Psikohumaniora: Jurnal Penelitian Psikologi
Vol 10, No 1 (2025): 59-78. DOI: 10.21580/pjpp.v10i1.23690
ISSN 2527-7456 (online); 2502-9363 (printed)

Spiritual mindfulness therapy: An intervention to reduce depression symptoms

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Abstract: Depression has become a critical mental health issue, especially among college students, with increasing prevalence worldwide. According to the World Health Organization (WHO), approximately 322 million people globally suffer from the condition, with a prevalence rate of around 3.7% in Indonesia. This research examines the effectiveness of spiritual mindfulness therapy in reducing depression symptoms among university students. The study involved 28 Malang students aged 18 to 22 who participated voluntarily. The research approach was based on quantitative methods, with an experimental Solomon Four-Group design, in which the participants were divided into four groups: two who received treatment and two who served as controls. Spiritual mindfulness therapy was administered through both individual and group sessions, with depression levels measured using the PHQ-9 instrument before and after the 8-session intervention, using pre-test and post-test assessments. The results show a significant reduction in depression symptoms, differing between the groups ($F = 18.547$, $p < .001$), with the analysis indicating a significant improvement in the treatment groups. The effect sizes ranged from $d = 2.75$ to $d = 3.33$, indicating a high therapeutic impact. The research implies that spiritual mindfulness therapy can effectively alleviate depressive symptoms in students, providing a promising intervention for mental health support in educational settings.

Keywords: depression; intervention; mental health; spiritual mindfulness therapy; university students

To cite this article (APA Style):
Solichah, N., Hidayah, R., Zakiyah, E., Pandya, M. F., & Ogbuabor, S. E. (2025). Spiritual mindfulness therapy: An intervention to reduce depression symptoms. *Psikohumaniora: Jurnal Penelitian Psikologi, 10*(1), 59-78. https://doi.org/10.21580/pjpp.v10i1.23690

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Introduction

Over the past two decades, depression has emerged as a significant global mental health concern, particularly among college students. According to Campiron et al. (2022), depression accounts for approximately 14.3% of all global deaths annually—roughly 8 million—with 67.3% of these due to physical illness and 17.5% attributable to suicide. Data from the World Health Organization (2023) indicates that more than 264 million adolescents worldwide suffer from mental distress, with depression becoming increasingly prevalent among students. In the Indonesian context, WHO (2019) reported that the country ranked fifth globally in terms of the prevalence of depression, with a rate of 3.7%. It is supported by national data from the Basic Health Research (*RISKESDAS*), which noted that 6.1% of Indonesians aged 15 years and above experienced symptoms of depression (Badan Penelitian dan Pengembangan Kesehatan, 2018).

Recent studies have highlighted the alarming prevalence of suicidal ideation among adolescents. For instance, Omnia et al. (2023) found that 33.4% of university students experiencing symptoms of depression reported having suicidal thoughts, with 33.9% reporting related symptoms. Similarly, Darmayanti et al. (2022) discovered a strong correlation between depression and suicidal ideation among university students, with more than 35% of participants experiencing suicidal thoughts while suffering from depressive symptoms that had lasted for at least two weeks. The underlying causes included academic pressure, interpersonal difficulties, financial hardship, family problems, and social adjustment challenges (Kim & Lee, 2021; Salari et al., 2020). In particular, academic stress has been significantly associated with depression levels among college students (Hartono & Cahyati, 2022; Jo et al., 2024; Priscilla & Widjaja, 2020), with contributing factors including the academic climate and responsiveness to challenges (X.-Q. Liu et al., 2022; Velu & Tabianan, 2022). Environmental conditions — such as feelings of loneliness and experiences of bullying— also exacerbate depressive symptoms (Abbas et al., 2020; Hsu & Chao, 2022).

In response to the situation, various therapeutic interventions have been developed to address depression, including cognitive behavioral therapy (CBT), which focuses on restructuring negative thought patterns (Ugwuanyi et al., 2020); psychodynamic therapy, which explores past experiences to resolve current emotional conflicts (Ajele et al., 2021; Lestari et al., 2023); interpersonal therapy, aimed at improving social relationships (Economou et al., 2020; X.-Q. Liu et al., 2022); and dialectical behavior therapy, which emphasizes emotional regulation and interpersonal effectiveness (S.-I. Liu et al., 2024; Syversen et al., 2024). Although these approaches have proven effective, many have not fully incorporated the spiritual dimension and mindfulness into the healing process. Therefore, mindfulness-based interventions integrating spiritual aspects have begun to receive attention, including spiritual mindfulness therapy (SMT) (Dwidiyanti et al., 2021; Rahmawati et al., 2024).

In contrast to theMindfulness-Based Cognitive Therapy (MBCT), which integrates mindfulness practices, Cognitive Behavioral Therapy (CBT), which focuses on restructuring thoughts; psychodynamic therapy approaches, which focus on negative thought patterns and past emotional conflicts; or interpersonal therapy, which emphasizes improvements in social relationships (Ajele et al., 2021; Lestari et al., 2023; Ugwuanyi et al., 2020), SMT offers a more internal and contemplative approach. It does not directly target aspects of emotional conflict or social patterns. Still, it draws attention to inner experiences and the meaning of life through practices such as dhikr (remembrance of God), prayer, and contemplation (Safaria et al., 2023). SMT is relevant to the characteristics of those with depression who tend

to withdraw from social interactions, experience a sense of hopelessness about the meaning of life; and avoid negative emotional experiences (Davis & Leon, 2022; Lee, 2023). By directing attention inwards and opening up spiritual awareness, SMT creates a safe space for individuals to accept their emotional experiences without judgment. It encourages psychological flexibility and self-compassion (Hadian et al., 2024), and can reduce experiential avoidance, which often worsens depressive symptoms (Yela et al., 2020).

SMT integrates traditional mindfulness principles with spiritual practices such as dhikr (remembrance of God), prayer, and reflection on the divine presence (Fortuna et al., 2023; Park & Carney, 2018; Rahmawati et al., 2024). Dhikr helps calm the mind and reduce anxiety by repeating divine words that focus on awareness (Kusuma et al., 2020; Rahmawati et al., 2024). Prayer provides emotional reinforcement and hope as a spiritual coping mechanism (Bartkowski et al., 2017; Washington-Nortey et al., 2023). In addition, reflection on God's presence strengthens the meaning of life and reduces negative thoughts, which often trigger depression (Milton et al., 2019; Munif et al., 2019). The integration of these elements makes SMT culturally relevant and psychologically effective for Muslim adolescents experiencing depression.

This study addresses a critical gap in the literature by exploring the use of spiritual mindfulness therapy as an intervention for depression among Muslim university students. Unlike general spiritual mindfulness therapy, SMT is based on psychological theory—specifically cognitive-based mindfulness approaches—and Islamic spiritual practices such as dhikr, prayer, and reflection on the divine presence. This approach is considered to be more culturally and spiritually relevant, especially in the context of Indonesia, the country with the largest Muslim population in the world. Given the limited number of studies which integrate faith-based mindfulness approaches in Muslim adolescent populations, this research aims to examine the effectiveness of SMT in reducing depressive symptoms. Therefore, the purpose of the study is to determine whether SMT can significantly reduce levels of depression in Muslim college students. The hypothesis proposed is that there is a statistically significant difference in depression scores before and after SMT intervention.

Methods

Research Design

The study combined quantitative and experimental approaches. An initial measurement (pre-test) was made of the dependent variable (depression symptoms) before the intervention took place. Measurement of the dependent variable was repeated (post-test) after the intervention in the form of spiritual-mindfulness therapy (Mayrhofer et al., 2021). This measurement aimed to identify any changes or differences that had occurred after the intervention was made. The Solomon Four-Group Design experiment was used to determine the main effect of the pre-test and the interaction effect between the pre-test and the treatment (Seeger et al., 2020). The Solomon test ensures that experimental results are not biased by the pre-test factor (Seeger et al., 2020). The Solomon test design in this study involved four groups: two experimental groups (one with pre-test and one without) that received the intervention and two control groups (one with pre-test and one without) that did not. This design is important for evaluating the effects of training and other interventions. In addition, the researchers also examined the pre-test and post-test scores to determine whether these had increased after the intervention.

Groups 1 and 3 received the intervention, with Group 1 being given a pre-test but not Group 3.

Groups 2 and 4 were the control groups that did not receive interventions; Group 2 was given a pre-test, but not Group 4. This division was used to evaluate whether any change in depression level scores was due to the intervention/treatment or the influence of the pre-test. The experimental design is shown in Table 1.

The structure shown in Table 1 allowed the researchers to evaluate the treatment effect while considering that of the pre-test. By comparing the results across the groups, the researcher could identify whether any change in the experimental group was due to the treatment itself or was influenced by the pre-test (Seeger et al., 2020). In addition, effectiveness was measured by assessing the effect size. This design is better than a simple pretest-posttest design because it uses the technique of constant control of proactive history with a pretest-posttest approach (Mayrhofer et al., 2021). Pre-test data allow researchers to establish the initial prior condition of each subject, allowing them to understand their proactive history. Measurement of the dependent variable (depression symptoms) in this study was made in the form of pre-tests and post-tests through depression assessment in individuals, while treatment was in the form of spiritual mindfulness therapy.

Participants

Purposive sampling was employed, a non-probability sampling technique in which participants are selected based on specific inclusion criteria. Recruitment was conducted online by distributing a pre-screening questionnaire via WhatsApp. The inclusion criteria required participants to be Muslim university students aged 18 to 22 years who were experiencing moderate to severe depression, as measured by the PHQ-9 instrument. A total of 28 students from various universities in Malang participated; 25 from Universitas Islam Negeri Maulana Malik Ibrahim Malang (UIN Malang), and three from Universitas Negeri Malang (UM), They were recruited voluntarily and provided written informed consent after receiving a detailed explanation of the procedures, potential risks, and their rights as participants. All personal data remained confidential and stored securely. Only the research team had access to the data, and participant identities are anonymized during the analysis and reporting. Eligible individuals were randomly assigned to the intervention or control groups using a random number generator. The available resources and the duration of the study determined the limited sample size. As a preliminary and exploratory investigation, the study focused on the implementation of the intervention and closely monitored each participant throughout the process. Ethical clearance was granted under no.1217/LP2M/TL.00/01/2024.

Table 1

Solomon Four-Group Design

Group	Pre-test	Treatment	Post-test
Group 1	X	X	X
Group 2	X	-	X
Group 3	-	X	X
Group 4	-	-	X

Table 2

Data of Participants

Group	ID	Age	Gender	Depression Category
Group 1	HM	19	Male	Moderately Heavy
	RH	18	Female	Light
	SC	20	Female	Moderately Heavy
	JI	21	Female	Medium
	RM	18	Female	Medium
	A	20	Female	Moderately Heavy
	NM	20	Female	Medium
Group 2	ZA	21	Female	Medium
	AZ	19	Female	Moderately Heavy
	N	20	Female	Light
	FN	20	Male	Moderately Heavy
	SR	20	Female	Weight
	NN	21	Female	Moderately Heavy
	UF	20	Female	Light
Group 3	FNS	21	Female	Light
	AM	21	Female	Medium
	EN	19	Female	Medium
	NV	19	Female	Weight
	TD	21	Female	Medium
	ZF	19	Female	Medium
	NS	18	Female	Moderately Heavy
Group 4	FS	19	Female	Light
	D	22	Female	Moderately Heavy
	HA	19	Female	Moderately Heavy
	HI	19	Female	Moderately Heavy
	MR	20	Male	Moderately Heavy
	SP	21	Female	Medium
	F	19	Female	Medium

Instrument

The study used the Patient Health Questionnaire-9 (PHQ-9) as a pre-test and post-test measurement. It is a measurement tool designed to evaluate the severity of depressive symptoms based on DSM criteria, including mild, moderate, and major depression. The instrument consists of nine statements that reflect the main symptoms of depression, including emotional, physical, and behavioral aspects, such as loss of interest, sleep disturbance, fatigue, and ideas of self-harm. In addition, the PHQ-9 has one additional item that asks about how these problems interfere with daily functioning.

Responses to each item in the questionnaire are based on a 4-point Likert scale, with participants asked to rate the frequency with which they experience the symptoms over a given period. Scores range from 1 (never) to 4 (almost every day). This scale allows researchers to measure the severity of depressive symptoms, with higher scores indicating more severe depression.

The PHQ-9 measurement tool was chosen for this study to assess changes in depressive symptoms in the participants before and after the

intervention and compare the treatment and control groups. The proven reliability and validity of the tool made it relevant and reliable for evaluating the effectiveness of spiritual mindfulness interventions in reducing depressive symptoms. The complete list of PHQ-9 items used in this study is shown in Table 3.

Research Procedure

The research involved three stages. 1) The initial stage, which involved activities to identify research participants. After, they were chosen based on the inclusion criteria. 2) The implementation stage, during which intervention was given. Intervention was in the form of spiritual mindfulness therapy conducted over eight sessions, of which four were conducted by peer-counselors individually and four by professional therapists in groups. 3) In the final stage, participants who had been given treatment in spiritual mindfulness therapy were asked to complete the post-test. The purpose of the post-test was to determine the effectiveness of the treatment or intervention.

The intervention was conducted by peer counselors who had undergone basic counseling training, with ethics and intervention techniques in line with the approach used. They were recruited from the campus counseling laboratory and supervised by two professional psychologists and one scholar in Islamic theology. Each participant received four therapy sessions from a psychologist and four from a peer counselor to ensure consistency and equality of treatment between groups. The intervention session program used in this study is shown in Table 4.

The intervention delivered was based on cognitive-behavioral therapy with mindfulness, as developed by Burgess et al. (2021). It consisted of eight sessions divided into two phases: the first phase (sessions 1-2) involved participants learning the basics of mindfulness, while the second phase (sessions 3-8) was when they were required to learn to handle mood swings. Before the beginning of the sessions in the first phase, the participants were required to complete a pre-test, with a second at the end of the second phase. They were also required to take a post-test after completing the overall intervention. The duration of the intervention was 90 minutes per meeting; see Figure 1.

Table 3

Patient Health Questionnaire (*PHQ-9*)

Question	
1	Little interest or pleasure in doing things
2	Feeling down, depressed, or hopeless
3	Trouble falling or staying asleep or sleeping too much
4	Feeling tired or having little energy
5	Poor appetite or overeating
6	Feeling bad about yourself, or that you are a failure, or have let yourself or your family down
7	Trouble concentrating on things, such as reading the newspaper or watching television
8	Moving or speaking so slowly that other people have noticed this. Or the opposite-being so fidgety or restless that you are moving around a lot more than usual
9	Thoughts that you would be better off dead or hurting yourself

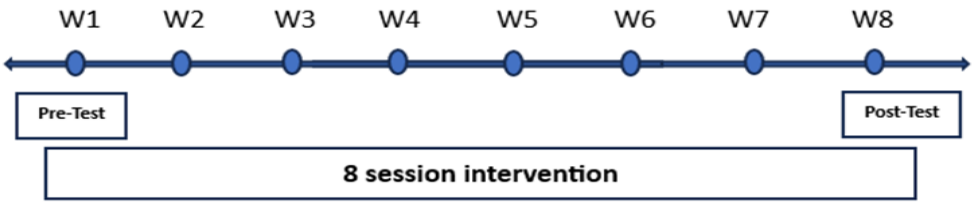
Table 4

Intervention Session Program

Meeting	Topic	Aim	Form	Activities
Pre-session	Program Orientation	Understand program objectives and commitments (conducted by a peer counselor under the supervision of a licensed psychologist and an Islamic theology expert.)	Two-way discussion	Program explanation, introduction, program benefits, participation commitment, informed consent, pre-test
Session 1	Introduction to Spiritual Mindfulness	Understand the concept of mindfulness and the activity process (run by a professional psychology)	Discussion, psychoeducation, relaxation	Initial assessment, case identification process, psychodynamics of case participants
Session 2	Automatic Pilot	Improve body and breath awareness (run by a peer counselor)	Discussion, psychoeducation, relaxation	Raisin exercise (a mindfulness practice that trains attention and sensory awareness using a single raisin), body awareness meditation in daily movements, prayers before and after exercise
Session 3	Living in Our Heads	Observe thoughts and emotions without judgment (run by a professional psychology)	Discussion, psychoeducation, relaxation	Body scan exercise, mind and emotion observation meditation exercise, 3-MBS exercise with *dhikr* and *ṣalawāt* (A form of prayer and praise for the Prophet as an act of worship to Allah SWT), mood diary
Session 4	Gathering the Scattered Mind	Recognize stress reaction patterns and respond in a balanced manner (run by a peer counselor)	Discussion, psychoeducation, relaxation	Mindfulness meditation, dhikr with sitting mindfulness, 3-MBS practice, spiritual reflection on balance, unpleasant experience calendar
Session 5	Recognizing Aversion	Face unpleasant experiences with interest (run by a scholar in the field of Islamic theology)	Discussion, psychoeducation, freeze-framing	Negative thought observation exercise, 3-MBS exercise, aversion framing, walking awareness, breathing space, *dhikr* of Allah's name
Session 6	Allowing and Letting Be	Accept all feelings without judgment (run by a peer counselor)	Discussion, psychoeducation, relaxation	Sitting meditation practice, emotional focus (depression), prayer for acceptance, depression autopilot, relapse signature, 3-MBS practice in prayer/meditation
Session 7	Thoughts as Thoughts	Recognize thoughts as mental events, not facts (run by a professional psychology)	Discussion, psychoeducation, relaxation	Practice seeing thoughts as thoughts, practice sitting meditation focusing on emotions (depression), mood adjustment linking to spiritual teachings, practice 3-MBS
Session 8	Kindness in Action	Design actions to support well-being (run by a peer counselor)	Discussion, psychoeducation, relaxation, follow-up plan	Practice writing positive activities, well-being action plans, reflections on the goodness of self and others

Figure 1

Intervention Duration and Time Scheme



Data Analysis

Due to content validity, professional judgment has provided an assessment related to the training module and the research measuring instrument. An expert in psychology provided a professional judgment to assess the relevance of the training module before statistical analysis.

The reliability of the measuring instrument was tested using structured observation. Anyone who acts as a rater is an expert in clinical psychology. Before conducting statistical analysis using ANOVA, an assumption test was first conducted. The assumption test was conducted to determine whether the data were normally distributed (Kabiru Abidemi et al., 2023), and a homogeneity test was conducted to assess whether the variance between groups was the same (Sianturi, 2022). In addition, the study data were checked. No missing or incomplete data were found, so no data imputation or deletion process was required. After the assumptions were met, the analysis continued with the ANOVA difference test to assess the differences between the control and experimental groups.

The ANOVA model is generally considered the post-test data into a 2 x 2 factorial design, which considers two factors: whether a pre-test was given, and whether treatment was given (Engelenburg, 1999; Rueda, 2023). This structure allows researchers to analyze the main effects of each factor and its interaction effects in this study. To measure the effectiveness of the therapy, the researchers also calculated the effect size, which indicates how much influence the intervention had on the study subjects.

Content Validity Index Scale (CVI)

Evidence-based on the test content was obtained by calculating the adapted measurement tool's content validity index (CVI). Three experts rated the relevance, clarity, and importance of the items, giving scores from 1 (not relevant, not clear, not important), to 4 (very relevant, very clear, very important) (see Appendix). Roebianto et al. (2023) state that the CVI value can be calculated for each item on the scale (I-CVI), as well as for the scale as a whole (S-CVI). Based on the assessment results from the experts (scores 1-4), a dichotomous assessment was again made, in which scores of 1 or 2 were given a value of 0, and ones of 3 or 4 a value of 1. Furthermore, the I-CVI score was calculated by adding together the rating values of each item, then dividing these by the number of expert reviewers, while the S-CVI was calculated by adding together the I-CVI scores, then divided by the total number of items.

An item is considered good if it has an I-CVI ≥ .78, while the S-CVI score is considered good if it is ≥ .90 (Kipli & Khairani, 2020). The results of the calculation of each item on the scale obtained an I-CVI score = 1, with the S-CVI score of all the scales also equal to 1. Based on the results obtained, it can be concluded that all the scales involved in the study had good content validity. The content validity results are summarized in Table 5.

Table 5

Content Validity Index (*CVI*) and *Content Validity Index Scale* (*S-CVI*) *of Measurement Tool*

Measurement Tool	Unit	*Relevance*	*Clarity*	*Simplicity*	*Ambiguity*
Depression Scale	I-CVI	1.00	1.00	1.00	1.00
	S-CVI	1.00	1.00	1.00	1.00
Module	I-CVI	1.00	1.00	1.00	1.00
	S-CVI	1.00	1.00	1.00	1.00

Note: The I-CVI and S-CVI values presented above were achieved after two iterative rounds of expert reviews and revision. Feedback from subject matter experts was incorporated to enhance the content validity of the depression scale and the module, resulting in perfect agreement scores across all the assessed criteria—relevance, clarity, simplicity, and ambiguity.

Expert Test Analysis

The evidence-based method was employed in relation to test content to assess the content validity of the adapted measuring instrument. The three experts consulted were clinical psychology lecturers from three universities, who assessed the relevance, clarity, simplicity, and lack of ambiguity of each item in the instrument. They gave scores on a scale of 1 to 4, with 1 indicating that the item was not relevant, unclear, simple, or even ambiguous, while a score of 4 indicated that the item was very relevant, clear, simple, and unambiguous. Therefore, after conducting the assessment, the scores were converted into a dichotomous assessment, with scores of 1 and 2 given a value of 0 (inadequate), and those of 3 and 4 given a value of 1 (adequate).

Based on the assessment of the results, it can be seen that the Content Validity Index for each item (I-CVI) was calculated by adding together the assessment values given by the experts and dividing these by the number of experts. The Content Validity Index for The entire scale (S-CVI) was calculated by adding together the I-CVI values for each item, which were then divided by the total number of items in the scale. From the results of these scores, it can be concluded that all the items in the measuring instrument obtained an I-CVI value of 1, meaning that each could be c considered relevant, clear, simple, and unambiguous. Concerning the total number of scales, the overall S-CVI value was 1, which indicates that the measuring instrument has very good content validity (Lawshe, 1975).

The CVI valueis based on standards set in previous research conducted by Roebianto et al. (2023), which showed that an item is considered good if it has an I-CVI value ≥ .78, and a scale is considered good if it has an S-CVI value ≥ .90. In line with these results, the measuring instrument used in the study met the standards of excellent content validity. Finally, it can be concluded that all the measuring instruments assessed by the experts had very high content validity. The PHQ-9 and spiritual mindfulness module used in this study are feasible for further research as they meet the strict CVI criteria. The finding is consistent with previous research, which has demonstrated that measuring instruments with good content validity can be used to obtain accurate and reliable research results (Kipli & Khairani, 2020).

Results

Table 6 shows the pre-test and post-test depression level scores of the two groups: Group 1, who received treatment, and Group 2, who did not.

The higher the score, the higher the level of depression. Group 1, who received intervention in the form of mindfulness therapy, consisted of participants with the initials HM, D, SC, JI, RM, A and NM. The post-test scores of this group showed a significant decrease from the pre-test scores; for

example, those of HM dropped from 55 to 38, and of JI from 55 to 23. This decrease indicates that the level of depression in this group was reduced after receiving treatment.

On the other hand, Group 2, who did not receive any treatment, showed variations in their post-test scores, with participants such as ZA and SR showing an increase in depression scores on the post-test. Those of ZA rose from 44 to 65, and of SR from 58 to 60, while others fell or remained the same, such as N, who scored 70 in both tests. Overall, Table 6 shows that mindfulness therapy had the potential to reduce depression levels in the treatment group. In contrast, the non-treatment group tended to experience a slight change or increase in their depression levels. However, to discover more about the relationship between mindfulness therapy and depression level, hypothesis test analysis through an ANOVA test was necessary.

Assumption Test (*Normality Test*)

A normality test is an initial test conducted before further analysis (Arifin, 2017). It assesses whether the dataset follows a normal distribution and is usually employed before applying statistical methods that assume normality, such as the t-test or ANOVA (Kabiru Abidemi et al., 2023). Data can be said to be normally distributed if they have a *Sig*. (*p-value*) > .05. However, if the value is < .05, then the data are not normally distributed. Table 7 shows the results of the data normality test.

Table 7 shows that the *Sig.* (*p-value*) of each group is greater than .05: for group 1 *Sig*. .201; group 2 *Sig*. .972; group 3 *Sig*. .586; and group 4 *Sig*. .086. The normality test results show that the scores in the four groups fulfill the normality assumption, so can be further tested using ANOVA analysis.

Homogeneity Test

A homogeneity test must also be conducted before the statistical data analysis using ANOVA. It is used to determine whether or not the data variants in several populations are the same (Sianturi, 2022). Data can be said to have the same variance if their *Sig*. (*p-value*) is > .05, but if value is < .05, then the data variance can be said to be unequal (Tsagris & Pandis, 2021).

Table 6

Pre-Test and Post-Test Scores

Group	ID	Pre-test	Post-test
1 (Treatment)	HM	55	38
	D	44	24
	SC	49	36
	JI	55	23
	RM	57	20
	A	52	27
	NM	45	25
2 (Control)	ZA	44	65
	AZ	45	36
	N	70	70
	FN	59	50
	SR	58	60
	NN	51	55
	UF	39	44

Note: Pre-test and post-test scores range from 0–100; higher scores indicate higher levels of depression.

Table 8 shows the results of the homogeneity test. The homogeneity test results (Table 8) indicate that the *Sig*. (*p-value*) based on the mean is .059. Therefore, the Levene Test results show that the data variance between groups is considered homogeneous as the *Sig.* (*p-value*) > .05. This meant the researchers could proceed to the ANOVA analysis.

ANOVA Test

Once the two assumptions of the homogeneity and normality of the data have been met, it is possible to continue the ANOVA testing. This statistical data analysis technique compares the average of more than two groups (Murphy, 2024). It aims to determine whether there is a significant difference between the group averages. Results can be said to be significant if they have a *Sig.* (*p-value*) < .05; however, if the value is > .05, then the analysis results are not significant (Bittner, 2022). Table 9 shows the ANOVA results.

Based on the ANOVA results, the *Sig.* (*p-value*) was .000. This means there was a significant difference in the means of the four groups. However, the results do not indicate specifically which groups were different. It required a post hoc test, namely Benferroni, to distinguish between groups with different averages (Armstrong, 2014).

Table 7

Shapiro-Wilk Test of Normality

Group	*Statistic*	*df*	*Sig.*
1 (Intervention)	.874	7	.201
2 (Control)	.983	7	.972
3 (Intervention)	.934	7	.586
4 (Control)	.833	7	.086

Table 8

Homogeneity Test

	Levene Statistic	*df1*	*df2*	*Sig.*
Based on mean	2.844	3	24	.059
Based on median	1.972	3	24	.145
Based on median and with adjusted df	1.972	3	20.890	.149
Based on trimmed mean	2.768	3	24	.064

Table 9

ANOVA Test

	Sum of Squares	*df*	*Mean Square*	*F*	*Sig.*
Between Groups	3347.714	3	1115.905	18.547	.000
Within Groups	1444.000	24	60.167		
Total	4791.714	27			

Post Hoc Test

A post hoc test is a statistical procedure performed after an initial analysis, such as ANOVA, to establish which specific pairs of groups differ significantly. The test is important because in studies involving many groups or treatments, performing numerous comparisons without adjustment can increase the risk of a type I error or a false positive, indicating a difference when there is none (Armstrong, 2014; Wiens, 2003). Therefore, correction methods such as Bonferroni are used to maintain the overall significance level (family-wise error rate) (Wiens, 2003).

Table 10 shows the results of the additional test, indicating the *Sig*. (*p-value*) and the effect size value using Cohen's d effect size. The criteria for Cohen's d are small for values (d) less than .631; medium for ones between .631 and 1.50; and large for those 1.51 and above (Alwahaibi et al., 2020).

The post hoc test results show significant differences between several pairs of groups, with varying effect sizes. Groups 1 and 2 showed a significant value of .000, which indicates a difference in the averages of the two groups. Both groups were given a pre-test, but Group 2 did not receive treatment. It means that the treatment has an influence, leading to the difference in the average of the two groups, which is in the large effect category, at 2.752.

Groups 1 and 3 have a significance value of 1.000, which indicates no significant difference in their averages. Group 3 did not receive a pre-test, meaning that this had no significant effect on the average of the two groups. The effect is in the medium category, at .886.

The significance value of Groups 1 and 4 is .000, indicating a significant difference in their averages. Group 4 was only given a post-test, so it can be inferred that the treatment and pre-test affected the average of the two groups. The effect is in the large category, at 3.328.

Groups 2 and 3 have a significance value of .000, which means a significant difference in the averages of the two groups. Group 3 only received treatment, while Group 2 was only given a pre-test, indicating a significant effect of the pre-test or treatment on the average of the two groups. The effect is in the large category, at 2.389.

Groups 2 and 4 have a significance value of .965, which means that there is no significant difference in the averages of the two groups. Group 2 took a pre-test, so this did not significantly affect the averages of the two groups. The effect is in the medium category, at .644.

Finally, Groups 3 and 4 have a significance value of .006, indicating a significant difference in the means of the two groups. Group 4 did not receive treatment, meaning that the treatment significantly affected the averages of the two groups, with the effect category being large, at 3.05.

Table 10

Bonferroni Test

(I) Group	(J) Group	*Mean Difference* (I-J)	*Std. Error*	*Sig.*	*Cohen's d effect size*
1 (Treatment)	2 (Control)	-26.714*	4.146	.000	2.752225
	3 (Treatment)	-5.143	4.146	1.000	0.88684
	4 (Control)	-20.714*	4.146	.000	3.32816
2 (Control)	3 (Treatment)	21.571*	4.146	.000	2.389439
	4 (Control)	6.000	4.146	.965	0.644256
3 (Treatment)	4 (Control)	-15.571*	4.146	.006	3.051381

Note: * Significant at p < .05

Discussion

The study findings reveal a significant effect of spiritual mindfulness therapy on reducing depression symptoms among students in the intervention group in comparison to the control group. Based on the comparison of the pre-test and post-test mean scores, most participants in the treatment group showed a marked decrease in depressive symptoms after the intervention. This finding supports the hypothesis that spiritual mindfulness therapy can be an effective method for alleviating psychological distress in university students.

The results are consistent with the work of Strohmaier et al. (2021), who found that spiritual mindfulness interventions substantially reduced symptoms of depression, anxiety, and stress. Furthermore, research by Rahrig et al. (2022) on mindfulness meditation, especially that which focuses on breathing awareness, can regulate emotions by reducing amygdala reactivity and increasing the function of the prefrontal cortex, which is responsible for emotional control. This neurological adjustment allows individuals to manage negative emotions better, thereby reducing the severity of depressive symptoms. In addition, as shown by Zhang et al. (2022), mindfulness techniques that address cognitive distortions help restore emotional balance, further alleviating depressive symptoms. Mindfulness also plays a role in improving emotional clarity and self-regulation, both of which are essential in managing psychological stress and increasing emotional resilience (Grabbe et al., 2021). The model applied in this study integrates two components: the personal self (moral, ethical, and spiritual dimensions) and the physical self (body awareness), thus fostering calmness and adaptive coping.

The study shows that spiritual mindfulness therapy (SMT) is effective in reducing depressive symptoms in Muslim students. This finding aligns with previous studies emphasizing that integrating mindfulness and spiritual values strengthens psychological healing mechanisms (Ajele et al., 2021; Lykins, 2014). SMT works through emotional regulation, increasing self-awareness, and helping individuals accept negative experiences without approval (Aslami et al., 2017; Dwidiyanti et al., 2021). The approach reduces rumination, improves psychological psychology, and strengthens resilience through spiritual reflection such as dhikr, prayer, and reflection, reducing rumination and negative thought patterns (Isgandarova, 2024; Yela et al., 2022).

A distinct feature of the study is incorporating spiritual elements within the mindfulness framework. Livana PH. et al. (2023) argue that spiritual practices such as prayer may have therapeutic effects comparable to pharmacological interventions. Spiritual mindfulness connects theology and neuroscience, activating positive emotional states, including compassion, hope, forgiveness, and gratitude (Gargiulo, 2023; Rahmat et al., 2022). Therefore, in addition to psychological effects, spiritual mindfulness therapy produces neuroplastic changes in the brain. Gkintoni et al. (2025) showed that mindfulness meditation increases alpha and theta brain wave activity, which is associated with reduced anxiety and depression. On the other hand, the spiritual element deepens the therapeutic experience by providing meaning to suffering and strengthening transcendental relationships, as evidenced by the study conducted by Dwidiyanti et al. (2021).

Such therapy not only works cognitively and affectively but also biologically and spiritually. The fall in depression scores reflects the success of a holistic approach that goes beyond relaxation techniques. Studies by Aslami et al. (2017) and Baghbani et al. (2023) also show that Islamic value-based mindfulness interventions are more

effective than conventional cognitive therapy in improving life satisfaction and psychological well-being.

It is important to note that the control and intervention groups should have similar baseline characteristics per experimental research principles. However, in this study, the participants in the control group had a slightly higher educational background than those in the intervention group. It was not an intended selection criterion but may have influenced the results. Higher educational attainment has been shown to enhance cognitive processes and behavioral outcomes, fostering greater health consciousness and improved self-regulatory behaviors (Kindel & Rafoth, 2020; Ramón-Arbués et al., 2020; Sahraian et al., 2024). Therefore, education may have acted as a contextual variable in this study.

In theoretical terms, this finding is supported by Roy's Adaptation Model (Cam & Kacmaz, 2022), which postulates that adaptation is influenced by focal stimuli (direct stressors); contextual stimuli (indirect factors such as education); and residual stimuli (past experiences, culture, beliefs) (Sharma et al., 2022). These stimuli interact to shape how individuals respond to life challenges, including mental health difficulties.

Furthermore, some participants in the intervention group appeared to exhibit symptoms of post-traumatic stress disorder (PTSD), which may have impacted their depression levels. Although PTSD was not formally measured in this study, observational data indicated that trauma exposure may have influenced emotional responsiveness. Zhang et al. (2021) observed that individuals with more severe symptoms of chronic conditions often possess greater insight due to increased exposure to and knowledge about their experiences. In this context, participants with deeper emotional scars may have engaged more meaningfully with the therapy.

Although this study focused exclusively on university students, the sample was drawn from diverse faculties, providing a degree of variation. Nonetheless, the findings cannot be generalized beyond the student population without caution. This study involved a predominantly female sample, which may limit the generalizability of the findings across sexes. The gender imbalance may reflect the demographic composition of the student population in the participating universities or possibly a greater willingness among female students to engage in psychological research related to mental health. Future research is needed to explore whether the effects of SMT differ by gender.

Despite its promising findings, the study is not without limitations. First, the sample size was relatively small and restricted to a specific population, namely university students, which may limit the generalizability of the results to other age groups or non-academic populations. Second, the intervention was conducted over a short duration and did not include any long-term follow-up, making it difficult to determine whether the effects of the therapy are sustained over time. Third, differences in participants' educational backgrounds were not adequately controlled between the intervention and control groups, which may have introduced potential confounding variables related to psychological insight or health behavior. Finally, although indications of post-traumatic stress disorder (PTSD) symptoms emerged during the sessions, these were not formally assessed, potentially limiting a more nuanced understanding of how trauma history may have influenced participants' responsiveness to the therapy.

In terms of theory, the study enriches the literature on integrative mindfulness practices by underscoring the role of spiritual dimensions in promoting emotional adaptation. The inclusion of prayer and moral reflection within mindfulness

exercises provides evidence that spiritually informed interventions can foster positive effects and a psychological balance. Moreover, the findings reinforce the relevance of Roy's Adaptation Theory in mental health research by showing how contextual factors, such as education level, and residual factors, such as trauma history, interact with therapeutic outcomes.

In practical terms, the results highlight the potential of spiritual mindfulness therapy to be implemented as a complementary or preventive mental health intervention within university settings. Its adaptability allows it to be tailored to students' spiritual values, cultural contexts, and cognitive readiness. Furthermore, the model lends itself well to modular and digital formats, offering flexibility for wider dissemination and sustained engagement in mental health support initiatives.

Conclusion

The study confirms that spiritual mindfulness therapy is an effective approach to reducing depression symptoms among university students. The findings demonstrate a significant reduction in depression scores after the intervention, supporting the hypothesis that such therapy contributes to alleviating depressive symptoms. By integrating spiritual values with mindfulness practices, the therapy enhances emotional regulation, fosters self-awareness, and facilitates psychological adaptation.

Theoretically, the results reinforce the efficacy of mindfulness-based interventions and extend their application by incorporating spiritual dimensions, aligning with Roy's Adaptation Theory. In terms of practice, the study offers a model that can be utilized in campus mental health programs, particularly in contexts where spiritual values are central to students' lives and coping mechanisms.

However, the study has several limitations: 1) the relatively small and homogeneous sample limits the generalizability of the findings; 2) the absence of a follow-up assessment restricts understanding of long-term effects; 3) potential confounding effects of demographic variables such as education level were not fully controlled; and 4) trauma history and PTSD symptoms were not comprehensively assessed.

Future research should address these limitations by: 1) increasing the sample size and participant diversity, 2) conducting longitudinal follow-up studies to examine the sustainability of therapeutic effects, 3) investigating how educational background may moderate therapeutic outcomes, and 4) exploring the influence of trauma history and PTSD symptoms on treatment responsiveness.[]

Acknowledgments

The authors would like to express their gratitude to all involved parties, including the experts, research participants, LP2M UIN Maulana Malik Ibrahim Malang, and the funding sources from UIN Maulana Malik Ibrahim Malang.

Author Contribution Statement

Novia Solichah: Conceptualization; Formal Analysis; Methodology; Project Administration; Resources; Validation; Visualization; Writing Original Draft; Writing, Review & Editing. **Rifa Hidayah:** Conceptualization; Data Curation; Formal Analysis; Funding Acquisition. **Ermita Zakiyah:** Resources; Writing, Review & Editing. **M. Fikran Pandya:** Visualization; Writing, Review & Editing. **Shulamite Ebere Ogbuabor:** Resources; Writing, Review & Editing.

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