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The Effect of 432 Hertz Frequency Music Therapy on Auditory Hallucinations in Schizophrenia Patients: A Quasi-Experimental Study

Muhammad Taufiqul Akbar ^{1*}, Ririn Kurniawati ², Dwi Bagas Febriyanto ²

¹Profesi Ners, Institut Teknologi Kesehatan Malang Widya Cipta Husada, Indonesia

²S1 Ilmu Keperawatan, Institut Teknologi Kesehatan Malang Widya Cipta Husada, Indonesia

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Correspondence:

Muhammad Taufiqul Akbar
Profesi Ners, Institut
Teknologi Kesehatan
Malang Widya Cipta
Husada, Indonesia

Email:

taufiqulakbar120@gmail.com

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ABSTRACT

Background: Schizophrenia is a severe and chronic mental disorder characterized by cognitive impairment and difficulties in performing daily activities. Approximately 20% of patients with schizophrenia experience hallucinations. The 432 Hertz frequency is considered close to the natural resonance of the human body and is widely used in sound healing.

Objective: This study aimed to investigate the effect of 432 Hertz frequency music therapy on the reduction of auditory hallucinations in schizophrenia patients at Griya Lansia Wajak, Malang Regency.

Methods: A quasi-experimental design with a pretest-posttest control group was applied, involving both intervention and control groups. The research instrument used was the AHRS questionnaire, with validity test results of $r = 0.01 > 0.03$ and reliability exceeding 0.60, namely 0.07. The study population consisted of 40 respondents, and 30 participants were selected using purposive sampling.

Results: The findings indicated a significant reduction in auditory hallucinations among schizophrenia patients receiving the intervention. Statistical analysis using an independent sample test yielded a p-value of 0.000 (< 0.05).

Conclusion: Music therapy at a frequency of 432 Hertz significantly reduced auditory hallucinations in schizophrenia patients.

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Introduction

Schizophrenia is a severe and chronic mental disorder characterized by impaired communication, distorted perception of reality (hallucinations), inappropriate affect, and cognitive dysfunction, which consequently affect daily functioning. Approximately 20% of patients diagnosed with schizophrenia experience hallucinations [1]. Globally, the number of individuals living with schizophrenia reached 24 million in 2022. According to WHO, schizophrenia is among the 15 leading causes of disability worldwide, with 21 million people affected globally, including an estimated 400,000 cases in Indonesia [2].

Hallucinations represent one of the most common symptoms of schizophrenia, in which individuals are unable to distinguish between reality and false perceptions. The consequences of hallucinations may include panic, loss of self-control, suicidal behavior, homicide, and other forms of violence that endanger both the patients and those around them [3]. The management of this disorder requires comprehensive approaches including therapy, rehabilitation, and counseling. Various therapeutic interventions have been developed to reduce hallucinations, one of which is music therapy [4].

Music therapy has been found effective in reducing the intensity of auditory hallucinations in schizophrenia patients. The frequency of sound produced by musical instruments plays a crucial role in influencing brain waves. Sound frequencies in music can stimulate the brain to release endorphins and increase dopamine and melatonin levels, thereby promoting psychological well-being [4]. Currently, most contemporary music applies the standard tuning of 440 Hertz, with limited use of alternative frequencies.

The 432 Hertz frequency is considered closer to the natural resonance of the human body and is widely used in sound healing practices. Music tuned to 432 Hertz, particularly when composed with slow tempo rhythms and melodies, has been reported to induce physical relaxation and improve mood [6]. Furthermore, sound produced at this frequency has been associated with feelings of peace, harmony, and comfort [7]. A preliminary study conducted through interviews with the head of the foundation at *Griya Lansia Wajak*, Malang Regency, revealed an increasing number of schizophrenia patients in this facility. In 2022, there were 58 patients diagnosed with schizophrenia; the number increased to 63 in 2023 and further rose to 70 in 2024. The rising prevalence of schizophrenia at *Griya Lansia Wajak* indicates the growing need

for effective interventions to manage hallucinations in this population.

Materials And Methods

This study applied a quasi-experimental design with a one-group pretest–posttest control approach. The research was conducted at *Griya Lansia Wajak*, Malang Regency, from March to April 2025, a purposive sampling technique was employed to recruit 30 patients diagnosed with schizophrenia. The inclusion criteria were schizophrenia patients experiencing auditory hallucinations in a stable condition, while the exclusion criteria were patients with hearing impairments or deafness. Data were collected through the distribution of questionnaires. Participants first completed the Auditory Hallucination Rating Scale (AHRs) questionnaire before the intervention. They then received music therapy using a frequency of 432 Hertz. Following the intervention, the AHRs questionnaire was administered again to evaluate the effectiveness of the therapy.

The research instrument used in this study was the Auditory Hallucination Rating Scale (AHRs). Based on the reported instrument testing results, the AHRs demonstrated a discriminant validity value of 0.03 and a reliability coefficient of 0.60 based on Cronbach's alpha. However, the reported validity value and the type of validity test used require further clarification to ensure that the testing procedure and criteria for determining validity are clearly described. Similarly, the reliability result should be reported consistently and accompanied by an explanation of the interpretation of the Cronbach's alpha coefficient. Following the assessment of the instrument, data analysis began with the Shapiro–Wilk normality test to determine whether the data were normally distributed. The results indicated that the data were normally distributed. Therefore, an independent-samples t-test was used to examine differences between the two study groups. A p-value < 0.05 was considered statistically significant, indicating that the observed difference was statistically significant when the p-value was below 0.05.

Results

Characteristics of Respondents

A total of 30 respondents participated in this study. The majority were in the early elderly age group (46–55 years), accounting for 70% (n=21),

while 30% (n=9) were in the late elderly age group (56–65 years). Most respondents were male (70%, n=21), and the majority had been hospitalized for more than 2 years (90%, n=27).

Table 1. Characteristics of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Age	Late adulthood (36–45)	0	0,0
	Early elderly (46–55)	21	70,0
	Late elderly (56–65)	9	30,0
Sex	Male	21	70,0
	Female	9	30,0
Duration of stay	< 1 year	3	10,0
	> 2 years	27	90,0

Source: Primary Data (May 2025)

Pretest Results

Before the intervention, most respondents in the experimental group (80%) experienced severe auditory hallucinations (score 23–33), and 20% experienced very severe hallucinations (score 34–44). Similarly, in the control group, 93.3% of respondents experienced severe hallucinations and 6.7% experienced very severe hallucinations.

Table 2. Pretest Distribution of Auditory Hallucinations

Group	Mild (1-11)	Moderate (12-22)	Severe (23-33)	Very Severe (34-44)	Total
Experimental	0 (0%)	0 (0%)	12 (80%)	3 (20%)	15
Control	0 (0%)	0 (0%)	14 (93,3%)	1 (6,7%)	15

Source: Primary Data (May 2025)

Posttest Results

After receiving 432 Hz frequency music therapy, the experimental group showed improvement: 6.7% of respondents had mild hallucinations and 93.3% had moderate hallucinations, with no cases of severe or very severe hallucinations. In contrast, in the control group, all respondents (100%) remained in the severe hallucination category.

Table 3. Posttest Distribution of Auditory Hallucinations

Group	Mild (1-11)	Moderate rate (12-22)	Severe (23-33)	Very Severe (34-44)	Total
experimental	1 (6,7%)	14 (93,3%)	0 (0%)	0 (0%)	15
Control	0 (0%)	0 (0%)	15 (100%)	0 (0%)	15

Source: Primary Data (May 2025)

Statistical Analysis

Independent sample t-test results showed that pretest mean hallucination scores in the experimental group (30.53) and control group (30.07) were not significantly different ($p > 0.05$). However, posttest results demonstrated a significant reduction in the experimental group (mean = 17.20) compared to the control group (mean = 28.73), with a p-value of 0.000 (< 0.05).

Table 4. Independent Sample t-Test Results

Test*	Group	Mean Score	p-value
Pretest	Experimenatal	30,53	0,619
	Control	30,07	0,611
Posttest	Experimenatal	17,20	0,000
	Control	28,73	0,587

Source: Primary Data (May 2025)

Summary of Findings

The findings indicate that 432 Hz frequency music therapy significantly reduced auditory hallucinations in schizophrenia patients compared with the control group.

Discussion

Respondent Characteristics

The findings of this study indicate that the majority of subjects experiencing hallucinations were in the early elderly age group (46–55 years), accounting for 70% of respondents, while the minority were in the late elderly group (56–65 years) with 30%. Previous literature suggests that the peak frequency of seeking psychiatric nursing assistance occurs between the ages of 25 and 44 years and declines with age, indicating that age is associated with variations in mental health service utilization [8]. The further emphasize that adulthood is a stage prone to emotional tension, often leading to vulnerability in coping with stressors and, consequently, emotional disturbances [9].

The majority of respondents were male (70%), while females accounted for 30%. This result is consistent with previous study that reported that men with psychiatric disorders often deny illness and refuse medication, believing they can manage depressive symptoms independently, which increases the risk of relapse [10].

In terms of length of stay, most respondents (90%) had been institutionalized for more than two years. This is in line with [11], who explained that experience provides opportunities to acquire and reinforce knowledge, thereby influencing coping strategies over time.

Auditory Hallucinations in the Intervention Group

The pretest results showed that in the intervention group, 80% of patients experienced severe hallucinations and 20% very severe hallucinations. After administration of music therapy at 432 Hz, the posttest results indicated a significant reduction: 93.3% of respondents reported moderate hallucinations and 6.7% reported mild hallucinations. The p-value of 0.000 (<0.05) confirms a significant reduction in hallucination severity. This improvement may be attributed to the redirection of patient attention from hallucinatory voices toward the auditory stimulus of 432 Hz music. Wahyuni *et al.* (2016) noted that consistent coping strategies reduce patients' belief in and dependence on hallucinations [12].

Auditory Hallucinations in the Control Group

In contrast, the control group showed no improvement. At baseline, 93.3% of patients experienced severe hallucinations and 6.7% very severe hallucinations. After the study period, 100% of the patients remained in the severe category, with no reduction observed. This result aligns with previous study who demonstrated that without structured non pharmacological, interventions, hallucinations do not diminish spontaneously [13].

Effect of 432 Hz Music Therapy

Music therapy has been increasingly investigated as a complementary, non-pharmacological intervention for reducing anxiety and promoting psychological relaxation. Evidence from systematic reviews and meta-analyses indicates that music-based interventions can reduce anxiety, although the magnitude of the effect may vary according to the intervention, population, study design, and outcome measures used [14-15].

Within this broader field, music tuned to **432 Hz** has attracted interest as an alternative tuning condition. Several experimental studies have examined its potential effects on psychological and physiological outcomes. For example, a randomized clinical trial involving patients undergoing tooth extraction found that both 432 Hz and 440 Hz music were associated with lower anxiety than the no-music control condition, while the 432 Hz condition was associated with lower salivary cortisol levels than the 440 Hz and control conditions [7]. Similarly, a randomized clinical study of patients undergoing impacted third-molar surgery reported a significant reduction in dental anxiety among participants who listened to 432 Hz music [15].

Physiological responses have also been investigated. In a crossover pilot study, 432 Hz music was associated with a reduction in heart rate compared with music tuned to 440 Hz, although changes in blood pressure were small and not statistically significant [16]. More recently, a randomized controlled pilot study comparing 432 Hz and 440 Hz music among emergency nurses reported differences in anxiety and stress-related outcomes, providing further preliminary evidence that alternative tuning may influence subjective and physiological responses [17].

Music at 432 Hz is believed to produce calming effects and stimulate brain regions associated with emotion, relaxation, and sensory perception. By providing stable and harmonious auditory stimuli, 432 Hz music can distract patients from hallucinatory voices and reduce their intensity. Furthermore, this frequency is thought to resonate with natural and bodily rhythms, fostering emotional balance and parasympathetic activation. Physiologically, it may induce delta brainwave activity, which supports rest and behavioral regulation, thereby reducing hallucination severity [18-19]. These findings support the theoretical framework of music therapy described by Gold *et al.* [20], who emphasized music as an effective non-pharmacological tool for alleviating psychological symptoms, including schizophrenia. Similarly, Wahyuni [5] reported that music interventions reduced hallucination intensity and improved quality of life among psychiatric patients.

However, the mechanism underlying the potential effects of 432 Hz music remains uncertain. The proposition that 432 Hz specifically “resonates with the human body” or is inherently more harmonious with human physiology has been discussed from theoretical and alternative perspectives, but it has not been conclusively established by empirical evidence [21]. Therefore, this concept should not be presented as an established physiological mechanism. Instead, the available evidence should be interpreted in terms of observed psychological and physiological responses to music tuned to 432 Hz.

Conclusion

This study demonstrated that music therapy at a frequency of 432 Hz significantly reduced auditory hallucinations among patients with schizophrenia at Griya Lansia Wajak, Malang Regency ($p = 0.000$, $p < 0.05$). The therapy

provided relaxation, decreased emotional tension, and stabilized brainwave activity, which contributed to the reduction of hallucination intensity.

Given its effectiveness, simplicity, absence of side effects, and applicability in both clinical and home settings, 432 Hz music therapy can be recommended as a supportive non-pharmacological intervention alongside pharmacological treatment in psychiatric nursing. Nurses are encouraged to integrate this therapy into care plans, while families and patients are advised to practice it routinely as part of symptom management. Healthcare institutions, including hospitals, primary health centers, and psychiatric rehabilitation facilities, may consider developing structured 432 Hz music therapy programs supported by standard operating procedures to optimize implementation.

Future studies are recommended to involve larger sample sizes, longer intervention durations, and comparisons with other music frequencies to generate more comprehensive evidence.

Conflict of Interest

The authors declare no potential conflicts of interest or competing interests. The authors received no financial assistance or grants from public, private, or nonprofit funding agencies.

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