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Psychotic Children with Hallucinations

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Summary: In a retrospective study, 20 psychotic children and adolescents with hallucinations were compared with 15 psychotic controls without hallucinations. In the former, auditory hallucinations predominated, which tended to be localised in the internal space of the child. Subjects with hallucinations had significantly more symptoms of depression and anxiety, more precipitants of illness and problems in reading ability. There was a trend for increased laconic speech in them. The findings suggest a link between hallucinations and mood and cognitive changes in children and adolescents with psychoses of late onset.

Hallucinations have long been recognised as a symptom of psychiatric disorder. In adults they have been described typically in schizophrenia, but they also present in other psychoses, in neurotic and in organic states (Ey, 1973).

The literature on the phenomena in children is far less extensive than that on adults and it is mostly based on uncontrolled investigations of psychotic states. It has been shown that hallucinations are rare in the psychoses of early onset, and that they are one of the cardinal symptoms in the psychoses of late onset. (Kolvin *et al,* 1971; Eggers, 1973). However, little is known about their clinical associations in those conditions. Some authors have commented on the frequency of suicidal instigations by hallucinatory voices and on the association with suicidal attempts (Winn, 1969; Eggers, 1973) and Portell (1970) has noted a link with symptoms of anxiety and withdrawal.

The present study aims to clarify the significance of hallucinations in children with psychotic disorders by using a control group of psychotics without hallucinations. A preliminary account of some of the findings has been published elsewhere (Garralda, 1982).

Method

In a retrospective design, subjects seen at the Maudsley Hospital between 1957 and 1964 were selected for study. During those years, information on demographic characteristics, diagnosis and clinical data, was coded systematically in item sheets when the children were first assessed. The case notes of subjects whose coded item sheets indicated the presence of a psychotic illness were scrutinized for a description of the general clinical picture and of the perceptual pheomena.

The selection criteria for the study were: (1) the presence of a non-organic psychotic diagnosis on discharge in accordance with the diagnostic standards of the ICD-9 classification scheme (WHO, 1978); (2) start of the illness after the age of five; (3) presence of hallucinations, defined acccording to Bleuler (1951) as "perceptions without the corresponding external stimuli". No differentiation was attempted into true or pseudo-hallucinations and strictly sleep-related, illusory or inadequately described phenomena was excluded.

A psychotic diagnostic was present in approximately 4 per cent of the children seen during the years under study: the psychoses of late onset were slightly more frequent than those of early onset. About three-quarters of the subjects with psychoses of late onset and hallucinations. Out of them, 20 were selected as an index group, by taking out the first few such cases registered each year to a total of 20. All the psychotic subjects (15) without hallucinations registered between 1957 and 1964 were selected as controls. On the basis of the systematic detailed information which had been recorded in the case notes, the 20 index children were compared with the controls on demographic data, symptomatology, past history, early development, educational progress, physical health and social characteristics. The symptoms of psychoses were those previously studied by Kolvin *et al* (1971) and as described by Fish (1967).

Symptoms were rated on a 3-point scale where 0 indicated that the symptom was absent, 1 that it was doubtfully present, or was mild in severity, and 2 that it was presnt. Tests of statistical significance (T-test, chi-square ((with Yate's correction in fourfold tables)) were used as appropriate.

Results

General data on both subjects and controls showed few differences between the two groups. In both samples females were slightly more numerous than males. The mean age for all the children studied was 13.6 (standard deviation of 1.5), with a range from 10 to 16 years. Intelligence was rated as below average (IQ less than 85), in about one third. This was based on formal psychological testing in 19 index subjects and 11 controls. Most of the subjects with IQs less than 75 were in the index group (5 out of 6), but the difference with the controls was not statistically significant. The most frequent diagnosis

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on discharge was schizophrenia (two-thirds). A minority were given diagnoses of manic-depressive illness, schizoaffective or unspecified psychoses. Most children had been admitted to hospital as in-patients.

There was variation in the extent to which children described their perceptual experiences and only modality was reported in all 20 cases. Auditory hallucinations were most frequent (95 per cent), visual hallucinations were present in 55 per cent, olfactory and taste phenomena in 5 per cent, and mixed modalities in 55 per cent.

Additional information was available in a number of cases. The duration of the experiences varied from weeks to years. As for frequency, they were said to occur weekly in some cases, but in one child they were said to be present "at any time". Specific episodes of hallucinations were brought about by a number of diverse events. In one child they occurred "when he is about to say anything", and in another they were linked to bouts of gastrointestinal upset and throat ache. In response to the hallucinations, six answered back to voices, four reacted with anxiety or even terror, an in a further 2 they induced hilarity.

Auditory hallucinations were more frequently located inside than outside the child's head (six and three cases respectively). In over half the children, the voices were addressed at them, giving instructions. The voices talked amongst themselves about the subjects in only 2 cases. The content of the auditory phenomena included threatening and unpleasant comments in six cases and pleasant and friendly in a further six. Suicidal instigations were mentioned by six. Voices were almost as equally frequently attributed to unspecified people, as to school contacts or parents. In one case they were thought to be God's and two children said that they heard their own thoughts being spoken aloud. In a further five, other people's voices were said to speak the child thoughts. The contents of visual hallucinations were as likely to be unidentified people, as family members, animals or objects, and one child reported seeing the devil.

The reality or not of the hallucinatory experiences was mentioned by three subjects. One said that at times he thought the voices were real. Another stated that he was not sure whether the voices were just imaginary. A third said that sometime he imagined his experiences rather than definitely experiencing them.

The features of illness significantly more frequent in index children are outlined in Table I. Precipitants of illness were common, with changes of schools, physical conditions such as upper respiratory infections, sexual incidents or parental separations. Symptoms of depression, with misery, unhappiness and tearfulness and symptoms of anxiety were common in children with hallucinations. Problems in reading ability were reported in about one third. In most of these cases (four out of seven) reading ability had been assessed through formal psychological testing; in the rest, assessment was based on the history and clinical impression. At a level short of statistical significance, children with hallucinations had more stresses, such as illness in the family or deaths (these stresses were present in about half of them).

There were few differences in the psychotic symptomatology in index children and controls and none reached statistical significance. Most children in both groups (80 per cent and 93 per cent respectively) had delusional beliefs. Inappropriate giggling, flatness of affect and incongruity between the speech contents and its affective expression were as frequently present in index subjects as in controls. In about two thirds of all children the language was described as incoherent, vague, disconnected, fragmented, disorganized or senseless (Table II). Laconic and monotonous speech (brief answers to questions, slow monotonous speech with few phrases interrupted by long pauses) was rated as present in more index children than controls, as were changes from laconic to accelerated speech, but the difference failed to reached significance.

TABLE II

Language abnormalities

Language	Children with hallucinations Total: 20	Controls Total: 15
Incoherence	75% (15)	66% (10)
Laconic/Monotonous	70% (14)	33% (5)
Alternating (Laconic to over-talkative	25% (5)	—

Other clinical aspects which have found to be related to hallucinations in the literature were not associated in this study. There were no differences between index and control groups in suicidal symptomatology, insomnia or deafness, nor in EEG abnormalities, verbal performance discrepancies on intellectual testing or social class. Social withdrawal was more frequent in index subjects, but not at a significant statistical level.

TABLE I

Differentiating features between children with hallucinations and controls

	Children with hallucinations Total: 20	Controls Total: 15	$P(\chi^2)$
Precipitants	80% (16)	40% (6)	0.04
Anxiety	85% (7)	46% (7)	0.01
Depression	90% (18)	66% (10)	0.04
Problems in reading	35% (7)	—	0.05

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Discussion

In this control study of psychotic children and adolescents, hallucinations showed associations with precipitants for the disorder, with mood changes and problems in reading ability. They were not linked to other features which had been highlighted in the literature.

As in the case in adult psychotics, hallucinations in the sample were predominantly auditory. They were more often located in the internal than in the external space and, in the few cases where the reality of the experience was commented upon, their real, as opposed to imaginary, nature was difficult to assess convincingly. In adults the validity of the concept of pseudo-hallucinations, based on locality and reality of the experiences, has been called into question (Hare, 1973). In children their differentiation from true hallucinations should be even more difficult to substantiate. Until the age of seven dreams tend to be considered as objective reality located in the external space (Piaget, 1974), and children cannot easily discriminate dreams from other subjective experiences such as hallucinations. A prospective development approach might elucidate the relationship between stages in reality testing of imaginary processes in childhood and the localisation in space and the judged reality of hallucinations.

Precipitants of illness and stresses in the family were common in children with hallucinations. It is possible that these events induced mood changes which were, in turn, linked to the hallucinations. The associations with symptoms of anxiety and depression are in line with reports in adults, where hallucinations appear with the mood changes of schizophrenic patients (Slade, 1973). However, in the present study, anxiety and depression were also common in the control group, and the significance of the mood changes for the presence of hallucinations remains uncertain.

The finding of more reading problems in subjects with hallucinations might indicate broader cognitive deficits in those subjects. Studies in adults have found a lower intelligence in hallucinating than in non-hallucinating schizophrenics; poorer ability for verbal descriptions during their illness, and an excess of conceptual disorganisation (Johnson and Miller, 1965; Miller *et al*, 1965; Lewinsohn, 1968). In children Portell (1970) has remarked that the drawings of schizophrenics with hallucinations appear impoverished in form and content with little reality contact. In the present sample, reading problems were significantly linked to IQs under 75 (71 per cent of the children with reading problems had IQs under 75 and only 3 per cent of the rest; $P < 0.001$) and at a level short of significance, reading difficulties were associated with laconic speech, a possible indicator of poverty in thinking.

As in previous reports (Winn, 1969), a substantial number of hallucinatory voices contained suicidal instigations and in some cases there was a direct relationship between instigations and suicidal symptoms. However, the children with hallucinations as a whole did not show significantly increased suicidal symptomatology. They might have done so in the long term since Eggers (1973) found an excess of suicidal symptoms in the follow up study of psychotic children with hallucinations. The negative findings for other factors which elicit hallucinations (such as sleep or sensory deprivation) suggest that, although these are of relevance in well controlled experimental conditions, their clinical relevance is more doubtful.

The study was retrospective and based on a small sample of subjects. The results are therefore tentative and need confirmation in prospective investigations.

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