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QUR'ANIC AUDITORY STIMULATION AS COGNITIVE-LINGUISTIC THERAPY FOR LEXICAL RETRIEVAL IN POST-STROKE BROCA'S APHASIA: A CASE STUDY

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Abstract: Post-stroke aphasia impairs lexical retricceeeval, verbal fluency, and communication ability, yet access to conventional speech therapy remains limited in many developing countries. This study examined whether Qur'anic recitation therapy could facilitate cognitive-linguistic recovery in a patient with Broca's aphasia, focusing specifically on lexical retrieval mechanisms. A qualitative case study design was employed, involving a 43-year-old male lecturer from West Java, Indonesia, who experienced a hemorrhagic stroke affecting Broca's area, resulting in non-fluent aphasia. The participant, a native Sundanese-Indonesian speaker with pre-stroke Qur'anic memorization experience, received structured therapy over approximately 71 days. The intervention comprised five stages: ablution procedures, prayer movements, recitation of short surahs (Al-Fatihah, Al-Ikhlas, Al-Falaq, An-Nas), dhikr verbal repetition, and daily prayers. Data were collected through observation of verbal production during therapy sessions and analyzed qualitatively, focusing on lexical retrieval accuracy, verbal fluency, and communication confidence. Findings revealed that the participant successfully retrieved familiar Qur'anic recitations more accurately than unfamiliar Indonesian texts, indicating that spiritually embedded language stored in long-term memory remained relatively preserved. Gradual improvements in attention, verbal recall, and communicative confidence were observed. Within one year post-therapy, the participant resumed employment, served as a muezzin, and completed a master's degree. The study concludes that Qur'anic recitation may function as cognitive-linguistic stimulation supporting lexical retrieval in post-stroke aphasia through mechanisms of familiarity, repetition, and semantic cueing. However, these findings derive from a single case and require replication. Recommendations include integrating spiritually familiar linguistic stimuli into aphasia rehabilitation protocols, conducting controlled group studies, and exploring applicability across different aphasia types and cultural-linguistic contexts.
Keywords: *Broca's aphasia; Qur'anic recitation; lexical retrieval; cognitive-linguistic therapy; verbal memory; case study*

INTRODUCTION

Aphasia is a neurological language disorder caused by damage to language-processing regions of the brain, particularly after stroke, and it affects speaking, comprehension, reading, and writing abilities. Beyond linguistic impairment, aphasia is increasingly recognized as a cognitive disorder involving deficits in working memory, attention, lexical retrieval, and information processing (Abd Rahman et al., 2025). Cognitive decline in post-stroke aphasia frequently reduces communication confidence and social participation, thereby decreasing quality of life and increasing family burden (Septian et al., 2025). Conventional speech and language therapy remains the primary rehabilitation approach; however, rehabilitation access is still limited in many developing countries because of economic barriers, limited therapeutic facilities, and long-term treatment demands (Cahyati et al., 2024). Consequently, alternative

rehabilitation approaches that are affordable, culturally adaptive, and cognitively stimulating are increasingly needed for people with aphasia (PWA).

Recent developments in neuroscience suggest that repetitive auditory stimulation can influence neural plasticity and cognitive recovery processes. Qur'anic recitation therapy has been associated with activation of brain regions related to attention, emotional regulation, and memory processing (Ismail et al., 2023). Neurophysiological analyses further demonstrated that rhythmic Qur'anic sounds influence neural functioning and autonomic relaxation responses associated with cognitive engagement (Latif & Bhatti, 2024; Okur & Bayraktar, 2026). EEG-based studies additionally reported that Tartil reading involving Tajwid and Tadabbur stimulates neurocognitive activity and attentional processing (Rahmi et al., 2026) also concluded that the duration and frequency of Qur'anic listening contribute positively to hippocampal functioning and cognitive performance. However, most of these studies primarily examined general cognitive or emotional outcomes rather than language-related cognition in neurological rehabilitation settings. As a result, the role of Qur'anic recitation as structured cognitive-linguistic stimulation for aphasia remains theoretically underexplored.

The relationship between Qur'anic recitation and memory processes has also been widely discussed in cognitive psychology and neuroscience studies. Qur'anic memorization practices improve working memory, concentration, and information retention through repetitive encoding and retrieval mechanisms (Achmad et al., 2025). Bayati (2024) argued that repeated recitation strengthens long-term memory consolidation by reinforcing semantic associations and verbal recall processes. Episodic memory studies further revealed that individuals who regularly recite the Qur'an demonstrate stronger recall performance and memory retention than control groups (Abouhalim et al., 2023). Neuroscience-based learning models similarly explain that repetitive verbal stimulation activates hippocampal networks and strengthens neural repetition pathways involved in memory consolidation (Mahdi, 2024; Jailani, 2023). Nevertheless, previous studies largely focused on educational or general cognitive contexts rather than impaired lexical retrieval in aphasia patients. Although these findings suggest that repetitive Qur'anic recitation may reactivate preserved semantic memory, its contribution to communication recovery in PWA has not been sufficiently examined.

Several studies involving stroke and neurological patients further support the therapeutic potential of Qur'anic interventions. Listening to and reading the Qur'an significantly improved cognitive levels among first-stroke patients undergoing rehabilitation (Fadila et al., 2024). Qur'anic murottal combined with verbal stimulation interventions also increased motor responsiveness in patients with decreased consciousness (Arifin & Basuni, 2026). A review by Suryo and Syafi'i (2024) similarly concluded that systematic Qur'anic audio therapy supports neurological recovery in progressive neurodegenerative disorders. Holistic spiritual interventions based on Qur'anic recitation were likewise associated with improved emotional adaptation and quality of life among chronic disease patients (Rosyanti et al., 2025; Pome et al., 2025). Despite these promising findings, previous neurological studies mainly emphasized physiological recovery and emotional stability rather than specific language-processing mechanisms such as verbal retrieval, semantic activation, or communication rehabilitation. Consequently, evidence regarding the direct role of Qur'anic stimulation in aphasia cognition remains fragmented.

The psychological effects of Qur'anic therapy have also been extensively investigated. Qur'anic recitation reduces stress and promotes emotional relaxation among healthy adults and clinical populations (Hanafi et al., 2024). Studies on schizophrenia patients further demonstrated that murottal therapy decreases anxiety and hallucination symptoms by stabilizing emotional responses (Rizky et al., 2024; Fihudha & Mulyaningsih, 2024). Other researchers additionally reported that Qur'anic sound therapy contributes positively to depression management and psychological healing (Ihsan et al., 2025). Narrative reviews further conceptualized Qur'anic recitation as psychospiritual therapy capable of regulating emotional and physiological conditions simultaneously (Mawaddah et al., 2025; Afifah & Putri, 2025). However, although emotional stability is important in post-stroke rehabilitation, previous studies rarely examined how reduced anxiety and improved emotional regulation may facilitate communication confidence and language recovery in PWA.

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From a neurocognitive perspective, the potential contribution of Qur'anic recitation to aphasia rehabilitation can be explained through auditory-linguistic stimulation mechanisms. Memory retrieval and language production depend heavily on hippocampal functioning and interconnected temporal regions responsible for semantic processing and verbal recall (Liu, 2024). Thorup (2024) further explained that successful communication requires efficient retrieval of stored lexical information from long-term memory systems. Repetitive auditory stimulation may strengthen neural pathways associated with the phonological loop, verbal rehearsal, and semantic cueing processes involved in speech production (Ashokkumar et al., 2025). Integrative neuropsychological theories also indicate that emotional motivation and spiritual familiarity contribute to cognitive activation and recall performance (Dadandı & Yazıcı, 2024; Assabiq & Wantini, 2024). Therefore, repetitive Qur'anic recitation may theoretically support aphasia rehabilitation by activating preserved religious memory networks, facilitating lexical retrieval, and strengthening verbal recall processes through continuous auditory and semantic stimulation.

Research involving elderly populations experiencing cognitive decline further strengthens this assumption. Ghunnah therapy significantly improved memory performance among elderly participants with cognitive impairment (Bahri & Ismah, 2023). Reading Surah Al-A'la was similarly shown to enhance short-term memory retention and recall abilities (Anggraini et al., 2024). Qur'an-based cognitive stimulation therapy additionally improved cognitive engagement and quality of life among older adults (Rahmah et al., 2025). Family-assisted Qur'anic interventions were also associated with reduced anxiety and improved emotional stability among elderly patients with chronic illnesses (Yuningsih et al., 2024; Sukron et al., 2025). Nevertheless, these studies primarily evaluated general cognitive outcomes and emotional well-being rather than language rehabilitation or communication impairment. Thus, the applicability of these findings to aphasia cognition still requires empirical clarification.

Despite the growing body of literature on Qur'anic therapy, several important gaps remain unresolved. First, most previous studies focused predominantly on emotional healing, stress reduction, or general cognitive improvement rather than post-stroke language rehabilitation (Majidi & Rajabi-Tavakkol, 2025). Second, existing studies rarely conceptualized Qur'anic recitation as structured cognitive-linguistic stimulation capable of facilitating lexical retrieval and verbal memory activation in aphasia patients (Abd Rahman et al., 2025). Third, current aphasia rehabilitation research continues to emphasize conventional speech-language therapy without integrating psychospiritual and neurocognitive dimensions into treatment frameworks (Cahyati et al., 2024). Although previous findings demonstrated positive psychological and neurological effects of Qur'anic recitation, evidence regarding its role in communication recovery among PWA remains limited and methodologically fragmented. Therefore, this study addresses the following research question: how can Al-Qur'an therapy contribute to cognitive and language recovery processes in people with aphasia?

Previous studies have generally discussed Qur'anic therapy in relation to emotional healing, psychological well-being, memory improvement, or general neurological recovery, while its potential role in post-stroke language rehabilitation remains insufficiently explored (Achmad et al., 2025). In the context of aphasia, repetitive Qur'anic recitation may function as cognitive-linguistic stimulation that supports lexical retrieval, verbal recall, and communication recovery in people with aphasia (PWA). This perspective integrates neuroscience, psycholinguistics, cognition, and psychospiritual therapy to explain how auditory repetition, semantic familiarity, and preserved religious memory may contribute to the reactivation of long-term verbal memory networks (Nasir et al., 2025; Ismail et al., 2023). By positioning spiritual familiarity as a potential semantic retrieval cue, Qur'anic recitation is approached not only as religious practice, but also as a culturally adaptive rehabilitation strategy that may complement existing aphasia therapy models.

This study is significant both theoretically and practically. Theoretically, it contributes to interdisciplinary discussions connecting neuroscience, cognitive psychology, psycholinguistics, rehabilitation studies, and Islamic therapeutic approaches (Assabiq & Wantini, 2024). Practically, the findings may provide affordable and culturally relevant rehabilitation alternatives for stroke survivors, families, therapists, and healthcare institutions in Muslim communities where access to rehabilitation services remains limited (Rosyanti et al., 2025). The study may additionally encourage the integration of spiritual-based interventions into

cognitive and speech rehabilitation programs (Afifah & Putri, 2025). Furthermore, this research promotes broader awareness regarding holistic rehabilitation approaches capable of improving communication abilities and quality of life among people with aphasia (Hapsari & Kusumawinakhyu, 2024; Sukron et al., 2025).

METHOD

This study employed a qualitative special case study design focusing on a single participant with post-stroke aphasia. A special case study was selected because the research concentrated intensively on one individual case to understand cognitive and language recovery processes in depth. In case study research, the researcher observes a phenomenon, applies a specific intervention, and examines the resulting changes within the investigated subject (Nunan, 1992). A qualitative approach was considered appropriate because this study aimed to explore language behavior, verbal responses, and cognitive recovery during Qur'anic therapy rather than measure statistical outcomes quantitatively. Previous studies have suggested that repetitive Qur'anic recitation may contribute to memory activation and cognitive functioning through auditory and semantic stimulation (Ismail et al., 2023; Achmad et al., 2025).

To ensure trustworthiness, the study applied triangulation techniques consisting of source triangulation, methodological triangulation, and researcher triangulation (Lincoln & Guba, 1985). The primary data consisted of spoken language produced by the participant during therapy sessions, including utterances related to lexical retrieval, verbal recall, and comprehension. Additional observational data were obtained from the participant's communication behavior and responses during memory stimulation activities. Rahmi et al. (2026) noted that repeated auditory stimulation contributes to cognitive engagement and hippocampal activation. Therefore, verbal responses and therapeutic progress were continuously compared and interpreted to identify cognitive-language recovery patterns associated with Qur'anic stimulation.

The therapeutic intervention involved repetitive Qur'anic recitation activities intended to stimulate working memory and facilitate retrieval of linguistic information stored in long-term memory. The therapy included guided recitation, repetition of short surahs, and recall of familiar religious expressions associated with daily worship practices. Riza et al. (2023) explained that repetitive recitation strengthens semantic reinforcement and verbal recall processes, while Nasir et al. (2025) emphasized the role of Tartil recitation in activating neurocognitive mechanisms related to attention and phonological processing. Based on these perspectives, Qur'anic recitation in this study functioned as auditory-linguistic stimulation aimed at strengthening semantic cueing and lexical retrieval in Broca's aphasia.

The participant was a 43-year-old male lecturer from West Java, Indonesia, who actively used Sundanese and Indonesian in daily communication. He experienced a hemorrhagic stroke affecting Broca's area, resulting in Broca's aphasia and severe communication difficulties. After remaining in a coma for ten days, the participant experienced forgetfulness and impaired verbal production during post-stroke recovery. Prior to the stroke, he regularly recited the Qur'an, performed obligatory and sunnah prayers, fasted on Mondays and Thursdays, and served as a muezzin. These religious practices were considered important because spiritually familiar recitation patterns may stimulate preserved memory networks and cognitive engagement (Latif & Bhatti, 2024; Okur & Bayraktar, 2026).

Data analysis focused on interpreting the participant's verbal production and cognitive responses throughout the therapy process. The researcher examined changes in lexical retrieval, verbal recall, comprehension, and communication ability after repeated Qur'anic stimulation. Particular attention was given to how familiar auditory-spiritual patterns facilitated the emergence of meaningful utterances and reduced communication barriers. Accordingly, this study explored how Qur'anic therapy may influence cognitive processes and support language recovery in people with aphasia.

RESULTS AND DISCUSSION

The impact of post-stroke conditions varies across individuals, including physical impairment, cognitive decline, and language disorders associated with aphasia (Abd Rahman et al., 2025). After regaining consciousness from a ten-day coma, the respondent initially recognized only his wife and children and appeared unfamiliar with the surrounding environment. Physical weakness was observed on the right side of the body, particularly in the arms and legs, requiring intensive rehabilitation therapy. Early therapeutic intervention at the hospital primarily focused on

restoring motor function and stimulating speech production through oral-motor exercises involving the tongue, lips, and facial muscles. The respondent was repeatedly guided to pronounce basic vowels such as /a/, /i/, /u/, /e/, and /o/, followed by memory stimulation exercises intended to reactivate stored information and personal experiences prior to the stroke. Such repetitive stimulation is considered important in post-stroke cognitive rehabilitation because repeated verbal activation may strengthen memory retrieval and language processing mechanisms (Rahmi et al., 2026).

One of the earliest utterances produced by the respondent was *eta naon?* ('what is that?') while looking at the hospital window, indicating confusion and disorientation toward the surrounding environment. At that moment, the respondent appeared unable to fully recognize his location or understand the situation he was experiencing. His wife then responded by explaining that he was in the hospital and had regained consciousness. Several moments later, the respondent said *drinking* while pointing toward his mouth. When drinking water was offered, however, he rejected it and continued making gestures with discomfort. Shortly afterward, urine came out, indicating that the respondent had actually intended to ask for permission to urinate. This linguistic confusion reflects semantic association impairment commonly found in Broca's aphasia, in which conceptually related meanings become interconnected during lexical retrieval processes. In this case, the respondent associated *drinking* with urination because both concepts are cognitively linked to water-related bodily processes. Such associative retrieval disturbances demonstrate how impaired semantic processing may affect word selection and verbal expression in post-stroke aphasia patients (Agustono & Firdaus, 2025; Nurlela et al., 2024).

The incident was subsequently reported to the neurologist, who requested an additional magnetic resonance imaging (MRI) examination to evaluate possible lesions affecting the respondent's neural and language-processing regions. The examination results indicated damage in Broca's area, leading to the diagnosis of Broca's aphasia. The neurologist further explained the characteristics of aphasia to the respondent's family to reduce the possibility of communication breakdown during the rehabilitation process. Previous studies have emphasized that family understanding and emotional support play important roles in improving communication adaptation and quality of life among post-stroke patients with aphasia (Septian et al., 2025). Consequently, the family was advised to continue both hospital-based and home-based rehabilitation to support the respondent's cognitive and linguistic recovery.

After approximately two weeks of therapy, the respondent insisted on returning home because he felt uncomfortable remaining in the hospital. Before discharge, he attempted to demonstrate his reading ability by taking a newspaper from the table; however, the newspaper was held upside down, indicating persistent cognitive-language impairment and difficulties in visual-verbal processing. Although the neurologist recognized that the respondent's language function had not fully recovered, home rehabilitation was permitted under family supervision. During the post-stroke phase, the respondent also experienced severe disruption in performing daily religious activities. He forgot how to perform ablution, recite prayer verses, and execute prayer movements that had previously become part of his daily routine. Repetitive listening to Qur'anic recitation was then gradually introduced as part of cognitive and emotional stimulation. Previous neuropsychological studies have shown that rhythmic Qur'anic recitation may promote relaxation, reduce stress responses, and stimulate cognitive engagement through auditory processing mechanisms (Latif & Bhatti, 2024; Okur & Bayraktar, 2026). In this context, spiritually familiar recitation patterns were expected to assist memory retrieval and support the respondent's cognitive-language rehabilitation process.

Table 1. *Stages of Al Quran therapy*

Stages	therapy	intensity	time	results
first	ablution	Seven times	4 days	succeed
second	prayer movements	Seven times	4 days	succeed
third	Prayer reading: Takbiratul Ihram Al Fatihah Al Ikhlas, Al-Falaq, An-Nas, Ad-Duha Bow and Itidal	Seven times	30 days	succeed

	prostrate and sit between the two prostrations early tashahud final tashahud			
fourth	Dhikr: astagfirullahal adzim, subhanallah, alhamdulillah, laa ilaha ilallah, Allahu akbar	One time	14 days	succeed
fifth	Daily prayer: Prayer before bed Prayer after waking up Prayer begins the meal Prayer after eating Prayer enters the bathroom	One time	23 days	Succeed

The table indicates that the respondent did not require a prolonged period to complete the Qur'anic therapy process, with recovery progress observed within a maximum of 23 days. This finding suggests that several cognitive functions, particularly long-term memory storage, remained relatively preserved despite the post-stroke language impairment. Many of the Qur'anic recitations and prayer expressions used during therapy had already become part of the respondent's daily religious routine prior to the stroke. Consequently, the therapeutic process primarily involved stimulating the retrieval of previously stored linguistic information rather than introducing entirely new verbal material. Previous studies have shown that repetitive Qur'anic recitation and memorization activities contribute to memory consolidation, semantic reinforcement, and cognitive activation processes associated with verbal recall (Achmad et al., 2025; Bayati, 2024). In addition, the respondent's strong motivation to recover appeared to support active participation throughout the rehabilitation process.

The therapy involved repeated practice of Qur'anic recitation, daily prayers, dhikr, ablution procedures, and short surahs that were familiar to the respondent before the stroke. These activities were gradually reintroduced to stimulate cognitive recovery and restore the respondent's ability to communicate and perform everyday religious practices independently. Rather than functioning solely as spiritual activity, Qur'anic recitation in this context served as repetitive auditory-linguistic stimulation intended to reactivate verbal memory networks. Nasir et al. (2025) explained that Tartil recitation engages neurocognitive mechanisms related to phonological processing, attention, and verbal rehearsal. Similarly, Ismail et al. (2023) reported that Qur'anic sound patterns may stimulate broader brain activation associated with emotional regulation and cognitive engagement. Because the recitations were already deeply familiar to the respondent, the therapy process was experienced more naturally and comfortably compared to formal clinical exercises.

The primary objective of the therapy was to stimulate the respondent's memory retrieval processes by reactivating linguistic information stored in long-term memory. Through repeated auditory exposure and guided recitation, the therapy attempted to facilitate the emergence of language data from the respondent's mental lexicon that had become difficult to access following the stroke. In cognitive terms, the intervention focused on strengthening working memory processes involved in retrieving, rehearsing, and producing familiar verbal expressions. Rahmi et al. (2026) emphasized that repetitive auditory stimulation may contribute to hippocampal activation and cognitive recall processes, while Okur and Bayraktar (2026) noted that spiritually familiar recitation patterns can influence neural responsiveness and emotional stability. Therefore, Qur'anic therapy in this study was positioned as a cognitive-language stimulation approach aimed at assisting verbal recall and communication recovery in people with aphasia.

First of all, therapy was carried out on respondents by teaching ablution which was adapted to the hadith of the prophet Sallallahu 'Alayhi wassalam. Abu Hurairah said that the Prophet sallallaahu 'alaihi wassalam said: "The prayer of one of you will not be accepted while he is still praying until he performs ablution." (Narrated by Bukhari no. 6954 and Muslim no. 225). In addition to this hadith, Allah also says in the Qur'an Surah Al Maidah verse 6 to perform ablution before praying. The word reads as follows:

يَـٰٓأَيُّهَا ٱلَّذِينَ ءَامَنُوٓاْ إِذَا قُمْتُمْ إِلَى ٱلصَّلَوٰةِ فَٱغْسِلُواْ وُجُوهَكُمْ وَأَيْدِيَكُمْ إِلَى ٱلْمَرَافِقِ وَٱمْسَحُواْ بِرُءُوسِكُمْ وَأَرْجُلَكُمْ إِلَى ٱلْكَعْبَيْنِ ۚ وَإِن كُنتُمْ جُنُبًا فَٱطَّهَّرُواْ ۚ وَإِن كُنتُم مَّرْضَىٰٓ أَوْ عَلَىٰ سَفَرٍ أَوْ جَآءَ أَحَدٌ مِّنكُم مِّنَ ٱلْغَآئِطِ أَوْ لَـٰمَسْتُمُ ٱلنِّسَآءَ فَلَمْ تَجِدُواْ مَآءً فَتَيَمَّمُواْ صَعِيدًا طَيِّبًا فَٱمْسَحُواْ بِوُجُوهِكُمْ وَأَيْدِيكُم مِّنْهُ ۚ مَا يُرِيدُ ٱللَّهُ لِيَجْعَلَ عَلَيْكُم مِّنْ حَرَجٍ وَلَـٰكِن يُرِيدُ لِيُطَهِّرَكُمْ وَلِيُتِمَّ نِعْمَتَهُۥ عَلَيْكُمْ لَعَلَّكُمْ تَشْكُرُونَ ٦

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"Yaa ayyuhallaziina aamanuu izaa qumtum ilas-salaati fagsilu wujuhakum wa aidiyakum ilal-maraafiqi wamsahu biru'usikum wa arjulakum ilal-ka'baiin, wa ing kuntum junuban fattahharu, wa ing kuntum mardaa au 'alaa safarin au jaa'a ahadum mingkum minal-gaa'iti au laamastumun-nisaa'a fa lam tajidu maa'an fa tayammamu sa'iidan tayyiban famsahu biwujuhikum wa aidiikum min-h, maa yuriidullaahu liyaj'ala 'alaikum min harajiw wa laakiy yuriidu liyutahhirakum wa liyutimma ni'matahu 'alaikum la'allakum tasykurun."

It means: "O believers! When you rise up for prayer, wash your faces and your hands up to the elbows, wipe your heads, and wash your feet to the ankles. And if you are in a state of ˹full˺ impurity, then take a full bath. But if you are ill, on a journey, or have relieved yourselves, or have been intimate with your wives and cannot find water, then purify yourselves with clean earth by wiping your faces and hands. It is not Allah's Will to burden you, but to purify you and complete His favour upon you, so perhaps you will be grateful." (Quran.com)

Performing ablution before praying, by reading the basmalah first "Bismillahirrahmanirrahim" ('In the name of Allah, the Most Gracious, the Most Merciful') while washing both hands up to the wrists three times. Then rinse your mouth and suck the water into your nose three times. Then wash the face three times, and wash both hands up to the elbows, preceded by the right hand, three times. Then wipe the head up to the shoulders and then back to the front through the ears to clean the ears, as much as one time. Finally, wash the feet up to the ankles, preceded by the right foot three times. After ablution, he ends by praying: "I have no god but Allah, the One and only, he has no partner. And I bear witness that Muhammad is his servant and messenger. O Allah, make me part of the people who change and make me a group of people who are holy."

أَشْهَدُ أَنْ لَا إِلٰهَ إِلَّا اللهُ وَحْدَهُ لَا شَرِيكَ لَهُ، وَأَشْهَدُ أَنَّ مُحَمَّدًا عَبْدُهُ وَرَسُولُهُ
اللَّهُمَّ اجْعَلْنِي مِنَ التَّوَّابِينَ وَاجْعَلْنِي مِنَ الْمُتَطَهِّرِينَ وَاجْعَلْنِي مِنْ عِبَادِكَ

Ashhadu an lā ilāha illallāhu waḥdahu lā sharīka lah, wa ashhadu anna Muḥammadan ʿabduhū wa rasūluh.Allāhumma'jʿalnī minat-tawwābīn wajʿalnī minal-mutaṭahhirīn wajʿalnī min ʿibādikaṣ-ṣāliḥīn.

"I bear witness that there is no god except Allah alone, without partner, and I bear witness that Muhammad is His servant and messenger. O Allah, make me among those who repent often, make me among those who purify themselves, and make me among Your righteous servants."

This therapeutic activity was conducted repeatedly throughout the day, particularly before the five obligatory prayers and additional sunnah prayers such as dhuha and tahajud. During the early stages of rehabilitation, the respondent primarily listened to his wife reciting prayer readings while attempting to follow the prayer movements gradually. At this stage, the respondent was not yet able to independently pronounce the recitations fluently; therefore, auditory exposure became the primary form of stimulation. The respondent was also guided to repeatedly read short prayer texts after performing ablution as part of verbal and cognitive training. This repetitive practice was intended to stimulate reading ability, concentration, and verbal recall processes that had been disrupted following the stroke. Previous studies have suggested that repeated Qur'anic recitation and auditory exposure may strengthen attention, memory activation, and cognitive engagement through neurocognitive stimulation mechanisms (Nasir et al., 2025; Rahmi et al., 2026).

Following ablution activities, the respondent appeared more focused and cognitively responsive during therapy sessions. The sensory experience of washing with water before prayer was observed to create a calming effect that supported concentration and emotional stability during verbal stimulation activities. Repeated physical and spiritual routines performed consistently five to seven times daily also appeared to support cognitive adaptation and behavioral consistency throughout rehabilitation. In addition to spiritual value, prayer movements such as standing, bowing, sitting, and prostration contributed to gradual physical rehabilitation by assisting muscle movement and body coordination after the stroke. Simultaneously, the respondent was encouraged to maintain visual attention and concentration during prayer activities, particularly during takbiratul ihram and guided recitation. Previous neuropsychological studies have indicated that spiritually familiar recitation patterns and repetitive religious practices may influence emotional regulation, neural responsiveness, and cognitive focus (Latif & Bhatti, 2024; Okur & Bayraktar, 2026).

Throughout the therapy process, the respondent was continuously stimulated to retrieve information regarding ablution procedures, prayer movements, and familiar prayer recitations stored

in long-term memory. Although many verbal and procedural memories initially appeared inaccessible after the stroke, repeated stimulation gradually facilitated recognition and recall processes. In cognitive psychology, retrieval refers to the process of accessing previously stored information so that it can be used again in ongoing cognitive activities (Hasan et al., 2023). In this study, recognition processes emerged when the respondent responded to repeated ablution and prayer stimuli that had previously been demonstrated by the therapist and family members. Over time, the respondent became increasingly capable of performing ablution and prayer movements independently without external assistance. This progression indicates that repetitive auditory-spiritual stimulation may contribute to reactivating preserved memory networks and supporting cognitive-language recovery in post-stroke aphasia rehabilitation.

The second therapy is to train respondents to read short letters in the Koran for the sake of prayer. The letters that were withdrawn from the memory of the informants were the letters of Al Fatihah, Al Ikhlas, Al Falaq, and An-Nas. The following are the letters that are read, memorized, and practiced in prayer (translation by Mustafa Khattab, Quran.com.):

Surah Al Ikhlas

قُلْ هُوَ ٱللَّهُ أَحَدٌ ١ ٱللَّهُ ٱلصَّمَدُ ٢ لَمْ يَلِدْ وَلَمْ يُولَدْ ٣ وَلَمْ يَكُن لَّهُۥ كُفُوًا أَحَدٌۢ ٤

It means:

"Say, ˹O Prophet, "He is Allah - One ˹and Indivisible˺; Allah - the Sustainer ˹needed by all˺; He has never had offspring, nor was He born; And there is none comparable to Him."

Surah Al Falaq

قُلْ أَعُوذُ بِرَبِّ ٱلْفَلَقِ ١ مِن شَرِّ مَا خَلَقَ ٢ وَمِن شَرِّ غَاسِقٍ إِذَا وَقَبَ ٣ وَمِن شَرِّ ٱلنَّفَّٰثَٰتِ فِى ٱلْعُقَدِ ٤ وَمِن شَرِّ حَاسِدٍ إِذَا حَسَدَ ٥

It means:

"Say, ˹O Prophet, "I seek refuge in the Lord of the daybreak; from the evil of whatever He has created; and from the evil of the night when it grows dark; and from the evil of those ˹witches casting spells by˺ blowing onto knots; and from the evil of an envier when they envy."

Surah An-Nas

قُلْ أَعُوذُ بِرَبِّ ٱلنَّاسِ ١ مَلِكِ ٱلنَّاسِ ٢ إِلَٰهِ ٱلنَّاسِ ٣ مِن شَرِّ ٱلْوَسْوَاسِ ٱلْخَنَّاسِ ٤ ٱلَّذِى يُوَسْوِسُ فِى صُدُورِ ٱلنَّاسِ ٥ مِنَ ٱلْجِنَّةِ وَٱلنَّاسِ ٦

It means:

"Say, ˹O Prophet, "I seek refuge in the Lord of humankind; the Master of humankind; the God of humankind; from the evil of the lurking whisperer; who whispers into the hearts of humankind; from among jinn and humankind."

Initially, the respondent was stimulated to read several short surahs frequently recited in daily worship, namely Surah Al-Fatihah, Al-Ikhlas, Al-Falaq, and An-Nas. During the first stages of therapy, the respondent produced the recitations slowly, with frequent pauses and repetitions, reflecting persistent impairment in verbal fluency and lexical retrieval associated with Broca's aphasia. Nevertheless, unlike when reading Indonesian newspaper texts, the respondent was generally able to complete Qur'anic recitations correctly despite reduced articulation speed. When reading newspapers or magazines, many words were omitted or incorrectly produced, indicating greater difficulty in processing unfamiliar written information. This contrast suggests that familiar Qur'anic expressions had remained relatively preserved within long-term semantic memory prior to the stroke. Achmad et al. (2025) emphasized that repetitive Qur'anic memorization strengthens memory consolidation and retrieval processes, while Abouhalim et al. (2023) found that regular Qur'an recitation contributes to episodic memory reinforcement. In the present study, the respondent's ability to retrieve familiar recitations more successfully than unfamiliar texts supports the argument that spiritually embedded language may remain cognitively accessible even after post-stroke language impairment.

The therapeutic process relied heavily on retrieval and selective attention mechanisms. According to Santoso et al. (2025), retrieval involves reactivating stored information from memory, whereas selective attention enables individuals to focus cognitive resources on particular stimuli. In this therapy, the respondent was repeatedly directed to focus on specific recitations, especially Surah Al-Fatihah, by attending to rhythmic patterns, sound repetition, and pronunciation sequences during prayer. Nasir et al. (2025) argued that Tartil recitation activates neurocognitive processes related to phonological attention and verbal rehearsal, while Ismail et al. (2023) demonstrated that Qur'anic sound patterns stimulate broader neural regions associated with cognition and emotional regulation. Compared with conventional speech exercises that often emphasize isolated phonetic drills, the present therapy integrated familiar semantic, rhythmic, and

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spiritual stimuli simultaneously. This combination may explain why the respondent demonstrated stronger engagement and more stable recall during Qur'anic recitation than during ordinary reading tasks.

After the respondent gradually relearned the short surahs, he was guided to apply them directly during prayer activities until the recitations and prayer sequences could be performed more independently. This finding aligns with previous studies showing that repetitive Qur'anic recitation can improve concentration, cognitive engagement, and verbal responsiveness through repeated auditory exposure (Zaidah et al., 2023; Rahmi et al., 2026). However, unlike previous studies that primarily focused on general cognition, anxiety reduction, or educational outcomes, the present study demonstrates how familiar Qur'anic recitations may function specifically as semantic retrieval cues in post-stroke aphasia rehabilitation. The respondent's improvement did not emerge merely from repetition itself, but from the meaningfulness and emotional familiarity attached to the recitations that had already been practiced for many years before the stroke. This finding strengthens the assumption that emotionally meaningful language may be retrieved more effectively than unfamiliar linguistic material in aphasia recovery.

The findings further indicate that Qur'anic therapy contributed to gradual improvement in attention, verbal recall, and communication ability. Saputri et al. (2024) stated that attention and executive function often improve alongside language rehabilitation processes in aphasia recovery. In the present study, repeated recitation required the respondent to sustain concentration, monitor pronunciation, and repeatedly access stored linguistic information. Similar findings were reported by Malkan & Mahmud (2024), who found that Qur'anic reading activities improved short-term memory performance, and by Khusna & Rahmawati (2023), who demonstrated that Qur'an-based cognitive stimulation enhanced quality of life and cognitive responsiveness among older adults. Nevertheless, the current study differs because the cognitive stimulation occurred within a post-stroke aphasia context where language production itself was severely impaired. Thus, the therapy did not simply improve memory performance generally, but specifically supported verbal retrieval and communicative functioning.

The third stage of therapy involved routine dhikr activities before sleep through repeated verbal expressions such as *Subhanallah, Alhamdulillah, Allahu Akbar, and Astaghfirullahal 'adzim*. Prayer beads were used to maintain repetition consistency and concentration during recitation. Previous studies have reported that repetitive Qur'anic auditory exposure contributes to emotional calmness, stress reduction, and neural relaxation responses (Musyandi et al., 2024; Sukron et al., 2025). Okur and Bayraktar (2026) additionally explained that Qur'anic recitation may influence neurobiological responsiveness through rhythmic auditory stimulation. In the present study, however, dhikr functioned not only as emotional regulation but also as continuous verbal rehearsal that repeatedly activated preserved lexical patterns before sleep. This suggests that repetitive spiritual language may simultaneously support emotional stabilization and cognitive-language stimulation during aphasia rehabilitation.

The respondent's recovery process also highlights the importance of familiarity and previous experience in cognitive-language rehabilitation. Osgood and Sebeok (1965) argued that language production is strongly influenced by cognitive structures developed through lived experience. In this study, worship-related expressions, prayer movements, and Qur'anic recitations had already become deeply embedded within the respondent's long-term memory before the stroke occurred. Consequently, retrieval became easier because the therapy activated linguistic material that had previously been reinforced through years of habitual repetition. This finding supports Bayati's (2024) argument that repetitive Qur'anic practice strengthens semantic and cognitive reinforcement processes. At the same time, the present study expands previous findings by demonstrating that preserved religious memory may function as an effective compensatory pathway for lexical retrieval in aphasia rehabilitation.

Physical and psychological improvements were gradually observed alongside cognitive-language recovery. Repeated prayer movements indirectly functioned as mild physical rehabilitation that supported movement coordination and bodily adaptation after stroke. Simultaneously, continuous engagement in worship activities appeared to increase emotional stability and communication confidence. Fahimah et al. (2025) argued that Qur'anic recitation may contribute to psychological resilience and mental recovery through psychospiritual intervention mechanisms. Similarly, Pome et al. (2025) reported improvements in quality of life following integrated murottal-based interventions. The

current findings extend these perspectives by showing that spiritually familiar routines may also encourage communicative confidence and social reintegration among people with aphasia.

Three months after the therapy began, the respondent appeared emotionally calmer, physically healthier, and increasingly confident in communicating with others despite residual symptoms of Broca's aphasia. The respondent gradually resumed independent religious activities, including praying at the mosque and serving again as a muezzin without family assistance. Six months after therapy, he returned to work, drove independently, and delivered a speech at his child's school. One year later, he successfully completed his master's degree. While previous studies have widely reported the psychological and cognitive benefits of Qur'anic recitation (Ningsih & Rosida, 2023; Hapsari & Kusumawinakhyu, 2024), evidence specifically connecting Qur'anic therapy with post-stroke aphasia recovery remains limited. Therefore, the present findings contribute to expanding the discussion of Qur'anic recitation beyond emotional or spiritual therapy toward its potential role in cognitive-language rehabilitation for people with aphasia.

CONCLUSION

This study demonstrates that Qur'anic therapy influences cognitive and language recovery in Broca's aphasia through the activation of preserved semantic memory and repetitive verbal stimulation. The respondent's ability to recall Qur'anic recitations more successfully than unfamiliar daily texts indicates that spiritually familiar language stored in long-term memory remains more accessible after post-stroke language impairment. Thus, the effectiveness of the therapy does not merely lie in its spiritual dimension, but in the interaction between familiarity, repetition, attention, and memory retrieval during language production.

The study also shows that active Qur'anic recitation provides stronger cognitive-language stimulation than passive listening because the respondent simultaneously engages auditory processing, visual recognition, articulation, concentration, and recall mechanisms. Through repeated recitation, prayer movements, and dhikr, the respondent continuously retrieved linguistic information embedded in previous worship experiences, allowing verbal production and communication ability to gradually re-emerge. In this process, recall and selective attention functioned as central mechanisms for restoring access to disrupted language pathways.

These findings extend current discussions on aphasia rehabilitation by showing that culturally and spiritually familiar expressions may function as effective semantic retrieval cues in post-stroke recovery. Rather than positioning Qur'anic therapy solely as emotional or spiritual healing, this study highlights its role as cognitive-language stimulation grounded in habitual verbal experience and preserved long-term memory. Accordingly, the study suggests that rehabilitation approaches connected to patients' lived experiences and deeply embedded linguistic practices may provide more meaningful and sustainable support for language recovery in people with aphasia.

REFERENCES

Abouhalim, M., Afarfar, A., & Faouzi Belahsen, M. (2023). Episodic memory and memory training: An example in Moroccan subjects who recite the Koran. *Psychology*, *14*(10), 1617–1633. https://doi.org/10.4236/psych.2023.1410093

Abd Rahman, M. T., Pauzi, N., Man, S. A., & Sin, T. K. (2025). Afasia pasca-strok dan implikasinya terhadap interpretasi ketempangan akal menurut Uṣūl al-Fiqh [Post-stroke aphasia and its implications for the interpretation of cognitive impairment in Uṣūl al-Fiqh]. *Jurnal Fiqh*, *22*(2), 355–388. https://doi.org/10.22452/fiqh.vol22no2.6

Achmad, N., Pomalato, S. W. D., Rahim, M., Djafri, N., & Hulukati, E. (2025). The cognitive effects of Al-Qur'an memorization: A systematic review of impacts on memory, academic performance, and broader cognitive functions. *Jurnal Konseling dan Pendidikan*, *13*(4), 178–196. https://doi.org/10.29210/1188400

Afifah, N. N., & Putri, F. A. (2025, Oktober). The therapeutic effects of Qur'anic-based spiritual interventions on psychological and physiological outcomes: A narrative review. Dalam *Proceedings of International Conference on Islamic Community Studies* (4148–4162).

Agustono, I., & Firdaus, H. D. (2025). Cognitive and spiritual approaches to Qur'anic memorization: A study of the Yadain method in Yogyakarta. *Al Muhafidz: Journal of Qur'an and Tafsir*, *5*(1), 19–37. https://doi.org/10.57163/almuhafidz.v5i1.146

Anggraini, P., Apriliani, L., Prasetyaningtyas, P. V., & Merdiaty, N. (2024). The effectiveness of reading Al-Qur'an Surah Al-A'la on short term memory. *Jurnal Psikologi Islam dan Budaya*, *7*(2), 1–10. https://doi.org/10.15575/jpib.v7i2.33272

Arifin, M. M., & Basuni, H. L. (2026). The effect of verbal stimulation intervention and Al-Qur'an

murotal therapy on motor response changes in patients with decreased consciousness. *INDOGENIUS*, *5*(1), 194–199. https://doi.org/10.56359/igj.v5i1.871

Ashokkumar, N., Neelamegam, D., Bharathi, M., & Arun, V. (2025). Analysis of cognitive science and learning environments in educational institutions. *Journal of Engineering Education Transformations*, *38*(3), 101–114. https://doi.org/10.16920/jeet/2024/v38i3/24247

Assabiq, R., & Wantini. (2024). Neuropsychology of Islamic education: Efforts to reconstruct PAI learning methods through the process of integrating students' cognitive and spiritual potential. *Pendas: Scientific Journal of Basic Education*, *9*(4), 234–264. https://doi.org/10.23969/jp.v9i04.22328

Bahri, A. N., & Ismah, Z. (2023). Memory improvement in the elderly through Ghunnah therapy. *Penamas*, *36*(2), 342–359. https://doi.org/10.31330/penamas.v36i2.732

Bayati, M. (2024). Memorizing the Holy Quran through cognitive psychology strategies. *Meras Journal*, *4*(2), 94–125. https://doi.org/10.57026/mjhr.v4i2.81

Cahyati, Y., Rosdiana, I., Setiawan, H., & Sutrisno, B. (2024). Feasibility study of development and modification of melodic intonation therapy for aphasia in stroke patients. *Malaysian Journal of Medicine & Health Sciences*, *20*(6), 1–12. https://doi.org/10.47836/mjmhs20.6.14

Dadandı, İ., & Yazıcı, H. (2024). Cognitive ability or motivation, or both: An integrative path analysis of the interplay between two key factors in academic achievement. *British Educational Research Journal*, *50*(5), 2342–2362. https://doi.org/10.1002/berj.4027

Fadila, E., Abdullah, M., Zaldi, A., Zakaria, G. A. N., & Muhammad, N. (2024). Pengaruh mendengar dan membaca Al-Quran terhadap tingkat kognitif pada pasien stroke pertama. *Malahayati Nursing Journal*, *6*(3), 1167–1178. https://doi.org/10.33024/mnj.v6i3.13205

Fahimah, S., Luthfiyah, L., & Azizah, S. (2025). A double-movement hermeneutic of Qur'anic healing verses and their relevance to anxiety disorders. *Al Furqan: Jurnal Ilmu Al Quran Dan Tafsir*, *8*(2), 255–271. https://doi.org/10.58518/alfurqan.v8i2.4071

Fihudha, G. D., & Mulyaningsih. (2024). Application of murottal Al-Quran therapy on the hallucination scores of hearing hallucination patients in Dr. RM. Soedjarwadi Psychiatric Hospital Klaten. *Jurnal Kegawatdaruratan Medis Indonesia*, *3*(2), 146–155. https://doi.org/10.58545/jkmi.v3i2.345

Hanafi, M., Rahmatillah, A., Wiyono, N., & Mirawati, D. K. (2024). The effect of listening to Holy Quran recitation on stress among healthy adults: A non-blinded randomized controlled trial. *Universa Medicina*, *43*(1), 61–68. https://doi.org/10.18051/UnivMed.2024.v43.61-68

Hapsari, P., & Kusumawinakhyu, T. (2024). The power of Qur'an to heal physical and mental illness. *Psikis: Jurnal Psikologi Islami*, *10*(1), 1–11. https://doi.org/10.19109/psikis.v10i1.19203

Hasan, A. Z., Alilah, N. H., Ab Rahman, Z., Fa'atin, S., & Kamaluddin, M. R. (2023). Neuroscience's principles and Al-Quran recital approaches used on Covid-19 patients during the Covid-19 pandemic in Malaysia. *Journal of Pharmaceutical Negative Results*, *14*(2), 2490–2500. https://doi.org/10.47750/pnr.2023.14.02.306

Ihsan, S., Sugiyanto, S., & Soewadi, S. (2025). Effectiveness of adjunct sound therapy with Al Qur'an recitation (Surah Ruqyah) versus Fluoxetine in patients with depression: A pilot study. *Ad-Dawaa' Journal of Pharmaceutical Sciences*, *8*(2), 191–208. https://doi.org/10.24252/djps.v8i2.58334

Ismail, S., Reza, M. F., Jusoh, M. H., Awang, W. S. W., & Juahir, H. (2023). Psychospiritual healing from Al-Quran: Internal aesthetic factor of Quranic sound and its effects in activating greater brain regions. *Malaysian Journal of Fundamental and Applied Sciences*, *19*(4), 583–606. https://doi.org/10.11113/mjfas.v19n4.2969

Jailani, M. (2023). The contribution of Ibnu Sina multilevel intellect and neuroscience: In learning Al-Qur'an Hadith in vocational high schools in the Covid-19 era. *DAYAH: Journal of Islamic Education*, *6*(1), 1–10. https://doi.org/10.22373/jie.v6i1.13435

Khusna, F. N., & Rahmawati, F. P. (2023, Agustus). Islamic therapy as a curative action for slow learners at SD Muhammadiyah. Dalam *International Conference on Learning and Advanced Education (ICOLAE 2022)* (779–792). Atlantis Press. https://doi.org/10.2991/978-2-38476-086-2_67

Latif, M. M., & Bhatti, A. H. (2024). Proximate analysis of Holy Quran recitations on physiological, psychological, and neural functioning in Muslims. *International Journal of Islamic Khazanah*, *14*(1), 47–63. https://doi.org/10.15575/ijik.v14i1.33615

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.

Liu, Z. (2024). The role of the hippocampus in memory formation and consolidation. *Theoretical and Natural Science*, *63*(1), 62–67. https://doi.org/10.54254/2753-8818/63/20241585

Mahdi, I. (2024). Tahfidzul Qur'an learning model with the internalization of neuroscience values. *Paramurobi: Journal of Islamic Religious Education*, *7*(1), 151–164. https://doi.org/10.32699/paramurobi.v7i1.6834

Malkan, S. N. A., & Mahmud, M. (2024). Curbing the mental illness: Does Al-Quran play roles? *International Journal of Islamic Theology & Civilization*, *2*(3), 31–37. https://doi.org/10.5281/zenodo.13940212

Mawaddah, A. W., Shofiah, V., & Rajab, K. (2025). Qur'anic recitation as a psychological therapy: An intervention model for mental health. *Psikologi Prima*, *8*(1), 122–134. https://doi.org/10.34012/psychoprima.v8i1.7014

Musyandi, A. Z., Dahrul, A., Handayani, R., Syahti, M. N., Lindriani, N., & Huda, A. (2024). Reducing stress among new boarding school students: The impact of Al-Qur'an reading intensity analyzed through expert systems and PHP. *Nusantara Journal of Behavioral and Social Science*, *3*(1), 35–44. https://doi.org/10.47679/202451

Nasir, M. I., Nurbidayah, S. A., & NR, N. H. (2025). Tartil Qur'an in the perspective of neuroscience: Integration of Tajwid, Tadabbur, and neurocognition. *TAFASIR: Journal of Quranic Studies*, *3*(2), 18–40. https://doi.org/10.62376/tafasir.v3i2.79

Ningsih, W., & Rosida, S. R. (2023). Sound of Al-Quran therapy (SAQTY) on the physiological function of premature infants in the NICU. *Gaster*, *21*(1), 66–78. https://doi.org/10.30787/gaster.v21i1.948

Nunan, D. (1992). *Research methods in language learning*. Cambridge University Press.

Nurlela, L., Asih, F., Pindi, K., & Syamsuriati, S. (2024). Al-Quran recitation therapy with Surah Ar-Rahman on students' sleep quality: A randomized controlled trial. *Diversity: Disease Preventive of Research Integrity*, *4*(2), 63–69. https://doi.org/10.24252/diversity.v4i2.45901

Okur, S., & Bayraktar, B. (2026). Neurobiological and psychological effects of reciting the Quran from the Mushaf. *Discover Psychology*, *6*, Artikel 110. https://doi.org/10.1007/s44202-026-00658-y

Osgood, C. E., & Sebeok, T. A. (Eds.). (1965). *Psycholinguistics: A survey of theory and research problems*. Indiana University Press.

Pome, G., Rohana, I. G. A. P. D., Putri, E. L., & Jauhar, M. (2025). Integration of autogenic exercise and murottal Al-Quran improves the quality of life of the elderly: A quasy experimental study. *Jurnal Berita Ilmu Keperawatan*, *18*(1), 29–37. https://doi.org/10.23917/bik.v18i1.7247

Rahmah, A. H., Qoni'ah, Q. A., & Dharojah, R. W. (2025). Peningkatan kualitas hidup lansia melalui cognitive stimulation therapy belajar membaca Al-Qur'an. *Jurnal Penelitian Kesehatan "SUARA FORIKES" (Journal of Health Research "Forikes Voice")*, *16*(3), 792–795. http://dx.doi.org/10.33846/sf16318

Rahmi, U., Putri, S. T., Fitriana, L. A., & Murtiani, F. (2026). The impact of Qur'anic reading and listening duration and frequency on cognitive performance and hippocampal function: A systematic review. *IIUM Medical Journal Malaysia*, *25*(1), 1–10. https://doi.org/10.31436/imjm.v25i01.2925

Rifaannudin, M., & Cahyaningtyas, K. (2023). Implementation of Murottal Al-Quran therapy for autistic children (Study living Qur'an in Ainul Yakin Pesantren for special children Gunung Kidul Yogyakarta). *Kontemplasi: Jurnal Ilmu-Ilmu Ushuluddin*, *11*(1), 67–80. https://doi.org/10.21274/kontem.2023.11.1.67-80

Riza, J. K., Wiyono, B. B., Hambali, I. M., Muslihati, M., & Al Karni, N. I. A. (2023). Group counseling of cognitive restructuring and Murattal Al-Qur'an relaxation techniques to alleviate Indonesian Muslim University students' academic anxiety: Does it work effectively?. *KONSELOR*, *12*(4), 245–258. https://doi.org/10.24036/0202312428-0-86

Rizky, N. W., Oktaviani, D. S., Anggraini, S. M., Khairunnisa, P., & Al Habsyi, M. B. (2024). Murottal Al-Qur'an listening therapy to control anxiety in schizophrenia sufferers. *Proceeding Conference on Psychology and Behavioral Sciences*, *3*, 639–646. https://doi.org/10.61994/cpbs.v3i.189

Rosyanti, L., Nugroho, H. S. W., & Hadi, I. (2025). Building holistic health using Quran-based spiritual therapy application media for chronic disease patients in intensive care units. *Anaesthesia, Pain & Intensive Care*, *29*(2), 337–340. https://doi.org/10.35975/apic.v29i2.2725

Santoso, A. P., Priyo, P., Wijayanti, K., & Widiyanto, P. (2025, Oktober). Quran recitation as a therapeutic intervention for sleep disorders in elderly living in the community. Dalam *Proceeding International Conference of Advancements in Nursing Care* (Vol. 2, No. 2, hlm. 52–55).

Saputri, J. P. R., Kurniyawan, E. H., Dewi, E. I., & Kusumaningsih, A. (2024). Analysis of the application of murottal Al-Quran to the signs and symptoms of hearing hallucinations. *Health and Technology Journal (HTechJ)*, *2*(5), 478–486. https://doi.org/10.53713/htechj.v2i5.240

Septian, R. B., Pangastuti, H. S., & Nisman, W. A. (2025). Palliative care needs in stroke patients according to family perspectives in Yogyakarta: A phenomenological study. *IJNP (Indonesian Journal of Nursing Practices)*, *9*(1), 1–10. https://doi.org/10.18196/ijnp.v9i1.22395

Sukron, S., Sari, I., Aristoteles, A., Wahyudi, J. T., Phutthikhamin, N., Rahmadhani, W., & Ameilia, A. D. (2025). The effect of reading the Holy Al-Quran on stress levels among patients with hypertension. *Journal of Health and Nutrition Research*, *4*(2), 569–576. https://doi.org/10.56303/jhnresearch.v4i2.428

p-ISSN 2252-7427, e-ISSN 2541-3635
https://journal.uniku.ac.id/index.php/IEFLJ/index

Suryo, N., & Syafi'i, M. H. (2024). The effect of Al-Qur'an recitation as systematic audio therapy on patients with neurodegenerative progressive supranuclear palsy (PSP): A review. *Journal of Islamic Communication and Counseling*, *3*(2), 112–131. https://doi.org/10.18196/jicc.v3i2.80

Thorup, E. (2024). The neuroscience of memory: How the brain stores and retrieves information. *Perspective Neuroscience and Psychology*, *7*(6), 297–299. https://doi.org/10.47532/npoa.2024.7(6).297-299

Yuningsih, A., Marpatmawati, I., & Hertini, R. (2024). The role of the family in providing Al-Quran recitation therapy to reduce anxiety in elderly people with hypertension. *KIAN Journal*, *3*(1), 1–10. https://doi.org/10.56359/kian.v3i1.607

Zaidah, Q. R., Allina, K. N., & Imaduddin, M. (2023, Juni). The effectiveness of Quran recitation audio therapy on improving students' concentration. Dalam *Proceedings of the International Conference on Multidisciplinary Studies (ICOMSI 2022)* (page 52). Springer Nature.