

# Al-Qur'an Recitation (Surah Ruqyah) Sound Therapy with Standard Fluoxetine Treatment for Depression: A Pilot Study

Sunandar Ihsan<sup>1</sup>, Halik<sup>2\*</sup>, Sugiyanto<sup>3</sup>, Soewadi<sup>4,5</sup>

<sup>1</sup>Faculty of Pharmacy, Universitas Halu Oleo, Kendari, Indonesia

<sup>2</sup>Faculty of Pharmacy, Universitas Halu Oleo, Kendari, Indonesia

<sup>3</sup>Department of Pharmacology and Clinical Pharmacy, Faculty of Pharmacy, Universitas Gadjah Mada, Yogyakarta, Indonesia

<sup>4</sup>Department of Psychiatric, Faculty of Medicine, Universitas Gadjah Mada, Yogyakarta, Indonesia

<sup>5</sup>RSUP. Dr. Sardjito, Yogyakarta, Indonesia

## Article history:

Submitted: 23-06-2025

Revised: 21-10-2025

Accepted: 30-10-2025

## Corresponding author e-mail:

abdul.halik@uho.ac.id

**Cite this article:** Ihsan, S., Hali, Sugiyono, Soewadi. (2025) Al-Qur'an Recitation (Surah Ruqyah) Sound Therapy with Standard Fluoxetine Treatment for Depression: A Pilot Study. Ad-Dawaa' J. Pharm. Sci. 8(2): 191-208.

## Copyright:

This is an open-access article distributed under the terms of the CC BY-SA 4.0 license.



## ABSTRACT

**Introduction:** Depression is a mental disorder that is widespread across various communities. The combination of non-pharmacological therapy is essential to enhance the efficacy of standard fluoxetine treatment. Previous studies demonstrate that non-pharmacological sound therapy utilizing al Qur'an recitation enhances mental health. Additionally, fluoxetine is associated with side effects, and combination therapy may elevate the risk of serious adverse events. **Aims:** The objective of this study is to assess the effectiveness of Qur'an recitation as an adjunctive therapy alongside standard fluoxetine treatment in depressed patients within psychiatric wards of government hospitals in Yogyakarta, Indonesia. **Methods:** This study is a pre-post control group design involving 21 hospitalized patients diagnosed with depression. Patients were categorized into two groups: 9 in the control group and 12 in the treatment group. The control group receives standard fluoxetine therapy, while the experimental group receives fluoxetine along with an additional 30 minutes of al Quran sound therapy daily for 14 days each morning. The Beck Depression Inventory was used to assess depression scores before and after the intervention, and an independent sample t-test was used for analysis. **Result:** The mean initial BDI scores were similar between the control group (26.89±3.82) and the treatment group (26.83±6.91). At the end of the treatment, the BDI scores for the control and treatment groups were 23.00±8.30 and 12.17±8.22, respectively. Both groups showed a decrease in mean BDI scores before and after therapy; however, the control group's mean score (3.89±6.99) was lower than that of the treatment group (14.67±8.30). The assessment results pre- and post-therapy indicated a significant difference in mean scores between the two groups, with a p-value of less than 0.05 ( $p = 0.005$ , mean = 10.77, 95% CI = 3.6 to 17.9). **Conclusion:** The addition of Quranic recitation sound therapy, namely Surah Ruqyah, to SSRI treatment (fluoxetine) showed a reduction of depression scores. In the Indonesian context, Quranic recitation sound therapy may serve as a non-pharmacological adjunct treatment for individuals with mental disorders, including depression.

**KEYWORDS:** Depression, Al Qur'an recitation, surah ruqyah, sound therapy, BDI, spirituality

## INTRODUCTION

Depression is a mental disorder that can affect individuals across all age groups. It accounts for 90% of suicides, with approximately 350 million individuals affected globally. The World Health Organization estimates that by 2030, it will be the primary cause of mortality and morbidity worldwide (Hock et al., 2012). In 2019, depression ranked as the sixth leading cause of global disease burden, with nearly half of affected individuals residing in the Southeast Asia and Western Pacific regions (Abbafati et al., 2020) and ranking fourth among global diseases (Lee et al., 2023). Zhang and colleagues, using Bayesian age-period-cohort (BAPC) analysis, predict that the age-standardized incidence rate (ASIR) and age-standardized disability-adjusted life rate (ASDR) for depression will stabilize from 2020 to 2030, despite an increasing number of cases (Zhang et al., 2024). This mental disorder exhibits a high prevalence in the United States. The age-standardized prevalence of depression in U.S. adults is 18.5% (Lee et al., 2023). In Indonesia, 6.1% of individuals aged 15 and older experience depression with high prevalence (33,668-113,568) in Jawa Timur, Jawa Barat, and Jawa Tengah (Agustin et al., 2025). In 2018, the prevalence among adults was approximately 21.8%, with 21.4% for men

and 22.3% for women (Peltzer & Pengpid, 2018).

Fluoxetine is a type of antidepressant known as a selective serotonin reuptake inhibitor (SSRI) and is often used as a first choice for treatment because it is easier to tolerate and less harmful than older antidepressants like tricyclic antidepressants (TCAs) and monoamine oxidase inhibitors (MAOIs), while still being just as effective (Cipriani et al., 2018; Magni et al., 2013; Qaseem et al., 2016). Recent studies indicate that fluoxetine is associated with an increased risk of bone fracture and hyponatremia, despite its effectiveness in reducing depression symptoms in patients following an acute stroke (Dennis et al., 2019; Lundström et al., 2020). Fluoxetine has been associated with an increased risk of depression and anxiety-like behaviors in females, as well as congenital malformations (Gao et al., 2017; Yang et al., 2019). Furthermore, gastrointestinal bleeding and discomfort, including nausea, diarrhea, abdominal pain, and dyspepsia, are associated with short-term SSRI therapy lasting 7 to 28 days (Carvalho et al., 2016). Additionally, SSRIs are linked to cardiovascular adverse events and an increased risk of suicidal behaviour (Wang et al., 2018). Using a combination of antidepressants can raise the chances of serious side effects, especially when fluoxetine is taken with duloxetine and

other medications that affect isoenzyme P450 (Carvalho et al., 2016). The side effects of antidepressants lead to non-compliance among patients, which is caused by their resistance to these medications and leave residual symptoms results in the failure to achieve therapeutic goals (Blier, 2016; Carvalho et al., 2016; Willner et al., 2013). An adjunct non-pharmacological therapy is necessary to achieve outcome therapy.

Complementary and alternative medicine (CAM) serves as a non-pharmacological adjunct therapy for the management of mild to severe depression (Haller et al., 2019; Liu et al., 2018). Religion and spirituality practice is a component of Complementary and Alternative Medicine within the subcategory of 'Mind and Body Medicine' (Mishra et al., 2017). A meta-analysis conducted by Aggarwal and colleagues indicated that spiritual and religious practices are generally effective for adolescents with depression and anxiety. However, the studies reviewed exhibit low quality and considerable heterogeneity in their design (Aggarwal et al., 2023). The recitation of the Qur'an is a religious practice within the Muslim community and can serve as a form of sound therapy. Sound therapy, as developed by Alfred Tomatis, is a non-pharmacological approach that addresses both physical and mental health issues. The

brain, composed of billions of nerve cells, generates waves and responds to auditory stimuli (Fazzi et al., 2011; Stillitano et al., 2017; Thompson & Andrews, 2000).

Depression is characterized by alterations in behavior and a decline in cognitive function (Thombs et al., 2014). Amen demonstrated a significant correlation between depression and brain damage, as well as reduced cerebral perfusion (Amen et al., 2018). A recent study shows that listening to Qur'an recitation can reduce calmness (Daud & Sharif, 2018) caused by heart sounds while improving brain activity and function (Vaghefi et al., 2019). Furthermore, listening to al-Qur'an recitation can alleviate stress by increasing alpha waves in the prefrontal cortex and elevating levels of  $\beta$ -Endorphin (Kannan et al., 2022; Majidi & Rajabi-Tavakkol, 2025). Another study indicates that al Qur'an recitation can alleviate anxiety, stress, and depression (Moulaei et al., 2023), depression during pregnancy, as well as reduce depressive symptoms in hemodialysis patients (Babamohamadi et al., 2017; Jabbari et al., 2020; Leubner & Hinterberger, 2017). Mental health is linked to optimal brain function, which in turn relates to spirituality and positive behaviour (van Elk & Aleman, 2017). Within the Muslim religious community, individuals with depression are often perceived as being

possessed by an evil spirit. The recitation of the Qur'an including using surah ruqyah, is employed as a treatment for those experiencing mental disorders (Al Laham et al., 2020; Ciftci et al., 2012; Dein & Illaiee, 2013; Hussain, 2018). It is hypothesized that listening to Quran recitation, including using Surah Ruqyah, may enhance the symptoms of mental health patients, especially those suffering from depression, due to the established mechanisms influencing brain function and the associated calming and mood-enhancing effects. The degree to which patients depression levels must decrease necessitates additional evidence, one method being the utilization of the Beck Depression Inventory (BDI) as a measurement instrument. The BDI has been utilized to assess the efficacy of therapy involving Quranic recitation as an intervention for patients with depression (Babamohamadi et al., 2017; Rafique et al., 2019).

To our knowledge, a comparison of Quran recitation sounds with fluoxetine in depressed patients has not been conducted. This study serves as a preliminary investigation aimed at offering an initial overview for subsequent research on a larger scale. This study investigates the efficacy of sound therapy that combines al Qur'an recitation (surah ruqyah) with standard drug therapy (fluoxetine),

compared to using only standard drug therapy (fluoxetine) for patients with depression.

## METHODS

The psychiatric section of RSUP Dr. Sardjito Yogyakarta hospital conducted this experimental study using a pre-post control group design. The procedures for the protection of human subjects received approval and oversight from the institutional review boards of the Medical and Research Ethics Committee (MHREC), which is recognized by the Forum for Ethical Review Committees in Asia and the Western Pacific, at the Medical Faculty of Universitas Gadjah Mada Yogyakarta. Approval for the data on ethics was granted, supported by multiple references: KE/FK/386/EC, with trial registration AF4,3,01-014.2012-02 and serious adverse event (SAE) report form number AF.6.1.01-019.2012-02. Prior to the commencement of the interview and experimental study, informed consent was established.

The Quran includes 14 letters/surahs utilized for patient treatment, referred to as surah ruqyah. These are: surah Al Fatehah (QS.1: 1-7), Al Baqarah (QS.2: 1-5, 163-164, 255, 285-286), Ali Imran (QS.3: 18-19), Yunus (QS.10: 79-82), Taha (QS.20: 65-70), As Shafaat (QS.37: 1-10), Ad Dukhan (QS.44: 1-59), Ar Rahman (QS.55: 33-36), Al Hasyr (QS.59: 21-24), Al Jin (QS.72: 1-11), Al Ikhlas (QS.112: 1-4), Al Falaq (QS.113: 1-5),

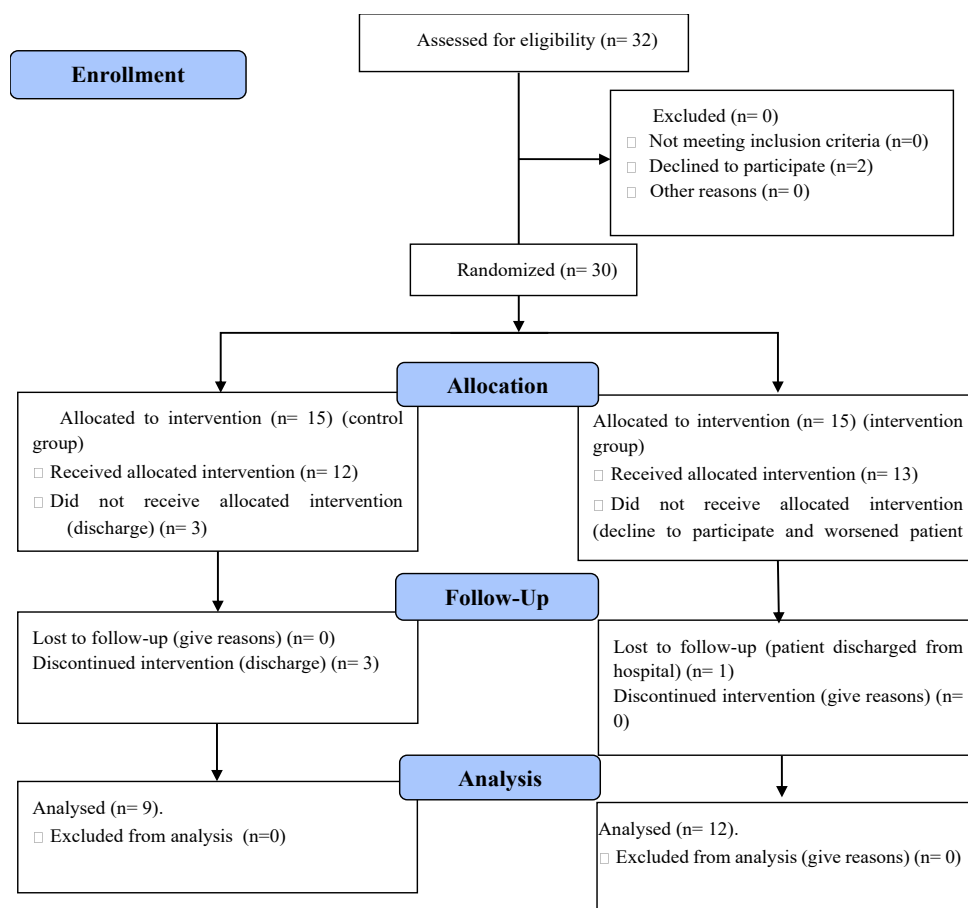


Figure 1. Consort Flow Diagram

and An Nass (QS.114: 1-7), as translated by Marmaduke Pickthall in the meanings of the holy Qur'an. The BDI for each patient was gathered through questionnaires and subsequently analyzed. The BDI measurement tool is extensively utilized globally, with the BDI-II demonstrating a Cronbach's alpha score of 0.86 (Beck et al., 1996). The BDI-II demonstrates validity and reliability for research in Indonesia, exhibiting an internal consistency of 0.91 and an optimal cut-off point of 17 (Ginting et al., 2013). The therapeutic sound was delivered via a Logitech music player, connected to a 500-watt speaker, and played at a moderate volume.

### Data Collection Method

Sample size calculations were performed using a two-population means approach (two-sided test), accounting for a 20% dropout rate, a test power of 80%, a significance level of 5%, a population standard deviation of 3.48, an anticipated population mean of 10 ( $\mu_1$ ), and an anticipated population mean of 22 ( $\mu_2$ ). The total sample size for this study is 16 participants per group. According to the consort flow diagram (Figure 1), the initial sample size was 16 patients per group; however, 2 patients declined participation, resulting in 15 patients in each group. The control group comprised 12 participants, of

whom 3 did not continue therapy with fluoxetine as the standard medication. In the intervention group, 13 individuals received the intervention, with one participant lost to follow-up. In total, the control group comprised 9 patients, while the treatment group included 12 patients. According to the consort flow diagram (Figure 1), the initial sample size was 16 patients per group; however, 2 patients declined to participate, resulting in 15 patients in each group. In the control group, 12 individuals participated in the study, with 3 discontinuing therapy with fluoxetine as the standard medication. In the intervention group, 13 individuals received the intervention, with one lost to follow-up. In total, 21 samples were analyzed, comprising 9 patients in the control group and 12 in the treatment group, obtained from the inpatient ward of the psychiatric department at RSUP dr. Sardjito Yogyakarta Hospital.

To reduce patient variation between groups, matching was conducted based on the type and class of therapy administered, the number of therapy combinations, and the patients' depression levels (mild and moderate). All patients in both groups were verified to neither be currently undergoing nor have completed electroconvulsive therapy (ECT). Participants met the inclusion criteria of being diagnosed with depression, identifying as Muslim, being

aged between 18 and 60 years, and receiving treatment with fluoxetine. Informed consent was obtained either directly from the participants or through their family representatives. The exclusion criteria included hearing loss, use of herbs or psychotherapy, and depression resulting from HIV/AIDS, cancer, or stroke.

Patients meeting the criterion were assessed with the BDI on the first day of the study. We subsequently divided them into control and treatment groups. The treatment group received both the Selective Serotonin Reuptake Inhibitor (SSRI) fluoxetine and sound recitation of Al Qur'an for 30 minutes daily over 14 days, whereas the control group was administered only fluoxetine. Therapy was conducted over a period of 14 days, following the initial evaluation of fluoxetine as an antidepressant (Meng et al., 2020). On day 14, the patients completed the BDI questionnaire to evaluate their depression levels. The treatment group employs the voice of Ustad Harman Tajang, a hafiz of the Qur'an, qari, ruqyah therapist, and founder of the Quran memorization school, Markaz Imam Malik in Makassar, Indonesia.

### Statistical Analysis

The BDI scores from the pre-post, control, and treatment groups were compared using an independent samples t-test to see how their averages and variations differed. The chi-square test,

Table 1. Socio-demographic characteristics of the two groups

Subject characteristic	Groups				p value
	Control n (9)	%	Treatment n (12)	%	
Gender					
male/female	5/4	23.8/19.0	4/8	19.0/38.1	0.309*
Age (mean±sd)	35.44 ±13.92		25.75 ±8.32		0.748*
< 40	7	77.8	10	83.3	
> 40	2	22.2	2	16.7	
Education Level					0.867 <sup>f</sup>
Elementary school	1	4,7	-	-	
Junior high school	-	-	1	4,7	
Senior high school	4	19,0	7	33,3	
University	4	19,0	4	19,0	
Occupation					0.626 <sup>f</sup>
Employed	4	19,0	4	19,5	
Students	3	14,2	4	19,5	
Unemployed	2	9,5	4	19,5	
Marital status					0.324 <sup>f</sup>
Married	2	9,5	3	14,2	
Unmarried	5	23,8	9	42,8	
Divorce	2	9,5	-	-	

\*chi square test comparison. <sup>f</sup>fisher exact test

Fisher's exact test, and independent samples t-test were employed to assess the comparability of the two groups at baseline. The data were analyzed using SPSS version 24, with P values less than 0.05 considered significant.

## RESULTS AND DISCUSSION

Samples were collected over a five-month period using either a consecutive sampling method or through incidental encounters with patients.

### Characteristics of Patients.

Females predominated in the groups, as indicated in Table 1. In the treatment group, 38% of women experienced severe depression, compared to 19% of men. Additionally, in the control group, males

and females experienced the condition at equal rates.

Table 2 indicates that 28.6% of patients in the control group exhibited non-psychotic depression symptoms, whereas 19.1% in the treatment group displayed schizodepressive symptoms. Patients in both the control and treatment groups received a combination therapy consisting of 19% fluoxetine and alprazolam. In the control group shown in Table 3, one patient (4.7%) with schizodepressive disorder, a serious type of depression, was treated with electroconvulsive therapy (ECT), fluoxetine, and risperidone. In the treatment group, 3 patients (14.3%) were diagnosed with a similar condition and received ECT, fluoxetine, risperidone, and

Table 2. Patients distribution based on depression symptom

Depression symptom characteristics	Groups		Treatment	
	Control			
	n	%	n	%
Non psychotic	6	28,6	4	19,1
Psychotic	1	4,7	3	14,3
Schizodepressive	1	4,7	4	19,1
Post schizodepressive	1	4,7	1	4,7
Total	9	42,7	12	57,2

Table 3. Characteristic of types/combinations of therapy based on depression symptom

Types/combination of therapy	Subject groups		Treatment	
	Control			
	n	%	n	%
FLU, ECT	-	-	2	9,5
FLU, ALP	4	19,0	4	19,0
FLU, RSP	2	9,5	-	-
FLU, RSP, THP	2	9,5	2	9,5
FLU, ARP, THP, CBZ	-	-	1	4,8
FLU, RSP, THP, ECT	-	-	3	14,3
FLU, RSP, ECT	1	4,8	-	-
Total	9	42,8	12	57,1

Note:

FLU: Fluoxetine      THP: Trihexyphenidyl      ARP: Aripiprazole  
HDL: Haloperidol      ALP: Alprazolam      ECT: Electroconvulsive therapy  
RSP: Risperidone      CBZ: Clobazam

trihexyphenidyl. Additionally, 2 patients (9.5%) were diagnosed with psychotic depression and were treated solely with fluoxetine and ECT therapy.

Our study found that depression was more prevalent in patients under 40 years of age (80.9%) compared to those aged 40 and above (19%). This condition is also observed in patients exhibiting psychotic symptoms. Research indicates that psychotic features are present in up to 60% of children hospitalized for depression, likely representing an underestimation (Dubovsky et al., 2021; Gaudiano et al., 2013). The incidence of depression is notably higher in adolescents, particularly

between the ages of 13 and 17 (Aggarwal et al., 2023; Breslau et al., 2017). Furthermore, women exhibit a higher risk of depression than men (Breslau et al., 2017; Dubovsky et al., 2021; Ettman et al., 2020; Shepherd & Parker, 2017). Consequently, medical professionals and psychologists develop their diagnoses based on physical symptoms and gender (Ussher, 2010).

The impact of education on depression was negligible. Executive impairment of cognitive function is associated with late-onset depression (Eraydin et al., 2019). Additionally, among the total number of students affected by this condition, 52.39% were senior high school students, 38% were



Table 4. Analysis of pre and post BDI scores to control and treatment groups

Groups	BDI Score	n	Averages±s.d	Averages difference±s.d	CI 95%	p
Control	pre	9	26.89±3.82	3.89±6.99	9.26- (-1,48)	0.134
	post	9	23.00±8.30			
Treatment	pre	12	26.83±6.91	14.67±8.30	19.94-9.39	<0.001
	post	12	12.17±8.22			

Table 5. Analysis of mean difference of pre and post BDI scores between the control and treatment group

Groups	n	averages ± s.d	Averages difference (CI 95%)	p
Control	9	3,89 ± 6,99	10,77 (3,6-17,9)	0,005
Treatment	12	14,67 ± 8,30		

university students, and 4.7% were from lower classes. It occurred equally among both employed and unemployed students.

As much as 66.7% of depressed patients were unmarried; however, loneliness is not a predictive factor for the recurrence of depressive symptoms. In contrast, type D personality and smoking among women were found to be significant (Tibubos et al., 2019). 77.8% of the control group and 28.5% of the treatment group received treatment in their homes. Various psychosocial factors, including environment, stressors, personality, psychodynamic influences, repeated failures, cognitive aspects, and social support theory, significantly contribute to the onset of depression (Chan et al., 2011; Tibubos et al., 2019). Dysregulation of dopamine pathways is implicated in depression and schizophrenia or schizodepressive disorders (Grace, 2016). Moreover, severe symptoms of depression may result in schizodepressive and

psychotic conditions (Dubovsky et al., 2021; Sands & Harrow, 1999). Electroconvulsive therapy (ECT) is employed as a primary intervention for patients with treatment-resistant depression when pharmacological treatments are ineffective (Trifu et al., 2021), especially in psychotic and elderly patients (Pozuelo Moyano et al., 2024). This study involved patients who were not undergoing ECT therapy due to their stable condition.

### The Effect of Differences in BDI Scores on The Subjects.

A significant difference was observed between the treatment group ( $p < 0.001$ ) and the control group ( $p = 0.134$ ), with  $p < 0.05$  indicating statistical significance. The average difference between the mean and standard deviation was 14.67. In the control group, the BDI was 3.89, with a reliability score of 95%. In contrast, the treatment group exhibited an increase in BDI from 9.39 prior to treatment to 19.94 following

treatment (see Table 4 and 5). The SPSS analysis indicated a significant difference ( $p < 0.05$ ) between the BDI scores of the pre- and post-groups. A lower BDI score was observed in the treatment group compared to the control group.

This study represents the first investigation into Quranic recitation utilizing Surah Ruqyah as a non-pharmacological complement to standard fluoxetine therapy for patients with depression in Indonesia. A study conducted by (Jabbari *et al.*, 2020) indicated that reading the Quran during pregnancy correlates with a reduction in symptoms of depression, anxiety, and pain. (Babamohamadi *et al.*, 2017) and their colleagues found that reading the Quran reduced depressive symptoms in patients undergoing hemodialysis. Our study indicated that Quran recitations resulted in a decrease in depression scores among patients treated with fluoxetine, in contrast to those receiving only fluoxetine. The difference in mean scores between the two groups varied from 17.9 to -3.6.

Complementary and alternative medicine (CAM) modalities, including cognitive behavioral therapy (CBT), meditation, qigong, and tai chi, have been proposed as non-pharmacological interventions for mild to moderate depression, demonstrating efficacy in reducing depressive symptoms (Zaprutko

*et al.*, 2020). For severe depression, a combination of pharmacological treatment and therapy is more effective than medication alone (Cipriani *et al.*, 2018; Dennis *et al.*, 2019; Magni *et al.*, 2013). Quranic reading sound therapy may be categorized within the complementary and alternative medicine (CAM) group, alongside cognitive behavioral therapy (CBT) or qi gong meditation, due to its coping mechanisms that can effectively alleviate stress levels. Religious and spiritual practices, including Quran recitation, serve as a form of mind-body medicine that can be employed in the treatment of mental illness. The relationship between the brain and spirituality indicates that prayer and meditation enhance brain function, alleviate stress, and increase psychological resilience (Aggarwal *et al.*, 2023; Kannan *et al.*, 2022).

Mental health is linked to optimal brain function, which in turn relates to spirituality and positive behavior (van Elk & Aleman, 2017). From a neuroscience perspective, spirituality is characterized as a positive emotion and a social connection that imparts meaning to life (Bouckaert & Zsolnai, 2011; van Elk & Aleman, 2017), and facilitates transcendence (Jastrzebski, 2018). The relationship between the brain and spirituality indicates that prayer and meditation enhance brain function,

alleviate stress and increase psychological resilience (Jedlicka & Havenith, 2025; Knegtering et al., 2024; Newberg, 2014). Spirituality encompasses positive emotions and extends beyond mere ritualistic practices, which are associated with effective coordination between the limbic system and the prefrontal cortex (Vaillant, 2013). Nonetheless, this positive relationship, attributed to the brain's copying process, alongside spirituality, may enhance spiritual consciousness and subsequently address mental illness (Miller et al., 2019; Radmanesh & Burnett, 2011). The relationship between optimal brain function and spirituality has been established (Pakaya et al., 2017). The recitation of Al Qur'an as a form of sound therapy may improve mental health by lowering cortisol levels and enhancing the production of alpha and theta brain waves, thereby positively influencing patients' emotional states (Majidi & Rajabi-Tavakkol, 2025; Taha Alshaikhli et al., 2014). The practice subsequently promotes deep relaxation and enhances the coordination between the prefrontal cortex and limbic system (Vaillant, 2013), yielding beneficial effects for patients with depression.

The good results seen in the treatment group might be due to how sound affects the hippocampus, which helps carry cognitive information from the limbic system through the temporal lobe. When sound reaches the

temporal lobe, it is handled by Wernicke's area, which connects to Broca's area in the front part of the brain through special fibers called arcuate fasciculus (Miller et al., 2019). Conversely, spiritual experiences diminish sensory and emotional processing in the caudate and medial thalamus (Miller et al., 2019). Beauregard's research indicates that serotonin levels can be intentionally influenced by alterations in emotions and mood (Beauregard & O'Leary, 2008; Beauregard & Paquette, 2006). Patients who listen to the sound of the Qur'an may experience a reduction in depression levels and an enhancement of spiritual awareness, attributed to the availability of serotonin and the functioning of the hippocampus and limbic system (Moulaei et al., 2023). Moreover, religious practices, including listening to Quran recitation, positively influence depressed patients by diminishing the activity of the default mode network (DMN), which is elevated in individuals with depression. Religious beliefs or spirituality may influence the DMN, which facilitates self-awareness and reflection (Knegtering et al., 2024). The sound is characterized by a distinct tone and style. Additionally, the material includes spiritual content as it is derived from the words of God. A study indicated that religiosity correlates with improved mental health, suggesting that religious individuals experience lower

levels of depression (Kannan et al., 2022).

### Limitations

Additional research may be conducted, taking into account certain limitations in this study, such as the dropout of some samples, which diminished the minimum sample size from the initial calculation. The presence of additional medications alongside standard fluoxetine therapy may influence the results, even after matching groups based on treatment similarities and patient depression levels. The results of this study cannot be generalized as conclusive findings for non-pharmacological adjunctive therapy in treating depressed patients. Additional research should be performed with a larger sample size and across multiple centers, employing a true randomized controlled trial (RCT) design to assess the efficacy of sound therapy using Quranic recitations in comparison to standard therapy.

### CONCLUSION

Quranic recitation as sound therapy should be considered a non-pharmacological adjunctive treatment for individuals with depression. This approach's practical application and lack of side effects are likely to be more acceptable to patients, considering the prevailing religious culture in Indonesia. Prior studies examining the effects of Quranic recitation on the brain and patients with mental

disorders, including anxiety and depression, have demonstrated a calming influence and enhancements in cognitive function, thereby offering theoretical mechanistic support for the findings of this study. Additional research is required to validate the efficacy of Quranic recitation sound therapy in patients with depression receiving standard therapy. This study should include a larger number of participants with comparable clinical conditions to provide definitive results.

### ACKNOWLEDGEMENT

The Authors would like to thank to RSUP dr. Sardjito Yogyakarta Indonesia Departement of Psychiatric for supporting the study.

### REFERENCES

- Abbafati, C., Abbas, K. M., Abbasi, M., Abbasifard, M., Abbasi-Kangevari, M., Abbastabar, H., Abd-Allah, F., Abdelalim, A., Abdollahi, M., Abdollahpour, I., Abedi, A., Abedi, P., Abegaz, K. H., Abolhassani, H., Abosetugn, A. E., Aboyans, V., Abrams, E. M., Abreu, L. G., Abrigo, M. R. M., ... Murray, C. J. L. (2020). Global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet*, 396(10258), 1204–1222. [https://doi.org/10.1016/S0140-6736\(20\)30925-9](https://doi.org/10.1016/S0140-6736(20)30925-9)
- Aggarwal, S., Wright, J., Morgan, A., Patton, G., & Reavley, N. (2023). Religiosity and Spirituality in the Prevention and Management of Depression and Anxiety in Young People: A Systematic Review

- and Meta-analysis. *BMC Psychiatry*, 23(1), 729. <https://doi.org/10.1186/s12888-023-05091-2>
- Agustin, W. S., Prastika, H. A., Kendrasti, G. K., Fajriyah, R., & Le-Quy, V. (2025). Clustering the Depression Prevalence in Indonesia Provinces through Natural Breaks Jenks Method. *Clinical Practice & Epidemiology in Mental Health*, 21(1). <https://doi.org/10.2174/0117450179375982250512114928>
- Al Laham, D., Ali, E., Mousally, K., Nahas, N., Alameddine, A., & Venables, E. (2020). Perceptions and Health-Seeking Behaviour for Mental Illness Among Syrian Refugees and Lebanese Community Members in Wadi Khaled, North Lebanon: A Qualitative Study. *Community Mental Health Journal*, 56(5), 875–884. <https://doi.org/10.1007/s10597-020-00551-5>
- Amen, D. G., Taylor, D. V., Meysami, S., & Raji, C. A. (2018). Deficits in Regional Cerebral Blood Flow on Brain SPECT Predict Treatment Resistant Depression. *Journal of Alzheimer's Disease*, 63(2), 529–538. <https://doi.org/10.3233/JAD-170855>
- Babamohamadi, H., Sotodehasl, N., Koenig, H. G., Al Zaben, F., Jahani, C., & Ghorbani, R. (2017). The Effect of Holy Qur'an Recitation on Depressive Symptoms in Hemodialysis Patients: A Randomized Clinical Trial. *Journal of Religion and Health*, 56(1), 345–354. <https://doi.org/10.1007/s10943-016-0281-0>
- Beauregard, M., & O'Leary, D. (2008). The spiritual brain: A neuroscientist's case for the existence of the soul. *Politics and the Life Sciences: The Journal of the Association for Politics and the Life Sciences*. <https://doi.org/10.2990/27>
- Beauregard, M., & Paquette, V. (2006). Neural correlates of a mystical experience in Carmelite nuns. *Neuroscience Letters*, 405(3), 186–190. <https://doi.org/10.1016/j.neulet.2006.06.060>
- Beck, A. T., Steer, R. A., Ball, R., & Ranieri, W. F. (1996). Comparison of Beck Depression 1 in Psychiatric Inpatients -1A and - Outpatients. *Journal of Personality Assessment*, 67(3), 588–597. <https://doi.org/10.1207/s15327752jpa6703>
- Blier, P. (2016). Neurobiology of depression and mechanism of action of depression treatments. *The Journal of Clinical Psychiatry*, 77(3), e319. <https://doi.org/10.4088/JCP.13097tx3c>
- Bouckaert, L., & Zsolnai, L. (2011). Handbook of spirituality and business. In *Handbook of Spirituality and Business* (pp. 1–421). <https://doi.org/10.1057/9780230321458>
- Breslau, J., Gilman, S. E., Stein, B. D., Ruder, T., Gmelin, T., & Miller, E. (2017). Sex differences in recent first-onset depression in an epidemiological sample of adolescents. *Translational Psychiatry*, 7(5). <https://doi.org/10.1038/TP.2017.105>
- Carvalho, A. F., Sharma, M. S., Brunoni, A. R., Vieta, E., & Fava, G. A. (2016). The Safety, Tolerability and Risks Associated with the Use of Newer Generation Antidepressant Drugs: A Critical Review of the Literature. *Psychotherapy and Psychosomatics*, 85(5), 270–288. <https://doi.org/10.1159/000447034>
- Chan, R., Steel, Z., Brooks, R., Heung, T., Erlich, J., Chow, J., & Suranyi, M. (2011). Psychosocial risk and protective factors for depression in the dialysis population: A systematic review and meta-regression analysis. *Journal of Psychosomatic Research*, 71(5), 300–310. <https://doi.org/10.1016/j.jpsychores.2011.05.002>
- Ciftci, A., Jones, N., & Corrigan, P. W. (2012). Mental health stigma in the Muslim community. *Journal of Muslim Mental*

- Health, 7(1), 17–32.  
<https://doi.org/10.3998/jmmh.10381607.0007.102>
- Cipriani, A., Furukawa, T. A., Salanti, G., Chaimani, A., Atkinson, L. Z., Ogawa, Y., Leucht, S., Ruhe, H. G., Turner, E. H., Higgins, J. P. T., Egger, M., Takeshima, N., Hayasaka, Y., Imai, H., Shinohara, K., Tajika, A., Ioannidis, J. P. A., & Geddes, J. R. (2018). Comparative efficacy and acceptability of 21 antidepressant drugs for the acute treatment of adults with major depressive disorder: a systematic review and network meta-analysis. *The Lancet*, 391(10128), 1357–1366.  
[https://doi.org/10.1016/S0140-6736\(17\)32802-7](https://doi.org/10.1016/S0140-6736(17)32802-7)
- Daud, N. F., & Sharif, Z. (2018). Effect of Listening to the Al-Quran on Heart Sound. *IOP Conference Series: Materials Science and Engineering*, 341(1).  
<https://doi.org/10.1088/1757-899X/341/1/012023>
- Dein, S., & Illaiee, A. S. (2013). Jinn and mental health: Looking at jinn possession in modern psychiatric practice. *Psychiatrist*, 37(9), 290–293.  
<https://doi.org/10.1192/pb.bp.113.042721>
- Dennis, M., Mead, G., Forbes, J., Graham, C., Hackett, M., Hankey, G. J., House, A., Lewis, S., Lundström, E., Sandercock, P., Innes, K., Williams, C., Drever, J., Mcgrath, A., Deary, A., Fraser, R., Anderson, R., Walker, P., Perry, D., ... Hungwe, R. (2019). Effects of fluoxetine on functional outcomes after acute stroke (FOCUS): a pragmatic, double-blind, randomised, controlled trial. *The Lancet*, 393(10168), 265–274.  
[https://doi.org/10.1016/S0140-6736\(18\)32823-X](https://doi.org/10.1016/S0140-6736(18)32823-X)
- Dubovsky, S. L., Ghosh, B. M., Serotte, J. C., & Cranwell, V. (2021). Psychotic Depression: Diagnosis, Differential Diagnosis, and Treatment. *Psychotherapy and Psychosomatics*, 90(3), 160–177.  
<https://doi.org/10.1159/000511348>
- Eraydin, I. E., Mueller, C., Corbett, A., Ballard, C., Brooker, H., Wesnes, K., Aarsland, D., & Huntley, J. (2019). Investigating the relationship between age of onset of depressive disorder and cognitive function. *International Journal of Geriatric Psychiatry*, 34(1), 38–46.  
<https://doi.org/10.1002/gps.4979>
- Ettman, C. K., Abdalla, S. M., Cohen, G. H., Sampson, L., Vivier, P. M., & Galea, S. (2020). Prevalence of depression symptoms in US adults before and during the COVID-19 pandemic. *JAMA Network Open*, 3(9).  
<https://doi.org/10.1001/JAMANETWOROOPEN.2020.19686>
- Fazzi, E., Tansini, F., & Alessandrini, A. (2011). Music therapy: Applications, evidences, prospective. In *Musicoterapia: Applicazioni, evidenze, prospettive*.
- Gao, S. Y., Wu, Q. J., Zhang, T. N., Shen, Z. Q., Liu, C. X., Xu, X., Ji, C., & Zhao, Y. H. (2017). Fluoxetine and congenital malformations: a systematic review and meta-analysis of cohort studies. *British Journal of Clinical Pharmacology*, 83(10), 2134–2147.  
<https://doi.org/10.1111/bcp.13321>
- Gaudiano, B. A., Nowlan, K., Brown, L. A., Epstein-Lubow, G., & Miller, I. W. (2013). An Open Trial of a New Acceptance-Based Behavioral Treatment for Major Depression With Psychotic Features. *Behavior Modification*, 37(3), 324–355.  
<https://doi.org/10.1177/0145445512465173>
- Ginting, H., Näring, G., Van Der Veld, W. M., Srisayekti, W., & Becker, E. S. (2013). Validating the Beck Depression Inventory-II in Indonesia's general population and coronary heart disease patients. *International Journal of Clinical and Health Psychology*, 13(3), 235–242.  
[https://doi.org/10.1016/S1697-2600\(13\)70028-0](https://doi.org/10.1016/S1697-2600(13)70028-0)
- Grace, A. A. (2016). Dysregulation of the dopamine system in the pathophysiology of schizophrenia and

- depression. In *Nature Reviews Neuroscience* (Vol. 17, Issue 8, pp. 524–532).  
<https://doi.org/10.1038/nrn.2016.57>
- Haller, H., Anheyer, D., Cramer, H., & Dobos, G. (2019). Complementary therapies for clinical depression: An overview of systematic reviews. *BMJ Open*, 9(8), e028527.  
<https://doi.org/10.1136/bmjopen-2018-028527>
- Hock, R. S., Or, F., Kolappa, K., Burkey, M. D., Surkan, P. J., & Eaton, W. W. (2012). A new resolution for global mental health. *The Lancet*, 379(9824), 1367–1368.  
[https://doi.org/10.1016/S0140-6736\(12\)60243-8](https://doi.org/10.1016/S0140-6736(12)60243-8)
- Hussain, N. O. (2018). An exploration of spiritual healing methods amongst the south-asian muslim community in the north of England. *Journal of Historical Archaeology & Anthropological Sciences*, 3(2).  
<https://doi.org/10.15406/jhaas.2018.03.00079>
- Jabbari, B., Mirghafourvand, M., Sehhatie, F., & Mohammad-Alizadeh-Charandabi, S. (2020). The Effect of Holly Quran Voice With and Without Translation on Stress, Anxiety and Depression During Pregnancy: A Randomized Controlled Trial. *Journal of Religion and Health*, 59(1), 544–554.  
<https://doi.org/10.1007/s10943-017-0417-x>
- Jastrzebski, A. K. (2018). The Neuroscience of Spirituality: An Attempt at Critical Analysis. *Pastoral Psychology*, 67(5), 515–524.  
<https://doi.org/10.1007/s11089-018-0840-2>
- Jedlicka, P., & Havenith, M. N. (2025). Religious and spiritual experiences from a neuroscientific and complex systems perspective. *Neuroscience and Biobehavioral Reviews*, 177, 106319.  
<https://doi.org/10.1016/j.neubiorev.2025.106319>
- Kannan, M. A., Ab Aziz, N. A., Ab Rani, N. S., Abdullah, M. W., Mohd Rashid, M. H., Shab, M. S., Ismail, N. I., Ab Ghani, M. A., Reza, F., & Muzaimi, M. (2022). A review of the holy Quran listening and its neural correlation for its potential as a psycho-spiritual therapy. *Heliyon*, 8(12), e12308.  
<https://doi.org/10.1016/J.HELIYON.2022.E12308>
- Knegtering, H., Bruggeman, R., & Spoelstra, S. K. (2024). Spirituality as a Therapeutic Approach for Severe Mental Illness: Insights from Neural Networks. *Religions*, 15(4), 489.  
<https://doi.org/10.3390/rel15040489>
- Lee, B., Wang, Y., Carlson, S. A., Greenlund, K. J., Lu, H., Liu, Y., Croft, J. B., Eke, P. I., Town, M., & Thomas, C. W. (2023). National, State-Level, and County-Level Prevalence Estimates of Adults Aged ≥18 Years Self-Reporting a Lifetime Diagnosis of Depression — United States, 2020. *MMWR. Morbidity and Mortality Weekly Report*, 72(24), 644–650.  
<https://doi.org/10.15585/mmwr.mm7224a1>
- Leubner, D., & Hinterberger, T. (2017). Reviewing the effectiveness of music interventions in treating depression. *Frontiers in Psychology*, 8(JUL).  
<https://doi.org/10.3389/fpsyg.2017.01109>
- Liu, X., Hollingworth, S., Williams, G., Martin, J., Kostner, K., Crompton, D., Xue, C., & Vitetta, L. (2018). Use of complementary and alternative medicines in people with depression and central obesity: Findings from a Tai Chi and Qigong study. *Journal of Traditional Chinese Medical Sciences*, 5(2).  
<https://doi.org/10.1016/j.jtcms.2017.09.006>
- Lundström, E., Isaksson, E., Näsman, P., Wester, P., Mårtensson, B., Norrving, B., Wallén, H., Borg, J., Dennis, M., Mead, G., Hankey, G. J., Hackett, M. L., & Sunnerhagen, K. S. (2020). Safety and efficacy of fluoxetine on functional recovery after acute stroke (EFFECTS): a randomised, double-blind, placebo-controlled trial. *The Lancet Neurology*,

- 19(8), 661–669.  
[https://doi.org/10.1016/S1474-4422\(20\)30219-2](https://doi.org/10.1016/S1474-4422(20)30219-2)
- Magni, L. R., Purgato, M., Gastaldon, C., Papola, D., Furukawa, T. A., Cipriani, A., & Barbui, C. (2013). Fluoxetine versus other types of pharmacotherapy for depression. In *Cochrane Database of Systematic Reviews* (Vol. 2013, Issue 7). John Wiley and Sons Ltd.  
<https://doi.org/10.1002/14651858.CD004185.pub3>
- Majidi, H., & Rajabi-Tavakkol, A. (2025). A Systematic Review of EEG Studies on the Neural Effects of Quran Listening. *Iranian Journal of Psychiatry*, 20(2), 253–264.  
<https://doi.org/10.18502/ijps.v20i2.18206>
- Meng, Q., Zhang, A., Cao, X., Sun, N., Li, X., Zhang, Y., & Wang, Y. (2020). Brain imaging study on the pathogenesis of depression & therapeutic effect of selective serotonin reuptake inhibitors. *Psychiatry Investigation*, 17(7), 688–694.  
<https://doi.org/10.30773/pi.2020.0041>
- Miller, L., Balodis, I. M., McClintock, C. H., Xu, J., Lacadie, C. M., Sinha, R., & Potenza, M. N. (2019). Neural Correlates of Personalized Spiritual Experiences. *Cerebral Cortex*, 29(6), 2331–2338.  
<https://doi.org/10.1093/cercor/bhy102>
- Mishra, S. K., Togneri, E., Tripathi, B., & Trikamji, B. (2017). Spirituality and Religiosity and Its Role in Health and Diseases. *Journal of Religion and Health*, 56(4), 1282–1301.  
<https://doi.org/10.1007/s10943-015-0100-z>
- Moulaei, K., Haghdoost, A., Bahaadinbeigy, K., & Dinari, F. (2023). The effect of the holy Quran recitation and listening on anxiety, stress, and depression: A scoping review on outcomes. *Health Science Reports*, 6(12).  
<https://doi.org/10.1002/hsr2.1751>
- Newberg, A. B. (2014). The neuroscientific study of spiritual practices. *Frontiers in Psychology*, 5(MAR).  
<https://doi.org/10.3389/fpsyg.2014.00215>
- Pakaya, P., Pasiak, T. F., & Kalangi, S. J. R. (2017). Hubungan kinerja otak dan spiritualitas manusia diukur dengan Indonesia Spiritual Health Assessment pada tokoh agama Islam di Kabupaten Bolaang Mongondow. *Jurnal E-Biomedik*.  
<https://doi.org/10.35790/ebm.5.1.2017.15889>
- Peltzer, K., & Pengpid, S. (2018). High prevalence of depressive symptoms in a national sample of adults in Indonesia: Childhood adversity, sociodemographic factors and health risk behaviour. *Asian Journal of Psychiatry*, 33, 52–59.  
<https://doi.org/10.1016/j.ajp.2018.03.017>
- Qaseem, A., Barry, M. J., Kansagara, D., Forciea, M. A., Denberg, T. D., Boyd, C., Chow, R. D., Fitterman, N., Harris, R. P., Humphrey, L. L., Manaker, S., McLean, R., Vijan, S., & Wilt, T. (2016). Nonpharmacologic versus pharmacologic treatment of adult patients with major depressive disorder: A clinical practice guideline from the American College of Physicians. *Annals of Internal Medicine*, 164(5), 350–359.  
<https://doi.org/10.7326/M15-2570>
- Radmanesh, N., & Burnett, I. S. (2011). Reproduction of independent narrowband soundfields in a multizone surround system and its extension to speech signal sources. In *ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings* (pp. 461–464).  
<https://doi.org/10.1109/ICASSP.2011.5946440>
- Rafique, R., Anjum, A., & Raheem, S. S. (2019). Efficacy of Surah Al-Rehman in Managing Depression in Muslim Women. *Journal of Religion and Health*, 58(2), 516–526.  
<https://doi.org/10.1007/s10943-017-0492-z>



- Sands, J. R., & Harrow, M. (1999). Depression during the longitudinal course of schizophrenia. *Schizophrenia Bulletin*, 25(1), 157–171. <https://doi.org/10.1093/oxfordjournals.schbul.a033362>
- Shepherd, N., & Parker, C. (2017). Depression in adults: Recognition and management. *Clinical Pharmacist*, 9(4). <https://doi.org/10.1211/CP.2017.20202439>
- Stillitano, C., Rosati, N., Cisternino, S., Fioretti, A., Iaconelli, S., & Eibenstein, A. (2017). The Effects of the Tomatis Method on the Artistic Voice. *International Journal of Listening*, 31(2), 113–120. <https://doi.org/10.1080/10904018.2016.1174935>
- Taha Alshaikhli, I. F., Yahya, S. A., Pammusu, I., & Alarabi, K. F. (2014). A study on the effects of EEG and ECG signals while listening to Qur'an recitation. 2014 the 5th International Conference on Information and Communication Technology for the Muslim World, ICT4M 2014. <https://doi.org/10.1109/ICT4M.2014.7020590>
- Thombs, B. D., Ziegelstein, R. C., Roseman, M., Kloda, L. A., & Ioannidis, J. P. A. (2014). There are no randomized controlled trials that support the United States Preventive Services Task Force guideline on screening for depression in primary care: A systematic review. *BMC Medicine*, 12(1). <https://doi.org/10.1186/1741-7015-12-13>
- Thompson, B. M., & Andrews, S. R. (2000). An Historical Commentary on the Physiological Effects of Music: Tomatis, Mozart and Neuropsychology. *Integrative Physiological and Behavioral Science*, 35(3), 174–188. <https://doi.org/10.1007/BF02688778>
- Tibubos, A. N., Brähler, E., Ernst, M., Baumgarten, C., Wiltink, J., Burghardt, J., Michal, M., Ghaemi Kerahrodi, J., Schulz, A., Wild, P. S., Münzel, T., Schmidtman, I., Lackner, K. J., Pfeiffer, N., Borta, A., & Beutel, M. E. (2019). Course of depressive symptoms in men and women: differential effects of social, psychological, behavioral and somatic predictors. *Scientific Reports*, 9(1). <https://doi.org/10.1038/s41598-019-55342-0>
- Trifu, S., Sevcenco, A., Stănescu, M., Drăgoi, A., & Cristea, M. (2021). Efficacy of electroconvulsive therapy as a potential first-choice treatment in treatment-resistant depression (Review). *Experimental and Therapeutic Medicine*, 22(5), 1281. <https://doi.org/10.3892/etm.2021.10716>
- Ussher, J. M. (2010). Are we medicalizing women's misery? a critical review of women's higher rates of reported depression. In *Feminism and Psychology* (Vol. 20, Issue 1, pp. 9–35). <https://doi.org/10.1177/0959353509350213>
- Vaghefi, M., Nasrabadi, A., Hashemi Golpayegani, S., Mohammadi, M., & Gharibzadeh, S. (2019). Nonlinear analysis of electroencephalogram signals while listening to the holy Quran. *Journal of Medical Signals and Sensors*, 9(2), 100–110. [https://doi.org/10.4103/jmss.JMSS\\_37\\_18](https://doi.org/10.4103/jmss.JMSS_37_18)
- Vaillant, G. E. (2013). Psychiatry, religion, positive emotions and spirituality. *Asian Journal of Psychiatry*, 6(6), 590–594. <https://doi.org/10.1016/j.ajp.2013.08.073>
- van Elk, M., & Aleman, A. (2017). Brain mechanisms in religion and spirituality: An integrative predictive processing framework. In *Neuroscience and Biobehavioral Reviews* (Vol. 73, pp. 359–378). <https://doi.org/10.1016/j.neubiorev.2016.12.031>
- Wang, S.-M., Han, C., Bahk, W.-M., Lee, S.-J., Patkar, A. A., Masand, P. S., & Pae, C.-U. (2018). Addressing the Side Effects of Contemporary Antidepressant Drugs: A Comprehensive Review. *Chonnam*

- Medical Journal, 54(2), 101.  
<https://doi.org/10.4068/cmj.2018.54.2.101>
- Willner, P., Scheel-Krüger, J., & Belzung, C. (2013). The neurobiology of depression and antidepressant action. In *Neuroscience and Biobehavioral Reviews* (Vol. 37, Issue 10, pp. 2331–2371).  
<https://doi.org/10.1016/j.neubiorev.2012.12.007>
- Yang, C., Si, J., Suo, L., Zhang, Y., & Li, J. (2019). Chronic exposure to fluoxetine of female mice before mating causes impaired stress resilience in female offspring. *Journal of Neural Transmission*, 126(9), 1231–1239.  
<https://doi.org/10.1007/s00702-019-02047-3>
- Zaprutko, T., Göder, R., Rybakowski, F., Kus, K., Kopciuch, D., Paczkowska, A., Ratajczak, P., & Nowakowska, E. (2020). Non-pharmacological treatments of inpatients with major depression – The case of Polish (Poznan) and German (Kiel) hospital. *Complementary Therapies in Clinical Practice*, 39, 101129.  
<https://doi.org/10.1016/J.CTCP.2020.101129>
- Zhang, Y., Jia, X., Yang, Y., Sun, N., Shi, S., & Wang, W. (2024). Change in the global burden of depression from 1990-2019 and its prediction for 2030. *Journal of Psychiatric Research*, 178, 16–22.  
<https://doi.org/10.1016/j.jpsychires.2024.07.054>