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A comparative study of nature and types of hallucination across different kinds of psychosis

Abstract

Introduction: Hallucination is a fundamental psychiatric symptom often regarded as a hallmark of psychosis. It can be found in schizophrenia, other psychoses (including delusional disorder, acute and transient psychosis, post-partum psychosis), affective disorders, dementia, substance induced psychotic disorders, and delirium. **Aims and objective:** This study is a systematic attempt to study and compare the nature and types of hallucination across three different study groups, namely schizophrenia, mania, and other psychosis. **Materials and methods:** The study was conducted in a total of 90 randomly selected patients of schizophrenia, mania, and other psychotic disorders, i.e. 30 in each study group. The nature and types of hallucination were assessed by using the Schedule for Clinical Assessment in Neuropsychiatry (SCAN). **Results and observation:** Hallucination was found in 66.67% cases of schizophrenia and 53.33% cases of other psychosis while in case of mania only 13.33% had hallucination. Hallucinations of schizophrenia were more prominent with frequency of hallucination being present every weeks. In majority of cases of schizophrenia (53.33%) and other psychosis (33.33%), sound was more or less like real voices whereas special quality of sound (not much like real voices) was found in majority of mania (ten per cent) patients. **Conclusion:** In mania, auditory hallucination is comparatively rare as compared to schizophrenia or other psychosis. Hallucinations in schizophrenia were found to be more mood incongruent as compared to mania and other psychosis.

Keywords: Schizophrenia. Mania. Delusional Disorder.

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Introduction

Hallucination is defined as a perception without an object by Esquirol in 1817. According to Jaspers in 1962, hallucination is a false perception which is neither a sensory distortion nor a sensory misinterpretation but occurs simultaneously with and alongside real perception. Hallucination is a fundamental symptom in psychiatry. Conventionally, hallucination is counted as a psychotic feature. But it can be found in a variety of conditions. It can be found in schizophrenia, other psychoses (including delusional disorder, acute and transient psychosis, postpartum psychosis), affective disorders, hallucinations induced by psychoactive substances, delirium tremens and organic delirium, borderline personality disorder, posttraumatic stress disorder, Alzheimer's disease, Lewy body dementia, Parkinson's disease, eye problems (visual hallucination). The International Pilot Study of Schizophrenia (IPSS) estimated that 70% of schizophrenia patients experience hallucinations at some point of their illness.[1] The most common type of hallucinations in schizophrenia are auditory, followed by visual. Olfactory, tactile, and gustatory hallucinations are found less frequently.[2] Auditory verbal hallucination is a cardinal feature of psychosis but it is not uncommon in bipolar disorder and major depressive disorder. In a series of 100 current patients experiencing auditory hallucinations, all of which were described as 'hearing voices', 61 suffered from schizophrenia and 78 from schizophrenia-related conditions.[3] Auditory hallucinations occur when there is a combination of vivid mental imagery and poor reality testing in the auditory modality.[4] Some auditory hallucinations are considered to be 'first rank symptoms of schizophrenia';[5] these are audible thoughts, voices heard arguing with each other, and voices commenting on the patient's behaviour. Visual hallucinations are characteristically found in organic states but rarely can be found in functional psychoses. Visual hallucinations occur in occipital lobe tumours involving the visual cortex,[6] Alzheimer's disease,[7] senile dementia,[8] multi-infarct dementia,[9] Pick's disease,[10] and Huntington's chorea.[11] It can be also found in elderly patients with a wide variety of medical conditions even without any psychiatric history.[12] Olfactory hallucinations occur in schizophrenia, in epilepsy, and in some other organic states. Hypnagogic and hypnopompic hallucinations are perceptions that occur while going to sleep (hypnagogic) and on waking (hypnopompic). Various types of hallucination are found across different kinds of psychosis, each of which has its individual clinical significance:[13]

a) Hallucination is considered as a core psychotic symptom in both tenth revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10)[14] and the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).[15]
b) Auditory hallucinations of thought echo, voices discussing him between themselves, and running commentary type (all form part of Schneider's first rank symptoms) form the basis of diagnosing schizophrenia according to ICD-10.
c) Kinaesthetic hallucinations can be diagnostic of a rare variety of schizophrenia.
d) Alcoholic hallucinosis is very difficult to differentiate from schizophrenia phenomenologically.
e) Auditory hallucinations are the commonest type of hallucination in all groups except organic brain syndromes, where visual hallucinations predominate.

Schizophrenia is characterised by fundamental and characteristic distortions of thinking and perception, and by inappropriate or blunted affect with clear consciousness and intellectual capacity. In schizophrenia, auditory hallucination is common especially the Schneiderian first rank symptoms as mentioned above. Persistent delusional disorder includes a variety of disorders in which either a single delusion or a set of related delusions constitute the only, or the most conspicuous, clinical characteristic. Although clear and persistent auditory hallucination (voices) is incompatible with this diagnosis, occasional or transitory auditory hallucinations, particularly in elderly patients, do not rule out this diagnosis. Acute and transient psychotic disorder is an acute psychotic disorder in which hallucinations, delusions, and perceptual disturbances are obvious but markedly variable, changing from day to day or even from hour to hour with frequent presence of emotional turmoil. Sometimes typical schizophrenic symptoms are also present (acute polymorphic psychotic disorder with symptoms of schizophrenia and acute schizophrenia-like psychotic disorder). In mania or bipolar affective disorder current episode manic, the hallucination may be mood congruent or incongruent. Though there were several attempts to study the psychiatric phenomenology in various psychotic groups by various authors, very few such attempts have been made in our part of the country. Moreover the psychiatric phenomenon is subjected to socioeconomic and cultural variation. There are various instruments for assessment of such psychopathological phenomenon like the Brief Psychiatric Rating Scale (BPRS),[16] the Positive and Negative Syndrome Scale (PANSS),[17] etc. which have use in various clinical and research purposes for a long time but the assessment of the psychopathology, i.e. nature and types of hallucination by application of the Schedule for Clinical Assessment in Neuropsychiatry (SCAN)[18] are very few. It is now widely accepted that SCAN is the most meticulous and valid instrument for assessment of any psychiatric phenomenon. The current study attempts to assess and compare the nature and types of hallucination among the three major psychotic diagnostic groups, namely schizophrenia, mania, and other psychotic group which includes acute and transient psychosis, persistent delusional disorder, and unspecified non-organic psychosis.

Methodology

The study was carried out in the Department of Psychiatry, Assam Medical College and Hospital, Dibrugarh for a period of one year, i.e. from June 2014 to May 2015 with due permission from the Institutional Ethical Committee. It was a cross-sectional study involving a total of 90 patients with 30 each in schizophrenia, mania, and other psychotic disorders.

Sample selection

The sample for the study was collected from the patients admitted to the Department of Psychiatry, Assam Medical College and Hospital, Dibrugarh. The cases were selected by using systematic random sampling, i.e. every third case was selected for the study.

Inclusion criteria

- Patients meeting ICD-10 criteria for schizophrenia
- Patients fulfilling the ICD-10 criteria for diagnosis of manic episode and bipolar affective disorder current episode manic
- Other psychotic disorder includes persistent delusional disorder, acute and transient psychosis, and unspecified non-organic psychotic disorders
- Only patients not having altered level of consciousness were included in the study
- Patients who were able to cooperate and complete the procedure were taken up for the study
- Age 18 years and above
- Both the sexes.

Exclusion criteria

- Schizoaffective disorder
- Rapid cycling affective disorder
- Induced delusional disorder
- Schizotypal disorder
- Coexisting systemic physical illness, e.g. septicaemia or other acute infection
- Mental subnormality
- Comorbid substance use disorder
- Uncooperative, unmanageable patients.

Tools used

- Semi-structured proforma for socio-demographic variables
- The ICD-10 Classification of Mental and Behavioural Disorders: Clinical descriptions and diagnostic guidelines[14]
- Present State Examination-10 (PSE-10) of SCAN.[18,19]

Procedure

Patients admitted to inpatient Department of Psychiatry, Assam Medical College and Hospital, Dibrugarh were assessed and diagnosed as per ICD-10 diagnostic guidelines and meeting the inclusion criteria were recruited for the study. The confirmation of the diagnosis was made after

discussing the cases with consultant psychiatrists. Informed consent was taken from each case and after obtaining the consent the cases were assessed thoroughly by using PSE-10 of SCAN.[18,19] For the purpose of evaluation of types and nature of hallucination, whenever possible speech samples were recorded in patients own verbatim either in the form of written speech or by process recording. All the cases were discussed with the consultant psychiatrists for confirmation.

Results and observation

Socio-demographic variables

Mean age of the mania patients (33.03 years) was higher than that of schizophrenia (30.83 years) and other psychosis (31.83 years). All total 68 males and 22 females participated in our study. Out of 68 males 24 were in schizophrenia, 25 in mania, and 19 were in the other psychotic group. There were only six females in schizophrenia, five and 11 in mania and other psychotic disorder group respectively. Though male patients were predominant in all the groups, the rate of other psychosis (36.7%) was comparatively higher in females than schizophrenia (20%) and mania (16.7%). The sample characteristics are summarised in Table 1.

Each study group consisted of 30 systematically selected random samples of schizophrenia, mania, and other psychotic disorders. The other psychotic disorders included the cases with the diagnoses of:

- Acute and transient psychosis
- Persistent delusional disorders and
- Unspecified non-organic psychosis.

The other psychotic disorders consisted of 17 patients (56.67%) with acute and transient psychosis, eight (26.67%) with persistent delusional disorders, and remaining five (16.67%) were unspecified non-organic psychosis. This has been represented in the Figure 1.

Nature and types of hallucinations

In our study, hallucination was found in 66.67% cases of schizophrenia and 53.33% cases of other psychosis in contrast with only 13.33% cases of mania. This finding is also statistically significant (p value<0.05). In two (6.67%) cases of other psychotic disorders, unformed visual hallucination was found. Out of 30 cases of schizophrenia, three cases (ten per cent) had hypnagogic and hypnopompic hallucination, whereas the same was found in two (6.67%) cases each of mania and other psychosis. Only in one (3.33%) patient, bizarre delusion associated with somatic sensations was found. But these findings are not significant statistically (p value>0.05).

In our study, ten (33.33%) cases of schizophrenia, 26 (86.67%) cases of mania, and 14 (46.67%) cases of other psychosis had no auditory hallucination. So, in mania

Table 1: Sample characteristics

Variable	Schizophrenia	Mania	Other psychosis
Age in years (Mean±SD)	30.83±9.067	33.03±11.476	31.83±12.930
Income in rupees (Mean±SD)	3806.67±2331.27	3613.33±1923.35	4076.67±2195.5765
Years of formal education (Mean±SD)	8.17±4.17	8.37±3.62	8.53±4.54
Sex			
Male	24 (80%)	25 (83.3%)	19 (63.3%)
Female	6 (20%)	5 (16.7%)	11 (36.7%)
Religion			
Hindu	28 (93.3%)	28 (93.3%)	28 (93.3%)
Muslim	2 (6.7%)	2 (6.7%)	2 (6.7%)
Others	0	0	0
Locality			
Urban	6 (20%)	8 (26.7%)	5 (16.7%)
Rural	24 (80%)	22 (73.3%)	25 (83.3%)
Marital status			
Married	15 (50%)	21 (70%)	17 (56.7%)
Unmarried	15 (50%)	9 (30%)	10 (33.3%)
Divorced/Widow	0	0	3 (10%)
Occupation			
Employed	8 (26.7%)	8 (26.7%)	9 (30%)
Self-employed	8 (26.7%)	11 (36.7%)	3 (10%)
Household duties	12 (40%)	6 (20%)	8 (26.7%)
Unemployed	1 (3.3%)	3 (10%)	6 (20%)
Student	1 (3.3%)	2 (6.6%)	4 (13.3%)

SD=standard deviation

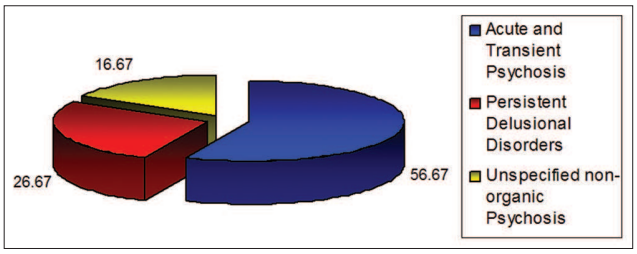

Figure 1: Distribution of cases across the other psychotic disorders

auditory hallucination was comparatively rare as compared to schizophrenia or other psychosis.

Frequency of hallucination

In all the study groups, we have attempted to look into the frequency of hallucination. It was found that in majority of cases (43.33% in schizophrenia, 13.33% in mania, and 43.33% in other psychosis), it was present every week. In six (20%) cases of schizophrenia and two (6.67%) cases of other psychosis, hallucination was found to be present for most days in a week. In only one (3.33%) case each of schizophrenia and other psychosis, hallucination was seen to be on rare occasions. These findings on frequency of hallucination are statistically significant (p value<0.05).

Length of hallucination

In schizophrenia, majority (43.33%) of cases experienced long, more or less continuous auditory hallucination whereas most of the patients of other psychosis (40%) experienced mostly few words but occasionally longer continuous utterances. This finding is statistically significant (p value<0.05).

Quality of hallucination

In majority of cases of schizophrenia (53.33%) and other psychosis (33.33%), sound was more or less like real voices whereas special quality of sound (not much like real voices) was found in majority of mania (ten per cent) patients. The differences in the quality of hallucination in various kinds of psychosis are statistically significant (p value<0.05).

Second or third person hallucination

All of the four (13.33%) patients of mania experiencing hallucination were of second person auditory hallucination. Majority of the patients of other psychosis (36.67%) also experienced only second person auditory hallucination. But most of the schizophrenia patients (36.67%) experienced both second and third person auditory hallucination (more second than third in 20% cases and more third than second in 16.67% cases). Only third person auditory hallucination (ten per cent) and only second person auditory hallucination (6.67%) was found in a small number of cases. This findings are also found to be statistically significant (p value<0.05).

Congruence of auditory hallucination with mood

In majority of patients of schizophrenia (43.33%), no affective state was associated with hallucination and in 23.33% cases auditory hallucination was incongruent with mood. In majority of patients of other psychosis (46.67%), no affective state was associated with hallucination and in 6.67% cases auditory hallucination was congruent with mood. In two (6.67%) cases of mania, all auditory hallucinations were congruent with affective state and in another two (6.67%) cases auditory hallucination was more congruent than not. This findings are statistically significant (p value<0.05).

Prominence of hallucination

In four (13.33%) cases of mania, auditory hallucination was present but not the central feature of clinical picture. In schizophrenia, ten (33.33%) patients experienced prominent auditory hallucination and in eight (26.67%) cases auditory hallucination was intrusive and persistent than other symptoms. In eight (26.67%) cases of other psychosis prominent auditory hallucination was found, and in five (16.67%) cases auditory hallucination was intrusive and persistent than other symptoms. The differences in the prominence of hallucination in various kinds of psychosis were statistically significant (p value<0.05).

Insight into hallucination

Majority of patients (56.67%) with schizophrenia explained hallucination without insight and ten per cent patient were puzzled without any explanation. Two (6.67%) patients with mania were puzzled without any explanation and two (6.67%) patients explained hallucination without insight. Twelve (40%) patients with other psychosis were puzzled without any explanation and four (13.33%) patients explained hallucination without insight. The differences in the insight into hallucination in various kinds of psychosis were statistically significant (p value<0.05).

The hallucination characteristics are presented in Table 2.

Discussion

In our study, hallucination was found in 66.67% cases of schizophrenia and only 13.33% cases of mania. Baethge *et al.*[20] found almost similar cross-sectional prevalence of hallucinations among hospitalised subjects of schizophrenia (61.1%) and bipolar mania (11.2%). Thomas *et al.*[21] reported auditory verbal hallucinations in approximately three in four people diagnosed with schizophrenia which is higher than our study.

Kumari *et al.*[22] found that majority of patients in affective group had second person auditory hallucination and majority in nonaffective group had third person auditory hallucination which is characteristic of diagnosis of schizophrenia. Whereas in our study, all of the four (13.33%) patients of mania experiencing hallucination are of second person auditory hallucination which is similar to the above study but in contrast to the above study most of the schizophrenia patients (36.67%) experienced both second and third person auditory hallucination.

Okulate and Jones[23] compared auditory hallucinations phenomenologically in schizophrenic and affective disorder in Nigerian patients and found that voices commanding and

Table 2: Hallucinations across the diagnostic groups

	Schizophrenia (30)	Mania (30)	Other psychosis (30)	p value
Hallucination	20 (66.67%)	4 (13.33%)	16 ((53.33%)	0.0001
Unformed visual hallucination	0	0	2 (6.67%)	0.326
Hypnagogic and hypnopompic hallucination	3 (10.00%)	2 (6.67%)	2 (6.67%)	1.00
Bizarre delusion associated with somatic sensations	1 (3.33%)	0	0	1.00
Hallucination frequency				
No AH	10 (33.33%)	26 (86.67%)	14 (46.67%)	0.000
Rarely	1 (3.33%)	0	1 (3.33%)	
Every week or so	13 (43.33%)	4 (13.33%)	13 (43.33%)	
Most days	6 (20.00%)	0	2 (6.67%)	
Length of hallucination				
No AH	10 (33.33%)	26 (86.67%)	14 (46.67%)	0.000
Few words or brief sentences only	0	2 (6.67%)	3 (10.00%)	
Mostly few words but occasionally longer continuous utterances	7 (23.33%)	2 (6.67%)	12 (40.00%)	
Long, more or less continuous AH	13 (43.33%)	0	1 (3.33%)	
Quality of hallucination				
No AH	10 (33.33%)	26 (86.67%)	14 (46.67%)	0.000
Special quality, not much like real voices	4 (13.33%)	3 (10.00%)	6 (20.00%)	
Sound more or less like real voices	16 (53.33%)	1 (3.33%)	10 (33.33%)	
Second or third person hallucination				
No AH	10 (33.33%)	26 (86.67%)	14 (46.67%)	0.000
Second person only	2 (6.67%)	4 (13.33%)	11 (36.67%)	
Both second and third person, but more second than third	6 (20.00%)	0	4 (13.33%)	
Neither more prominent than the other	4 (13.33%)	0	1 (3.33%)	
Both second and third person, but more third than second	5 (16.67%)	0	0	
Third person only	3 (10.00%)	0	0	
Congruence of AH with mood				
No AH	10 (33.33%)	26 (86.67%)	14 (46.67%)	0.000
All congruent with affective state	0	2 (6.67%)	2 (6.67%)	
More congruent than not	0	2 (6.67%)	0	
Congruent and incongruent AH equally	0	0	0	
More incongruent than congruent	0	0	0	
All incongruent	7 (23.33%)	0	0	
No affective state	13 (43.33%)	0	14 (46.67%)	
Prominence of hallucination				
No AH	10 (33.33%)	26 (86.67%)	14 (46.67%)	0.000
Present but not the central feature of clinical picture	2 (6.67%)	4 (13.33%)	3 (10.00%)	
Hallucination prominent	10 (33.33%)	0	8 (26.67%)	
AH intrusive and persistent than other symptoms	8 (26.67%)	0	5 (16.67%)	
Insight into hallucination				
No AH	10 (33.33%)	26 (86.67%)	14 (46.67%)	0.000
No explanation, puzzled	3 (10.00%)	2 (6.67%)	12 (40%)	
Explanation without insight	17 (56.67%)	2 (6.67%)	4 (13.33%)	

AH=auditory hallucination

those discussing patients in the third person (i.e. both second and third person auditory hallucinations) were the commonest in schizophrenic patients whereas in affective disorders, commanding second person auditory hallucination was more

common. Both these findings are consistent with finding of our study. Our study findings also strengthen the report of Baruah and Chaudhury,[24] where auditory hallucinations in the form of voices arguing and voices commenting were most common among schizophrenia patients.

In student populations prevalence rates of hypnagogic and hypnopompic hallucination have been documented to be as high as 85%.[25] Ohayon[26] found that 25% of people from the general population reported having a hypnagogic experience and 18% reported a hypnopompic experience. But in our study we had found a lower rate of hypnagogic and hypnopompic hallucination in all the groups. Hypnagogic and hypnopompic hallucinations were found in only ten per cent cases of schizophrenia, 6.67% cases of mania, and 6.67% cases of other psychosis.

Sartorius *et al.*[1] found that 70% of schizophrenia patients experienced hallucinations. In our study, we have found hallucination in 66.67% of schizophrenia patients which is similar to the above finding. Aleman and Laroi[2] found that the most common hallucinations in schizophrenia were auditory, followed by visual. Tactile, olfactory, and gustatory were reported less frequently.[2] Baruah and Chaudhury[24] also found that auditory hallucinations were highest among the schizophrenia patients followed by visual, tactile, olfactory, and gustatory hallucinations. In our study, we had also found auditory hallucination to be the most common among schizophrenia patients (66.67% cases) but no visual, tactile, olfactory, or gustatory hallucinations were found in our study.

Special kinds of hallucination like musical hallucination is not so uncommon in schizophrenia and was mentioned in various literatures. In 1997, Saba and Keshavan found musical hallucinations in 16 out of 100 patients with schizophrenia.[27] But, in our study we had not found any of such special kinds of hallucination in any of the groups.

Lewandowski *et al.*[28] found that tactile, olfactory, and gustatory hallucinations were common (20% of the total sample) in a large cohort of patients with schizophrenia (n=133), schizoaffective disorder (n=101), or bipolar I disorder (n=186). However, in our study we had not found any such type of hallucination in any of the three groups.

Waters *et al.*[29] found that out of 29 studies that have addressed the prevalence of different kinds of hallucination in various types of psychotic disorders (5873 participants), the weighted mean prevalence of visual hallucination in schizophrenia was 27% (standard deviation [SD]=nine) whereas the weighted mean of auditory hallucinations as provided by the same studies was 59% (range: 25-86%, SD=15), i.e. twice as frequent as visual hallucination. In our study, auditory hallucination was found in 66.67% cases of schizophrenia, 13.33% cases of mania, and 53.33% cases of other psychosis which is consistent with the above study finding. In contrary, we had found unformed visual hallucination only in two (6.67%) cases of other psychosis but in no cases of schizophrenia or mania.

Chakrabarty and Reddy[30] reported a case of visual hallucination in a young female with bipolar illness during the manic phase. But in our study we had not found visual hallucination in any of the 30 cases of mania.

However, unlike the published scientific literature, our findings also suggest some under researched aspects of auditory hallucination phenomenology. Specifically, we focused on frequency, length, quality, and prominence of auditory hallucination. Our study is also a sincere effort to enlighten the novel aspects like congruence of auditory hallucination with mood and insight into hallucination on which no literature is found till date to the best of our knowledge.

Limitations

This study has got few limitations:

1. It was a cross-sectional study; so, diagnostic stability of the cases with acute and transient psychosis had not been assessed.
2. Correlation of nature of hallucination with the duration of illness had not been assessed.

Conclusion

In view of its limitations, there is further scope of extension of this research work with special references to the nature and outcome of acute and transient psychosis. Despite its limitations, this study was only one of its kinds in this part of the country in the sense that it had tried to cover wider dimensions of perceptual disorders by using PSE-10 of SCAN and can be expected to inspire further extensive, explorative researches in this field.

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