

The auditory hallucination: a phenomenological survey

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SYNOPSIS A comprehensive semi-structured questionnaire was administered to 100 psychotic patients who had experienced auditory hallucinations. The aim was to extend the phenomenology of the hallucination into areas of both form and content and also to guide future theoretical development. All subjects heard 'voices' talking to or about them. The location of the voice, its characteristics and the nature of address were described. Precipitants and alleviating factors plus the effect of the hallucinations on the sufferer were identified. Other hallucinatory experiences, thought insertion and insight were examined for their inter-relationships. A pattern emerged of increasing complexity of the auditory-verbal hallucination over time by a process of accretion, with the addition of more voices and extended dialogues, and more intimacy between subject and voice. Such evolution seemed to relate to the lessening of distress and improved coping. These findings should inform both neurological and cognitive accounts of the pathogenesis of auditory hallucinations in psychotic disorders.

INTRODUCTION

The auditory hallucination is a common feature of psychotic illness and has been recorded in 74% of schizophrenics in the International Pilot Study of Schizophrenia (Wing *et al.* 1974). Slade & Bentall (1988), who pooled data from 16 reports, yielding a total of 2924 cases of schizophrenia, determined a prevalence of 60.2% for this symptom. The central importance of the auditory-verbal hallucination as a discriminating diagnostic entity for schizophrenia is framed in the DSM-III (American Psychiatric Association, 1980). Other schemes such as the Present State Examination (PSE, Wing *et al.* 1974) continue to emphasize the Schneiderian concept of the first-rank symptom (Schneider, 1959), which distinguishes certain types of hallucination as having special significance for the diagnosis of schizophrenia (David & Appleby, 1992). Auditory hallucinations also occur in a variety of psychiatric and neuropsychiatric disorders in addition to schizophrenia (Zigler & Philips, 1961; Lowe, 1973) and, indeed, data from the Epidemiologic

Catchment Area (ECA) study (Tien, 1991) show that hallucinations of all modalities occur in the general population at an annual incidence of 4–5%.

Classical teaching proposes a discrimination of form from content in the explication of phenomenology. Though this distinction may be useful for epidemiological and diagnostic purposes, the implications for phenomenology are problematical. Regarding form (Larkin, 1979), features of the hallucination itself may be enumerated: for instance, duration and whether it is internal or external; while content may encompass whether the substance of the hallucinations is menacing, comforting or banal. But when features such as the grammatical construction are considered, for example second *versus* third person origin, or whether the 'voices' are running commentaries or single expletives, or, indeed, whether the voice is angry or robotic, it is not clear whether such attributes belong to form or content categories, or rather somewhere in between.

As well as providing clues to the mechanisms and pathogenesis of hallucinations, a detailed account of their phenomenology may have practical implications for patients. Persistent

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and refractory hallucinations are an important source of morbidity (Falloon & Talbot, 1981). A phenomenological enquiry that includes the common coping strategies of hallucinating patients may, therefore, have positive therapeutic implications (Romme *et al.* 1992; Hoffman & Satel, 1993; Chadwick & Birchwood, 1994).

Explanations for auditory hallucinations include neuropsychological theories inspired by Penfield & Perot (1963) using brain stimulation techniques, which equate hallucinations with abnormal and spontaneous cortical activity analogous to an epileptic seizure (see David, 1994 for review). More recent neuropsychological (David & Lucas, 1993) and neuroimaging studies have concentrated on the brain mechanisms and areas respectively, which might support endogenous language production and reception such as those underlying inner speech (Paulesu *et al.* 1993). Studies using positron emission tomography (PET) (Cleghorn *et al.* 1992) and single photon emission tomography (SPET) (McGuire *et al.* 1993) have demonstrated the location of these processes in the brain in patients suffering from hallucinations.

Psycholinguistic speculations invoke planning errors in speech production as a way of explaining the unintendedness of auditory-verbal hallucinations (Hoffman, 1986; Leuder *et al.* 1992). The notion that hallucinations might arise as a consequence of dysfunction in imagery processes has its supporters (Starker & Jolin, 1982). Finally, the similarity of the hallucination to thought has inspired some psychologists (Heilbrun & Blum, 1980; Bentall *et al.* 1991) to explore the relation between auditory imagery and the alien voice, using the concept of (mis-) attribution.

The current project will concentrate on the symptom of the auditory hallucination, with special emphasis on verbal hallucinations (voices), rather than diagnostic categories. The aim of the approach is to provide a basis for a psychological explanation for the phenomenon in question (David, 1993). It is hoped that revisiting the phenomenology of the auditory hallucination may anchor some of these theories in the reported experience of patients. For example, David (1994) has argued that since the normal right cerebral hemisphere is incapable of sustaining propositional speech it is unlikely to

be the source of complex hallucinations. On the other hand the thematic content of hallucinations commonly reported and their altered prosody may well implicate right hemisphere processes (Cutting, 1990). Regarding psycholinguistic theories, if the structure of an hallucinated utterance is orderly, does this tell us something about discourse planning? Are hallucinations repetitive – an important feature of some simulations (Hoffman & Dobscha, 1989) – or do they evolve? Finally, although confusion between mental imagery and hallucinations may seem a plausible account to psychologists, do patients themselves describe suffering from such confusion?

We describe the range of phenomena under the rubric of auditory hallucinations reported by psychotic patients when interviewed in a semi-structured fashion. Equal attention was given to form and content and attempts were made to explore the borders of hallucinatory experiences such as imagery and thought. In addition, an attempt was made to show how these individuals come to cope with their experiences. The subjective accounts given by patients are taken at face value, in the tradition of classical phenomenology (Jaspers, 1963).

METHOD

Case selection

Subjects were recruited by approaching clinical psychiatrists working in the Maudsley Hospital group, London, and asking for permission to interview any current patient drawn from the local catchment area who was known to be hallucinating. Of 112 patients so identified, seven were judged by the nursing staff to be too unwell to interview. Five refused to participate leaving a study population of 100 all of whom had experienced auditory hallucinations within the last 3 months. All but two were on neuroleptic drugs. There were no diagnostic criteria for inclusion, which ensured a diverse population of subjects.

The hallucinations interview

A semi-structured interview comprising 40 open-ended questions pertaining to the phenomenological characteristics of the hallucination was composed, expanding upon items of the schedule for clinical assessment in neuropsychiatry

(SCAN; World Health Organization, 1992) (available from authors on request). The same rules of scoring were applied as in the SCAN. The main categories of questions were: frequency, duration, volume, length of utterance of the hallucinated voice; intelligibility and variability of the hallucination; precipitants; questions regarding age, social class, sex and 'sound' of the voice; personification of the voices and delusional context; and perceived source. More than 1200 instances of the verbatim reports of auditory hallucinations were recorded.

Ratings of psychopathology

Schedules of insight, consisting of three dimensions: relabelling of psychotic phenomena, awareness of illness and treatment compliance (David, 1990); 'reality testing' (Aggernaes, 1972); and coping strategies adopted to relieve hallucinations, were included. The Aggernaes questionnaire examines the experience of the hallucination along seven dimensions such as, sensation *versus* imagery and public *versus* private. Higher ratings on the first of these pairs is equated with a greater sense that the experience is 'real'.

A 5-point scale of distress occasioned by the voice, from 0 (no distress) to 4 (unbearable distress) was also included. Other measures included 'delusional elaboration' where the thematic content of delusions seemed to arise from the hallucination.

A full SCAN interview was performed by T.N. who was trained to the required level of reliability in its use, so that diagnoses and other psychopathological features could be determined. An effort was made to gain information on the evolution of hallucinations over time. Hence, subjects were sought in, acute admission wards, out-patients clinics and a day-hospital.

RESULTS

Subjects

Demographic and clinical data are summarized in Table 1. Of 100 subjects, 54 were male; mean age was 38 years. The average duration of experience of hallucinations was greater than the mean length of the illness history by 1 year, suggesting a delay between onset and clinical presentation in some instances. The mean number of separate admissions for psychiatric treatment was 4.2 (s.d. = 2.8; range = 0–9).

Most patients (61%) had an ICD-10 diagnosis of schizophrenia. These were no more likely than others to be in-patients.

1. Context-driven hallucinations

Questions were asked to determine events leading up to the experience of an hallucination. Psychological states were distinguished from bodily sensations and cognitive events; internal drives were distinguished from external contexts. For example, in response to the question 'Do you ever feel strange sensations in your body just before the voice starts?', a number of

Table 1. *Demographic and clinical details of the sample*

Subject profiles (N = 100)	Mean
Age: (years)	38.0 (s.d. 11.0)
Duration of Illness	10.5 (s.d. 8.9)
Hallucinations	11.4 (s.d. 9.5)
	%
Sex	
Male	54
Female	46
Marital status	
Married/cohabitee	15
Separated	4
Divorced	11
Widowed	6
Single	63
Employment	
Full/part-time	25
Unemployed	69
Retired	2
Sheltered	2
Student	7
Ethnicity	
White European	71
Afro-Caribbean	26
Indian Asian	3
Diagnosis (ICD-10)	
Schizophrenia	61
Manic-depression	11
Depressive psychosis	9
Alcoholic hallucinosis	4
Schizoaffective	8
Paranoid psychosis	8
Paraphrenia	1
Puerperal psychosis	1
Post-ictal psychosis	1
Drug-ind. psychosis	1
Schizoid personality	1
Treatment setting	
In-patient	55
Out-patient	15
Day-patient	30

patients (45%) volunteered churning or butterfly sensations in their stomach at, or before, the onset. The experience of sadness was particularly mentioned as encouraging hallucinations in 52% of the sample, fear (16%) and anger (8%) much less so. In eight out of nine (89%) psychotic depressive patients, sadness was described as a precipitant.

Cognitive cues including intentions were less often reported as precipitants. Typical examples include: a male who hears a voice saying 'Poo-poo' each time he recognizes the urge to defecate. Eating or the intention to eat was not infrequently (50%) cited as the cause of voices. Examples include: 'You fat cow', and friendly voices extolling vegetarianism. An example of an external cue is: a manic-depressive patient who would hear a 'nagging voice' each time his nurse approached with medication.

Subjects were asked whether they tended to hear the voices at any particular time of day: 38% said 'no', 21% stated that their hallucinations were worse first thing in the morning, 35% worse in the evening, and 5% mentioned the middle portion of the day. Eighty per cent said being alone worsened their hallucinations.

2. Features of hallucination form

All 100 subjects complained overwhelmingly of 'hearing voices': 14% described whispers; 13%, shouting; but the majority, 73%, said that their voices usually spoke in normal conversational volume; 84% said angry voices were typically louder, whereas third-person commentary was heard at conversational volume. Regarding frequency, 12% experienced hallucinations once or twice a day, 36% several times, 37% most of the time and 15% all of the time. They lasted seconds or minutes in about one-third of subjects, less than 1 hour in a quarter and more than an hour in 42%. Frequency and duration of utterance were significantly correlated (Pearson coefficient; $r = 0.32$, $P = 0.001$). Frequency was also correlated with total number of recorded hallucinated words ($r = 0.28$, $P = 0.01$): i.e. patients who heard their voices often were more likely to describe a rich array of hallucinated words.

Internal versus external

With regard to source, 49% of the sample heard their voices through their ears as external stimuli,

Table 2. *Descriptive features of source of hallucinations*

External locus (<i>N</i> = 49)		Internal locus (<i>N</i> = 38)	
Location		Location	
Right	22	Head	34
Left	9	Chest	2
Centre	17	Abdomen	1
Back	1		
Same place		Right	5
Yes	32	Left	4
No	2	Centre	23
Not sure	15	Back	4
		Unsure	2
Source moves		Same as thoughts	
Yes	10	Yes	9
No	39	No	28
Not sure	0	Unsure	1
Distance			
Inches	7		
Room	25		
Far-away	10		
Not sure	7		
Louder moves*			
Yes	3		
No	42		
Not sure	4		

* See text for explanation.

38% heard them in internal space and 12% heard them in both loci variably (Table 2). Subjects on their first admission were mostly externalizers (9/13), while the remainder had a slight excess (48/87) of internal voices. They were similar in terms of diagnoses and age. Internal and external hallucinators differed with respect to the number of hallucinated words ($t = 1.98$, $P = 0.05$) and utterances ($t = 2.04$, $P = 0.04$), where internalizers exceeded externalizers on both measures.

Location of 'voices'

Of the 23 subjects who perceived their (external) voices from the right, 21 were right-handed (Annett, 1970); and eight of the nine subjects who described a leftward source, were also right-handed. Those who described an external locus were asked, 'Is the voice always from the same place?' Reality-testing was explored with the question, 'If you were to move towards the voice, would it become louder?' (Louder moves? in Table 2). Of the 49 external hallucinators, 32 (65%) stated that they tended to experience their hallucinations from the same place on each

Table 3. Description of sex of voice by gender of subject

Voices	Subjects	
	Male %	Female %
Voice 1 (<i>N</i> = 92)		
Male	71	71
Female	23	22
Voice 2 (<i>N</i> = 63)		
Male	45	65
Female	40	28
Voice 3 (<i>N</i> = 41)		
Male	58	31
Female	29	47

occasion, and that in the majority the source did not move. However, 42/49 (85%) failed the simple probe of reality-testing.

In those patients who located their voices internally, the exact location was sought as was the topographical relation of these voices to their thoughts. All but two subjects were clearly able to localize the voices in their bodies (*N* = 38), the majority, in their heads (*N* = 34, 89%), most often in the centre of the forehead. Interestingly, 28 (74%) found it difficult to locate their own thoughts within their heads, presumably a normal difficulty.

Of the 12 subjects who described mixed sources (both internal and external loci), eight explained that single voices tended to be heard either inside or outside their heads. Please note that one patient – with puerperal psychosis – was excluded from these analyses as she could not identify with any clarity these features of her voices (see below).

3. Hallucination content

Initially, subjects were asked the number of voices that they heard: the mean was 3.2 (median = 2, range 1–14). However, 57% of subjects described, in addition, the sounds of crowds of people mumbling or talking together. One patient experienced only hallucinations of a crowd mumbling. In addition, the sex, age, regional accent and class accents of the three most prominent voices were sought.

As the responses in Table 3 clearly show, all subjects were more likely to hear a male hallucinated voice than a female one. This was true of females except for the third, and least

prominent, voice. Whereas, for the sample as a whole, middle-aged sounding voices were most commonly described (> 75%), patients under 30 years of age were more likely (20/31 *versus* 25/69: $\chi^2 = 6.9$, $P = 0.001$) to report that their voices were young (corresponding to children, teenagers and young adults).

Amalgamating the data on the postulated age and sex for the single most prominent voice, an impression of the most frequently hallucinated voice for the sample can be inferred: a middle-aged man (*N* = 34). The next most common being a young adult man (*N* = 24), followed by a young adult female (*N* = 10).

Accent

Seventy-one per cent stated that the accents of the voice were different from their own, 28% admitted they were the same (one was unsure). Subjects were asked then to characterize this, either in terms of class (e.g. upper-class), or region (e.g. Chinese). Fifty-nine per cent chose a class-based characterization: 30% described an upper-class voice, typically referred to as a 'BBC voice', 17% described coarse working-class voices and 11% described English middle-class voices (distinct from their own).

The most frequently described 'non-self' regional accent was found to be of Jamaican/Afro-Caribbean (*N* = 12) provenance most commonly reported by British born, Afro-Caribbean subjects, with South London accents. Another example was a British-born, young schizophrenic male, with a broad Cockney accent, who described voices with the accents of his Punjabi family.

Personification

Sixty-one subjects admitted to knowing the identity of one or more of their voices. Delusional identifications (e.g. voice of God, Devil, Robots etc., *N* = 15) were distinguished from real/likely-to-be-real (e.g. relative, neighbour, doctor *N* = 46) identifications. Hallucinated voices were often known to the patient in real life, indicating that they may be modelled on the memory of a real voice. Fifteen per cent stated the voices were familiar but unknown.

Significance

Patients were asked to give an account or a reason for their 'voices'. In 72%, an explanation

Table 4. *Frequencies of different types of hallucinated voice*

Question/prompt	Freq. %
Command?	84
Critical?	77
Abusive?	70
Frightening?	66
Third/neutral?	61
Arguing?	53
Pleasant?	48
Questioning?	41
Laughing?	40
Sad?	24

Examples of questions/prompts.

Abusive: 'You bloody poof'; 'Ugly bitch'.

Command: 'Get the milk'; 'Go to the hospital'.

Questioning: 'What did you do that for?'; 'How old is she?'

Critical: 'You are stupid'; 'You can't do anything right'.

Pleasant: 'She's all right'; 'My darling'.

Sad: 'We're losing life'; 'I'm in pain'.

Laughing (usually sarcastic) 'Silly cow'; 'You would do that wouldn't you'.

Frightening: 'We're going to kill you'; 'We are watching'.

Third person: 'He's in bed'; 'She couldn't tell her arse from her front'.

Arguing: voices in dialogues between either the patient and the voice or different voices about the patient.

was offered and this was categorized into three classes: 51% – forces of Good or Evil; 16% – conspiracy or plot (e.g. CIA bugging the house); 5% – ghosts, spirits or aliens. Interestingly, those who heard 'real' voices were no less likely to offer a delusional explanation.

Verbatim content of hallucinations

Replies were recorded in response to a prompt (e.g. 'Do you hear abusive voices? What do they say?'). Ten prompts were asked of each patient and the frequencies responding to each are given in Table 4. In total 1222 individual hallucinated utterances were recorded, comprising 4213 hallucinated words (on average 3.5 words per hallucinated utterance). The range spanned from none (the sounds of a crowd) in one patient, to 125 words; (mean = 42, s.d. 25). The mean number of types of voice, an index of prosodic complexity, was 5.6 (s.d. 2); median 5, maximum 10.

Prosodic complexity was significantly correlated with the total number of different utterances ($r = 0.53$, $P = 0.001$). The number of coping strategies (see later) was found to be correlated with this variable ($r = 0.4$, $P = 0.001$),

but not length of illness or number of hospital admissions. It was noted that internally experienced hallucinations were usually complex: 40/50 subjects with some internal hallucinations were found to have voices of high complexity (> 4), $\chi^2 = 6.0$, $P = 0.01$. The most commonly encountered hallucinated utterances occurring in 60% of the whole sample, were simple terms of abuse. Female subjects described words of abuse conventionally directed at women (e.g. slut), and 32 male subjects similarly described 'male' insults such as those imputing homosexuality.

4. Other psychotic symptoms

All subjects were asked about hallucinations in other modalities using questions drawn from the SCAN interview (WHO, 1992) which rates such symptoms: 1 (uncommon/transitory) to 3 (present more or less continuously). Of the entire sample, 51% had visual, 51% olfactory, 40% visceral, 31% tactile and 18% gustatory hallucinations; all attracted scores of 1.

Non-verbal auditory hallucinations

Sixty-two subjects admitted to hearing other sounds in addition to voices. These included whispers (10%), cries (2%) and various elemental sounds such as clicks and bangs (16% total). In some instances they formed complex backgrounds to the voices. An example was offered by a schizophrenic subject who described the sound of a door banging, the tramping of feet, and the murmur of a crowd, explained as a group of people entering the room to watch him.

Musical hallucinations were encountered in 36%. Choral music was most often cited; others included pop-songs and fragments of orchestral music. In some instances a delusional explanation would be given for their presence, e.g. heavenly choirs. The musical hallucinators were found in 32/84 (38%) right-handers compared with 5/15 (33%) left-handers (NS). Musical hallucinations were not associated with the age or sex of the subject.

Thought insertion

The SCAN item of thought insertion attracted ratings of '2' in 39 instances, and '1' in seven instances. The definition includes: '...lacks normal sense of ownership... thoughts are alien, not their own...'. Those who were rated 2, were

asked to describe their experience in order to explore the distinctions being made between this and hallucinations. Thirty-seven cases were able to describe the experience in detail and 24 of these also admitted to hearing auditory hallucinations internally and 13, externally.

5. Degree of control, distress and coping mechanisms

Half of the subjects (51 %) were able to exercise some control over their voices: 38 % could start at least some of their voices, by concentrating on the voice, or asking it questions, whereas 21 % said that they could sometimes stop them. In contrast, few could exert control over the content (5 %), speed (2 %), or volume (2 %) of delivery of the voice.

The sample was evenly divided between those who experienced moderate or no distress ($N = 53$) and those who described severe or greater distress ($N = 47$). There was no association between the ability to control the voice and the frequency with which the voice spoke. However, this capacity was found to go along with the experience of hearing questioning or pleasant voices, or those that caused little or no distress (control present/distress low, 35/53; no control/distress high, 35/47; $\chi^2 = 15.6$, $P = 0.001$). Finally, control did not show any relation to the length of illness or number of admissions.

Distress

High levels of distress were found among those with little control and few means of coping with hallucinations. Those who experienced few kinds of voices and who experienced them externally appeared to show more distress as did those whose voices were described as frightening. One activity, responding to voices, including conversing with them, exerted a significant effect on distress: 24/32 responders were in the low distress group ($\chi^2 = 9.1$, $P = 0.002$).

Coping mechanisms

Seventy-six per cent of the patients were able to identify at least one activity – either cognitive or behavioural – which helped them in dealing with auditory hallucinations. Twenty-eight per cent of the sample could, from time to time, eliminate their voices by shouting at them to go away. Subjects were also asked whether any activities

Table 5. *Coping and aggravating activities*

Activity	Frequency	
	Better %	Worse %
Posture	23	1
Hobbies	16	0
Music	30	3
TV	10	55
Radio	17	28
Relax	19	1
Exercise	13	0
Noise	14	0
Talk	63	1
Think	39	0
Shout	28	0
Sleep	43	0

Explanation of terms used.

Posture: Sitting, lying on bed.

Music: Listening to music.

TV: Watching the television.

Noise: Loud external ambient noise.

Talk: Talking to somebody.

Think: Thinking of something else.

Shout: Shouting to the voice to go.

Sleep: Going to sleep.

Table 6. *Recent and non-recent hallucinators compared on phenomenological variables*

Variable	Onset		χ^2 (P)
	≤ 1 year ($N = 13$)	> 1 year ($N = 87$)	
High complexity*	2	47	6.8 (0.001)
Control	4	44	(NS)
High copers*	3	40	(NS)
Thought commentary	2	45	5.9 (0.01)
Delusional significance	6	66	4.9 (0.02)
Low distress†	3	50	5.3 (0.02)
Respond to voices	2	30	(NS)

* Score above median.

† Score below median.

made things worse. As Table 5 shows, watching television and listening to the radio were often cited. As observed earlier, subjects who regularly used several coping mechanisms ($N = 43$ used > 4), tended to experience less distress.

6. The development of the hallucination in time

Explanatory analyses were performed on those who had experienced their voices for 1 year or less and compared with the remainder on a number of variables (Table 6). This recent onset group comprising 13 patients (seven men and six women, mean age of 29 years) was significantly

younger than those with a longer history (39.5 yr; *t* test, $P = 0.004$). In terms of diagnosis, the recent onset group was made up of nine schizophrenics, two manic-depressives, one psychotic depressive and one patient with a post-ictal psychosis. All were in-patients. Those with longer histories described more hallucinated words and tended to produce more instances of hallucinated utterances. Furthermore, the non-recent group described a greater number of voices and a greater range of emotional expression and grammatical style of address including commenting on thoughts. A delusional construction of the significance of the voices (e.g. CIA plot) was more likely to be found in the chronic group. Finally, a trend is observed associating the recent group with external hallucinations.

Subjects were also asked if any of their voices recur from episode to episode: 66% of the total sample gave examples of this. These were usually simple vulgar insults.

7. Reality testing and insight

Reality testing defined by Aggernaes (1972) was surveyed and the results broadly corresponded to his original findings in that the majority of the patients ascribe reality characteristics to their voices. However, the question of whether the hallucinations are more like external sensations, or ideas, was endorsed by only 56% of the sample compared with 93% in Aggernaes' study. The remainder who ascribed, in contrast, ideational qualities to their voices were found overwhelmingly to be internal hallucinators ($P < 0.001$).

Summing the Aggernaes scores provides a measure of reality conviction, the belief that the hallucination has objectivity, sensory qualities and so on: mean = 3.4; s.d. = 1.7; range 1–7. Contrasting low and high reality attributors (< or > 6) shows that the high reality attributors were more likely to describe the source of their voices externally ($\chi^2 = 13.2$, $P = 0.001$).

Insight

The insight scores (David, 1990) ranged from 2 to 14 with a possible maximum of 14; the mean = 9.4, s.d. = 3.7. Insight did not show any association with the ability to control the voices or delusional elaboration but was positively correlated with the number of coping mech-

anisms employed ($r = 0.26$, $P = 0.001$). In general, control, coping, insight and less distress tended to go together as might be expected.

DISCUSSION

Methodology

The study reported makes use of qualitative and quantitative measures based on hallucinating patients' subjective report. The subjects were selected on the basis of their having prominent hallucinations but were otherwise representative of psychiatric patients attending an inner London service. As expected the survey was biased towards more chronic cases. It is possible that some patients may have had hallucinations unknown to their care workers and such cases and their phenomenology are therefore absent from this report. The open-ended nature of the questioning was intended to avoid 'leading the patient' but ultimately there is no means to check the 'truth' of the responses recorded. Test-retest reliability was not formally measured but is the topic of ongoing work.

Context-driven hallucinations

Certain contexts seem to serve as prompts for the hallucination in fixed stereotypical ways. A mood of sadness was most commonly cited as preceding hallucinations and exceeded fear by a large margin. Sadness was expressed not infrequently in association with being alone or lonely and seemed to form an important context for the emergence of the hallucination as noted by Hustig & Häfner (1990). Interestingly, voices with a sad prosodic intonation were generally less common than other types of voice.

Intentions emerged as important cognitive antecedents consistent with monitoring theories expounded by Frith (1987). In some respects, these hallucinatory experiences bear a strong resemblance to patterns of thought that are part of the normal experience of making decisions (see Kohlberg *et al.* 1968). Furthermore, 46% of the sample admitted that their hallucinations had come to replace their 'voice of conscience'. A proportion of these patients relied on this voice to guide them when confronted by dilemmas, practical or otherwise. Miller *et al.* (1993) found that to be able to identify internal antecedent states promoted a sense of the subject valuing these experiences. Hallucinations often

followed external cues (e.g. food) or the presence of other people. A predictable quality inferred from these descriptions is contrary to the conception of the hallucination as random phenomena, and persuades us that they are minutely engaged in the apprehension of objective reality. Physiological arousal may be an important mediating factor (see Toone *et al.* 1981).

The form of the hallucination

The status of the internalized auditory hallucination gives rise to confusion in phenomenology. Jaspers (1963) argued that those experiences apprehended in inner subjective space (sometimes called pseudo-hallucinations) are phenomena distinct from the classical, externally projected hallucination, and are less useful diagnostically. The term pseudo-hallucination is also used to refer to hallucinations perceived through the sense organs but which are recognized by the patient as being false perceptions (Sedman, 1966; see Hare, 1973 and Kräupl-Taylor, 1979 for criticism of this concept). In this survey, diagnosis seemed to have little bearing on the description of the source. Schizophrenic subjects were evenly divided between externalizers ($N = 27$) and internalizers ($N = 26$) a finding which concurs with those of Junginger & Frame (1985).

Both Mott *et al.* (1965) and Junginger & Frame (1985) found that the description of an external locus as source had no bearing on the reality attribution that the patient invested in the voice. In contrast, the concept of reality attribution proposed by Aggernaes (1972) was found to be significantly higher among external hallucinators, in this study. However, internal and external hallucinators did not differ on insight scores (David, 1990), leading to the conclusion that 'reality' may include several overlapping constructs.

Externally located hallucinations were more commonly reported coming from the right. The neurological literature suggests that the experience of unilateral hallucinations is associated either with contralateral temporal lobe disease (Almeida *et al.* 1993) or with ipsilateral ear disease (see David, 1994 for review). Handedness of the subjects did not have any bearing on this (cf. Taylor & Fleminger, 1981, who found a leftward bias in dextral subjects). The frequent

finding of the specific localization of the hallucination contradicts Bracha *et al.* (1985); in the present sample even internal hallucinations could be located somewhere corporeally. It could be argued that to conceive readily of any mental event as occupying a spatial dimension is evidence of psychosis (consider thought alienation).

Hallucination content

Most (66%) of the subjects experienced more than one voice; sometimes these would be heard as dialogues or arguments concerning the patient. Often however, individual voices were experienced independently of one another in distinct hallucinatory episodes. Men and women were more likely to hear male voices. With respect to the reported age, middle-aged voices were most common. The finding that younger patients tend to hear younger voices suggests that in some cases the voices may age with the patient, and this was borne out by some patients on further questioning.

Hallucinated voices often spoke with accents differing in either region or class from the patient's own voice and, presumably, thoughts. This lends some support to the idea that dysfunction of the right hemisphere, causing errors in prosodic construction, may lead the left hemisphere to interpret incorrectly the patient's thoughts as alien in origin (Cutting, 1990). The description of upper-class BBC accents suggests again the authoritative construction of the voice. Regional accents also differed from the patient's own but in a manner which reflected their original cultural milieu (see Mitchell & Vierkant, 1988) consistent with some form of introjection. We observed that 65% of patients were able to offer characterizations to at least one of their voices, which may derive from the memory of a real voice (as suggested by Modell, 1960). The critical and admonitory nature of many hallucinations also points to psychodynamic constructs such as the super-ego, in part, a representation of parental authority (Freud, 1923; Sinason, 1993). Freud also argued that the origin of the super-ego may be traced to ancestral roots (Freud, 1912) and to a phylogenetically endowed father-complex. This suggests an explanation for the preponderance of male voices although the cultural specificity (Al-Issa, 1977) of this finding needs to be tested.

Although difficult to quantify, an additional principle – part form and part content – was inferred from reports of the subjects' voices: a sense of personal intimacy was conveyed, both by the patient's knowledge concerning the voice, but moreover, of the voice's knowledge of the patient. This observation is contained in the idea of the 'personification' of the voice and is elaborated by Benjamin (1989). The price that is paid for this intimacy seemed to be a loss of privacy. One patient expressed this well as the experience of 'an open mental wound'. The characterization of some hallucinated voices as omnipotent (Chadwick & Birchwood, 1994) seems to describe the same phenomenon.

The particular grammatical form of the auditory hallucination has long been of interest to diagnosticians (Mellor, 1982). The value of such discriminations has however been challenged (e.g. Goodwin, 1971). In this survey, third-person commentaries were found among 55% of the schizophrenic subjects but also 91% of the manic-depressives, although the latter sample was small and selected on the basis of prominent hallucinators. Finally, Goodwin's assertion that accusatory voices are not indicative of depressive illness also found support: they were present in 77% of depressed patients, but also in 74% of schizophrenics and 82% of manic-depressives in manic phase.

The most common hallucinated utterances were vulgar expletives. Other common words, also terms of vilification and abuse, demonstrated a sex bias. It is curious that simple expletives, words uttered almost automatically at times of stress (damn, shit, etc.), were not generally described in the survey (cf. Tourette syndrome, Friedhoff & Chase (1982)). Vulgar hallucinations are not highly charged words that erupt into consciousness at times of emotional arousal, but instead, they have the morphology of personal insults (an -er ending), honed in their specificity for the subject, often conveying contempt and anger.

Other psychotic symptoms

In addition to auditory hallucinations, 51% saw visual, and the same proportion smelt olfactory, hallucinations. These non-auditory images were uniformly transient (see Goodwin, 1971).

Musical hallucinations are known to be caused by a variety of disorders (see Keshavan *et al.*

1992, for review). In this group of psychotic patients, there was no suggestion of the noted female and elderly bias among sufferers, which suggests a different aetiology. The relation of musical hallucinations to other non-verbal hallucinations is obscure although the suggestion that the former may have their origin in the non-dominant hemisphere in contradistinction to verbal hallucinations (Berrios, 1990) remains a testable hypothesis.

Thought insertion is of course a first-rank (Schneider, 1959) symptom of schizophrenia. Subjects' descriptions of this experience varied widely. External hallucinators described it in terms of internal voices, which were almost always unpleasant. In contrast, the majority of internal hallucinators described thought insertion in terms of bad impulses or unpleasant visual images, for example to maim or kill. Regrettably, the design of this study precludes discussion of cases of thought insertion where the subject is not also hallucinating.

Control, distress and coping

Patients habitually make an effort to reduce their hallucinations by employing an assortment of coping strategies (Falloon & Talbot, 1981). A proportion were able to exercise at least partial control of their hallucinations, in terms of stopping and starting them, probably by some form of cognitive focusing (see Slade & Bentall, 1988 for review). One subject volunteered that when the voices began to bore or distress him, he would swallow and they would stop. This accords with the predictions of the subvocalization theory of hallucinations (Bick & Kinsbourne, 1987).

An hallucinated patient who is 'coping' is likely to be an out-patient, with high insight scores, and a tendency to lower distress levels. The observation that coping seems to be associated with the presence of pleasant or questioning voices lends support to the speculations of Dittmann & Schuttler (1990) and Romme & Escher (1989) that some forms of psychotic experience may originate as coping strategies against the primary (unpleasant) experience.

Distress was shown to be associated with a number of variables: acute illness, uncontrollable frightening voices addressing the patient from an external source, with whom the patient

cannot converse, and few coping mechanisms. An implication of this description is that lower distress levels relate to phenomenological features of the hallucination, some to do with form and some content, which may evolve with time. Such features include the internalization of the voice and the additional presence of pleasant voices. The question arises whether it is lower distress that permits the emergence of these features, or whether these features lead to lower distress. There seems to be no easy way of answering this except perhaps with longitudinal or treatment intervention studies.

A high proportion remarked that watching television, especially News programmes, was 'hallucinogenic'. For example, voices would comment to the patient about the programme, or the TV presenter's voice would transform into the hallucinated voice and address the patient directly. One explanation for this is that the News is usually emotive and may lead to excess arousal thereby increasing susceptibility to the hallucinations. Also the attentiveness which the subject deploys may be relevant here (see Margo *et al.* 1981).

The development of the hallucination in time

Given the cross-sectional design of this survey, no firm conclusions can be drawn about the evolution of the hallucination. However, some sense of these developmental trends may be gleaned by comparing the experiences of those patients with recent illnesses with those who had longer histories. Hallucination complexity and the presence of delusional construction developed with time. The recent onset group experienced hallucinations that caused greater distress and which were less likely to comment on their thoughts or encourage a dialogue. A trend was observed for internalization of verbal hallucinations over time. Havens (1962) suggests that this movement of the hallucination from objective to subjective space represents an evolutionary progression which may be evident within a single episode. Longitudinal studies are indicated to confirm this impression.

Some indirect understanding of this evolutionary process is given by the finding that two-thirds of the sample declared that some of their hallucinations were repeated across illness episodes: a finding reported by Chaturvedi & Sinha (1990). In other words, if the onset of halluci-

nations is characterized by the presence of relatively few, highly distressing and primitive voices, then, with time, these may be added to, in a process of accretion of new voices, or by the addition of more complex utterances from the same voice. This entails the relative dilution of early, distressing phenomena. The implication would be that patients might be taught to create pleasant hallucinations in order to offset the effects of the unpleasant ones; indeed such a strategy has been advocated (Romme & Escher, 1989).

To summarize, evolution of hallucinations appear to entail increasing complexity, resulting from a process of accretion, and intimacy, with personified voices fashioning increasingly detailed dialogues with or about the patient (see also Benjamin, 1989). These observations are evidence against a random and quasi-ictal explanation for auditory-verbal hallucinations modelled on Penfield's work (Penfield & Perot, 1963) as well as theories which posit deranged discourse planning (Hoffman, 1986). These processes are associated with diminishing distress yet the price extracted for this is the ever increasing encroachment of the hallucination into the patient's life resulting in psychological incapacity.

Reality testing and insight

Insight was measured using a schedule devised by David (1990). The mean score in this sample was relatively high compared with an earlier group (9.4 *versus* 7.65) (David *et al.* 1992). Insight was found to be related to the number of coping skills, that is the ability to appraise and respond to the psychotic phenomenon, medically. On the other hand, the development of coping skills to assuage the effects of the hallucination may itself encourage the development of insight (see also Tarrier *et al.* 1993). The relationship between insight, coping skills and intelligence was not estimated in this study, but is a topic for further research. The Aggernaes score (Aggernaes, 1972), which conveys a measure of the global conviction of the patient in the reality of their experiences, and insight scores, were found to correlate (negatively) only weakly ($r = -0.16$). Thus, a patient may ascribe features of reality to the hallucination, and yet the degree to which he will accept that he suffers from a disease that causes it seems to be largely

independent of this appraisal. The implication is that insight does not derive, solely, from the experience of the quality and form of the hallucination.

Conclusion

The essential characteristics of the form and content of auditory hallucinations in psychotic patients can be summarized as follows: they are repetitive, emotive utterances which are context dependent, spatio-temporally organized and appear to originate from stereotypical personifications. Auditory hallucinations seem to evolve by accretion and, increasingly, come to invade the patient's private life. Many retain some degree of control of them, probably reducing their distress.

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REFERENCES

- Aggernaes, A. (1972). The experienced reality of hallucinations and other psychological phenomena: an empirical analysis. *Acta Psychiatrica Scandinavica* **48**, 220-238.
- Al-Issa, I. (1977). Social and cultural aspects of hallucinations. *Psychological Bulletin* **84**, 570-587.
- Almeida, O., Forstl, H., Howard, R. & David, A. S. (1993). Unilateral auditory hallucinations. *British Journal of Psychiatry* **162**, 262-264.
- American Psychiatric Association (1980). *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III) 3rd edn. APA: Washington, DC.
- Annett, M. (1970). A classification of hand preference by association analysis. *British Journal of Psychology* **61**, 303-321.
- Benjamin, L. (1989). Is chronicity a function of the relationship between the person and the auditory hallucination? *Schizophrenia Bulletin* **15**, 291-310.
- Bentall, R., Baker, G. & Havers, S. (1991). Reality monitoring and psychotic hallucinations. *British Journal of Clinical Psychology* **30**, 213-222.
- Berrios, G. (1990). Musical hallucinations: a historical and clinical study. *British Journal of Psychiatry* **156**, 188-194.
- Bick, P. & Kinsbourne, M. (1987). Auditory hallucinations and subvocal speech in schizophrenic patients. *American Journal of Psychiatry* **144**, 222-225.
- Bracha, H., Cabrera, F., Karson, C. & Bigelow, L. (1985). Lateralisation of visual hallucinations in chronic schizophrenia. *Biological Psychiatry* **20**, 1132-1136.
- Chadwick, P. & Birchwood, M. (1994). The omnipotence of voices: a cognitive approach to auditory hallucinations. *British Journal of Psychiatry* **164**, 190-201.
- Chaturvedi, S. & Sinha, V. (1990). Recurrence of hallucinations in consecutive episodes of schizophrenia and affective disorder. *Schizophrenia Research* **3**, 103-106.
- Cleghorn, J. M., Franco, S., Szechtman, B., Kaplan, R., Szechtman, H., Brown, G. M., Nahmias, C. & Garnett, E. S. (1992). Toward a brain map of auditory hallucinations. *American Journal of Psychiatry* **149**, 1062-1069.
- Cutting, J. (1990). *The Right Cerebral Hemisphere and Psychiatric Disorders*. Oxford University Press: Oxford.
- David, A. (1990). Insight and psychosis. *British Journal of Psychiatry* **156**, 798-808.
- David, A. S. (1993). Cognitive neuropsychiatry? *Psychological Medicine* **23**, 1-5.
- David, A. S. (1994). The neuropsychology of auditory-verbal hallucinations. In *The Neuropsychology of Schizophrenia* (ed. A. David and J. Cutting), pp. 269-312. Lawrence Erlbaum Assoc.: Hove, East Sussex.
- David, A. S. & Appleby, L. (1992). Diagnostic criteria in schizophrenia: accentuate the positive. *Schizophrenia Bulletin* **18**, 551-557.
- David, A. S. & Lucas, P. (1993). Auditory-verbal hallucinations and the phonological loop: a cognitive neuropsychological study. *British Journal of Clinical Psychology* **32**, 431-441.
- David, A., Buchanan, A., Reed, A. & Almeida, O. (1992). The assessment of insight in psychosis. *British Journal of Psychiatry* **161**, 599-602.
- Dittmann, J. & Schuttler, D. (1990). Disease consciousness and coping strategies of patients with schizophrenic psychosis. *Acta Psychiatrica Scandinavica* **82**, 318-322.
- Falloon, I. R. & Talbot, R. E. (1981). Persistent auditory hallucinations: coping mechanisms and implications for management. *Psychological Medicine* **11**, 329-339.
- Freud, S. (1912). *Totem and Taboo*. In the Standard Edition, vol. 13 (ed. J. Strachey). Hogarth Press: London.
- Freud, S. (1923). *The Ego and the Id*. In the Standard Edition, vol. 19 (ed. J. Strachey). Hogarth Press: London.
- Friedhoff, A. J. & Chase, T. N. (1982). *Gilles de la Tourette Syndrome. Advances in Neurology*, vol. 35. Raven Press: New York.
- Frith, C. D. (1987). The positive and negative symptoms of schizophrenia reflect impairments in the perception and initiation of action. *Psychological Medicine* **17**, 631-648.
- Goodwin, D. (1971). Clinical significance of hallucinations in psychiatric disorders. *Archives of General Psychiatry* **24**, 76-80.
- Hare, E. (1973). A short note on pseudo-hallucinations. *British Journal of Psychiatry* **122**, 469-476.
- Havens, L. (1962). The placement and movement of hallucinations in space: phenomenology and theory. *International Journal of Psychoanalysis* **43**, 426-435.
- Heilbrun, A. B. & Blum, N. A. (1980). Impaired recognition of self-expressed thoughts in patients with auditory hallucinations. *Journal of Abnormal Psychology* **89**, 728-736.
- Hoffman, R. (1986). Verbal hallucinations and language production processes in schizophrenia. *Behavioural and Brain Sciences* **9**, 503-548.
- Hoffman, R. E. & Dobscha, S. K. (1989). Cortical pruning and development of schizophrenia. *Schizophrenia Bulletin* **15**, 470-490.
- Hoffman, R. E. & Satel, S. L. (1993). Language therapy for schizophrenic patients with persistent 'voices'. *British Journal of Psychiatry* **162**, 755-758.
- Hustig, H. & Häfner, R. (1990). Persistent auditory hallucinations and their relationship to delusions and mood. *Journal of Nervous and Mental Disease* **178**, 264-267.
- Jaspers, K. (1963). *General Psychopathology*. Manchester University Press: Manchester.
- Junginger, J. & Frame, C. L. (1985). Self-report of the frequency and phenomenology of verbal hallucinations. *Journal of Nervous and Mental Disease* **173**, 149-155.
- Keshavan, M. S., David, A. S., Steingard, S. & Lishman, W. A. (1992). Musical hallucinations: a review and synthesis. *Neuropsychiatry, Neuropsychology and Behavioral Neurology* **3**, 211-223.
- Kohlberg, L., Yaeger, J. & Hjertholm, E. (1968). Private speech: four studies and a review of theories. *Child Development* **39**, 691-736.
- Kräupl-Taylor, F. (1981). On pseudo-hallucinations. *Psychological Medicine* **11**, 265-279.
- Larkin, A. (1979). The form and content of schizophrenic hallucinations. *American Journal of Psychiatry* **136**, 940-943.
- Leuder, I., Thomas, P. & Johnson, P. (1992). Self-repair in dialogue of schizophrenics: effects of verbal hallucinations and negative symptoms. *Brain and Language* **43**, 487-511.

- Lowe, G. R. (1973). The phenomenology of hallucinations as an aid to differential diagnosis. *British Journal of Psychiatry* **123**, 621–633.
- McGuire, P. K., Shah, G. M. S. & Murray, R. M. (1993). Increased blood flow in Broca's area during auditory hallucinations in schizophrenia. *Lancet* **342**, 703–706.
- Margo, A., Hemsley, D. & Slade, P. (1981). The effects of varying auditory input on schizophrenic hallucinations. *British Journal of Psychiatry* **139**, 122–127.
- Mellor, C. (1982). The present status of the first rank symptoms. *British Journal of Psychiatry* **140**, 423–424.
- Miller, L., O'Connor, R. & DiPasquale, B. (1993). Patient's attitudes towards hallucinations. *American Journal of Psychiatry* **150**, 584–588.
- Mitchell, J. & Vierkant, A. (1988). Delusions and hallucinations as a reflection of the subcultural milieu among psychotic patients of the 1930s and 1980s. *Journal of Psychology* **123**, 269–274.
- Modell, A. (1960). An approach to the nature of auditory hallucinations in schizophrenia. *Archives of General Psychiatry* **3**, 259–265.
- Mott, R., Small, I. & Anderson, J. (1965). Comparative study of hallucinations. *Archives of General Psychiatry* **12**, 595–601.
- Paulesu, E., Frith, C. & Frackowiack, R. (1993). Functional anatomy of the articulatory loop. *Nature* **362**, 342–344.
- Penfield, W. & Perot, P. (1963). The brain's record of auditory and visual experience. *Brain* **86**, 568–693.
- Romme, M. A. & Escher, M. A. (1989). Hearing voices. *Schizophrenia Bulletin* **15**, 209–215.
- Romme, M. A., Honig, E., Northhoorn, E. & Escher, M. A. (1992). Coping with hearing voices: an emancipatory approach. *British Journal of Psychiatry* **161**, 99–103.
- Schneider, K. (1959). *Clinical Psychopathology*. Grune and Stratton: New York.
- Sedman, G. (1966). Inner voices: phenomenological and clinical aspects. *British Journal of Psychiatry* **112**, 485–490.
- Sinason, M. (1993). Who is the mad voice inside? *Psychoanalytic Psychotherapy* **7**, 207–221.
- Slade, P. & Bentall, R. (1988). *Sensory Deception: A Scientific Analysis of Hallucination*. Croom Helm: London.
- Starker, S. & Jolin, A. (1982). Imagery and hallucinations in schizophrenic patients. *Journal of Nervous and Mental Disease* **170**, 448–450.
- Tarrier, N., Beckett, R., Harwood, S., Baker, A., Yusupoff, L. & Ugatterburu, I. (1993). A trial of two cognitive-behavioural methods of treating residual psychotic symptoms in schizophrenic patients. *British Journal of Psychiatry* **162**, 524–532.
- Taylor, P. & Fleminger, J. (1981). The lateralisation of symptoms in schizophrenia. *British Journal of Medical Psychology* **54**, 59–65.
- Tien, A. (1991). Distributions of hallucinations in the population. *Journal of Social and Psychiatric Epidemiology* **26**, 287–292.
- Toone, B., Cooke, E. & Lader, M. (1981). Electrodermal activity in the affective disorders and schizophrenia. *Psychological Medicine* **8**, 1–32.
- Wing, J. K., Cooper, J. E. & Sartorius, N. (1974). *Measurement and Classification of Psychiatric Symptoms*. Cambridge University Press: Cambridge.
- World Health Organization. (1992). *Schedules for Clinical Assessment in Neuropsychiatry (SCAN)*. WHO: Geneva.
- Zigler, E. & Philips, L. (1961). Psychiatric diagnosis and symptomatology. *Journal of Abnormal and Social Psychology* **63**, 69–75.