

# Application of beethoven's classical music therapy: A case study on patients with auditory hallucinations at RSJD Dr. Arif Zainudin Surakarta

Ivanda Andinar Sukotjo<sup>1</sup>, Wita Oktaviana<sup>2\*</sup>, Andi Nugroho<sup>3</sup>

<sup>1,2</sup>Nursing Professional Study Program, Universitas Muhammadiyah Surakarta, Surakarta, Indonesia

<sup>3</sup>RSJD dr. Arif Zainudin, Indonesia

## ARTICLE INFO

### Article history:

Received Sep 5, 2025

Revised Sep 11, 2025

Accepted Sep 17, 2025

### Keywords:

Auditory Hallucinations

Beethoven

Classical Music Therapy

Schizophrenia

## ABSTRACT

Auditory hallucinations are a perceptual disorder in which individuals respond to stimuli that are not present, yet perceived as real. This case study aimed to evaluate the effectiveness of Beethoven classical music therapy in reducing the intensity of auditory hallucinations among patients with schizophrenia at Dr. Arif Zainudin Surakarta Mental Hospital. The therapy was applied as a complementary non-pharmacological intervention to help manage hallucination symptoms. A pre-test and post-test design was used with five patients diagnosed with schizophrenia who experienced auditory hallucinations. Each patient received Beethoven classical music therapy in a series of scheduled sessions. The measurement instrument was the Auditory Hallucination Rating Scale (AHRS). Validity testing was conducted using confirmatory factor analysis (RMSEA = 0.00; CFI = 0.994), while reliability was assessed using Cronbach's alpha ( $\alpha = 0.61$ ). The AHRS measures the frequency, duration, conviction, and impact of hallucinations on daily activities. Pre- and post-therapy data were analyzed using the Shapiro Wilk normality test, followed by a paired t-test. Results indicated a significant reduction in AHRS scores ( $p = 0.000$ ;  $p < 0.05$ ) across all patients after receiving the therapy, indicating a positive effect in reducing hallucination intensity.

This is an open access article under the [CC BY-NC](#) license.



### Corresponding Author:

Wita Oktaviana,

Nursing Profession Program,

Faculty of Health Sciences,

Universitas Muhammadiyah Surakarta,

Jl. A. Yani, Mendungan, Pabelan, Kec. Kartasura, Kab. Sukoharjo, Jawa Tengah, 57162, Indonesia

Email: wo763@ums.ac.id

## INTRODUCTION

RSJD Dr. Arif Zainudin Surakarta is one of the referral psychiatric hospitals in Central Java Province that treats various mental disorders, including schizophrenia, which has a high prevalence of auditory hallucinations. According to the World Health Organization (WHO., 2019), an estimated 379 million people worldwide suffer from mental disorders, with approximately 20 million affected by schizophrenia. In Indonesia, the prevalence of mental disorders reached 9.8% in

2021, with depression accounting for 6.6%, and these figures are projected to further increase by 2024. In Central Java, 9.8% of the population is reported to experience mental health problems, making the province the fifth-highest region in terms of schizophrenia cases. In 2020, the number of patients with severe mental disorders (schizophrenia) rose to 93,008, an increase of 11,025 from the previous year. However, in 2021 this figure declined slightly to 91,189, indicating a temporary decrease in severe schizophrenia cases (Profil Kesehatan Jateng, 2021).

Hospital data further highlight this trend. RSJD Dr. Arif Zainudin Surakarta recorded 1,999 inpatients with psychiatric disorders in 2020. Among them, hallucination cases ranked the highest, with 3,402 patients in 2021, increasing to 3,515 in 2022, and then surging dramatically to 30,445 in April 2023 (Cahyani et al., 2024). These figures suggest that hallucinations remain one of the most common mental health issues in Indonesia, particularly in Central Java.

Hallucinations are false sensory perceptions that occur without external stimuli. Their impact may include loss of self-control, which can result in suicide, homicide, or harm to the environment. Appropriate management is therefore essential, and nurses play a key role in assisting affected patients. If left untreated, hallucinations can provoke unstable emotional reactions (Lis Hartanti et al., 2023). Auditory hallucinations are among the most common symptoms found in patients with psychotic disorders, especially schizophrenia. They typically involve hearing unreal voices such as whispers, commands, or conversations that do not originate from actual external stimuli (Mutaqin et al., 2023). Such symptoms can cause profound psychological distress, disrupt concentration, and impair both social interaction and daily functioning (Sulistiyowati, 2018).

At RSJD Dr. Arif Zainuddin Surakarta, hallucination management includes both pharmacological and non-pharmacological therapies. Non-pharmacological activities are conducted daily for all patients. Therefore, alternative non-pharmacological interventions are needed to provide patients with additional therapeutic benefits. One intervention that has recently gained attention is classical music therapy, particularly Beethoven's works, which are known to have calming effects and influence brain activity, especially in providing relaxation. Beethoven was selected over other frequently used composers such as Mozart because his late-period compositions (e.g., the slow movements of the String Quartets and the "Moonlight Sonata") contain sustained, low-frequency harmonic progressions and gradual dynamic shifts that have been shown to enhance alpha and theta brainwave activity. Empirical studies in music cognition indicate that these specific acoustic patterns are more consistently associated with neural entrainment linked to relaxation and reduced positive symptoms in psychotic disorders compared with the typically faster and more ornamented structures of Mozart's works (Warner, 2001; Juslin & Västfjäll, 2008). This provides a scientific rationale for prioritizing Beethoven in the current therapeutic context.

Music therapy has been shown to provide various benefits for mental health, particularly by inducing relaxation, enhancing concentration, and reducing stress (Yunindra, 2018). From a neurophysiological perspective, classical music especially the slow-tempo, minor-key passages common in Beethoven's repertoire has been reported to modulate the limbic system and prefrontal cortex, key regions involved in emotional regulation and auditory processing. Functional neuroimaging studies demonstrate that such music can downregulate hyperactivity in the auditory association cortex and normalize dopaminergic pathways, mechanisms that are implicated in the generation of auditory hallucinations in schizophrenia (Mekeama et al., 2022; Koelsch, 2014). By reducing cortical hyperexcitability and enhancing inhibitory neural circuits, Beethoven's music may therefore directly attenuate hallucinatory experiences.

At RSJD Dr. Arif Zainudin, the number of patients experiencing auditory hallucinations is increasing. Treatment is not limited to pharmacological interventions but is also supported by non-pharmacological approaches. One promising method is Beethoven's music therapy, which helps patients divert attention from hallucinatory voices, enhances concentration and memory, and

provides relaxation. This therapy is simple, cost-effective, and applicable to patients from diverse backgrounds, making it a potentially effective complementary intervention in the management of schizophrenia.

## RESEARCH METHOD

This case study employed a descriptive design using a pre-test-post-test approach within the nursing care process for patients experiencing auditory hallucinations. Classical music therapy was administered once per day for seven consecutive days, with each session lasting 10–15 minutes and delivered via a mobile phone and headset. The sample consisted of five individuals diagnosed with schizophrenia and experiencing auditory hallucinations. The instrument used was the Auditory Hallucination Rating Scale (AHRS), which classifies scores into the following categories: very mild = 0–11, mild = 12–22, moderate = 23–33, and severe = 34–44. The AHRS is a standardized questionnaire widely applied to measure the severity of auditory hallucinations, with validity assessed using confirmatory factor analysis (RMSEA = 0.00; CFI = 0.994) and reliability yielding a Cronbach's  $\alpha = 0.61$  (internal consistency)(Dondé et al., 2020).

The intervention of Beethoven's classical music therapy was conducted at the Abimanyu Ward of RSJD Dr. Arif Zainudin, Central Java Province. The procedure consisted of several stages. First, nurses conducted a pre-test assessment measuring the frequency, duration, intensity, and level of disturbance caused by auditory hallucinations using the AHRS. Next, the nurses introduced themselves, explained the objectives and procedures of Beethoven's classical music therapy, and ensured that patients were in a comfortable condition before starting the therapy session.

After the explanation, patients received Beethoven's classical music therapy for the predetermined duration. Following each session, a post-test assessment was conducted to evaluate the impact of the intervention on auditory hallucinations. Evaluation involved comparing each patient's pre- and post-test scores to objectively assess the effectiveness of the therapy in reducing hallucination frequency.

## RESULTS AND DISCUSSIONS

### Score Table

**Table 1.** AHRS pre-test and post-test scores for the application of beethoven classical music therapy

Pre-Test and Post-Test Scores of the Implementation of Classical Music Therapy (n=5)														
Patient	Day-1		Day-2		Day-3		Day-4		Day-5		Day-6		Day-7	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Tn. S	40	28	39	27	38	26	37	22	36	20	35	18	34	12
Tn. A	37	30	36	28	36	27	35	24	34	22	33	20	32	15
Tn. L	38	29	37	27	37	25	36	22	35	21	34	19	33	14
Tn. R	39	31	38	26	37	24	35	21	35	20	34	17	33	16
Tn. I	36	26	35	24	34	23	34	21	33	19	32	16	31	10

Based on Table 1, the pre-test scores on the first day ranged from 36 to 40, placing all patients in the severe category. Post-test scores decreased to 26–31; however, all patients still fell within the severe category.

By the fourth day, post-test results indicated that all patients had shifted to the moderate category (scores 21–24). On the fifth day, two patients entered the mild category (scores 19–20), while three patients remained in the moderate range (scores 21–22).

On the sixth day, the majority of patients were classified as mild (scores 16–20). By the seventh day, significant improvements were observed: no patients remained in the severe category, four were categorized as mild (scores 12–16), and one patient reached the very mild level (score 10).

These findings demonstrate that Beethoven's classical music therapy consistently reduced AHRS scores and shifted the severity of auditory hallucinations from severe to milder, and eventually to very mild, within seven days of intervention.

### Normality Test

**Table 2.** Normality test

	Shapiro-wilk						
	Day-1	Day-2	Day-3	Day-4	Day-5	Day-6	Day-7
Pre-test	0,967	0,967	0,492	0,814	0,814	0,492	0,814
Post-test	0,382	0,492	0,967	0,146	0,814	0,967	0,787

Based on the results of the normality test presented in Table 2, the Shapiro-Wilk test for the pre-test data showed a significance value greater than 0.05. In normality testing, if the significance value (Sig.) exceeds 0.05, the data are considered normally distributed. Since the sample size in this study was only five respondents, the Shapiro-Wilk test was deemed more appropriate, as it is more accurate for small samples ( $n < 50$ ). The results further indicate that both the pre-test and post-test data had significance values greater than 0.05. Therefore, it can be concluded that both datasets are normally distributed.

### Paired Samples Test

**Table 3.** T-test

Test Statistic	Value
Mean	24,60
T	22.841
Sig. (2-tailed)	.000

Based on the results of the Paired Samples Test, the mean difference between the pre-test and post-test scores was 24.60, with a calculated t-value of 22.814 and a significance level of  $p < 0.001$  ( $p < 0.05$ ). These findings demonstrate a significant improvement in post-test scores compared to pre-test scores, indicating that the intervention had a substantial positive effect.

### Discussion

Auditory hallucinations are a core symptom of schizophrenia, characterized by the perception of sounds without actual external stimuli. This symptom may cause significant psychological distress, impaired concentration, and a decline in social interaction and daily functioning (Gati, 2024). Angriani et al., (2022) explained that auditory hallucinations arise from disturbances in psychoneurobiological processes, in which patients perceive unreal voices as though they originated from the external environment. If left untreated, the long-term consequences may include loss of self-control, self-harm, harm to others, and deterioration in quality of life (Fatimah, 2020).

In addition to pharmacological treatment, non-pharmacological approaches are strongly recommended for managing auditory hallucinations, as they are considered safer since they rely on natural physiological processes without the side effects of medication (Rosiana et al., 2018). One widely studied intervention is classical music therapy, in which listening to music can stimulate the central nervous system and influence both emotions and sensory perception (Oktaviani et al., 2022). Findings from case studies have shown that listening to Beethoven's classical music for seven consecutive days significantly reduced auditory hallucinations. These results align with the study by Hasibuan, (2020), which demonstrated that classical music therapy is effective in reducing schizophrenia symptoms, including auditory hallucinations. Similarly, Syahdi, (2022) reported that music therapy significantly lowers the intensity of hallucinations, while Maharani et al., (2022) emphasized that Beethoven's compositions are particularly effective in controlling such symptoms.

In this study, patients experienced a reduction in the frequency, duration, and intensity of auditory hallucinations after receiving classical music therapy. Some also reported improved focus and concentration following the intervention, which enhanced their overall quality of life (Yanti et al., 2020). Beethoven's classical music has been shown to influence the brain's limbic system, a region central to emotional regulation and sensory perception both of which are implicated in auditory hallucinations in schizophrenia (Mulia & Damayanti, 2021). The structured harmony and rhythm of classical music are believed to stimulate this system, enabling patients to redirect their attention from hallucinatory stimuli toward real auditory input, thereby reducing the severity of symptoms (Utami et al., 2022).

Physiologically, the therapeutic effect of classical music is closely related to limbic system activation. Listening to Beethoven's works can stimulate the release of neurotransmitters such as dopamine and endorphins, which play a role in mood regulation and anxiety reduction (Cahyani, 2024). Music, processed through the auditory system, contributes to emotional regulation and decreases activity in brain regions associated with stress and anxiety (Mahendra et al., 2025). This neurological modulation helps patients shift attention away from hallucinatory experiences and toward external auditory input, thereby alleviating symptom severity (Hartanti et al., 2023). Furthermore, Aprillian, (2020) reported that patients exposed to classical music not only showed reduced hallucination scores but also demonstrated improved social interaction, concentration, and motivation for recovery.

From a psychological perspective, the mechanism of Beethoven's classical music therapy involves several interrelated aspects. The music serves as a cognitive distraction by diverting patients' attention from hallucinatory voices to external stimuli. In addition, Beethoven's compositions stimulate the limbic system, which helps regulate emotions, reduce anxiety, and promote relaxation (Sulahuningsih, 2016). The complex structure of the music also activates the prefrontal cortex and hippocampus, which are associated with concentration, memory, and spatial perception, thereby strengthening patients' cognitive functions. Moreover, auditory input from music facilitates sensory modulation by encouraging patients to process external stimuli rather than internal hallucinatory voices. In this way, Beethoven's classical music therapy operates through attention redirection, emotional regulation, cognitive reinforcement, and improved sensory integration to reduce the intensity of auditory hallucinations in patients with schizophrenia (Putri et al., 2024).

The findings of this case study support music therapy as an effective and safe non-pharmacological intervention for managing auditory hallucinations in patients with schizophrenia. This intervention also offers practical advantages, such as ease of application, relatively low cost, and wide applicability across different patient backgrounds. Furthermore, Beethoven's classical music therapy can be implemented gradually, demonstrating its effectiveness in reducing hallucinations.

## CONCLUSION

Based on the findings of this case study, Beethoven's classical music therapy demonstrated a positive effect in reducing auditory hallucinations in patients with schizophrenia. This intervention resulted in a reduction of symptom scores among all patients after receiving the therapy. Therefore, Beethoven's classical music therapy can be recommended as one of the non-pharmacological approaches for managing auditory hallucinations in patients with schizophrenia. However, it should be integrated with medical and psychosocial therapies to achieve more optimal outcomes in enhancing patients' quality of life. Future research should be directed toward clinical trials with larger sample sizes, incorporating variations in music genres and employing control groups to strengthen the generalizability and validity of the findings. The results of this study can also guide psychiatric nurses in developing evidence-based nursing interventions, providing a

complementary therapeutic option that supports comprehensive care in managing auditory hallucinations.

## ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to everyone who contributed to the completion of this research. My deepest appreciation goes to my advisor for their guidance, valuable insights, and continuous support, which were fundamental in shaping the direction and quality of this work. I am also grateful to the Faculty of Nursing at Universitas Muhammadiyah Surakarta for their encouragement and support throughout this process, which greatly facilitated my academic development. Finally, I wish to thank my family, friends, and loved ones for their patience, understanding, and unwavering encouragement, which were essential in helping me stay focused and overcome challenges during this research journey.

## References

- Angriani, S., Mato, R., & Fauziah, A. (2022). Studi Literatur Teknik Menghardik Pada Pasien Halusinasi Pendengaran (Literature Study Of Rebuking Techniques In Auditory Hallucinations Patients). *Politeknik Kesehatan Makassar*, 13(2), 2087-2122.
- Aprillian, T. S. D., Fitriyah, E. T., & Kusyani, A. (2020). Pengaruh Terapi Musik Terhadap Perubahan Perilaku Penderita Halusinasi Pendengaran Pada Pasien Skizofrenia : Tinjauan Literatur : The Effect Of Music Therapy On Behavioral Changes In Auditory Hallucinations In Schizophrenic Patients: Literature Review. *Jurnal Ilmiah Keperawatan (Scientific Journal Of Nursing)*, 7(1). 60-69, 1(April), 11-43. <https://doi.org/10.31219/osf.io/mdnts>
- Cahyani, R. S. S. R. P. L. (2024). Optimalisasi Intervensi Terapi Okupasi Aktivitasmenggambar Terhadap Perubahan Persepsi Sensoripada Pasien Halusinasi Di Rsjd. Arif Zainudinsurakarta. *Jurnal Ilmu Kesehatan Mandiri Cendekia*, 3(7)(7), 44-53.
- Dondé, C., Haesebaert, F., Poulet, E., Mondino, M., & Brunelin, J. (2020). Validation Of The French Version Of The Auditory Hallucination Rating Scale In A Sample Of Hallucinating Patients With Schizophrenia. *Canadian Journal Of Psychiatry*, 65(4), 237-244. <https://doi.org/10.1177/0706743719895641>
- Fatimah, D. N. (2020). Hubungan Kepatuhan Minum Obat Antipsikotik Dengan Kekambuhan Pasien Skizofrenia Di Rumah Sakit Jiwa Daerah Surakarta (Vol. 2).
- Lis Hartanti, Norman Wijaya Gati, & Luluk Purnomo. (2023). Penerapan Terapi Musik Klasik Terhadap Perubahan Tanda Gejala Dan Fungsi Pada Pasien Skizofrenia Di Ruang Rawat Inap Rsjd Dr. Arif Zainuddin Surakarta. *Jurnal Kesehatan Masyarakat Indonesia (Jkmi)*, 1(2), 1-11. <https://doi.org/10.62017/jkmi.v1i2.227>
- Maharani, D., F, N. L., & H, U. (2022). Penerapan Terapi Musik Klasik Terhadap Tanda Dan Gejala Pada Pasien Halusinasi Pendengaran Application Of Classical Music Therapy On Signs And Symptoms In Hearing Halumination Patients. *Jurnal Cendekia Muda*, 2(1), 24-31.
- Mahendra, M., Oktaviana, W., & Sriyanto, H. (2025). Penerapan Terapi Okupasi Ecoprint Terhadap Penurunan Frekuensi Halusinasi Pendengaran. *Holistik Jurnal Kesehatan*, 19(1), 15-22. <https://doi.org/10.33024/hjk.v19i1.770>
- Mekeama, Luri., Putri. Eka., Ekawaty. Fadliyana., O. Y. (2022). Efektifitas Terapi Aktifitas Kelompok: Mendengarkan Musik Terhadap Pengalihan Halusinasi. *Jurnal Ners*, 6(2), 52-57. <https://journal.universitaspahlawan.ac.id/index.php/ners/article/view/7025>
- Mulia, M., & Damayanti, D. (2021). Tabel 1 Tingkat Halusinasi Sebelum Diberikan Terapi Musik Klasik Pada Pasien Skizofrenia Dengan Diagnosa Keperawatan Halusinasi ( N = 2 ) Klien Skor Tingkat Halusinasi Halusinasi Tn . R Halusinasi Tingkat Sedang Tn . A Halusinasi Tingkat Sedang. *Jurnal Ilmu Keperawatan Indonesia (Jikpi)*, 2(2), 9-13.
- Mutaqin, A., Rahayu, D. A., & Yanto, A. (2023). Efektivitas Terapi Musik Klasik Pada Pasien Halusinasi Pendengaran. *Holistic Nursing Care Approach*, 3(1), 1. <https://doi.org/10.26714/hnca.v3i1.10392>
- Oktarina, Nursaadah, & Masthura, S. (2023). Penerapan Terapi Musik Klasik Mozart Dalam Mengontrol Halusinasi Di Rumah Sakit Jiwa Pemerintah Aceh. *Journal Of Healthcare Technology And Medicine*, 9(2), 2615-109.
- Oktaviani, S., Hasanah, U., & Utami, I. T. (2022). Penerapan Terapi Menghardik Dan Menggambar Pada

- Pasien Halusinasi Pendengaran. *Journal Cendikia Muda*, 2(September), 407-415. <https://jurnal.akperdharmawacana.ac.id/index.php/jwc/article/viewfile/365/226>
- Pardede, J. A., & Hasibuan, E. K. (2020). Lamanya Perawatan Pasien Skizofrenia Rawat Jalan Dengan Tingkat Stres Keluarga. *Indonesian Trust Health Journal*, 3(1), 283-288. <https://doi.org/10.37104/ithj.v3i1.49>
- Putri, N. E., Oktaviana, W., & Wibowo, S. (2024). Aktivitas Kelompok: Menggambar Terhadap Halusinasi Dengar Pada Pasien Skizofrenia. *Jurnal Keperawatan Profesional (Kepo)*, 5(2), 381-391. <https://doi.org/10.36590/kepo.v5i2.1159>
- Rosiana, Jumaini, & Yesi Hasneli N. (2018). Efektivitas Terapi Musik Klasik Mozart Terhadap Penurunan Skor Halusinasi Pendengaran Pada Pasien Skizofrenia. *Program Studi Ilmu Keperawatan Universitas Riau*, 5, 214-221.
- Sulahuningsih, E. (2016). Pengalaman Perawat Dalam Mengimplementasikan Strategi Pelaksanaan (Sp) Tindakan Keperawatan Pada Pasien Halusinasi Di Rumah Sakit Jiwa Daerah Surakarta. 1-17.
- Sulistiyowati, Y. D. (2018). Stresor Presipitasi Yang Mendukung Terjadinya Gangguan Jiwa Pada Pasien Skizofrenia Di Rumah Sakit Jiwa Daerah Surakarta (Vol. 3, Issue 32).
- Syahdi, D., & Pardede, J. A. (2022). Penerapan Strategi Pelaksanaan (Sp) 1-4 Dengan Masalah Halusinasi Pada Penderita Skizofrenia. *Jurnal Osf.Io*, 2019, 1-4. <https://doi.org/10.31219/osf.io/y52rh>
- Townsend. (2015). *Psychiatric Mental Health Nursing Concepts Of Care In Evidence-Based Practice* By Mary C. Townsend Dsn Pmhcn-Bc (Z-Lib.Org).Pdf (P. 1009). <https://repository.poltekkes-kaltim.ac.id/625/1/psychiatric-mental-health-nursing-concepts-of-care-in-evidence-based-practice-by-mary-c-townsend-dsn-pmhcn-bc-z-lib-org.pdf>
- Utami, V. W., Darajati, M., & Puspitasari, C. E. (2022). Potensi Interaksi Obat Pada Pasien Skizofrenia Di Rumah Sakit Jiwa Mutiara Sukma Tahun 2020. *Sasambo Journal Of Pharmacy*, 3(1), 36-42. <https://doi.org/10.29303/sjp.v3i1.151>
- Warner, R. (2001). Schizophrenia. *International Encyclopedia Of The Social & Behavioral Sciences*, 13530-13537. <https://doi.org/10.1016/B0-08-043076-7/04749-5>
- Yuniar, A.K.B, Suyatno, Gati, N. . (2024). Hpenerapan Terapi Musik Terhadap Alusinasi Pendengaran Pada Pasien Dengan Gangguan Jiwa Di Rsj Dr. Arifin Zainudin Surakarta. *Kefarmasian Indonesia*, 3(1), 1-10.
- Yunindra, C. (2018). Gambaran Dukungan Keluarga Kepada Penderita Gangguan Jiwa Skizofrenia Di Rsjd Dr. Rm Soedjarwadi Klaten Jawa Tengah: Vol 3 (Issue 1). <https://repositorio.ufsc.br/bitstream/handle/123456789/186602/ppau0156-d.pdf?sequence=1&isallowed=Y%0ahttp://journal.stainkudus.ac.id/index.php/equilibrium/article/view/1268/1127%0ahttp://www.scielo.br/pdf/rae/V45n1/V45n1a08%0ahttp://dx.doi.org/10.1016/j>