



Case Report

GARDENING-BASED OCCUPATIONAL THERAPY AS AN INTERVENTION TO REDUCE AUDITORY HALLUCINATIONS IN PATIENTS WITH SCHIZOPHRENIA: A CASE REPORT



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Abstract

Mental health disorders, particularly schizophrenia, represent a global health challenge that significantly affects quality of life, productivity, and social functioning. One of the most common symptoms of schizophrenia is auditory hallucinations, which impair daily functioning and increase the risk of harmful behavior. Therefore, nonpharmacological interventions are needed to support symptom management. This case report aimed to implement gardening occupational therapy as an intervention to reduce the level of auditory hallucinations among patients with schizophrenia in the Cendrawasih Ward of Hospital. Three patients with schizophrenia who experienced auditory hallucinations were observed over a seven-day period. Baseline assessment was conducted using interviews, observation, and the Auditory Hallucination Rating Scale (AHRS). Patients received four days of nursing interventions focused on hallucination management, followed by three consecutive days of gardening-based occupational therapy. The therapy was conducted once daily in the hospital's therapeutic garden, with each session lasting 30–40 minutes. Outcome assessment was performed using the AHRS immediately after completion of the intervention period. The results showed a reduction in hallucination severity in all patients. Two patients who were initially categorized as having severe auditory hallucinations and one patient with moderate auditory hallucinations showed a reduction in AHRS scores, resulting in all patients being classified in the mild category after the intervention. In addition, patients appeared calmer, more focused, and better able to manage hallucinations and interact with their environment. These findings suggest that gardening-based occupational therapy may be an effective complementary intervention for reducing auditory hallucination severity and promoting psychosocial functioning among patients with schizophrenia.

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Introduction

Mental health disorders, particularly schizophrenia, represent a significant global health challenge that substantially affects individuals' quality of life, productivity, and social well-being. This disorder is characterized by disturbances in thought processes, perception, emotion, and behavior, which can impair an individual's ability to perform daily activities (Mathew, 2022).

According to the World Health Organization (2018), more than 23 million people worldwide are living with schizophrenia. In 2022, the organization also reported that approximately 300 million people experience various mental disorders, including around 24 million cases of schizophrenia. This prevalence is estimated to be about 1 in 233 adults (0.43%) in the global population (World Health Organization, 2022). Based on data from the Survei Kesehatan Indonesia 2023, the number of mental health disorder cases in Indonesia reached 630,827 individuals (Ministry of Health, 2023). Meanwhile, data from the Riset Kesehatan Dasar 2018 indicated that the prevalence of schizophrenia in Indonesia showed a significant increase, reaching approximately 7 per 1,000 population.

Although the prevalence of schizophrenia is relatively lower compared to other types of mental disorders, it is often associated with significant psychological distress and impairments in various aspects of life, including personal, family, social, educational, occupational, and other important areas (He et al., 2020). Furthermore, although the number of individuals affected by schizophrenia is lower than that of other mental disorders, the lifetime prevalence of suicide attempts among individuals with schizophrenia ranges from 20% to 40%. Compared with individuals who do not have schizophrenia, patients with schizophrenia have a significantly higher risk of suicide attempts (Harikha et al., 2022).

One of the most common symptoms experienced by patients with schizophrenia is sensory perceptual disturbance in the form of hallucinations. More than 75% of individuals with schizophrenia are reported to experience this condition (Suharli, 2023 dalam Amelia et al., 2022). Based on data from Prof. Dr. Soerojo Psychiatric Hospital, Magelang, during the period from 2021 to 2024, a total of 2,836 clients were recorded, of which 1,386 cases

(approximately 48.8%) experienced hallucinations, making it the most frequently reported condition (Atmojo, 2024). In addition, a study conducted at Hospital in 2021 reported that among hospitalized patients receiving inpatient care, 634 individuals were identified as having nursing problems related to sensory perceptual disturbances in the form of hallucinations (RS Ernaldi Bahar Provinsi Sumatera Selatan, 2022).

Hallucinations are unreal perceptions that can interfere with an individual's ability to distinguish between their own thoughts and the reality around them (Goycoolea, 2023). Hallucinations are perceptual disturbances that involve one or more senses, including hearing, vision, taste, smell, and touch, in the absence of real external stimuli. The most common type is auditory hallucinations, approximately 70% of cases, followed by visual hallucinations at around 20%, while gustatory, olfactory, and tactile hallucinations for approximately 10%. (Xie et al., 2018 dalam Amelia et al., 2022).

Auditory hallucinations are the most common type of hallucination experienced by patients with schizophrenia. This condition typically appears in the form of voices that give commands or are threatening in nature. Such experiences can trigger various behavioral problems, including decreased ability for self-care, social withdrawal, self-harm, and an increased risk of violent behavior (Akhyarudin et al., 2025; Dhani & Susilo, 2025).

Interventions aimed to prevent the adverse effects in patients experiencing hallucinations can be implemented through pharmacological and non-pharmacological approaches. Pharmacological interventions, such as antipsychotic medications, are effective in controlling hallucinatory symptoms. Conversely, non-pharmacological interventions, including occupational therapy, facilitate the recovery process through structured daily activities that are manual, creative, and educational in nature. These activities contribute to enhancing patient autonomy, promoting environmental adaptation, and diverting attention from hallucinatory experiences (Amelia et al., 2022; Mustopa et al., 2021; Ponto et al., 2015).

According to research by Angriani et al. (2024), occupational therapy through gardening activities conducted over three days has been shown to reduce the signs and symptoms of

hallucinations in patients with mental disorders. Visual hallucination scores decreased from 9 to 1, while auditory hallucination scores declined from 10 to 5, indicating that gardening is an effective non-pharmacological intervention for reducing the intensity of hallucinations. Similar results have also been reported by Novitasari & Budiman (2025) who observed a reduce in the Auditory Hallucination Rating Scale (AHRs) score from 24, indicating severe hallucinations, to 5, indicating mild hallucinations. This improvement was accompanied by positive behavioral changes, including increased calmness, greater focus, higher activity levels, and enhanced ability to control hallucinatory experiences.

According to Oktadinata et al. (2023), Gardening-based occupational therapy can help redirect patients' attention away from hallucinatory stimuli, as they become more focused on planting and caring for plants. This condition has been shown to effectively reduce the intensity of patients' responses to hallucinations. Furthermore, Hasanah & Putra (2024) demonstrated that gardening therapy can improve mood, promote patient calmness, and facilitate more adaptive responses to hallucinations. This therapy also offers the advantage of simultaneously engaging physical, cognitive, emotional, and social aspects.

Although gardening-based occupational therapy has shown promising results in reducing hallucination symptoms, evidence describing its implementation within psychiatric nursing care and case-based clinical practice remains limited, particularly in Indonesian psychiatric hospital settings. Based on the foregoing, authors is interested in providing nursing care for patients with schizophrenia who experience auditory hallucinations through the application of gardening-based occupational therapy. This approach was chosen as a non-pharmacological nursing intervention designed to support patients in managing sensory perception disturbances, particularly auditory hallucinations. The selection of three patients for this study was based on the similarity of their conditions, specifically the duration of auditory hallucinations, as well as the presence of a well-established therapeutic relationship (BHSP) between the researcher and the patients. Therefore, this study aimed to implement gardening occupational therapy as an intervention to reduce the level of auditory hallucinations among patients with schizophrenia in the Cendrawasih Ward of Hospital.

Presentation of the Case

a. Patient Information

1) Mr. S

Mr. S, a 31-year-old male, was admitted to Hospital on May 6, 2025, and underwent a follow-up assessment on May 16, 2025, in the Cendrawasih Ward. The patient presented with behavioral changes that had been occurring for approximately one month, characterized by frequent self-talk and auditory hallucinations instructing him to leave and run. These episodes lasted approximately 15 minutes, predominantly occurred at night, and recurred once daily. Mr. S also reported experiencing sensations as if someone were speaking directly in his mind and heart. These symptoms previously led him to physically assault his brother and become agitated when brought to the hospital, nearly striking his father. The patient had no prior history of psychiatric disorders, had never engaged in or experienced violence, and there was no family history of similar mental health conditions. Socially, Mr. S works as a palm oil laborer on another person's plantation.

2) Mr. E

Mr. E, a 34-year-old unmarried male, was admitted to Hospital on May 16, 2025, and underwent an assessment on May 17, 2025, in the Cendrawasih Ward. The patient was admitted following aggressive behavior triggered by a conflict with his brother, who also has a mental disorder, and he had previously thrown stones at a neighbor's house. He reported frequently hearing whispers or unclear voices lasting approximately five minutes, occurring unpredictably during the day or night, with a frequency of once daily.

Mr. E has a history of mental disorders in the past, with previous treatments being largely ineffective. Family history reveals that the patient's younger brother also has a mental disorder. There is no history of the patient being involved as a perpetrator, victim, or witness of violence, domestic abuse, or criminal activity. Socially, Mr. E works as a farmer.

3) Mr. R

Mr. R, a 21-year-old male, was admitted to the Cendrawasih Ward of Hospital on May 12, 2025, and underwent a follow-up assessment on May 16, 2025. The patient was brought to the hospital by his uncle due to behavioral changes observed approximately one week after returning from a pesantren, including talking to himself, restlessness, and pacing back and forth. Mr. R also reported hearing whispering voices resembling those of his father and mother, which occurred around dusk and when he was alone. These auditory hallucinations were brief, lasting only a few seconds, but occurred frequently. Mr. R had previously struck his uncle out of frustration. He has no prior history of mental disorders and has never been involved as a perpetrator, victim, or witness of physical or sexual violence, neglect, or domestic abuse. Family history does not indicate any mental health disorders.

b. Clinical Findings

1) Mr. S

Mr. S was diagnosed with schizophrenia and presented with prominent auditory hallucinations. Physical examination revealed a blood pressure of 129/74 mmHg, pulse rate of 59 beats per minute, body temperature of 36.5°C, respiratory rate of 18 breaths per minute, height of 174 cm, and weight of 56 kg, corresponding to a body mass index (BMI) of 18.5 kg/m². The patient appeared neat and clean, with adequate self-care as evidenced by bathing two to three times daily.

Mental status examination revealed that the patient's appearance was appropriate for his age and environment; however, he appeared unfocused and restless during interactions. Speech was coherent and relevant to the conversation. A perceptual disturbance in the form of auditory hallucinations was identified, characterized by reports of hearing whispering voices instructing him to run away, as well as a voice that seemed to speak within his mind for approximately 15 minutes at night. Observation showed poor eye contact, frequent daydreaming in a corner of the

room, and psychomotor restlessness. The patient's mood appeared anxious, with an effect that was congruent with the reported experiences. Cognitive status was generally intact, with adequate orientation to time, place, and person; however, attention and concentration were impaired due to the hallucinatory experiences. Insight was limited, as evidenced by difficulty recognizing the hallucinations as symptoms of his mental disorder. Risk assessment revealed no evidence of self-harm behavior at the time of assessment; however, the presence of command auditory hallucinations indicated the need for ongoing monitoring of potential impulsive or risky behaviors. The patient's coping mechanism involved substance use. Prior to the intervention, functional status was impaired, particularly in maintaining attention, engaging in social interactions, and participating optimally in daily activities. During hospitalization, the patient adhered to the medication regimen administered by nursing staff, consisting of olanzapine 10 mg twice daily, haloperidol 5 mg twice daily, and lorazepam 1 mg once daily.

2) Mr. E

Mr. E, a 34-year-old unmarried male, was admitted to Hospital on May 16, 2025, and underwent an assessment on May 17, 2025, in the Cendrawasih Ward. Physical examination revealed a blood pressure of 137/93 mmHg, a pulse rate of 99 beats per minute, a height of 163 cm, and a body weight of 92 kg, corresponding to a body mass index (BMI) of 34.6 kg/m², indicating obesity class I. No significant physical complaints were reported. Mental status examination showed that the patient appeared appropriately dressed and groomed; however, he appeared lethargic and restless during interactions. Eye contact was poor, and he had trouble initiating conversation. Speech was slow, circumstantial, and characterized by delayed responses, although he remained able to answer questions appropriately. Perceptual disturbances were present in the form of auditory hallucinations, as evidenced by reports of hearing indistinct voices that contributed to feelings of

restlessness. Thought processes were generally coherent but occasionally circumstantial. The patient expressed concern regarding the condition of his younger sibling at home, suggesting the presence of persistent worries. Mood appeared anxious, with an affect that was appropriate and congruent with the expressed emotional content. Cognitive assessment indicated that the patient was oriented to person, place, and time, with intact memory; however, attention and concentration were mildly impaired due to preoccupation with hallucinatory experiences. Insight was present, as the patient acknowledged being unwell and recognized the need for hospitalization and treatment. Risk assessment revealed no current evidence of self-harm, suicidal ideation, or violent behavior. Nevertheless, ongoing monitoring remained necessary due to the presence of psychotic symptoms. Prior to the intervention, functional status was moderately impaired, particularly in social interaction, communication, concentration, and participation in productive daily activities. During hospitalization, the patient adhered to the medication regimen administered by nursing staff, consisting of risperidone 3 mg twice daily, clozapine 100 mg twice daily, and olanzapine 10 mg once daily.

3) Mr. R

Mr. R, a 21-year-old male, was admitted to the Cendrawasih Ward of the hospital on May 12, 2025, and underwent further assessment on May 16, 2025. The patient was brought to the hospital by his uncle due to behavioral changes that emerged approximately one week after returning from an Islamic boarding school. These changes included frequently talking to himself, restlessness, and repetitive pacing. Mr. R also reported experiencing auditory hallucinations in the form of whispering voices resembling those of his father and mother, particularly during dusk and when he was alone. The auditory hallucinations

were brief, lasting only a few seconds, but occurred frequently. The patient had previously hit his uncle because he felt irritated. Mr. R had no prior history of mental illness and had never been involved as a perpetrator, victim, or witness of physical or sexual abuse, neglect, or domestic violence. In addition, there was no family history of psychiatric disorders.

Physical examination revealed a height of 170 cm and a body weight of 65 kg, with a body mass index (BMI) of 22.5 kg/m². Mental status examination showed that the patient was neatly dressed and appropriately groomed according to the environmental context. He was cooperative during the interview, although he appeared restless. His speech was coherent, relevant, and goal-directed. Perceptual disturbances were identified in the form of auditory hallucinations. Thought content was predominantly centered on hallucinatory experiences, while no delusional thoughts were identified during the assessment. The patient's mood appeared anxious, with an affect that was appropriate to the content of the conversation. Overall cognitive functioning remained intact, as indicated by adequate orientation to time, place, and person. The patient demonstrated partial insight, reflected by his awareness of experiencing unusual symptoms and his willingness to undergo treatment, although his understanding of the illness remained limited. Risk assessment revealed a history of aggressive behavior toward a family member, indicating a potential risk for violent behavior that required further monitoring. However, no self-harming behavior or suicidal ideation was identified during the assessment. Prior to the intervention, the patient exhibited impaired functional status, particularly in social interaction, emotional regulation, and participation in daily activities, as evidenced by social withdrawal, talking to himself, and difficulty maintaining adaptive behavior within the community.

c. Timeline

Table 1

Patient's Timeline

Patient	Timeline	Events /Clinical Information
Mr. S	May 6, 2025	Patient was admitted to Hospital and was medically diagnosed with paranoid schizophrenia.
	May 16, 2025	A follow-up assessment conducted by the researcher identified nursing diagnoses of hallucinations, risk of violent behavior, and low self-esteem.
	May 16-19, 2025	Interventions included the implementation of Strategy 1 through Strategy 4 for sensory perception disturbances: hallucinations.
	May 23-25, 2025	The patient was taught Gardening-Based Occupational Therapy
Mr. E	May 16, 2025	Patient was admitted to Hospital with a medical diagnosis of paranoid schizophrenia.
	May 17, 2025	A follow-up assessment conducted by the researcher identified nursing diagnoses of hallucinations, risk for violent behavior, and low self-esteem.
	May 19-22, 2025	Interventions included the implementation of Strategy 1 through Strategy 4 for sensory perception disturbances: hallucinations.
	May 23-25, 2025	The patient was taught Gardening-Based Occupational Therapy
Mr. R	May 12, 2025	Patient was admitted to Hospital with a medical diagnosis of paranoid schizophrenia
	May 16, 2025	A follow-up assessment conducted by the researcher identified nursing diagnoses of hallucinations, risk for violent behavior, and low self-esteem.
	May 17-19, 2025	Interventions included the implementation of Strategy 1 through Strategy 4 for sensory perception disturbances: hallucinations.
	May 23-25, 2025	The patient was taught Gardening-Based Occupational Therapy

d. Diagnostic Assessment

Evaluation process was conducted using diagnostic tools to assist in identifying the patient's health problems, considering possible diagnoses, and establishing a final diagnosis along with a relevant prognosis. In psychiatric nursing practice, evaluation is carried out not only through physical examination and interviews but also using appropriate assessment instruments.

In the cases of Mr. S, Mr. E, and Mr. R, the assessment of auditory hallucination symptoms was performed using the

Auditory Hallucination Rating Scale (AHRS) to evaluate the frequency, duration, and intensity of the hallucinations experienced by the patients. The subjective and objective data obtained were subsequently analyzed to establish the nursing diagnosis of sensory perception disturbance: auditory hallucinations, which served as the basis for determining subsequent nursing intervention planning and evaluation.

e. Therapeutic Intervention

Therapeutic interventions for the patient were implemented through several approaches, including pharmacological therapy and nursing interventions using implementation strategies. First, the patient received pharmacological treatment in accordance with the medical plan, aimed at reducing psychotic symptoms and stabilizing the patient's condition.

Second, the researcher provided nursing interventions through Implementation Strategies (IS) 1–4 targeting hallucinations. IS 1 focused on training the patient to rebuke or dismiss hallucinations when they occurred. IS 2 involved training the patient to adhere to medication regimens by applying the “eight rights” principle of medication administration. IS 3 was conducted by encouraging the patient to engage in conversations with others to help divert attention from hallucinations. IS 4 involved training the patient to follow a structured schedule of activities to promote engagement in positive and organized tasks.

Third, after completing the series of implementation strategies, the patient was provided with modality therapy in the form of gardening-based occupational therapy, conducted over three days. The gardening-based occupational therapy intervention was conducted by the researcher under the supervision of a psychiatric nurse assigned to the Cendrawasih Ward at Hospital. The intervention took place in the hospital's therapeutic garden area over three consecutive days. It was administered once daily, with each session lasting approximately 30–40 minutes, depending on the patient's condition and ability to participate in the activities.

On the first day, the intervention focused on the orientation and preparation phase. The researcher explained the objectives and benefits of gardening-based occupational therapy to the patient and introduced the tools and materials to be used, including pots, planting media, seedlings, and watering equipment. Subsequently, the patient was guided to prepare the planting medium and plant the seedlings in the provided pots.

On the second day, activities focused on maintaining planted seedlings. The patient was encouraged to observe plant growth, clean surrounding areas, and provide adequate watering. During the session, therapeutic communication was utilized to support concentration, strengthen reality orientation, and encourage active participation in meaningful activities.

On the third day, activities continued with plant care through watering and observation of plant growth. At the end of the session, an evaluation of the entire gardening program was conducted. The patient was encouraged to share experiences and feelings related to participation in the therapy, while the researcher assessed the level of participation, ability to follow instructions, and overall response to the intervention. Evaluation also included observation of changes in auditory hallucination symptoms following completion of the three-day gardening-based occupational therapy program. To evaluate the effectiveness of the interventions, the severity of hallucinations was assessed before and after therapy using the Auditory Hallucination Rating Scale (AHRS), allowing for the identification of changes in the level of hallucination severity following the intervention program.

f. Follow-up and Outcomes

Follow-up and evaluation of intervention outcomes were conducted throughout the care period by assessing changes in the patient's condition after receiving routine pharmacological treatment, nursing implementation strategies (IS 1–4), and participation in gardening-based occupational therapy. Baseline assessment was performed prior to the interventions, while outcome evaluation using the Auditory Hallucination Rating Scale (AHRS) was conducted after completion of the intervention period to examine changes in hallucination severity over time.

The results indicated a reduction in the frequency and intensity of auditory hallucinations. The patient demonstrated good adherence to the overall treatment program, including regular medication intake, engagement in nursing interventions, and active participation in

gardening-based occupational therapy. The patient was able to participate effectively in all scheduled activities, and no adverse events or significant side effects were observed during the intervention period. Although these findings suggest potential benefits associated with gardening-based occupational therapy, the observed

improvements should be interpreted cautiously because the patient concurrently received pharmacological treatment and routine nursing care. Therefore, the positive changes in hallucination symptoms cannot be attributed solely to the gardening-based occupational therapy intervention.

Table 2.

Auditory Hallucination Rating Scale (AHRS)

No	Hallucination Content	Score					
		Mr.S		Mr.E		Mr.R	
		Pre	Post	Pre	Post	Pre	Post
1	Frequency	2	1	2	1	2	0
2	Duration	2	1	2	1	1	0
3	Location	1	1	1	0	2	1
4	Loudness of Voices	2	0	1	1	1	0
5	Belief About the Origin of Voices	3	1	2	0	2	1
6	Number of Negative Voices	3	0	3	0	3	0
7	Intensity of Negative Voices	2	0	2	1	2	0
8	Number of Distressing Voices	3	1	3	1	2	1
9	Intensity of Distressing Voices	2	0	2	0	2	0
10	Distress Caused by Voices	3	1	3	1	3	0
11	Control Over Voices	2	0	3	0	2	0
Total		25	6	24	6	22	3
Description:							
None: 0							
Mild: 1–11							
Moderate: 12–22							
Severe: 23–33							
Very Severe: 34–44							

Discussion

Based on the assessment conducted on the three managed patients, the findings indicated that all patients had a medical diagnosis of paranoid schizophrenia. Paranoid schizophrenia is a mental disorder characterized by positive symptoms such as hallucinations and delusions, as well as negative symptoms including flat affect and impaired social interaction. This disorder often progresses into a chronic condition and requires adherence to pharmacological treatment along with continuous social support for effective management (Syabaniyah & Aditya, 2025). Patients with schizophrenia often experience hallucinations, particularly auditory hallucinations, which represent one of the most prominent positive symptoms and significantly

impact social functioning and overall quality of life (Oktadinata et al., 2023). Hallucinations are unreal perceptions that can impair an individual’s ability to distinguish between their own thoughts and the surrounding reality (Goycoolea, 2023). Auditory hallucinations are the most common type of hallucination experienced by patients with schizophrenia. This condition typically presents as voices that issue commands or are threatening in nature. Such experiences can trigger various behavioral problems, including reduced ability to perform self-care, social withdrawal, self-harm, and an increased risk of violent behavior (Akhyarudin et al., 2025; Dhani & Susilo, 2025). Based on the assessment results of the three patients, signs and symptoms of auditory hallucinations were identified. Mr. S reported

experiencing voices within his mind that instructed him to leave and run, and he was also observed talking and responding to himself. Mr. E stated that he frequently heard whispering or indistinct voices, both during the day and at night. Meanwhile, Mr. R exhibited behavioral changes such as talking to himself, appearing restless, and pacing aimlessly. He also reported hearing voices resembling those of his father and mother. Additionally, all three patients presented with other associated symptoms, including confusion, difficulty concentrating, frequent daydreaming, and purposeless pacing without clear direction.

Hallucination symptoms can be assessed through two main approaches: direct observation of the patient's behavior and the patient's verbal reports or expressed statements. According to Aprilia & Zaini (2023), the identification of hallucination symptoms does not rely solely on patients' subjective reports but also on nonverbal signs and characteristic behaviors that frequently emerge. Several behavioral indicators suggestive of hallucinations include smiling or laughing without an apparent reason, displaying facial expressions that are incongruent with the situation, and exhibiting rapid or unfocused eye movements. In addition, patients may suddenly cover their ears as if attempting to block disturbing sounds, despite the absence of any external auditory stimuli. Other symptoms include delayed verbal responses, or even a lack of response altogether, as well as periods of profound silence accompanied by facial expressions suggesting absorption in something not visible to others. One of the most common signs is that the patient appears to talk to themselves, as if engaging in a dialogue or listening to someone who is not physically present (Novitasari & Budiman, 2025).

The impact of hallucinations is diverse and can affect multiple aspects of an individual's life, including extreme emotional reactions, excessive fear, physical and mental exhaustion, impaired daily functioning, and the emergence of recurrent negative thoughts. If not properly managed, this condition may exacerbate the patient's symptoms and potentially lead to more serious psychological complications, such as violent behavior or severe affective disturbances (Sylvia et al., 2025).

Management of patients with hallucinations is carried out through two main approaches, namely pharmacological and non-pharmacological therapies. These approaches complement each other in helping patients

control hallucination symptoms and improve their social and emotional functioning in daily life. In pharmacological therapy, each patient is prescribed medications based on their clinical needs and psychiatric condition. Mr. S received olanzapine 10 mg twice daily, haloperidol (HDL) 5 mg twice daily, and lorazepam 1 mg once daily to help calm the mind and reduce the intensity of hallucinations. Mr. E was treated with risperidone 3 mg twice daily, clozapine 100 mg twice daily, and olanzapine 10 mg once daily, which function to stabilize mood and control aggressive behavior associated with auditory hallucinations. Meanwhile, another patient, Mr. R, received trihexyphenidyl 2 mg, Curcuma FCT, and olanzapine to reduce medication side effects and help improve the patient's physical condition. The use of these medications aims to reduce hallucination symptoms, stabilize mood, and help patients regain contact with reality.

In addition to pharmacological treatment, the management of patients with hallucinations is complemented by non-pharmacological therapy, particularly occupational therapy, which is considered an effective intervention for addressing hallucination symptoms as it engages patients in meaningful and productive activities. Occupational therapy facilitates the recovery process through daily activities that are manual, creative, and educational in nature. These activities can enhance independence, assist patients in adapting to their environment, and help divert attention away from hallucinations (Amelia et al., 2022; Mustopa et al., 2021; Ponto et al., 2015).

One form of occupational therapy commonly used for patients with hallucinations is gardening therapy. Through planting activities, patients are encouraged to interact with the real environment and shift their focus away from the hallucinations they experience. According to Oktadinata et al. (2023), gardening-based occupational therapy can help divert patients' attention from hallucinatory stimuli, as they become more focused on planting and caring for plants. This condition has been shown to reduce the intensity of responses to hallucinations. In addition, a study by Hasanah & Putra (2024) demonstrated that gardening therapy can improve mood, promote a sense of calm, and help patients respond to hallucinations in a more adaptive manner. This therapy also has the advantage of simultaneously engaging physical, cognitive, emotional, and social aspects.

Based on the study by Angriani et al (2024), the implementation of occupational therapy through gardening activities (tree planting) was shown to

reduce the signs and symptoms of hallucinations in patients with mental disorders at the Dadi Regional Special Hospital, South Sulawesi. Observational results indicated that after three days of gardening therapy (30 minutes per session), both respondents experienced a significant reduction in hallucination scores: the first patient's score decreased from 9 to 1, and the second patient's score decreased from 10 to 5. This reduction was characterized by a decrease in complaints such as hearing voices or seeing unreal images, as well as an increased sense of safety and improved self-control among the patients. These findings are consistent with the study by Yuniar et al. (2019) which also reported that occupational therapy involving planting activities can reduce the intensity of auditory hallucinations by enhancing patients' focus on reality and facilitating the expression of positive emotions. Therefore, these studies demonstrate that non-pharmacological interventions, such as gardening therapy, are effective in reducing the intensity of hallucinations and improving patients' social adaptation.

Prior to the implementation of gardening-based occupational therapy, all three managed patients were first provided with Implementation Strategies (IS) 1–4 over four consecutive days to help them recognize, control, and divert their hallucinations. Following the completion of these stages, gardening-based occupational therapy was conducted for three days, once daily, with each session lasting approximately 30–60 minutes. Based on pre-intervention measurements, the total Auditory Hallucination Rating Scale (AHRS) scores for the three patients were as follows: Mr. S scored 25 (severe category), Mr. E scored 24 (severe category), and Mr. R scored 22 (moderate category). After the routine implementation of gardening-based occupational therapy, a significant reduction in AHRS scores was observed: Mr. S's score decreased to 6 (mild category), Mr. E's score decreased to 6 (mild category), and Mr. R's score decreased to 3 (mild category).

The study findings demonstrated a reduction in Auditory Hallucination Rating Scale (AHRS) scores following the implementation of gardening-based occupational therapy. These findings indicate that gardening-based occupational therapy is effective in reducing the severity of hallucinations among patients with

schizophrenia. Gardening activities provide positive stimulation through interaction with nature, require concentration and responsibility for plant care, and promote a sense of calm and personal satisfaction. Engagement in such real-world activities can help patients divert their attention away from hallucinatory voices. These findings are consistent with the study conducted by Sari & Suryani (2021) which reported that gardening-based occupational therapy can reduce the frequency of auditory hallucinations in patients with schizophrenia at the West Java Provincial Mental Hospital, as gardening activities help patients focus on real-world tasks and stimulate both motor and cognitive functions. Another study by Nurhayati et al. (2020) also demonstrated that gardening activities are effective in reducing hallucination symptoms and improving patients' social functioning, as patients become calmer, more active, and better able to interact with their surrounding environment. Furthermore, findings from Rahmawati & Handayani (2019) support that occupational therapy is an effective non-pharmacological intervention for reducing hallucination symptoms, by enhancing concentration and decreasing maladaptive behaviors triggered by hallucinations.

Based on the above discussion, researcher assumes that auditory hallucinations in patients with paranoid schizophrenia arise from a combination of biological, psychological, and social factors that influence the patient's perception of reality. The patient's inability to recognize and control these hallucinations can disrupt thought processes, behavior, and social interactions, ultimately increasing the risk of aggressive or violent behavior. Therefore, the management of patients with auditory hallucinations should be carried out comprehensively through a combination of pharmacological and non-pharmacological therapies. The use of antipsychotic medications such as olanzapine, risperidone, and clozapine plays a role in suppressing excessive neurotransmitter activity, thereby helping to reduce hallucination symptoms. However, pharmacological therapy needs to be supported by nursing implementation strategies and non-pharmacological interventions, one of which is gardening-based occupational therapy, which can help redirect patients' attention from internal stimuli toward meaningful real-world activities. Gardening activities not only stimulate physical

and cognitive aspects but also provide therapeutic effects through interaction with nature, fostering a sense of calm, responsibility, and personal satisfaction.

Nevertheless, the extent of score reduction varied among patients. Mr. R demonstrated a greater decrease in AHRs scores, whereas other patients showed more modest improvements. These differences in response may be influenced by several factors, including the frequency and consistency of therapy implementation, length of hospitalization, duration of mental illness, level of concentration during therapy sessions, and educational background. Patients who participated more consistently and were able to maintain attention throughout the gardening activities tended to experience greater reductions in auditory hallucination symptoms compared with those who showed lower levels of engagement. These factors may influence patients' engagement in therapy and their capacity to benefit from the intervention, thereby contributing to differences in outcomes (Adha et al., 2025).

In this study, Mr. R had no previous history of mental illness and no history of substance abuse. The researchers assumed that these factors contributed to Mr. R's lower baseline severity, as reflected by a moderate-category AHRs pretest score, compared with Mr. S and Mr. E, who presented with severe-category pretest scores. Following the intervention, Mr. R achieved the lowest posttest AHRs score of 3, which falls within the mild category, whereas Mr. S and Mr. E continued to have higher posttest scores.

Thus, gardening-based occupational therapy is considered a holistic intervention that can help improve social adaptation and enhance patients' quality of life, making it an important complement to pharmacological therapy in supporting the recovery process of patients with schizophrenia experiencing auditory hallucinations. From a psychiatric nursing perspective, this intervention may serve as a practical and cost-effective nursing strategy to promote reality orientation, increase patient engagement in meaningful activities, and facilitate psychosocial rehabilitation. The integration of gardening-based occupational therapy into routine psychiatric nursing care may support nurses in managing auditory hallucinations through non-pharmacological approaches while fostering

patients' functional independence and recovery-oriented outcomes.

Patient perspective

The patient reported that therapies provided during hospitalization helped him feel calmer and better able to control the voices that had previously occurred frequently. They stated that after learning techniques to rebuke hallucinations and engaging in structured activities, became more capable of diverting their attention when the voices began to emerge. Patient also found gardening-based occupational therapy beneficial, as it helped him focus on the tasks performed, feel more relaxed, and experience a sense of enjoyment when observing the growth of the plants he had cultivated. In addition, patient reported that the support from nurses throughout the therapeutic process made him feel cared for and more motivated to participate in the activities provided. Overall, the patient perceived that the series of interventions helped reduce the disturbances he experienced and increased his confidence in resuming daily activities.

Informed Consent

Prior to the implementation of the study, researcher provided the patient with an explanation regarding the purpose, procedures, benefits, and potential risks of the planned interventions. Patient was also given the opportunity to ask questions and receive clear information about the activities to be undertaken. After understanding the information provided, patient voluntarily agreed to participate in the study by giving informed consent.

Researcher ensured the confidentiality of the patient's identity and personal data throughout the research process. All research procedures were conducted in accordance with ethical principles, including respecting the patient's rights, maintaining data confidentiality, and ensuring that participation was entirely voluntary without coercion. The implementation of gardening-based occupational therapy was carried out in accordance with the standard operating procedures established by the researcher.

Conclusion

Based on the assessment results of Mr. S, Mr. E, and Mr. R, all three patients experienced auditory hallucinations characterized by hearing

voices that gave dangerous instructions, talking to themselves, and exhibiting aggressive behaviors. The established nursing diagnoses included sensory perception disturbance: auditory hallucinations as the primary problem, accompanied by risk for violent behavior and low self-esteem.

Nursing interventions were implemented through generalist therapy using Implementation Strategies (IS 1–4) over four days, followed by gardening-based occupational therapy for three days. Evaluation results indicated improvements in patient conditions, as evidenced by calmer behavior, increased cooperativeness, initiation of eye contact, and the ability to interact with the environment. Assessments using the Auditory Hallucination Rating Scale (AHRs) also demonstrated a reduction in scores from the moderate–severe category to mild after the interventions.

The findings suggest that gardening-based occupational therapy may contribute to reductions in auditory hallucination severity when used alongside standard psychiatric treatment. However, further studies involving larger samples and controlled designs are required to confirm its effectiveness.

Consent for publication

Detailed written consent was obtained from all three patients and ward nurses for the publication of this case report, including relevant clinical details and accompanying images. The patients' guardians were assured that the patients' identities would remain confidential through a de-identification process.

Declarations

This study was conducted in accordance with ethical principles for research involving human participants. Researcher confirms that all necessary patient consent forms were obtained prior to the commencement of the study. Both the patients and their guardians (ward nurses at Hospital) provided consent for the use of anonymized clinical information for the purpose of publishing this case report.

Patients understood that their names, initials, and personal identities would not be disclosed, and the researcher made reasonable efforts to protect patient confidentiality, although complete anonymity cannot be guaranteed. Both the patients and their guardians (ward nurses at

Hospital) signed informed consent forms as confirmation of their agreement to participate in the study. All research procedures were conducted in accordance with established ethical standards.

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