

## Language Therapy for Schizophrenic Patients with Persistent 'Voices'

RALPH E. HOFFMAN and SALLY L. SATEL

One of us has hypothesised that the 'voices' of schizophrenic patients reflect altered preconscious planning of discourse that can produce involuntary 'inner speech' as well as incoherent overt speech. Some schizophrenic patients reporting voices do not, however, have disorganised speech. We hypothesise that these 'counterexample' patients compensate for impairments of discourse planning by reducing language complexity and relying on highly rehearsed topics. A 'language therapy' designed to challenge and enhance novel discourse planning was administered to four such patients; three had significant albeit temporary reductions in the severity of their voices. These clinical findings provide further evidence that alterations of discourse planning may underlie hallucinated voices.

Preconscious planning of discourse ordinarily organises phrases and sentences into coherent speech (Deese, 1978). We also use words to communicate messages to ourselves; this is the 'inner speech' of our moment-to-moment consciousness (Vygotsky, 1978; Dennett, 1991).

Disorders of discourse planning could theoretically produce 'message fragments' which intrude into consciousness as inner speech. These unintended auditory/verbal messages might be experienced as auditory/verbal hallucinations or 'voices' (Hoffman, 1986, 1991). Disturbances of discourse planning may also yield incoherent overt speech, owing to mixing of message fragments not belonging to a common discourse plan (Hoffman *et al*, 1982, 1986). This hypothesis was tested using an analysis of conversational speech which implies the existence of structures underlying discourse planning (Hoffman *et al*, 1986). As predicted, those schizophrenic patients reporting voices had more disturbed discourse plans than schizophrenic patients without this symptom (Hoffman, 1986).

This hypothesis has been correctly criticised on the grounds that some schizophrenics who report voices do not have overt speech disorganisation (Allen, 1986; Faber, 1986). It is possible, however, that patients with impairments of discourse planning may develop compensatory strategies to retain speech coherence. These strategies could include reducing the complexity and length of speech (yielding 'negative thought disorder'), relying on highly rehearsed social 'small talk', or speaking about only a few topics (e.g. delusional *idée fixe*).

A 'language therapy' designed to challenge and enhance the ability to plan novel discourse was therefore developed and administered to such 'counterexample' patients. Our hypothesis predicted

that voices should improve if the patient improves his/her discourse planning. (One case has been briefly discussed by Hoffman (1991).)

### Method

Four patients received language therapy. Each patient: (a) met DSM-III-R criteria for schizoaffective disorder or schizophrenia (American Psychiatric Association, 1987); (b) reported voices as a prominent, persistent and distressing symptom; (c) did not have overt speech disorganisation according to a descriptive assessment (Andreasen, 1979); and (d) was maintained on neuroleptic medication at dosages that were not altered during the course of the therapy. An additional woman was evaluated but not treated, because of a severe verbal memory deficit (scoring in the severely impaired range on the Wechsler Logical Memory Subscale of the Wechsler Memory Scale (Wechsler, 1945); see also case 4). Informed consent was obtained from each subject who participated.

All cases except case 3 received 10 sessions of language therapy, each lasting approximately 45 minutes.

Treatment began by informing the patient:

"Voices do not come from other speakers or beings, but from your own brain, in fact the part of the brain that ordinarily produces speech. If you improve your ability to produce speech – to be able to speak more effectively – the voices that you hear may weaken."

It was explicitly stated that 'psychotherapeutic' problems such as coping with symptoms or problems in living would not be part of the treatment.

Speech tasks were administered that challenged the subject to produce increasingly complex utterances. It was anticipated that as message complexity increased, defects of discourse planning would manifest themselves as overt speech disorganisation. Discourse planning uses hierarchical structures linking topics and subtopics to construct coherent conversational units (Deese, 1978). Efforts were therefore directed at helping the patient

to recognise incoherent discourse, and to discover implicit thematic linkages.

A practical conceptual focus was that of the story. Stories provide a vehicle for 'chunking' linguistic information in memory, enlivening conversation, and provide templates for social cognition (Schank, 1990). Thus patients were frequently asked to 'discover the story' in a personal interaction, film or television programme, and to extract the 'lesson' of the story. The 'lesson' could then be used as a prompt to elicit new multisentence narratives. Other language tasks were modelled after speech therapy techniques used for adult aphasia (Chapey, 1981). Language exercises were audiotaped to provide immediate feedback (cf. Satel & Sledge, 1989). Specific exercises included the following.

(a) The patient reads portions of short stories or poems aloud to improve speech rhythm and emphasis.

(b) Sentence completion tasks are done.

(c) Words or short phrases written on cards are randomly selected by the patient, who is asked to incorporate them into a sentence that makes sense. Poorly constructed sentences are played back to the patient, who is requested "to say it in a better way".

(d) The patient is asked to incorporate the sentence produced in (c) into a personal story or a story from television or film.

(e) Exercise (c) is done, but each card reproduces a whole sentence selected from popular fiction. The patient is asked to make up a story that incorporates these sentences as a single coherent whole.

(f) The patient reads a portion of a paragraph from a short story or magazine article and is asked to invent a new ending.

(g) The patient is asked to recount a conversation that occurred during the previous week where she/he had significant difficulties making a certain point. Role-playing is used to practise making the point.

(h) The patient is given a reading assignment (short portions of a popular magazine or book) or viewing assignment (television programme or film), and is asked to write or verbally summarise the plot of the story. Later, the patient is asked to recount a story from his/her own life which the assigned story brings to mind.

(i) The patient is given the task of having a particular conversation with a friend or relative about a preselected, rehearsed topic.

During the first session, a scale to assess severity of voice hallucination was created for each patient by eliciting a comprehensive description of this symptom (frequency, loudness, intrusiveness) which was assigned a score of 10. At the beginning of each new session the patient was asked to reassess the severity of the voices by assigning a new score, using the original description as the high anchor (10) and the total absence of voices as the 0 anchor.

## Results

### Case 1

D was a 28-year-old single woman with a DSM-III-R diagnosis of schizoaffective disorder, depressed type.

Her first psychotic breakdown took place during her first year of college. She was never able to resume her education. Her voices persistently occurred three to five times a day and were often frightening. She took 15 mg trifluoperazine and 200 mg amitriptyline a day.

She was able to speak coherently about everyday topics for short periods, but would then become 'blocked', and anxious. Voices frequently followed episodes of speech blockage.

Besides the exercises described above, a focus of the therapy was to 'talk through the blocks'. She was initially frightened of reactivating her voices. The blockages themselves seemed secondary to the fact that speech induced a conflation of competing things to say. For instance, during the second session the patient was speaking coherently about her experiences in her day hospital when a block occurred. After listening to this on tape, she described the experience:

"[The words in my head were] going uhm they've gotten faster toward the end. I just dropped it like because it was too explosive because it was going too kind of fast. The first one was the picnic I was going through again, and then I was through another telephone call. I then was thinking coming to the day hospital."

Three topics – picnic, telephone call, day hospital – were written down on separate pieces of paper and placed in front of her. When asked to look for a common theme, she determined that all three events were things that she did not want to do – going to a family weekend picnic the previous weekend, talking to an old boyfriend on the telephone, and going to a day-hospital treatment group. This provided the basis for her discovering new common themes to her speech blockage.

Completion of these and other exercises was accompanied by progressive reductions in the frequency of voices. Her voices totally disappeared between sessions 6 and 8 for the first time in three years. Voices returned (scored 2) during the last two sessions, after personal stress.

### Case 2

M was a 32-year-old patient with paranoid schizophrenia whose primary complaint was severe voices, which had begun 13 years earlier during her first year at college. She received 40 mg perphenazine a day.

The patient combined words into sentences with relative ease. However, she had more difficulty incorporating sentences into a coherent text. A typical example is her response to the following two 'sentence cards' (exercise e):

- (A) "After a sleepless night slapping mosquitoes, you get up early and spend the day roasting on the beach."
- (B) "All of a sudden I imagined the hand of my wristwatch stopping and turning backward."

The following were her responses. After audiotape replay of each response, she was asked to improve on it:

- (1) *"After a sleepless night slapping mosquitoes, you get up early and spend the day roasting on the beach. Then all of a sudden I imagined the hand of my wristwatch stopping and turning backward. This was something out of sight. I just was-wasn't all there that to see [sic] to think this would happen to me."*
- (2) *"After a sleepless night slapping mosquitoes, you get up early and spend the day roasting on the beach. All of a sudden I imagined the hands of my wristwatch stopping and turning backward. It must have been those mosquitoes I was slapping at night."*

Therapist: "What about the relationship between slapping mosquitoes and imagining the hands of your wristwatch turning backward?"

- (3) *"After a sleepless night slapping mosquitoes, you get up early and spend the day roasting on the beach. Imagine the hands of my wristwatch stopping and turning backward. I was so delirious. Because roasting on the beach! Because I was roasting on the beach. The sun made me this way."*

Therapist: "Getting closer – but what about the mosquitoes?"

- (4) *"After a sleepless night slapping mosquitoes, you get up early and spend the day roasting on the beach. Then all of a sudden I imagine the hands of my wristwatch stopping and turning backward. It must have been because I didn't get sleep at night and because of the sun on the beach causing me to be delirious."*

Thus, with repetition, the patient was able to transform a bizarre juxtaposition of sentences into a relatively coherent text.

Her therapist also used the fact that she was an avid viewer of television soap operas. Conversational scenarios were created on the basis of soap opera plots, with different roles taken by the patient and the therapist. The severity score for her voices dropped from 10 to 3 by the fourth week of treatment. The patient found her symptoms tolerable at this point, and chose to discontinue treatment.

#### Case 3

L was a 26-year-old single man who suffered his first psychotic breakdown while serving in the army. He experienced frequent ideas of reference and thought broadcasting, and had a history of drug abuse. He was socially isolated, and had had no education after secondary school. Voices were either threatening or critical.

Early in the treatment it became clear that L was greatly preoccupied with military weapons and violence. Attempts to provoke discussion of any other subject led to an extreme paucity of speech. The therapist and L agreed, therefore, that a central goal was to enable him to converse about new topics, and that he could not discuss any military or violence-related issue during treatment exercises.

L progressively improved at incorporating words into sentences and sentences into coherent narratives. Homework assignments included reading aloud ten minutes each night and reading magazine articles, which he had to discuss during later sessions. Through the course of treatment, the severity of his voices had gradually dropped from a score of 10 to 3–4.

#### Case 4

W was a 27-year-old man with a six-year history of schizophrenia. Onset of overt symptoms was during his first year of college, when he developed florid paranoid delusions. His symptoms during times of stability comprised mild ideas of reference and menacing voices. He took 8 mg haloperidol a day.

During treatment it became clear that W had great difficulty identifying his own speech disorganisation. A short-term verbal memory deficit was suspected and confirmed midway through treatment (he scored a 2, placing him in the severely impaired range, on the logical memory subscale of the Wechsler Memory Scale). This impairment probably pre-empted his ability to recall what he had said from sentence to sentence. There was no progression in his ability to complete language exercises, and his voices persisted at the same intensity throughout the treatment.

#### Outcome

All responders reported a return of their voices within one to three months following cessation of language therapy.

#### Discussion

Although none of these hallucinating patients demonstrated overt speech disorganisation during standard clinical interviews, each had serious difficulties producing novel multisentence discourse during speech tasks. 'Thought disorder' was not quantified during the course of treatment; however, three of the four patients did significantly improve their ability to complete a range of language exercises; these patients also reported significant reductions in the severity of the voices. In each of these cases, the voices had been severe and sustained (according to the reports of both clinicians and patients) for many months or years. This suggests that the decline in voices was not a result of random fluctuations.

The prediction that impairments of discourse planning can be exposed in patients reporting voices without formal thought disorder, and that remedying these impairments would be accompanied by improvements in this symptom, was confirmed. It should be stressed, however, that patients were informed that the goal of treatment was to reduce voices; thus it cannot be ruled out that symptom improvement reflected a placebo effect.

Another cautionary note is that each of the three responders suffered a resurgence of symptoms within three months of cessation of this treatment. This suggests that their ability to compensate for language deficits remained reliant on others. Also, an important factor limiting this treatment is severe verbal memory impairment, a neuropsychological deficit in case 4 and in the patient whom we did not treat (see, for instance, Wood & Flowers (1990) for a study of verbal short-term memory deficits in schizophrenia).

Frith & Done (1988) have hypothesised that hallucinated voices reflect impaired monitoring of language outputs which cause verbal messages to be misperceived as unplanned and alien. Insofar as language monitoring was an important focus of our treatment, our findings support the Frith/Done hypothesis. Related to this issue is a report that schizophrenic patients have considerable difficulty in detecting their own language difficulties (Harrow & Miller, 1980). We certainly found that this was the case once these difficulties were elicited by language tasks. On the other hand, treatment seemed to progress when the patient began to develop an ability to recognise his/her own speech incoherence. This reflected a paradox: the patient was able to recognise incoherent discourse even when his/her own discourse construction was limited. This paradox was temporary, because it allowed the patient to take steps in acquiring new synthetic language abilities.

These findings, although limited in scope, hopefully will encourage others to consider rehabilitation strategies targeting speech disorganisation and hallucinated voices in chronically psychotic persons – both to test psychopathological models and to explore clinically useful treatments. Experimental trials where key elements of the treatment are controlled for and compared with other psychological treatments specifically designed to alleviate voices (cf. Allen *et al.*, 1985; Slade, 1993) are indicated.

## References

- ALLEN, H. (1986) A three-component analysis of Hoffman's model of verbal hallucinations. *Behavioral and Brain Sciences*, **9**, 518–519.
- , HALPERIN, J. & FRIEND, R. (1985) Removal and diversion tactics and the control of auditory hallucinations. *Behavioral Research and Therapy*, **23**, 601–605.
- AMERICAN PSYCHIATRIC ASSOCIATION (1987) *Diagnostic and Statistical Manual of Mental Disorders* (3rd edn, revised) (DSM-III-R). Washington, DC: APA.
- ANDREASEN, N. C. (1979) Thought, language and communication disorders: I. Clinical assessment, definition of terms and evaluation of reliability. *Archives of General Psychiatry*, **36**, 1315–1330.
- CHAPEY, R. (1981) *Language Intervention Strategies in Adult Aphasia*. Baltimore: Williams & Wilkins.
- DENNETT, D. C. (1991) *Consciousness Explained*. Boston: Little, Brown & Company.
- DESSE, J. (1978) Thought into speech. *American Scientist*, **66**, 314–321.
- FABER, R. (1986) The diversity of the schizophrenias. *Behavioral and Brain Sciences*, **9**, 522.
- FRITH, C. D. & DONE, D. J. (1988) Towards a neuropsychology of schizophrenia. *British Journal of Psychiatry*, **153**, 437–443.
- HARROW, M. & MILLER, J. (1980) Schizophrenic thought disorders and impaired perspective. *Journal of Abnormal Psychology*, **89**, 717–727.
- HOFFMAN, R. E. (1986) Verbal hallucinations and language production processes in schizophrenia. *Behavioral and Brain Sciences*, **9**, 503–548.
- (1991) The Duphar lecture: on the etiology of alien, nonsensical attributes of schizophrenic 'voices'. *Psychopathology*, **24**, 335–343.
- , KIRSTEIN, L., STOPEK, S., *et al.* (1982) Apprehending schizophrenic discourse: a structural analysis of the listener's task. *Brain and Language*, **15**, 207–233.
- , STOPEK, S. & ANDREASEN, N. (1986) A discourse analysis comparing manic versus schizophrenic speech disorganization. *Archives of General Psychiatry*, **43**, 831–838.
- SATEL, S. L. & SLEDGE, W. H. (1989) Audiotape playback as a technique in the treatment of schizophrenic patients. *American Journal of Psychiatry*, **146**, 1012–1016.
- SCHANK, R. C. (1990) *Tell Me a Story: A New Look at Real and Artificial Memory*. New York: Charles Scribner's Sons.
- SLADE, P. (1993) Models of hallucinations: from theory to practice. In *Neuropsychology and Schizophrenia* (eds A. David & J. Cutting). New York: Erlbaum.
- VYGOTSKY, L. S. (1978) *Mind in Society: The Development of Higher Psychological Processes*. Cambridge, MA: Harvard University Press.
- WECHSLER, D. (1945) A standardized memory scale for clinical use. *Journal of Psychology*, **19**, 87–95.
- WOOD, F. B. & FLOWERS, D. L. (1990) Hypofrontal v. hypo-sylvian blood flow in schizophrenia. *Schizophrenia Bulletin*, **16**, 413–424.

\*Ralph E. Hoffman, MD, Associate Professor of Psychiatry; Sally L. Satel, MD, Assistant Professor of Psychiatry, Department of Psychiatry, Yale University School of Medicine, New Haven, USA

\*Correspondence: Yale Psychiatric Institute, Box 12A Yale Station, New Haven, CT 06520, USA