WHOQOL questionnaire, referred to as gain scores. The ANOVA One Way test results indicated a significant difference in the effect on all aspects of quality of life between MDB, PMR, and the control group ($p < .05$). Furthermore, the analysis comparing the two treatments (MDB vs PMR) revealed differences in effectiveness on all aspects of quality of life, although the differences were not statistically significant ($p > .05$).

Based on our findings, both mindfulness dhikr breathing therapy and progressive muscle relaxation were found to improve the quality of life in individuals with insomnia. The improvements were nearly equal in both intervention groups. In contrast, the control group experienced a decrease in quality of life due to the absence of any intervention. Our results demonstrate the effectiveness of mindfulness dhikr breathing therapy in improving the quality of life in individuals with insomnia, suggesting it as a viable alternative to progressive muscle relaxation therapy, which is commonly used for insomnia treatment. These findings are consistent with previous research by Chang et al. (2018) and (Márquez et al., 2021) who confirm the effect of mindfulness-based therapy on improving quality of life.

Mindfulness is characterized as a state of conscious awareness. Its purpose is to cultivate deliberate attention and non-judgmental awareness of present-moment experiences, including physical sensations, perceptions, and thoughts (Carmody et al., 2008). By observing these stimuli without judgment, individuals become less threatened by their thoughts and feelings, allowing space for alternative responses. Furthermore, the practice of mindfulness promotes openness, acceptance of current experiences, nonreactive self-observation, and the ability to select the focus of attention. These qualities enable individuals to engage in self-regulatory behaviors that align with their broader needs and values (Parrott, 2017).

Numerous previous studies have demonstrated the effectiveness of mindfulness-based therapies in treating insomnia. Approaches such as mindfulness-based stress reduction (MBSR), mindfulness cognitive behavioral therapy for insomnia (MBCT-I), and mindfulness meditation (MM) have shown positive effects on sleep quality in both the general population and individuals with insomnia (Winbush et al., 2007; Ong et al., 2014). Additionally, mindfulness-based therapy has been found to reduce symptoms of stress and mood disorders (Chang et al., 2018), alleviate fatigue (Green & Kinchen, 2021), and enhance work productivity (Márquez et al., 2021). According to Dirksen and Epstein (2008) improvements in sleep quality through therapy have a positive ripple effect on other problems associated with insomnia, ultimately leading to an enhancement in overall quality of life. Therefore, the benefits of mindfulness-based therapies extend beyond sleep improvement and can contribute to various aspects of well-being.

This study represents the first investigation into the effectiveness of mindfulness-based therapy utilizing meditation techniques rooted in Islamic beliefs, specifically focusing on the practice of dhikr breathing, for enhancing the quality of life in individuals with insomnia. The therapy employed in this study can be termed "Islamic mindfulness therapy." By combining mindfulness approaches with breath-based dhikr meditation, participants are guided to be

mindful and accepting of the rhythmic recitation of dhikr during their inhalation and exhalation. Through this practice, participants are encouraged to observe their present experiences without judgment or attachment to specific outcomes. From a scientific perspective, the repetitive recitation of dhikr has been found to influence neurotransmitters in the body, increase parasympathetic nerve activity, and suppress sympathetic nerve activity. These physiological changes promote relaxation and facilitate ease in falling asleep (Sulistiyawati et al., 2019). Furthermore, the incorporation of breath relaxation techniques within this therapy expedites the attainment of a relaxed state, aiding in the process of falling asleep.

Based on post-intervention interviews conducted one month after the study, it was observed that some participants who engaged in mindfulness dhikr breath therapy had difficulty grasping the concept of mindfulness. Instead, they focused primarily on the recitation of dhikr before going to bed. These participants believed that the repetitive recitation of dhikr helped divert their attention from racing thoughts and overthinking, leading to fatigue and quicker onset of sleep. As a result, their perceived benefits were not derived from the process of mindfulness, which involves awareness and acceptance of their sleep-related challenges, but rather from the influence of dhikr breathing meditation itself.

In Islamic beliefs, dhikr is considered a form of worship with psychological therapeutic benefits, such as stress reduction and insomnia alleviation. Reciting prayers like *Subhanallah*, *Alhamdulillah*, and *Astaghfirullah* repeatedly during meditation can induce a state of calmness in the mind (Samsualam & Masriadi, 2022). The aim of dhikr therapy is to help individuals establish a strong connection with Allah. For Muslims, feeling close to Allah brings a sense of peace. A study by Dashti et al. (2018) found that individuals who frequently practiced dhikr had lower levels of stress, anxiety, and depression, along with improved quality of life and mindfulness, compared to those who practiced it infrequently.

Although there is limited research specifically exploring the effects of dhikr therapy on psychological issues and quality of life in individuals with insomnia, studies have generally shown positive outcomes. Dhikr therapy has been associated with reducing anxiety and depression levels (Anggun et al., 2021), alleviating stress (Nosrati et al., 2021), improving sleep quality (Sudiarto, 2015; Atiyaningsih & Wulandari, 2017) and decreasing insomnia (Fitriani et al., 2021).

Implications

The findings of this study have theoretical implications, demonstrating that mindfulness dhikr breathing can enhance the quality of life for individuals with insomnia by specifically addressing sleep disorders and improving sleep quality. Through mindfulness dhikr breathing therapy, individuals become more capable of letting go and accepting all thoughts and feelings without striving to eliminate or reject negative emotions. This aligns with the three principles of mindfulness, which can effectively reduce anxiety, rumination, mind racing, sleep disorders, and depression, ultimately promoting a calmer state of mind.

One notable strength of this study is that it is the first to investigate the effectiveness of mindfulness therapy on the quality of life of individuals with insomnia. Previous research had not specifically examined the impact of mindfulness-based therapy on the quality of life in this population. Additionally, the quality of life was assessed using reliable and validated questionnaires that have been widely utilized in numerous studies.

Limitations and Suggestions for Further Research

This study has several limitations that should be acknowledged. Firstly, due to the limited training sessions, some participants struggled to grasp the concept of mindfulness within the mindfulness dhikr breathing therapy. The notions of awareness and acceptance, central to mindfulness, are still unfamiliar to the general public. Secondly, the study sample consisted

exclusively of adults, thus restricting the generalizability of the findings to elderly individuals. Thirdly, this study did not thoroughly examine specific psychological issues that may impact insomnia and the quality of life of individuals with insomnia.

To address these limitations, future research could incorporate additional mindfulness dhikr breathing training sessions to further emphasize the concept of mindfulness among participants. Furthermore, investigating the effects of mindfulness dhikr breathing specifically in elderly individuals with insomnia would provide valuable insights. Additionally, conducting in-depth examinations of other psychological problems commonly experienced by individuals with insomnia, utilizing specialized instruments, would enhance the validity and accuracy of assessing the impact of mindfulness dhikr breathing on quality of life.

CONCLUSION

Mindfulness dhikr breathing therapy effectively improves insomniacs' quality of life. Improvement in quality of life with mindfulness dhikr breath therapy can be known both overall, health satisfaction, physical, psychological, social relationships, and environment. Mindfulness dhikr breathing therapy can replace therapy that is commonly used in insomniacs.

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AUTHOR CONTRIBUTION STATEMENT

SP conceived the idea and importance of mindfulness dhikr breathing therapy for individuals with insomnia and made initial contributions to the writing process. NA and SZ played key roles in data analysis and interpretation. MA and ZS contributed to the review of clerical and methodological aspects of the study.

REFERENCES

- Aftina, F. V. F., Poeranto, S., & Utami, Y. W. (2021). The Effectiveness of Psychoreligius Therapy on Sleep Quality and Anxiety in Diabetes Mellitus Patientstype 2. *International Journal of Science and Society*, 3(1), 99–107. <https://doi.org/10.54783/ijsoc.v3i1.274>
- Alimoradi, Z., Jafari, E., Broström, A., Ohayon, M. M., Lin, C. Y., Griffiths, M. D., Blom, K., Jernelöv, S., Kaldo, V., & Pakpour, A. H. (2022). Effects of cognitive behavioral therapy for insomnia (CBT-I) on quality of life: A systematic review and meta-analysis. *Sleep Medicine Reviews*, 64. <https://doi.org/10.1016/j.smr.2022.101646>
- Anggun, M., Kusumawinakhyu, T., Finurina Mustikawati, I., & Wiharto, W. (2021). The Effect of Dhikr on Anxiety and Depression Level in Hemodialysis Patients At Purwokerto Islamic Hospital. *International Journal of Islamic Medicine*, 2(1), 15–25. <https://doi.org/10.37275/ijim.v2i1.17>
- Askari, M., Mohammadi, H., Radmehr, H., & Jahangir, A. H. (2018). The effect of spiritual–religious psychotherapy on enhancing quality of life and reducing symptoms of anxiety and depression among the elderly. *Journal of Research on Religion & Health*, 4(2), 29–

41. Google Scholar

- Atiyaningsih, N., & Wulandari, I. (2017). Dhikr Therapy to Improving Sleep Quality for Post Surgery Patient at Banten Indonesia. *ASEAN/Asian Academic Society International Conference Proceeding Series*. <https://core.ac.uk/download/pdf/267559092.pdf>
- Bangun, B. C. K., Gondodiputro, S., & Andayani, S. (2020). Insomnia and Quality of Life in The Elderly: WHOQOL-BREF and WHOQOL-OLD Indonesian Version. *Jurnal Kesehatan Masyarakat*, *16*(2), 249–255. <https://doi.org/10.15294/kemas.v16i2.22895>
- Bollu, P. C., & Kaur, H. (2019). Sleep Medicine: Insomnia and Sleep. *Missouri Medicine*, *116*(1), 68–75. <http://www.ncbi.nlm.nih.gov/pubmed/30862990>
- Burgstahler, M. S., & Stenson, M. C. (2020). Effects of guided mindfulness meditation on anxiety and stress in a pre-healthcare college student population: a pilot study. *Journal of American College Health*, *68*(6), 666–672. <https://doi.org/10.1080/07448481.2019.1590371>
- Carmody, J., Reed, G., Kristeller, J., & Merriam, P. (2008). Mindfulness, spirituality, and health-related symptoms. *Journal of Psychosomatic Research*, *64*(4), 393–403. <https://doi.org/10.1016/j.jpsychores.2007.06.015>
- Chang, Y. Y., Wang, L. Y., Liu, C. Y., Chien, T. J., Chen, I. J., & Hsu, C. H. (2018). The Effects of a Mindfulness Meditation Program on Quality of Life in Cancer Outpatients: An Exploratory Study. *Integrative Cancer Therapies*, *17*(2), 363–370. <https://doi.org/10.1177/1534735417693359>
- Chasanah, N., & Supratman, S. (2018). Hubungan Kualitas Tidur Dengan Kualitas Hidup Pada Lansia Di Surakarta. *Jurnal Berita Ilmu Keperawatan*, *11*(1), 10–18. <https://doi.org/10.23917/bik.v11i1.10586>
- Costa, D. S. J., Mercieca-Bebber, R., Rutherford, C., Tait, M. A., & King, M. T. (2021). How is quality of life defined and assessed in published research? *Quality of Life Research*, *30*(8), 2109–2121. <https://doi.org/10.1007/s11136-021-02826-0>
- Dashti, N., Hajloo, N., Sadeghi, G., Narimani, M., & Sharifinia, M. H. (2018). Comparison of Quality of Life , Depression , Anxiety , Stress , and Mindfulness of Cardiac Patients with Much and Few Remembrance of God. *Islamic Life Style Centered on Health*, *2*(3), 123–129. <http://islamiclifej.com/article-1-195-en.html>
- Deng, X., Liu, X., & Fang, R. (2020). Evaluation of the correlation between job stress and sleep quality in community nurses. *Medicine (United States)*, *99*(4), 1–7. <https://doi.org/10.1097/MD.00000000000018822>
- Dirksen, S. R., & Epstein, D. R. (2008). Efficacy of an insomnia intervention on fatigue, mood and quality of life in breast cancer survivors. *Journal of Advanced Nursing*, *61*(6), 664–675. <https://doi.org/10.1111/j.1365-2648.2007.04560.x>
- Fandiani, Y. M., Wantiyah, & Juliningrum, P. P. (2017). Pengaruh Terapi Dzikir Terhadap Kualitas Tidur Mahasiswa Program Studi Ilmu Keperawatan Universitas Jember. *NurseLine Journal*, *2*(1), 52–60. <https://jurnal.unej.ac.id/index.php/NLJ/article/download/5196/3923/>
- Fauzin, A., Rosidin, Fauzi, M. R., Syamsuddin, Andriyanto, Puspitasari, A., & Raykhamna, D. amry. (2022). *Buku Statistik Kemenag 2021*. Biro Hubungan Masyarakat, Data dan Informasi Kesemnterian Agama RI. <https://www.kemenag.go.id>
- Fitriani, A., Arief, F., & Shahib, N. (2021). Scoping Review : Pengaruh Terapi Dzikir Terhadap

- Tingkat Insomnia pada Lansia. *Spesia: Seminar Penelitian Sivitas Akademika Unisba*, 7(1), 367–374. <https://doi.org/10.29313/kedokteran.v7i1.26635>
- Green, A. A., & Kinchen, E. V. (2021). The Effects of Mindfulness Meditation on Stress and Burnout in Nurses. *Journal of Holistic Nursing*, 39(4), 356–368. <https://doi.org/10.1177/08980101211015818>
- Herawati, I., Mat Ludin, A. F., Mutalazimah, M., Ishak, I., & Farah, N. M. F. (2023). Breathing exercise for hypertensive patients: A scoping review. *Frontiers in Physiology*, 14(1048338), 1–16. <https://doi.org/10.3389/fphys.2023.1048338>
- Ishak, W. W., Bagot, K., Thomas, S., Magakian, N., Bedwani, D., Larson, D., Brownstein, A., & Zaky, C. (2012). Quality of Life in Patients Suffering from Insomnia. *Innov Clin Neurosci*, 9(10), 13–26. <https://doi.org/10.5772/52277>
- Kadafi, A., Alfaiz, A., Ramli, M., Asri, D. N., & Finayanti, J. (2021). The impact of islamic counseling intervention towards students' mindfulness and anxiety during the covid-19 pandemic. *Islamic Guidance and Counseling Journal*, 4(1), 55–66. <https://doi.org/10.25217/igcj.v4i1.1018>
- Kusuma, A. N., Rahmawati, D., Lusiani, M., & Dede, R. (2020). The effect of Dhikr therapy on anxiety levels in chronic kidney failure patients that have done hemodialysis therapy in Indonesia. *Enfermeria Clinica*, 30, 175–178. <https://doi.org/10.1016/j.enfcli.2019.11.048>
- Levenson, J. C., Kay, D. B., & Buysse, D. J. (2015). The pathophysiology of insomnia. *Chest*, 147(4), 1179–1192. <https://doi.org/10.1378/chest.14-1617>
- Lim, Y. C., Hoe, V. C. W., Darus, A., & Bhoo-Pathy, N. (2020). Association between night-shift work, sleep quality and health-related quality of life: A cross-sectional study among manufacturing workers in a middle-income setting. *BMJ Open*, 10(9), 1–8. <https://doi.org/10.1136/bmjopen-2019-034455>
- Lin, P. H., Lee, Y. C., Chen, K. L., Hsieh, P. L., Yang, S. Y., & Lin, Y. L. (2019). The relationship between sleep quality and internet addiction among female college students. *Frontiers in Neuroscience*, 13(JUN), 1–9. <https://doi.org/10.3389/fnins.2019.00599>
- Lo, C. M. H., & Lee, P. H. (2012). Prevalence and impacts of poor sleep on quality of life and associated factors of good sleepers in a sample of older Chinese adults. *Health and Quality of Life Outcomes*, 10, 1–7. <https://doi.org/10.1186/1477-7525-10-72>
- Madrid-Valero, J. J., Martínez-Selva, J. M., Ribeiro do Couto, B., Sánchez-Romera, J. F., & Ordoñana, J. R. (2017). Age and gender effects on the prevalence of poor sleep quality in the adult population. *Gaceta Sanitaria*, 31(1), 18–22. <https://doi.org/10.1016/j.gaceta.2016.05.013>
- Márquez, M. A., Galiana, L., Oliver, A., & Sansó, N. (2021). The impact of a mindfulness-based intervention on the quality of life of Spanish national police officers. *Health and Social Care in the Community*, 29(5), 1491–1501. <https://doi.org/10.1111/hsc.13209>
- Martires, J., & Zeidler, M. (2015). The value of mindfulness meditation in the treatment of insomnia. *Current Opinion in Pulmonary Medicine*, 21(6), 547–552. <https://doi.org/10.1097/MCP.0000000000000207>
- Nosrati, F., Ghobari-Bonab, B., Zandi, S., & Qorbani-Vanajemi, M. (2021). *Effects of Dhikr (Repetition of Holy Names) on Stress: A Systematic Review*. 7(3), 157–171. <https://doi.org/10.22037/jrrh.v7i3.27320>
- Ong, J. C., Manber, R., Segal, Z., Xia, Y., Shapiro, S., & Wyatt, J. K. (2014). A Randomized Controlled Trial of Mindfulness Meditation for Chronic Insomnia. *Sleep*, 37(9), 1553–

1563. <https://doi.org/10.1007/s12671-018-0911-6>
- Ong, J. C., & Smith, christine E. (2017). Using Mindfulness for the Treatment of Insomnia. *Curr Sleep Med Rep*, 3(2), 57–65. <https://doi.org/10.1007/s40675-017-0068-1>
- Parrott, J. (2017). How to be a Mindful Muslim : An Exrecise in Islamic Meditation. *Yaqeen Institute for Islamic Research*, 1–24. [Google Scholar](#)
- Patel, D., Steinberg, J., & Patel, P. (2018). Insomnia in the elderly: A Review. *Journal of Clinical Sleep Medicine*, 14(6), 1017–1024. <https://doi.org/http://dx.doi.org/10.5664/jcsm.7172>
- Peltzer, K., & Pengpid, S. (2019). Prevalence, social and health correlates of insomnia among persons 15 years and older in Indonesia. *Psychology, Health and Medicine*, 24(6), 757–768. <https://doi.org/10.1080/13548506.2019.1566621>
- Purba, F. D., Hunfeld, J. A. M., Iskandarsyah, A., Fitriana, T. S., Sadarjoen, S. S., Passchier, J., & Busschbach, J. J. V. (2018). Quality of life of the Indonesian general population: Test-retest reliability and population norms of the EQ-5D-5L and WHOQOL-BREF. *PLoS ONE*, 13(5), 1–20. <https://doi.org/10.1371/journal.pone.0197098>
- Purwanto, S. (2016). Hubungan Antara Intensitas Menjalankan Dzikir Nafas dengan Latensi Tidur. *Jurnal Indigenous*, 1(1), 32–38. <https://doi.org/10.23917/indigenous.v1i1.3713>
- Purwanto, S., Anganti, N., & Yahman, S. A. (2022). Validity and effectiveness of dhikr breathing relaxation model therapy on insomnia disorders. *Indigenous: Jurnal Ilmiah Psikologi*, 7(2), 119–129. <https://doi.org/10.23917/indigenous.v7i2.17241>
- Reangsing, C., Punsuwun, S., & Schneider, J. K. (2021). Effects of mindfulness interventions on depressive symptoms in adolescents: A meta-analysis. *International Journal of Nursing Studies*, 115, 103848. <https://doi.org/10.1016/j.ijnurstu.2020.103848>
- Rochdiat, W. M., Herstu, E., & Lestiawati, E. (2013). Dhikr As Nursing Intervention To Reduce Stress in Health Science Students. *Indones. Nurs. J. Educ. Clin.*, 4(1). <https://doi.org/http://dx.doi.org/10.24990/injec.v4i1.222>
- Samsualam, & Masriadi. (2022). Dhikr and Prayer Guidance on Peace of Mind and Blood Pressure Control. *Indian Journal of Forensic Medicine & Toxicology*, 16(2), 351–357. <https://doi.org/10.37506/ijfmt.v16i2.17988>
- Sedky, K., Nazir, R., & Bennett, D. (2020). *Sleep Medicine and Mental Health: A Guide for Psychiatrists and Other Healthcare Professionals*. Springer. <https://doi.org/https://doi.org/10.1007/978-3-030-44447-1>
- Shimodera, S., Watanabe, N., Furukawa, T. A., Katsuki, F., Fujita, H., Sasaki, M., & Perlis, M. L. (2014). Change in quality of life after brief behavioral therapy for insomnia in concurrent depression: Analysis of the effects of a randomized controlled trial. *Journal of Clinical Sleep Medicine*, 10(4), 433–439. <https://doi.org/10.5664/jcsm.3624>
- Sudiarto, S. (2015). Effect of relaxation with changes anxiety and sleep quality ICU patient in intensive care unit. *Jurnal Riset Kesehatan*, 4(3), 847–856. <http://ejournal.poltekkes-smg.ac.id/ojs/index.php/jrk/article/view/371>
- Sulistiyawati, R., Probosuseno, & Setiyarini, S. (2019). Dhikr Therapy for Reducing Anxiety in Cancer Patients. *Asia-Pacific Journal of Oncology Nursing*, 6(4), 411–416. https://doi.org/10.4103/apjon.apjon_33_19
- Taylor, D., Gehrman, P., Dautovich, N., Lichstein, K., & Mccrae, C. (2014). *Handbook of Insomnia*. Springer Healthcare. <https://doi.org/https://doi.org/10.1007/978-1-907673-73-3>

- Wahyuni, W., Nordin, N. A. M., & Mutalazimah, M. (2022). The Effectiveness of Therapeutic Exercise in Improving Pain and Quality of Life Young Women with Primary Dysmenorrhea: A Systematic Review. *Proceedings of the International Conference on Health and Well-Being (ICHWB 2021)*, 49(Ichwb 2021), 208–217. <https://doi.org/10.2991/ahsr.k.220403.029>
- Watson, E. J., Coates, A. M., Kohler, M., & Banks, S. (2016). Caffeine consumption and sleep quality in Australian adults. *Nutrients*, 8(8), 1–10. <https://doi.org/10.3390/nu8080479>
- WHOQOL Group. (1996). *WHOQOL-BREF Introduction, Administration, Scoring and Generic Version of The Assessment Field Trial Version December 1996 Programme on Mental Health World Health Organization*. <https://www.who.int/publications/i/item/WHOQOL-BREF>
- Winbush, N. Y., Gross, C. R., & Kreitzer, M. J. (2007). The Effects of Mindfulness-Based Stress Reduction on Sleep Disturbance: A Systematic Review. *Explore: The Journal of Science and Healing*, 3(6), 585–591. <https://doi.org/10.1016/j.explore.2007.08.003>

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