

Different types of hallucinations in schizophrenia and mood disorders: a narrative review

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Abstract

Background: Hallucination is one of the most important features of schizophrenia as well as other psychotic disorders. It is also common in patients with mood disorders. Currently, there is a call for more research on the phenomenology of different forms of hallucinations, for both theoretical knowledge and clinical utility.

Objectives: To explore different types of hallucinations in schizophrenia and mood disorders and to review their longitudinal trajectory.

Methods: A search was carried out in Google Scholar, PubMed, Medline, Health and Internet Access to Research Initiative (HINARI) for English-language articles and book chapters containing the following keywords- hallucination, schizophrenia and mood disorders without date restrictions. Exclusion criteria were as follows: single case studies and reviews and publication in languages other than English.

Results: Auditory, visual, and olfactory hallucinations at index hospitalization, episodes were present in patients with schizophrenia, schizoaffective disorder, bipolar disorder and unipolar depression. For index hospitalization, data showed that schizophrenia and schizoaffective disorder patients had more auditory and visual hallucinations than bipolar and depressive disorder patients. However, over the longitudinal trajectory of their disease, a higher percentage of schizophrenic patients had auditory and visual hallucinations than schizoaffective patients, as well as bipolar and depression patients. Also, in contrast to the initial period, schizoaffective patients did not differentiate themselves over the follow-up period from the bipolar patients. Bipolar and depression patients did not significantly differ at index hospitalization or follow-up. Study result also found that visual hallucinations differentiated the groups to a greater degree over a long period follow up course than did auditory hallucinations. These findings suggest that longitudinal course is more critical for differentiating schizophrenia and schizoaffective disorder, whereas the initial years may be more useful to differentiate schizoaffective disorder from bipolar disorder. Furthermore, studies also showed that the early presence of auditory hallucinations was associated with a reduced likelihood for a future period of recovery. No olfactory hallucinations were present at the index hospitalization in any patients.

Conclusions: Auditory and visual hallucinations occur in both psychotic and mood disorders; however, they occur at different rates, and both the early years and the longitudinal trajectory provide important information to both understand and differentiate the disorders.

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Keywords: Hallucination; schizophrenia; mood disorders; narrative review

Introduction

Hallucinations are a core feature of psychotic disorders and are also present frequently in mood disorders.¹ Despite the diagnostic value of hallucinations, there is currently limited information on different forms of hallucinations and their prominence in different

psychotic and mood disorders. Furthermore, the longitudinal course of different forms of hallucinations is mostly unavailable. As hallucinations are one of the most commonly endorsed psychotic symptoms and can be reliably assessed, a more fulsome understanding of the presence and persistence of different types

of hallucinations in common psychotic and mood disorders would provide necessary information on course and differentiation. Given that hallucinations are found in patients with a variety of diagnoses, misdiagnosis is expected, which can have profound implications for treatment planning. Much of our theoretical knowledge of schizophrenia and the categorization of psychosis and mood disorders come from the longitudinal understanding of the course.² Therefore, this information has implications in our understanding of diagnostic boundaries, differential diagnosis and treatment planning. Underscoring the importance of research in this area, the International Consortium on Hallucinations focus on auditory hallucinations in its top 16 goals listed, understanding the phenomenology of hallucinations in different clinical groups as a core goal.³ Also, the proliferation of the Hearing Voices Movement and related networks has highlighted the number of patients and no patients affected.⁴

As there is even less information on non-auditory forms of hallucinations, we extend the call to better understanding of all forms of hallucinations, and also better understanding of the relationship between symptom presentation and outcome. In this meta-analysis, we also want to show the relationship between hallucinations and outcome. The researchers found that the early presence of hallucinations predict lack of a future period of recovery in all patients and increased hallucinatory activity was associated with reduced work attainment in all patients. Previous reviews have proposed that recovery is most predicted by cognition and to a lesser degree, by negative symptoms, with positive symptoms playing a modest role.⁵ However, other systematic review studies support that positive symptoms, such as delusions, are associated with lower work recovery.^{6,7} These results advocate further study of the association between different forms of hallucinations and recovery.

Methods

A search was carried out in Google Scholar, PubMed, Medline, Health and Internet Access to Research Initiative (HINARI) for English-language articles, book chapters and scientific documents containing the following keywords- hallucination, schizophrenia and

mood disorders without date restrictions. Exclusion criteria were as follows: single case studies and reviews and publication in languages other than English.

Results and discussion

We have summarized the findings under different headings and subheadings.

Overview

Focusing more broadly on symptoms and functioning in schizophrenia and other disorders, research has shown that schizophrenia is a more chronic disorder that tends to be more severe, as patients with schizophrenia have poorer outcomes than those with schizoaffective, bipolar, and unipolar affective disorders. Furthermore, longitudinal studies have demonstrated that the early phase of schizophrenia (first 5–10 years) is where the most significant loss of recovery takes place. Lastly, studies have demonstrated that outcome is heterogeneous in schizophrenia.⁵ More specific examination of symptom dimensions longitudinally over ten years demonstrated that positive and negative symptoms decline in the year following first hospitalization and then remained broadly stable. This study also showed that the positive and negative symptom clusters were largely independent at baseline and over the 10-year follow-up; however, over time, a single factor including both positive and negative symptoms became more prominent.⁶ In contrast, focusing on chronically institutionalized schizophrenic patients and following patients from onset to death, it was found that there were significant decreases in positive symptoms and increases in negative symptoms with time.⁷ Research has generally demonstrated that positive symptoms tend to decrease over the lifespan of schizophrenia patients.^{8,9} Most studies have focused on hallucinations or positive symptoms in general. However, the prevalence and trajectory of individual forms of hallucinations have not received substantial attention, and less is known about the association with different forms of hallucinations and recovery. Knowing the longitudinal trajectory of the frequency of different forms of hallucinations in common psychotic and mood disorders is necessary to increase our clinical knowledge.^{10,11}

The longitudinal trajectory of auditory hallucinations

A generalized estimating equation model evaluated for differences in the rate of auditory hallucinations between the four patient groups over the six follow-up periods after the index hospitalization phase. The model demonstrated that schizophrenia patients had a greater rate of auditory hallucinations than schizoaffective, bipolar and depression patients. Schizoaffective patients did not differ significantly from bipolar patients but had more hallucinatory activity than depression patients. Bipolar patients did not differ from depression patients.^{12,13}

The longitudinal trajectory of visual hallucinations

A generalized estimating equation model evaluated for differences in the rate of visual hallucinations between the four patient groups over the six follow-up periods after index hospitalization. The model demonstrated that schizophrenia patients had more visual hallucinatory activity than schizoaffective, bipolar and depression patients. Schizoaffective patients did not differ from bipolar or depression patients. Bipolar patients did not differ from depression patients. The generalized estimating equation model also demonstrated that the schizophrenia group had a more significant number of patients with visual hallucinations compared to schizoaffective patients. Schizoaffective patients did not differ from bipolar or depression patients. Bipolar patients did not differ from depression patients at any of the follow-ups.^{14,15}

The longitudinal trajectory of olfactory hallucinations

Schizophrenia patients were most likely to report olfactory hallucinations. Only 5% of the schizoaffective patients reported hallucinations at 7.5 year follow-up and only 4% of the bipolar patients reported hallucinations, which was only at 10 year follow-up period. Depressive patients reported no olfactory hallucinations at any of the follow-ups. Schizoaffective and bipolar patients reported minimal amount of olfactory hallucinations and depressive disorder patients reported none over along time (20 years) follow-up. This suggests olfactory hallucinations are primarily a phenomenon that occurs in schizophrenia patients and to a lesser degree in schizoaffective and bipolar patients. Similar to our findings, olfactory hallucina-

tions were also present in 13% of the schizophrenic patients in the World Health Organization 10 County dataset, consisting of approximately 1000 patients. Other studies have found rates of olfactory hallucinations ranging from 7 to 35% in their schizophrenia-spectrum samples.^{16,17}

Relationship between antipsychotic medication and hallucinations

The percentage of patients in the four groups who were on antipsychotic medications were presented at 2 year and 20 year follow-up periods. At the 2 year follow-up, 64% of the schizophrenic patients, 58% of the schizoaffective patients, 22% of the bipolar patients, and 8% of the depressive patients were on antipsychotic medications. The figures remained relatively consistent over the next 18 years. At the 20 year follow-up, 45% of the schizophrenic patients, 54% of the schizoaffective patients, 25% of the bipolar patients and 9% of the depressive patients were on antipsychotic medications.

Over the 20 years, schizophrenic and schizoaffective patients who were not on any antipsychotic medications had less auditory hallucinatory activity than patients on antipsychotic medications at all follow-ups. The percentage of schizophrenic and schizoaffective patients not on antipsychotic medications had auditory hallucinations ranging from 7 to 23% over the 20 years, whereas the percentage of patients on antipsychotic medications had auditory hallucinations ranged from 27 to 48%. Additionally, schizophrenia and schizoaffective patients not on any antipsychotic medications had less visual hallucinatory activity than patients on antipsychotic medications at the 4.5-year follow-up. The percentage of schizophrenic and schizoaffective patients not on antipsychotic medications who had visual hallucinations was 11%, whereas the percentage of patients on antipsychotic medications who had visual hallucinations was 33%.^{12,13}

Hallucinations in other population

Hallucinations commonly occur in normal people. A recent meta-analysis found a prevalence of 6% hallucinations in the general population.¹² In another review of the average adult population using interviews, found that hallucinations were endorsed by 8–25% of the general population.¹³ Furthermore, similar rates of auditory, visual and tactile hallucinations were found.

Lastly, hallucinations that did not cause distress or impairment were substantially more common in the normal population. In this review, the baseline prevalence of hallucinatory experiences ranged from 5-9% and 60–95% of individuals who no longer had hallucinations over time. However, two out of three studies focusing on clinical samples of children and adolescents with hallucinations found an increased likelihood ratio (2.5–6.6) for transition to psychosis.¹⁴ These results are similar to our results of reduced frequency of patients with auditory and visual hallucinations after the early years of the disorder. Lastly, patients and non-patients with auditory hallucinations have synergized to form a "Hearing Voice Movement" and regional peer support group.⁴ Inclusion of these groups of individuals in research will help us better understand the nature of hallucinations in its many forms.

Conclusions

From the above discussion, it can be concluded that auditory and visual hallucinations occur in both psychotic and mood disorders. However, they occur at different rates and both the early years and the longitudinal trajectory provide important information to both understand and differentiate the disorders. Secondly, it also indicates that auditory and visual hallucinations have different longitudinal trajectories and provide additional unique information for differentiating the different psychotic and mood disorders. Lastly, study results provide further evidence that auditory hallucinations are associated with lower long-term recovery for patients with psychosis. Knowledge of the longitudinal course of symptoms in different disorders is critical as this information is used for diagnosis, differentiate disorders, predict prognosis and develop a treatment plan.

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