RESEARCH ARTICLE
Article URL: https://ojs.poltekkes-malang.ac.id/index.php/HAJ/index

Hallucination Levels in Schizophrenia After Perceptual Stimulation Group Activity Therapy

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ABSTRACT

Schizophrenia is frequently accompanied by hallucinations that disrupt functioning and quality of life. Perceptual stimulation group activity therapy is a structured nursing intervention intended to strengthen patients' ability to recognize and manage hallucinatory experiences. This study aimed to describe post-therapy hallucination levels and analyze their relationships with selected therapy-related factors. A quantitative descriptive-analytical cross-sectional study was conducted among 30 patients with schizophrenia and hallucinations at Radjiman Wediodiningrat Lawang Hospital. Participants were selected using purposive sampling. Data were obtained through structured interviews, observations, and questionnaires assessing hallucination levels, social support, interaction quality, therapy environment, knowledge, and participation. Descriptive statistics and Spearman's rank correlation were used for analysis. After therapy, 17 participants (56.7%) had mild hallucinations and 13 (43.3%) had moderate hallucinations. Social support was inversely associated with hallucination level, whereas patient knowledge showed a positive association. Interaction quality, therapy environment, and participation were not significantly associated with hallucination level. Perceptual stimulation group activity therapy was followed predominantly by mild hallucination levels, with social support and patient knowledge emerging as relevant correlates of hallucination management.

Keywords: Schizophrenia; hallucinations; group activity therapy; social support; psychoeducation

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INTRODUCTION

Schizophrenia is a severe mental disorder characterized by disturbances in thought, perception, emotion, and behavior. Hallucinations are prominent psychotic symptoms in schizophrenia and may interfere with communication, social functioning, treatment engagement, and daily activities [1] .

Perceptual stimulation group activity therapy is a structured nursing intervention used to help patients recognize hallucinatory experiences and practice strategies for controlling them. Indonesian primary studies have reported improvements in hallucination-control ability after perceptual stimulation group activity therapy [2], [3], [4], [5] Evidence from a structured auditory-hallucination symptom-

Submitted: 23 January 2026 Reviewed: 11 June 2026 Accepted: 04 November 2026
Doi: https://doi.org/10.31290/haj.v3i3.6223

management programme also showed improvement in auditory hallucination outcomes over follow-up [6] , while randomized group-based cognitive-behavioral interventions have demonstrated reductions in hallucination severity and frequency [7] . More recent randomized evidence indicates that structured psychosocial interventions can also improve persistent hallucination and delusion outcomes in schizophrenia [8] .

Outcomes after psychosocial intervention may nevertheless vary according to interpersonal, educational, and environmental factors. Primary studies have associated greater social support with symptomatic remission, quality of life, and recovery among people with schizophrenia [9], [10], [11] . Psychoeducation has been shown to improve illness perception and expressed emotion in schizophrenia care [12] , while metacognitive and social-cognitive interventions demonstrate that knowledge, insight, social cognition, and interaction are modifiable components of rehabilitation [13], [14], [15], [16], [17], [18] . The therapeutic environment may also influence patient behavior and engagement; a quasi-experimental study of milieu therapy demonstrated benefits from environmental structuring and therapeutic interaction in psychiatric inpatient care [19] .

Although these studies support group-based, educational, interpersonal, and environmental approaches, relatively few studies have examined several therapy-related factors simultaneously after perceptual stimulation group activity therapy. In particular, the relationships of social support from group members, interaction quality, therapy-environment comfort, patient knowledge, and participation with post-therapy hallucination level remain insufficiently described in the study setting. Therefore, this study had two objectives: descriptively, to characterize hallucination levels after perceptual stimulation group activity therapy; and analytically, to examine the relationships between hallucination levels and social support, interaction quality, therapy environment, patient knowledge, and patient participation.

METHODS

This quantitative descriptive-analytical study used a cross-sectional approach and was conducted at Radjiman Wediodiningrat Lawang Hospital. The population comprised patients diagnosed with schizophrenia who experienced hallucinations and had participated in perceptual stimulation group activity therapy. A total of 30 respondents were selected using purposive sampling. The sample size reflected the 30 respondents who met the study criteria and were selected purposively for this descriptive-correlational analysis; no formal a priori power calculation was reported.

Primary data were collected through structured interviews and observations. Hallucination level and therapy-related factors were measured using questionnaires covering social support from group members, interaction quality, therapy-environment comfort, patient knowledge about hallucinations, and patient participation. Social support reflected perceived assistance and encouragement from other group members; interaction quality reflected the quality of therapeutic communication and interpersonal exchange during sessions; therapy environment reflected perceived comfort of the setting; patient

knowledge reflected understanding of hallucinations and their management; and participation reflected the degree of active involvement during therapy. The available study documentation did not report named standardized instruments or separate psychometric coefficients for these measures; therefore, validity and reliability coefficients are not presented in this manuscript. This limitation was considered when interpreting the findings.

Secondary data were obtained from medical records. Descriptive statistics were used to summarize respondent characteristics, hallucination levels, and therapy-related factors. Spearman's rank correlation was used to examine associations between ordinal study variables and hallucination level, with statistical significance set at $p < 0.05$. Because the design was cross-sectional and all measurements were obtained after therapy, the analysis was interpreted as association rather than evidence of causality.

Ethical approval was obtained from the Health Research Ethics Committee of Radjiman Wediodiningrat Hospital under ethical clearance No. TK.02.04/D.XXXVII.3.6/4913/2025. Written informed consent was obtained from all participants, and confidentiality was maintained.

RESULT

Thirty patients with schizophrenia who had participated in perceptual stimulation group activity therapy were included. The findings are presented as respondent characteristics, hallucination levels, therapy-related factors, and correlations with hallucination level.

Characteristics of Respondents

Respondents were most commonly aged 36–45 years (36.7%), followed by 26–35 years (26.7%) and 15–25 years (23.3%).

Table 1. Distribution of Respondents by Age

Age (Years)	Frequency	Percentage (%)
15–25	7	23.3
26–35	8	26.7
36–45	11	36.7
46–55	3	10.0
>55	1	3.3
Total	30	100.0

Distribution of Hallucination Levels

After perceptual stimulation group activity therapy, 17 respondents (56.7%) were categorized as having mild hallucinations and 13 (43.3%) as having moderate hallucinations.

Table 2. Distribution of Respondents Based on Hallucination Level

Hallucination Level	Frequency	Percentage (%)
Mild	17	56.7
Moderate	13	43.3

Total	30	100.0

Factors Related to Perceptual Stimulation Group Activity Therapy

Most respondents reported moderate social support from group members (70.0%), moderate interaction quality (56.7%), and a moderately comfortable therapy environment (83.3%). Low knowledge about hallucinations was observed in 63.3% of respondents, and 56.7% were categorized as passive participants.

Table 3. Distribution of Respondents Based on Factors Related to Group Activity Therapy

Variable	Category	Frequency	Percentage (%)
Social support from group members	Low	3	10.0
	Moderate	21	70.0
	High	6	20.0
Interaction quality	Poor	13	43.3
	Moderate	17	56.7
Therapy environment	Uncomfortable	5	16.7
	Moderately comfortable	25	83.3
Patient knowledge about hallucinations	Low	19	63.3
	Moderate	7	23.3
	High	4	13.3
Patient participation	Passive	17	56.7
	Moderate	13	43.3

Relationship Between Hallucination Levels and Influencing Factors

Spearman analysis showed an inverse association between social support and hallucination level ($r = -0.420$; $p = 0.021$). Patient knowledge was positively associated with hallucination level ($r = 0.849$; $p < 0.001$). Interaction quality, therapy environment, and patient participation were not significantly associated with hallucination level.

Table 4. Relationship Between Hallucination Levels and Influencing Factors

Independent Variable	Correlation Coefficient (r)	p-value
Social support from group members	−0.420	0.021*
Interaction quality	−0.321	0.083
Therapy environment	−0.331	0.074
Patient knowledge about hallucinations	0.849	<0.001*

Patient participation	−0.222	0.239

**Significant at $p < 0.05$*

DISCUSSION

The predominance of mild hallucination levels after perceptual stimulation group activity therapy is consistent with primary studies showing that structured perceptual-stimulation group interventions can improve patients' ability to recognize and control hallucinations [2], [3], [4], [5] . Similar improvement has been observed in a structured auditory-hallucination symptom-management programme [6] and in randomized group-based cognitive-behavioral treatment [7] . A recent randomized trial also demonstrated that a structured psychosocial intervention could improve refractory hallucination and delusion outcomes [8] . These findings support the clinical relevance of structured and repeated psychosocial nursing interventions. However, because the present study assessed participants only after therapy and did not include baseline or control-group comparisons, the observed hallucination levels cannot be attributed causally to the intervention.

Social support from group members was inversely associated with hallucination level. This finding is consistent with empirical evidence showing that higher social support is associated with symptomatic remission among community-dwelling patients with schizophrenia [9] , better quality of life among patients receiving community psychiatric services [10], and stronger recovery outcomes [11] . Within group activity therapy, peer encouragement may reduce isolation, reinforce coping, and increase confidence in managing symptoms. Nevertheless, the cross-sectional design does not establish directionality; patients with milder symptoms may also be more able to perceive, seek, or use available social support.

Patient knowledge showed a strong positive association with hallucination level. This direction requires cautious interpretation because greater knowledge would not ordinarily be expected to worsen hallucinations. Psychoeducation can improve illness-related understanding in schizophrenia care [12] , and metacognitive training can improve selected cognitive and rehabilitation outcomes [13] . Therefore, reverse causality is plausible: patients with more persistent symptoms may receive repeated education and consequently acquire greater knowledge. Measurement characteristics, previous treatment exposure, and the small purposively selected sample may also contribute to this finding. Future studies should measure knowledge and hallucination severity before and after therapy and document previous psychoeducational exposure.

Interaction quality was not significantly associated with hallucination level in this study, but this does not indicate that therapeutic interaction is unimportant. Randomized studies of social cognition and interaction training have demonstrated improvements in functioning, attributional processes, or social-cognitive outcomes among people with schizophrenia [14], [15] . Group-based interventions targeting insight and perspective taking also show that interpersonal and reflective processes can be modified through structured treatment [16] . The absence of a significant association in the present sample may

reflect restricted score variability, limited statistical power, or an indirect relationship mediated through support, engagement, or insight.

The therapy environment was not significantly associated with hallucination level. Environmental effects may operate through intermediate outcomes rather than directly through hallucination severity. A quasi-experimental study of milieu therapy found that environmental modification, structured ward activities, therapeutic interaction, and caregiver involvement reduced conflict-related outcomes among hospitalized patients with schizophrenia [19] . Thus, environmental comfort may facilitate safety and engagement even when its cross-sectional association with hallucination level is not statistically evident.

Patient participation was also not significantly associated with hallucination level. Participation in group treatment can be influenced by symptom burden, motivation, cognitive functioning, medication effects, and previous treatment experience. Evidence from integrative cognitive remediation and metacognitive or psychoeducational trials indicates that sustained engagement in structured interventions can improve cognitive, functional, insight, or clinical outcomes[17], [18] . In the present study, more than half of respondents were categorized as passive, which may have limited variability. Longitudinal assessment across multiple sessions would better determine whether increasing participation precedes improvement in hallucination management.

Recent Indonesian quasi-experimental evidence also reports improved ability to control auditory hallucinations after perceptual-stimulation group activity therapy sessions 1–3 [20] . Taken together, the current findings and recent literature support continued development of structured group interventions while emphasizing that outcomes are shaped by interpersonal, educational, and contextual factors. Interpretation of the present findings remains limited by the cross-sectional design, purposive sampling, small sample size, single-center setting, absence of baseline and control-group data, potential measurement confounding, and the absence of separately reported psychometric coefficients for the study questionnaires.

CONCLUSION

Most participants experienced mild hallucinations after perceptual stimulation group activity therapy. Social support and patient knowledge emerged as factors associated with hallucination level, while interaction quality, therapy environment, and participation did not show clear associations in this sample. Psychiatric nursing services should strengthen supportive group dynamics and deliver structured psychoeducation while monitoring patients' symptom profiles and engagement over time. Future research should use larger samples, validated measurement instruments, baseline and follow-up assessments, and longitudinal or controlled designs to clarify the direction of relationships and evaluate how interpersonal, environmental, educational, and participation factors contribute to hallucination management.

ACKNOWLEDGMENT

The authors would like to thank Radjiman Wediodiningrat Lawang Hospital and all participants for their cooperation in this study.

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