

# BEHAVIOURAL TREATMENT OF AUDITORY HALLUCINATIONS IN A SCHIZOPHRENIC PATIENT: A CASE STUDY

Salvador Perona-Garcelán and Carlos Cuevas-Yust  
*Rehabilitation Unit of Area "Virgen del Rocío" (Sevilla)*

*Behavioural treatment of auditory hallucinations in a schizophrenic outpatient: a case study. In this paper we present a case-study of a behavioural intervention to modify auditory hallucinations in a schizophrenic patient. The results showed a significant decrease of hallucinations and an improvement in his social and personal functioning. The results of the follow-up showed that these benefits remained 5, 12, 21 and 24 months after the end of the treatment.*

*Se presenta en este trabajo, un estudio de caso en el que se realiza una investigación conductual para modificar las alucinaciones auditivas en un paciente esquizofrénico. Los resultados muestran una disminución significativa de las alucinaciones del paciente, y una mejora también de su funcionamiento personal y social. Los resultados del seguimiento muestran que los beneficios se mantienen a los 5, 12, 21 y 24 meses de finalizado el tratamiento.*

Since the introduction by Esquirol in 1832 of the term *hallucination* into medical vocabulary, perception disorders in which the subject seemingly perceives an event, or a series of events, in the absence of an appropriate stimulus, have been considered among the most mysterious and serious examples of psychological disorder. Schneider (1959) considered them as a first-order symptom of schizophrenia where no cerebral pathology was demonstrated.

Almost all the theories proposed to explain hallucinations share the assumption that hallucinators confuse "private" or "imagined" events with stimuli from the "real" world, and attempt to explain this type of erroneous attribution through a series of cognitive variables. The theories supporting these explanations include those of classical conditioning; the theory of filtration; the theory of mental representations in images; the theory of subvocalisation; and the theory of deficit in metacognitive skills of the discrimination of reality (Slade and Bentall, 1988).

Any theory on the psychological processes responsible for hallucinations should take into account the following:

1. Hallucinations are more probable during periods of great anxiety or stress (Cooklin, Sturgeon and Leff, 1983).

2. These experiences may be influenced by environmental conditions such as sensorial deprivation or exposure to white noise or other forms of ambiguous stimulation (Margo, Hemslaw and Slade, 1981).
3. Some studies have indicated that verbal auditory hallucinations tend to be associated with the concealed activity of the musculature responsible for speech, or "subvocalisations" (Green and Kinsbourne, 1990).
4. There is evidence that verbal auditory hallucinations may be blocked or inhibited by tasks such as reading or conversation (James, 1983).

On the basis of the theories and data to which we have referred, behavioural treatments have been designed in which schizophrenic subjects are trained in strategies for coping with verbal auditory hallucinations (Slade and Bentall, 1988). Although the first-choice treatment approach for hallucinations is the use of neuroleptics, behavioural treatment may be applied when the patient continues to experience hallucinations that do not respond to pharmacological treatments, when patients are especially sensitive to the side-effects of these, or when they fail completely or partially to adhere to the pharmacological treatment. For this group of patients behavioural treatments may constitute a promising alternative.

The present work involves a case study where a multimodal therapeutic procedure is employed in a case of verbal auditory hallucinations in a subject with a schizophrenic disorder.

---

The original Spanish version of this paper has been previously published in *Psicothema*, 1997, Vol. 9 No 1, 33-45

.....  
\*Correspondence concerning this article should be addressed to Salvador Perona-Garcelán. Unidad de Rehabilitación de Area "Virgen del Rocío". Avda. Kansas City, 32- bajo. 41007 Sevilla. Spain.

## METHOD

### *Subject*

A 25 year-old male, passed on to our Rehabilitation Unit by his District Mental Health Department, with a diagnosis of paranoid-type schizophrenic disorder, in accordance with the criteria of the DSM-III-R (American Psychiatric Association, 1987).

The onset of his disorder took place when he was 23 years old. The first symptoms coincided with the break-up of an affective relationship with a woman, and consisted of auditory hallucinations, disorganisation of thought and behaviour and great anxiety, which led to his being admitted to the Hospitalisation Unit for a week. From that point on he became socially isolated, he stopped going out with friends, and his social relationships became practically reduced to those he maintained with his parents and his brothers and sisters. He spent almost all day lying on his bed in his room, or occasionally watching television.

The patient's pre-illness level of social and work competence was acceptable. He had a group of friends with whom he shared his leisure time, he had completed his school studies up to age 14 (though failing to complete his final year), and worked for six years as a kitchen assistant in different restaurants in his city, becoming skilled and experienced in his chosen occupation (which he had to leave due to the onset of the disorder).

On his arrival at the Rehabilitation Unit the patient continued to present mainly auditory hallucinations resistant to antipsychotic medication, which prevented him from carrying out in a normal way any social or occupational activity. Therefore, before assigning him to rehabilitation programmes it was considered appropriate to treat the auditory hallucinations.

### *Functional analysis of the auditory hallucinations*

The auditory hallucinations, according to the patient, consisted in hearing the voices of people who were not present at that moment, or who had died. They were short sentences or words with a content formed generally of insults or comments showing annoyance directed towards him, for example "get lost", "you're mad", "you're an idiot", "drop dead", etc.

He attributed the voices to a friend who was killed in a car accident several years before, or to a neighbour from the flat above. He said that both the dead friend and the neighbour wanted to make his life unbearable, and that the latter was aware of his every move.

Resulting from these experiences were other beliefs, such as that they "read his thoughts" –he said that what

the voices said was what he was thinking– and that they "echoed" him, as very often he would think of a word and immediately afterwards the voices would repeat what he had thought. He also believed that they "controlled his thoughts", because he said that when he heard a voice he could not avoid "thinking" the same automatically.

The hallucinations occurred in various situations. The most frequent were those in which he could hear the sound of car engines. It was in these situations that the rate was highest, especially when he was on a street or road where there was a lot of traffic, when he was walking past queues of cars at traffic lights, or when he was in his room with the windows open, as these gave onto a busy street. In these situations he felt great anxiety, and thought that "all the cars wanted to talk to him at the same time."

A second group of antecedents where there was a high probability of hallucinations being elicited involved those social situations that led to nervousness or anxiety. For example, being in places where there were people he didn't know, and with whom he had to initiate or maintain a conversation, crowded buses, visiting a place for the first time and having to interact with those present, etc. The more anxiety he felt in these situations, the greater were the intensity and frequency of hallucinations.

The third group of antecedents concerned listening to sounds of a "white noise" type, that is, monotonous and incessant sounds, such as those produced by food mixers, coffee grinders or vacuum cleaners; hallucinations were also elicited by the background noise of a badly-tuned radio or television. Such sounds also unnerved him and made him anxious.

The first group of antecedents (car engine or traffic noise) was that which produced the highest rate of hallucinations. Next came the stressful social situations, and the lowest rate was produced by the third group ("white noise"-like sounds).

Situations in which hallucinations did not occur were when he was in his room with the windows closed, in other places where traffic noise could not be heard, and in familiar places or with people he knew.

As a result of the hallucinations he would go home or not go out, shut himself away in his room or sleep for long periods. In this way he escaped from situations in which he heard the noise of cars, and also from those social situations where he had to converse with people.

From the described analysis, we established the hypothesis that the hallucinations were related to the great anxiety experienced by the patient in the three contexts, preventing him from discriminating between external

events and self-generated events (thoughts and subvocalisations). Behaviours of evasion or escape from these situations were negatively reinforced through the reduction of anxiety, which helped these contexts to maintain their capacity for eliciting anxiety, and therefore increased the probability of experiencing hallucinations in them.

From his attempts to explain these hallucinatory-type experiences, the subject derived other delusions, such as the belief that his friend or neighbour wanted to make his life a misery, that they insulted him and that they could read or control his thoughts.

In the case of the stressful social situations the high levels of anxiety provoked were related to a low level of conversational ability. This inability to master situations of initiating or maintaining conversations increased the subject's anxiety (see Figure 1).

In order to confirm the hypothesis described above, we carried out a series of tests which allowed us to collect relevant information through situations designed to generate auditory hallucinations. Thus, we carried out two tests to confirm, at least partially, our hypothesis.

Since one of the offices of our Rehabilitation Unit gave onto the street, so that traffic noise could be heard, we took advantage of this fact to carry out a first test to explore the relationship between car engine noise and increase (or not) in hallucinations described by the subject.

We trained the patient to snap his fingers every time he heard voices, so that we were able to count the frequency of auditory hallucinations in each condition.

Four trials of five minutes each were made, as follows:

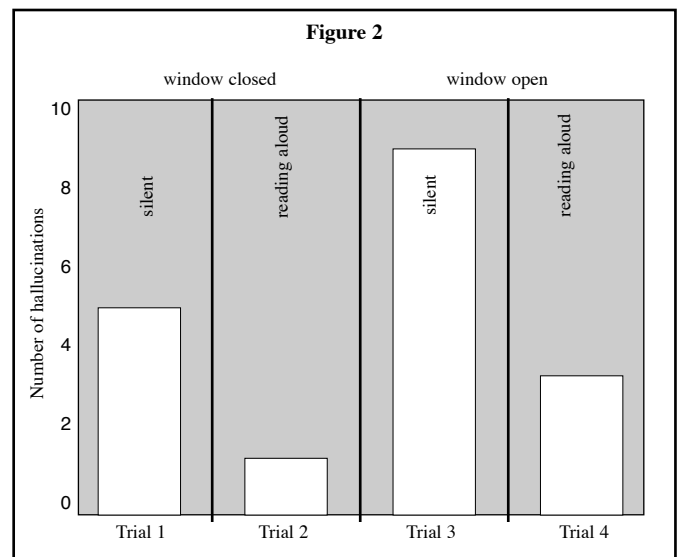
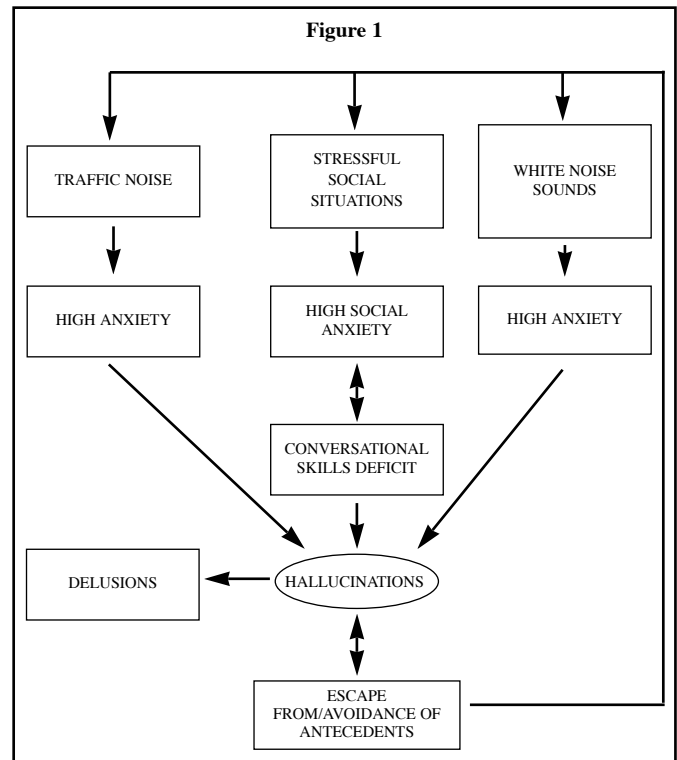
*Trial One:* the patient sat on a chair in the office, and he was told not to speak, and to indicate with a snap of the fingers when he heard voices. The windows of the office were closed, reducing the amount of traffic noise that could be heard. Voices were reported to be heard five times in this trial.

*Trial Two:* the patient sat in the same office with the windows closed, but he was told to read a newspaper aloud for five minutes. Only one hallucination was reported in this trial.

*Trial Three:* in this trial the windows of the office were opened, so that the noise of cars from the street could be clearly heard. The patient was told to be silent for five minutes. Nine hallucinations were reported in this trial.

*Trial Four:* in this final trial, the windows stayed open and the patient was once again asked to read the newspaper aloud. Three hallucinations were reported (see Figure 2).

Although in all these trials the patient was exposed to traffic noise, with the windows open the exposure was



greater, and therefore so was the elicitation of hallucinations, as can be seen in Figure 2. Also, it was found that reading aloud was a behaviour incompatible with hearing voices, which suggested that this may constitute a coping behaviour.

A second test was carried out to confirm our hypothesis. This consisted in going outside with the patient to some traffic lights on a busy street. Frequency of hallucinations was recorded in five-minute trials, of which four were carried out:

*Trial One:* the therapist and the patient stood by the traffic lights for five minutes, without speaking. As in the previous trials, the patient snapped his fingers every time he heard a voice. Fourteen hallucinations were reported.

*Trial Two:* the patient and the therapist went into a store which was not very busy at the time, and where the noise of traffic could not be heard. Again they did not speak. No hallucinations were reported.

*Trial Three:* they returned to the traffic lights, where they held a conversation unrelated to the disorder. Again, no hallucinations were reported.

*Trial Four:* in the same location, without speaking. Thirteen hallucinations were reported (see Figure 3).

Both tests provide us with valuable information which, at least provisionally, allows us to maintain the hypothesis that a relationship exists between traffic noise and the increase of auditory hallucinations in this patient. It also allows us to confirm the hypothesis that if this patient, during the auditory hallucination episodes, is able to carry out behaviours of a verbal nature (such as speaking or reading), he can, voluntarily, decrease the rate of hallucinations (Slade and Bentall, 1988).

With regard to social situations as a condition for hallucinations, this was affirmed in the initial interviews with the patient from the non-systematic information provided by the personnel of the Rehabilitation Unit. At that time, the Unit was a new place where there were people unfamiliar to him. In the first two interviews, the patient said that he was very nervous, as he didn't know anyone, and he heard voices. In fact, at one of the interviews, when he was in the waiting room, he left the Unit suddenly and took a taxi home. As he began to visit the Unit

more often (thanks to the support of his parents) his anxiety responses started to disappear, and the frequency of hallucinations to decrease, allowing him to spend longer periods receiving our attention.

The Unit's staff informed us that in the waiting-room situations he remained quiet, and did not maintain conversations with the other people present; this information coincided with what the patient himself said during the interviews.

Thus, in order to test whether social anxiety was related to a possible deficit in conversational skills, these were assessed. The assessment process was that which we normally used (Cuevas and Perona, 1992). The results show that the patient's language was hesitant, that he exhibited a suitable facial expression and body posture, that he did not ask open questions, that frequent silences occurred, that he did not handle conversation well, frequently changing the subject, and that he presented physiological responses of anxiety, such as sweating profusely during the conversations. His abilities were equally deficient with speakers of either sex.

No test was carried out for the third group of antecedents (sounds like "white noise").

From the hypothesis previously described, the following objectives were set: 1. To decrease the patient's anxiety in situations that evoked auditory hallucinations. 2. To teach him to attribute the hallucinations to himself, and not to external agents. 3. To teach him to use, in those situations, behaviours incompatible with auditory hallucinations. 4. To increase the patient's social activities.

### Procedure

On the basis of the objectives described, the treatment was carried out in the following way:

- *Coping with auditory hallucinations in situations where the patient could hear traffic noise.*

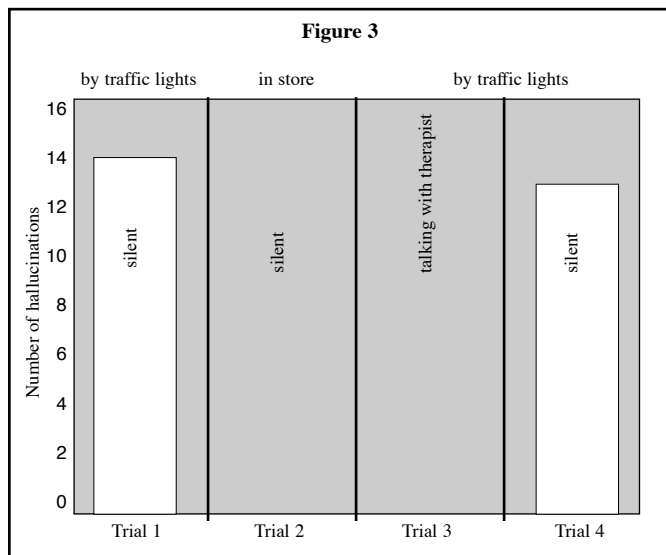
#### a) Training phase.

The training phase was carried out over a period of five months, with weekly sessions of approximately 60 to 70 minutes. There was a total of 19 sessions.

In the first session we explained to the patient the functional analysis made and the hypothesis resulting from that analysis. The working hypothesis was presented as a form of explanation for his symptoms that we were to test.

We began by training him to cope with the auditory hallucinations experienced in the presence of traffic noise, since that was the condition with the highest rate of elicitation of hallucinations, and also the easiest to approach in the training sessions. The technique used was the direct *exposure* to these stimuli.

Figure 3



We recorded onto cassette tape the traffic noise from a very busy street, and once we had confirmed that this recording was a good elicitor of voices, it was used as an exposure stimulus.

The sessions commenced with an explanation of the working hypothesis and 10 minutes of relaxation. When the subject was relaxed the treatment of exposure to the voices began.

The subject placed the headset of a personal cassette player (Walkman) on his head. The cassette player was operated by the therapist, so that he could control time of exposure to the recording of traffic noise.

In the initial sessions each exposure trial lasted 5 minutes, and during this time the subject had to indicate with a snap of the fingers whenever he heard voices. Between trials there were two minutes of relaxation. The final 15 minutes of the session were used for analysing, through the technique of Socratic dialogue, the working hypothesis and any others the patient might suggest based on the experience of the session. The object of this analysis was to teach him to reattribute the source of the hallucinations to himself, rather than to external agents.

From the fourth session onwards a modification was introduced into the procedure, whereby the subject was exposed for 30 minutes to sounds on the tape, but alternating five-minute periods of being silent with five-minute periods in which he conversed with the therapist. Throughout this 30 minutes the number of times voices were heard continued to be recorded.

At the end of the exposure time it was confirmed that in the periods of silence the patient always heard more voices than during the periods of conversation. These results were used as proof of the reality of the situation and as material to be discussed in the final 10 or 15 minutes of the session.

In the final sessions there was alternation of sessions in which the training was carried out using the cassette as exposure stimulus and sessions (six in total) in which the same procedure was used, but with direct exposure to traffic noise in a busy street.

#### *b) Monitoring phase.*

The training phase having concluded, the 12-month monitoring phase began. This consisted of fortnightly or monthly sessions in which the patient's psychopathological state was reviewed, what had been learned was put into practice, and specific examples of hearing voices were analysed. The technique of reattribution of the source of hallucinations was continued. It was sometimes necessary to have recall sessions.

### ***Coping with hallucinations in stressful social situations***

Other situations in which the probability of the subject reporting having heard voices increased were those where he had to interact with other people. As pointed out earlier, in the assessment carried out it was observed that he spent most of his time at home—more specifically, in his bedroom—, avoiding or evading invitations to go out with friends. It was also confirmed that his level of conversational skills was low, and that, although he had three or four friends with whom he could go out, he had not done so for several months, due to the great anxiety and high frequency of hallucinations he experienced when he went with them to discos, cinema, etc.

In view of the above, he began participating in a conversational skills training group. The duration of the programme was 7 months, and the content of the training was similar to that normally used by our Unit (Cuevas and Perona, 1992). The "homework" tasks consisted of the programming of visits to the cinema or discos, excursions, visits to museums, etc, with fellow group members or friends from his neighbourhood.

The training in conversational skills and the training and monitoring of coping with traffic noise concluded at the same time, and it was at this point that the follow-up phase began.

### ***Measurement instruments***

In order to assess the results of our treatment, the following measurements were made:

\* *Brief Psychiatric Rating Scale, BPRS* (version adapted by Lukoff, Nuechterlein and Ventura, 1986). Three measurements were taken before the beginning of the treatment, at monthly intervals. During the treatment eight measurements were carried out, at approximately two-monthly intervals. In the follow-up phase four measurements were made, 5, 12, 21 and 24 months after the conclusion of the treatment.

\* *The LSP Scale* (Life Skills Profile, Spanish adaptation by Bulbena, Fernández and Domínguez, 1992). This scale was applied before and immediately after the treatment, and again after 24 months.

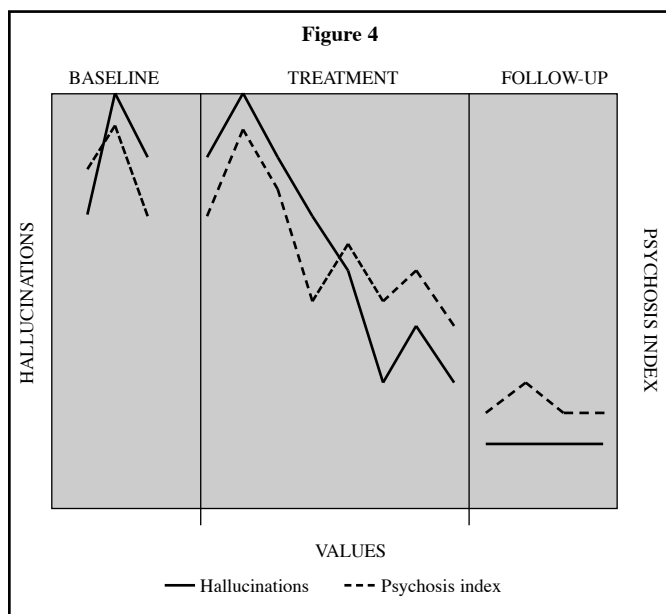
## **RESULTS AND DISCUSSION**

Figure 4 shows the results of our treatment, measured by means of the hallucination scale and psychosis index of the BPRS. With regard to the first scale it was found that in the baseline period the subject obtained the highest scores possible for hallucinations, that is, between 5 and 7 points. This indicated that, before the treatment, the patient experienced auditory hallucinations with a high

daily frequency, and, as shown by the functional analysis, this seriously affected his personal and social functioning. The scores obtained on the psychosis index in the baseline period were also high, ranging between 11 and 13 points.

Immediately after the commencement of the treatment, we observed an increase both in the scores for hallucinations and in those of the psychosis index, probably as a consequence of the exposure treatment carried out, with scores being obtained of 7 points on the former scale and 13 points on the latter. However, having reached this maximum, there was a gradual and steady decrease of the symptoms, so that by the end of the treatment non-pathological levels were attained in both measures.

The more the patient was exposed to the different situations in which it was most probable that auditory hallucinations would occur, the more anxiety towards them decreased, and the characteristics of the voices altered. At first, as mentioned earlier, what was heard were frequent short phrases or words, high in tone and easily identified by the patient. Later, the frequency, clarity and tone level began to decrease, and an interesting phenomenon relating to the content of the voices was produced. Originally, they were quite upsetting for the patient, but as he confessed to becoming calmer, they became less offensive and of a more neutral character, being described by the end of the treatment as murmurs or noises of very low intensity that did not affect his life. For example, he described to us, at an advanced stage of the treatment, that, as he was taking a shower, the voices he heard were simply giving instructions about what he had to do at that moment: "turn on the tap", "get the soap", etc.



The treatment of exposure to traffic noise was quite effective within a short time of its commencement. However, although the use of conversation as a coping strategy was also quite effective, this behaviour was not generalised to situations other than those of the training. It was very unlikely that the patient exposed himself to social situations on his own initiative, and that he used the strategy of conversation to deal with his hallucinations. Thus, it became necessary to improve his conversational skills.

By the end of the conversational skills training, the patient admitted to feeling less anxiety in social situations, and had improved significantly his abilities to initiate and maintain conversations.

The improvement in this type of ability clearly helped the patient to decrease the rate of hallucinations, since the "homework" tasks encouraged him to expose himself to social situations that were stressful for him, and which he had been unable to deal with successfully.

As can be seen in Figure 4, the patterns of change in the hallucinations scale and the psychosis index are quite similar, both in the baseline period and during the treatment. This leads us to think that the treatment for hallucinations is in some way influencing (or rather, is related to) the other behaviours assessed through the psychosis index. However, the data provided by this work do not permit us to offer a conclusive explanation of this result. All we can say is that our results can be understood from the perspective of Maher's (1988) hypothesis, which affirms that the delirious person presents primary perceptive problems that cause anomalous experiences. This author maintains that these anomalous experiences (for example, hearing voices in the absence of an obvious source) produce a sense of bewilderment, which in turn results in the search for an explanation, which will therefore be an abnormal or irrational one, since the experience from which it is derived is also abnormal (or delirious).

This hypothesis basically coincides with that derived from the functional analysis carried out here, which maintains the idea that our subject, starting out from his hallucinatory experiences, arrived at other beliefs of an irrational nature. Thus, it could be proposed from this hypothesis that the modification of the hallucinations may in turn have an effect on this subject's irrational ideas.

In the follow-up phase it is observed not only that what was achieved during the treatment is maintained, but also that the voices disappeared totally for a period of 24 months. Very similar results are observed for the psychosis index.

The explanation for these results during the follow-up period can probably be found in the fact that, although

the treatment for the hallucinations had formally ended, the patient continued to participate in other rehabilitation programmes of an occupational nature. The focus of the treatment was no longer on the hallucinatory behaviours, but rather on the training and stimulation of his participation in work training activities, which indirectly influenced the problem behaviours, facilitating an over-learning of the skills acquired over the previous months.

Together with the decrease in auditory hallucinations, an improvement was observed in the patient's general functioning. In Figure 5 we can observe the results obtained in this aspect on the LSP.

Before treatment the patient demonstrated adequate functioning in two of the five sub-scales of the LSP (those of *Self-care* and *Non-personal social behaviour*). However, in the other three sub-scales (*Social-interpersonal behaviour*, *Social communication-contact* and *Life independence*), he presented deficient functioning in the pretest, which improved significantly in the post-test and follow-up.

As it can be seen, the subject's general functioning, though not particularly deficient in some areas, improved significantly, where there were deficiencies, with respect to the pretest, these results being maintained over the 24 months following the end of the treatment. All of this may be explained taking into account certain factors: firstly, the patient started out with an acceptable pre-illness level of social adaptation, which was altered by the appearance of the disorder; secondly, the decrease in auditory hallucinations allowed him to go out, and help provide the conditions for the recovery of a normal lifestyle; thirdly, the training in conversational skills hel-

ped him to recover and foment social contacts, and to be able to be reinforced by these.

During the follow-up it has been observed that this improvement in the subject's social functioning has been maintained; he has started going out once more with some of his friends from before the onset of the disorder, and he has made new friends in our Rehabilitation Unit, with whom he goes out frequently to discos, to the cinema, or simply to walk around the city. Also, for the last seven months, he has been on a work training programme, to which he has adapted quite satisfactorily. Lastly, we should mention that on this programme he has met a female patient from our Unit with whom, for some four months, he has maintained an affective relationship.

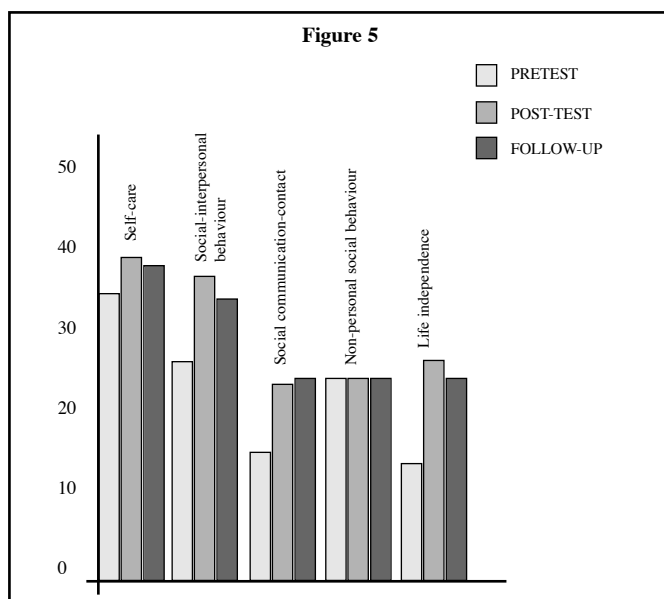
## CONCLUSIONS

Any conclusions drawn from this case study, given its design characteristics, should be treated with caution, and should be tested in studies with greater experimental control. Nevertheless, some ideas are suggested which may be interesting for future research.

Firstly, pharmacological treatment is not the only strategy available for the treatment of psychotic symptoms: it is possible to design, as demonstrated in the present work, psychological strategies of a behavioural type to teach schizophrenic subjects to cope with auditory hallucinations.

Recently a new direction is developing in the treatment of subjects diagnosed with schizophrenic disorders, based on symptom-orientation. Authors such as Bentall, Jackson and Pilgrim (1988) argue for the possibility of studying *symptoms* as psychological phenomena in their own right, as opposed to the traditional emphasis on psychiatric *syndromes*. These authors are making an important contribution to psychopathological research, and fomenting the appearance of new approaches to treatment, not only of hallucinations, but also of other psychotic symptoms, such as delusions.

Secondly, it is difficult, in the current state of research in this area, to conclude which variables have contributed to the behavioural change in this patient. In a review of the literature, Slade and Bentall (1988) stress that treatment for hallucinations can be classified in three main groups according to the mechanisms responsible for the therapeutic change: 1) those techniques, referred to as counterstimulation, which place the emphasis on distracting the hallucinating patient from his/her voices; 2) techniques that encourage the patient to focus his/her attention on the voices. 3) techniques whose objective is the reduction of anxiety.



These authors affirm that techniques based on counterstimulation (for example, listening to music through a Walkman or reading aloud), though useful in some patients, fail to produce lasting benefits because they do not address the basic cognitive disorder involved in hallucination (the erroneous attribution of the hallucinations to external agents and not to the subject him/herself). According to these authors, attention-focusing techniques (e.g. self-monitoring, blocking out of thoughts, etc.), in which the patient must identify the voices as being related to him/herself, are more likely to produce more lasting therapeutic changes. However, anxiety-reducing techniques (such as that of systematic desensitisation) with which positive results have been obtained cannot be easily explained through the principle of attention-focusing. Slade and Bentall suggest that the mechanism of change should probably be looked for elsewhere, and refer to studies that have found a connection between hallucinations and the increase of physiological arousal (Cooklin, Sturgeon and Leff, 1983).

In our study, the situation is more complex than that considered by these authors, and it is difficult to accept the hypothetical mechanism of therapeutic change they propose. In reality, our treatment is a package that includes: *anxiety-reducing techniques*, such as relaxation and exposure *in vivo* to the hallucination-provoking stimuli; counterstimulation techniques, such as the use of conversation as a behaviour incompatible with hallucinating; and focusing techniques, such as the patient counting the voices himself, the reattribution of the voices to himself through Socratic dialogue, and reality tests.

The choice of techniques was not made using a summed approach of "the more the better", nor from a simplistic and molecular perspective, where the treatment is "chosen" solely according to the topography of the response, but rather was guided by a working hypothesis derived from a functional analysis of the hallucinatory behaviour of this patient.

In that analysis, in contrast to biological or intrapsychical conceptions, we attempted to determine the molar psychological field formed by the interrelation of the subject with the different physical, social and verbal factors making up his immediate environment. We can thus consider that the fundamental element of our work was the direction of our therapeutic efforts, not towards "curing" a particular disorder or correcting a specific cognitive bias, but towards the construction (or reconstruction) of the subject's field of interrelations with his social and verbal context. In order to do this, it was necessary that the patient were able to decrease his anxiety in the face of

hallucination-provoking physical and social situations, that he learned behaviours incompatible with the problem behaviour, that he widened his social network, that he found alternative social environments, that he carried out activities that increased his sources of reinforcement, and that he considered new hypotheses about himself and his behaviour. However, and to insist once more, always guided by a working hypothesis derived from a functional analysis of the subject's behaviour.

## REFERENCES

- American Psychiatric Association. (1987). *Manual diagnóstico y estadístico de los trastornos mentales* (Diagnostic and statistical manual of mental disorders) (3rd edition revised). Barcelona: Masson.
- Bentall, R. P., Jackson, H. F. and Pilgrim, D. (1988). Abandoning the concept of "schizophrenia". *British Journal of Clinical Psychology*, 27, 303-324.
- Bulbena, A., Fernández, P. and Domínguez, A. I. (1992). *Adaptación castellana de la escala LSP* (Life Skills Profile scale, Spanish adaptation). *Actas Luso-Espanola de Neurología, Psiquiatría y Ciencias afines*, 20 (2), 51 -60.
- Cooklin, R., Sturgeon, D. and Leff, J. (1983). The relationship between auditory hallucinations and spontaneous fluctuations of skin conductance in schizophrenia. *British Journal of Psychiatry*, 142, 47-52.
- Cuevas, C. and Perona, S. (1992). *Entrenamiento en habilidades sociales en una Unidad de Rehabilitación psicosocial* (Training in social skills in a psychosocial rehabilitation unit). In F. Gil, J. M. León and L. Jarana (eds.), *Habilidades Sociales y Salud* (pp. 101-110). Madrid: Eudema.
- Green, P. and Kinsbourne, M. (1990). Subvocal activity and auditory hallucinations: Clues for behavioral treatments? *Schizophrenia Bulletin*, 16(4), 617-625.
- James, D. A. E. (1983). The experimental treatment of two cases of auditory hallucinations. *British Journal of Psychiatry*, 143, 515-516.
- Lukoff, D., Liberman, R. P. and Nuechterlein, K. H. (1986). Symptom monitoring in the rehabilitation of schizophrenic patients. *Schizophrenia bulletin*, 12(4), 578-593.
- Maher, B. A. (1988). Anomalous experience and delusional thinking. In T. F. Oltmanns and B. A. Maher (Eds.). *Delusional Beliefs* (pp. 15-33). New York: Wiley.
- Schneider, K. (1959). *Clinical psychopathology*. New York: Grune and Stratton.
- Slade, P. D. and Bentall, R. P. (1988). *Sensory deception: A scientific analysis of hallucination*. London: Croom Helm.