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A Psychological Model for Verbal Auditory Hallucinations

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ABSTRACT

The present paper outlines a theoretical model that incorporates, systematizes and provides coherence to the most relevant data found in the scientific literature reviewed in relation to verbal auditory hallucinations. On the one hand, this paper distinguishes the onset and consolidation of global hallucinatory process from concrete episodes. On the other hand, it distinguishes between the structural and the functional characteristics of episodes. In addition, two basic mechanisms are proposed in order to explain the development of hallucinations. One of them is related to the difficulty experienced by patients when perceiving and interpreting the cenesthesic properties of certain private events. The other one is related to the interrelation the subject experiencing hallucinations establishes with his voices. In our conclusions, we remark the theoretical contribution made by our model compared with other models proposed by other authors, as well as its possible clinical implications.

Key words: auditory hallucinations, theoretical models, schizophrenia, psychosis.

RESUMEN

Un modelo psicológico para las alucinaciones auditivas verbales. En el presente artículo se expone un modelo teórico en el que se integra, sistematiza y da coherencia a los datos más relevantes aportados por la literatura científica sobre las alucinaciones auditivas verbales. En el mismo se distingue, por un lado, la formación y consolidación del proceso alucinatorio global del episodio concreto, y por otro lado, las características estructurales del episodio de sus características funcionales. Así mismo, se proponen dos mecanismos básicos que explican el desarrollo del fenómeno alucinatorio: uno tiene que ver con la dificultad del sujeto alucinador de percibir e interpretar las propiedades kinestésicas de determinados eventos privados, y el otro consiste en la interrelación que el sujeto establece con sus voces. En las conclusiones se reflexiona sobre las aportaciones teóricas de este modelo frente a las de otros modelos propuestos por autores anglosajones, así como sus posibles aplicaciones en el ámbito clínico.

Palabras claves: alucinaciones auditivas, modelos teóricos, esquizofrenia, psicosis.

Hallucinations may be defined as a sort of perceptive experience that occurs without adequate stimulation of the relevant sensory organ, but has the compelling sense of reality of a true perception. Patients experiencing hallucinations cannot cope with them in a direct and voluntary way (Slade & Bentall, 1988).

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Hallucinations and more precisely, auditory hallucinations have been described in a good number of psychiatric disorders. Romme and Escher (1996), for instance, studied a large sample of Dutch psychiatric patients and found that hallucinations occurred in 53% of schizophrenic patients, in 28% of patients suffering from any sort of affective disorder, in 80% of patients with dissociative disorders and in 13% of patients with personality disorders.

Nevertheless, auditory hallucinations have traditionally been associated with schizophrenia. Schneider (1959) considered auditory hallucinations as a first rank symptom of the disease in absence of brain pathology. In fact, according to a survey funded by the World Health Organization, auditory hallucinations are the second most common symptom observed in schizophrenia (occurring in 74% of patients), following the lack of insight (occurring in 97% of patients) (Sartorius, Shapiro & Jablensky, 1974).

As auditory hallucinations have been regarded as a symptom characteristic of a more general type of disorder, specific models and theories have only been recently outlined which present such hallucinations as a separate psychological phenomenon independent from other psychotic symptoms.

Most investigators on verbal auditory hallucinations explain such phenomenon supposing that these are internal cognitive events that are misattributed to an external source (for instance, Hoffman, 1986; Slade & Bentall, 1988; Frith, 1992; David, 1994; Morrison, Haddock & Tarrier, 1995). This hypothesis is supported by findings that auditory hallucinations are usually accompanied by subvocalization or covert movements of the speech musculature (Gould, 1959; Inouye & Shimizu, 1970; McGuigan, 1978). If auditory hallucinations were some sort of inner speech which is misattributed to an external source, this would explain why verbal tasks that block subvocalization also inhibit the occurrence of auditory hallucinations (for instance, Margo, Hemsley & Slade, 1981). However, while there is some agreement as regards the links between internal mental events and auditory hallucinations, there is still some doubt about the mechanisms that are involved in the development and maintenance of such misattributions as regards the origin of one's own thoughts.

Currently, there are two main research lines: the first one suggests that this misattribution is caused by a deficit in some aspect of the cognitive functioning of the subject (Hoffman, 1986; Frith, 1992; Hemsley, 1993; David, 1994). The second one works on the assumption that there is a bias in the monitoring of internal events (Slade & Bentall, 1988; Morrison et al. 1995).

A good number of experimental studies support to some extent those two research lines. Investigators who defend the hypothesis of a deficit of cognitive functioning, for instance, claim that there is some failure in the neuropsychological processes in speech planification (Blakemore & Frith, 2003; Hoffman, 1986) or in the monitoring of internal events (Frith, 1992). Those investigators who favour the theory of the bias argue that the inability to discriminate real events is caused by top-down processes, such as metacognitive beliefs (Slade & Bentall, 1988) and cognitive dissonance (Morrison et al. 1995). Nevertheless, all these authors have only focused their attention on the explanation of such bias or cognitive deficit, leaving unexplained many relevant aspects of hallucinatory phenomena.

In our opinion, these theories can only explain why patients experiencing hallucinations attribute their own private events to public ones. However, they do not explain other relevant characteristics of hallucinations, among which we can mention the following:

- Why is the hallucinator unable to recognize his private events?
- What determines the content or subject matter of the voices?
- Why do voices talk in the second or third person?
- Why do voices acquire particular features such as sex, accent, tone, etc?
- How are beliefs about voices formed?
- How do such beliefs arise, how are they maintained and consolidated over time?

Perhaps Morrison (2001) in the latest revision of his theory offers a more comprehensive explanation of the hallucinatory phenomenon. Though his updated theory makes some highly interesting contributions, in our opinion it follows the same old approach, namely, to attempt to explain how the bias is produced. He also adds to his model factors that explain how such bias is maintained.

The last two decades have witnessed a great amount of empirical studies on hallucinations, characterised by a great diffusion of data and the lack of systematizing work that may unify them and provide them with some degree of coherence. We think that an effort to systematize empirical data could give way to more comprehensive theoretical models on the hallucinatory process, which could explain some of the questions previously outlined. Therefore, the aim of the present study is to outline a theoretical proposal on the hallucinatory phenomenon, which attempts to give coherence to all those data drawing from the vast literature so far available.

In the proposal outline below, we differentiate the onset and consolidation of the hallucinatory process from the onset and consolidation of the concrete episode. The reason for doing so is that, in our opinion, the variables and factors involved in the onset and consolidation of hallucinations do not have to coincide with those determining the episode. On the other hand, though we make such distinction, we must take into account the hierarchical nature of these processes, so that the way in which the hallucinatory process has appeared and has been consolidated will always influence and, as a result, determine the particular episode.

The hallucinatory process

In order to describe how hallucinations take place we must, first of all, assume that the patient has a series of previous personal antecedents that will help to contextualize the whole process. As shown in Figure 1, these personal antecedents will determine and facilitate those variables that trigger the hallucinations to become activated. Now we will describe in detail all the variables that, from our point of view, are involved in the activation of the process, in the onset of the hallucinatory process itself, and finally, in how hallucinations become definitively established or consolidated in the daily life of patients as something relevant that will influence their experience of the world.

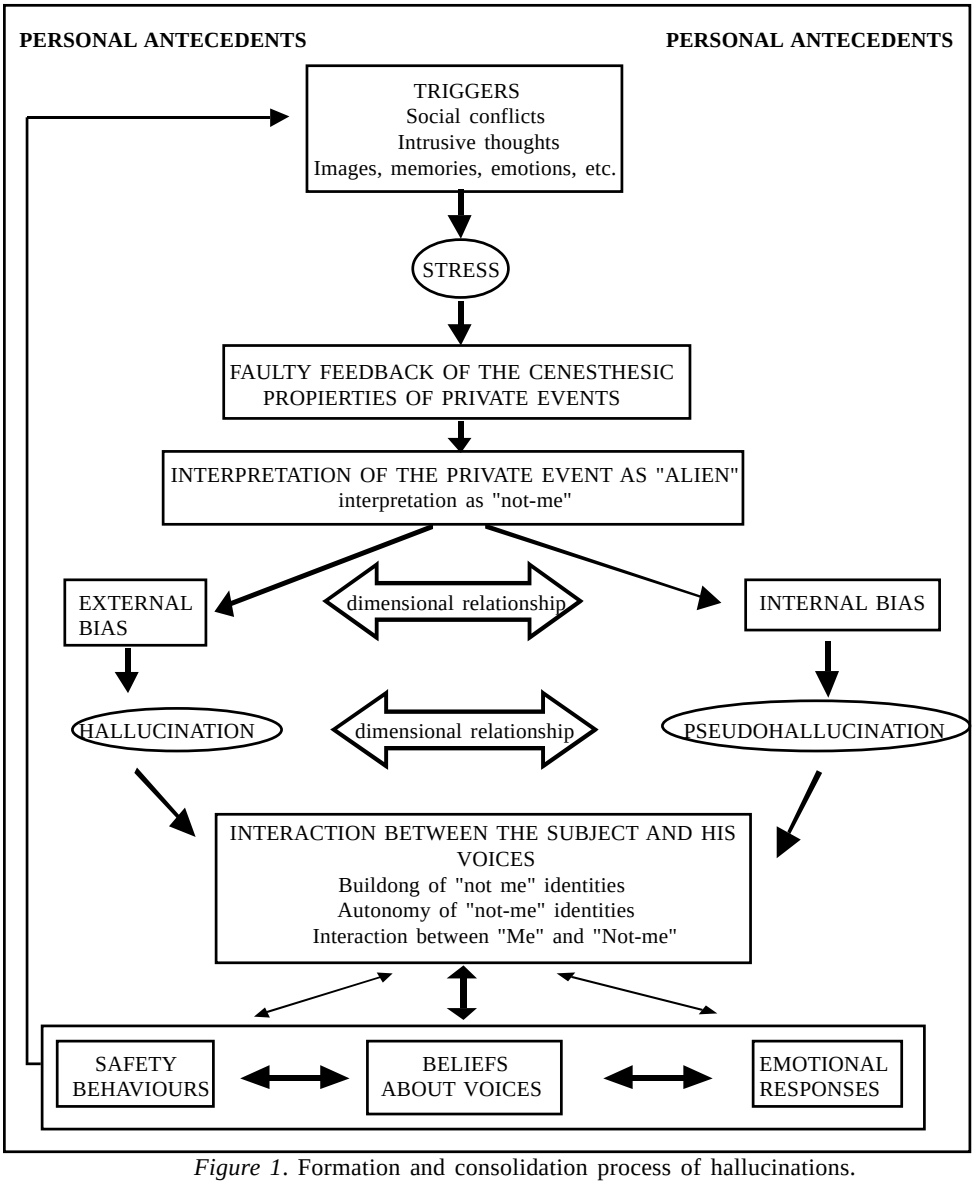

Figure 1. Formation and consolidation process of hallucinations.

Personal Antecedents

As already mentioned, personal antecedents, within a psychological theory of hallucinations, refers to all those variables that, although do not cause their onset, make a person more prone to suffer them whenever the necessary conditions are met. These

variables include metacognitive beliefs, hallucinator's predisposition to suggestion and finally, certain personality traits. Each of these variables are now analysed in detail.

Metacognitive beliefs

In recent years, investigators such as Wells and Mathews have shown that in some emotional disorders (for example generalized anxiety disorders, obsessive-compulsive disorders, etc.) biased information processing may be caused by stable metacognitive beliefs (Wells & Mathews, 1994; Wells, 1997). The hypothesis that metacognitive beliefs may play a key role in auditory hallucinations was first put forward by Morrison, Haddock & Tarrier (1995). According to these authors, auditory hallucinations are the result of intrusive thoughts misattributed to an external source. Such misattribution is influenced by metacognitive beliefs, which may contribute to conceptualise such thoughts as externally generated.

So far, four studies have been carried out in an attempt to prove such hypothesis (Baker & Morrison, 1998; Lobban, Haddock, Kinderman & Wells, 2002; García Montes, Pérez Álvarez, Cangas Díaz, Perona Garcelán & Cuevas Yust, 2002; Morrison & Wells, 2003).

The first of these studies compared the metacognitive beliefs of schizophrenic patients who experienced hallucinations with those of patients who did not experience them and with those of healthy subjects. The results revealed that hallucinators obtained higher scores than individuals from other groups on metacognitive beliefs concerning negative beliefs about uncontrollability and danger associated with their thoughts and on positive beliefs about worry. However, the results of a logistic regression analysis showed that beliefs concerning uncontrollability and danger associated with thoughts were the only ones that predicted the arousal of auditory hallucinations.

On the other hand, Lobban *et al.* (2002) found out that the occurrence of hallucinations was related to the appearance of intrusive thoughts associated with anxiety, metacognitive beliefs concerning low self-confidence in one's own judgements and beliefs concerning the importance of the logic of one's own thoughts.

García-Montes et al. (2002) used for their study a method quite similar to that employed in previous works. They found that the hallucinator subjects scored higher in all metacognitive variables of the scale used, but only showed significant differences in regards to negative beliefs concerning superstitions, punishment and responsibility for one's own thoughts.

The last study above mentioned (Morrison & Wells, 2003) compares psychotic patients (with hallucinations or persecutory delusions) with patients suffering panic disorders and with normal individuals. The results revealed that hallucinators showed higher levels of dysfunctional metacognitive beliefs than the rest of individuals. More specifically, they scored higher on positive beliefs concerning worry, negative beliefs about uncontrollability and danger, cognitive self-reliance and negative beliefs including superstition, punishment and responsibility.

Though all these studies stress the importance of different types of beliefs, it is important to take into account that hallucinators differ from people who do not experience

them in that they show a greater variety of dysfunctional metacognitive beliefs, which they suffer with more intensity.

Suggestibility

Some experimental studies have revealed that hallucinators' interpretation of reality may be greatly influenced by suggestion. Mintz & Alpert (1972) put hallucinators and controls to a test in order to measure their susceptibility to suggestion. The test was called "the White Christmas test" (Barber & Calverley, 1964). Individuals were asked to close their eyes and listen to a tape. They were told they were listening to the "White Christmas" song, but the song was never played. After a brief period of time, investigators asked individuals how sure they were they had listened to that song. Mintz and Alpert found that a greater number of hallucinators than controls claimed having actually listened to it. The same result was obtained by Young, Bentall, Slade, & Dewey (1987). Moreover, Haddock, Slade & Bentall (1995) measured the suggestibility of hallucinators and controls by means of an experiment on the phenomenon of verbal transformation. Basically, it consists of repeatedly exposing individuals to a recording on which a meaningless word is heard over and over again. Most people exposed to this stimulus experience that the word changes after a short period of time. Haddock and co-workers told part of the individuals (either hallucinators or controls) that the word would change whereas their counterparts were told that it would not. As the investigators had foretold, the instructions influenced the number of verbal transformations reported by individuals, hallucinators reporting the highest number of them.

Personality traits

Few empirical studies have attempted to compare the personality traits of hallucinators with those of individuals who do not experience hallucinations. Nevertheless, one of the most important conclusions of our study is that hallucinators usually show clear signs of emotional instability.

Ramanathan (1984a,b) found a relationship between the scores obtained in the *Neuroticism Scale* of *Eysenck's Personality Questionnaire* (Eysenck & Eysenck, 1976) and the results measuring the interference that hallucinations and the coping process caused in schizophrenic patients. In a subsequent study, the same author (Ramanathan, 1986) measured various aspects of hallucinations in schizophrenic patients and found out that the high scores obtained in the Neuroticism Scale were related to the anxiety that precedes the occurrence of voices, to the anticipation of such voices, to the anger felt when hearing the voices and to the degree of social and occupational interference such hallucinations provoke. Similar results were also reported by Young, Bentall, Slade & Dewey (1986) who also found a relationship between hallucinations and neuroticism. From the analysis of these studies, Ramanathan (1986) concluded that the higher scores obtained by hallucinators in the Neuroticism Scale showed to what extent these individuals were disturbed by psychotic experiences, as well as the remarkable emotional instability they suffered.

More recently, Barrett & Etheridge (1994) conducted a study designed to evaluate the relationship between verbal hallucinations and dysfunctional personality traits in subjects from the general population. The aim was to prove the hypothesis that the subjects from general population who reported having had auditory hallucinations would frequently show elevated levels of emotional instability in the *Millon Clinical Multiaxial Inventory I* (MCMI; Millon, 1983) in comparison to individuals who did not report such hallucinations. The results clearly revealed that hallucinators scored higher than non-hallucinators in Factor 1. According to Millon (1983), individuals who obtained high scores in Factor 1, showed a tendency to experience depression and labile emotions that were expressed in the form of neurotic complaints and melancholy. Moreover, hallucinators also obtained high scores in Factor 4, which means they had a tendency towards inhibition and social conformity.

Finally, López Rodrigo, Paíno Piñeiro, Martínez Suárez, Inda Caro & Lemos Giráldez (1996) conducted a study which was a systematic replication of Barrett & Etheridge´s study but which made use of the second version of *Millon Clinical Multiaxial Inventory* (MCMI-II; Millon, 1987) in non-psychiatric hallucinators. These investigators discovered that the hallucinators included in their sample obtained higher scores than non-hallucinators in most abnormal personality type scales and in most clinical syndrome scales, including neurotic disorders. However, the statistical tests performed showed that borderline personality explained a significant percentage of the variance observed in the scores obtained by hallucinators, proving that these individuals were more emotionally unstable than the control group.

To sum up, we may assert that people experiencing hallucinations are characterised by having metacognitive beliefs that make them experience their private events as problems. These individuals are also highly suggestible and they show remarkable emotional instability. The accumulation of all or most of these characteristics make individuals more prone to suffer this type of experience.

Triggers

No factors described above cause the disorder, nor do they by themselves provoke hallucinations. However, they act as a kind of psychological context that facilitates the onset of the process whenever the adequate conditions are met.

The starting point of the hallucinatory process occurs when the individual faces different vital situations he cannot cope with and which he interprets as threatening his physical or psychological integrity. As a result, the individual feels overcome by the situation and highly stressed. These situations concern a vast number of experiences ranging from traumas to social conflict (for example very emotional environments) including also inner conflicts such as the experience of unwanted private events in the form of thoughts, images or memories the individual appraises as intrusive and annoying, as well as the experience of very intense emotional and physiological states.

Some studies have shown that patients diagnosed as psychotic have experienced a greater number of traumas, and that psychotic symptoms, such as hallucinations, occur more often in groups of people who have undergone traumatic situations such as

sexual abuse, or a war in the case of veteran soldiers and refugees (Butler, Mueser, Sprock, & Braff, 1996; Kinzie & Boehnlein, 1989; Ensink, 1992; Morrison, Frame & Larkin, 2003). A strong link has also been detected between vital events in the life of the patient, early experiences and the content of their symptoms. In this sense, Raune, Kuipers & Bebbington (1999) proved the association between the content of delusions and hallucinations and the stress causing events that had preceded the onset of the disorder. On the other hand, Romme & Escher (1989) report that 70% of those who hear voices develop hallucinations after a traumatic experience. Likewise, Honig, Romme, Ensink, Escher, Pennings & Devries (1998) have also found that the onset of auditory hallucinations is preceded by traumatic experiences or events that activate the memories of early traumas and that the hallucinator's inability to cope with them is related to previous abuses and traumas.

The literature reviewed offers, as well, data confirming the existence of specific cognitive triggers of auditory hallucinations. Morrison & Baker (2000) compared a group of schizophrenic patients with hallucinations with another group of schizophrenic patients without hallucinations and with a group of individuals without mental disorders. They found out that hallucinators had a higher number of intrusive thoughts than the control groups and that they evaluated such thoughts as more distressing, uncontrollable and unacceptable than the individuals included in the other two groups.

Nayani & David (1996), in a comprehensive study of the hearing voices phenomenon, reported that certain contexts might serve as prompts or triggers for auditory hallucinations. These included affective and physiological states, in addition to certain behaviours. In this sense, the findings of the different investigations have shown that affective states may be involved in the onset of hallucinations as they increase the physiological arousal (Allen & Argus, 1968; Cooklin, Sturgeon & Leff, 1983). In addition, certain situations such as sleep deprivation (Oswald, 1974), solitary confinement (Grassian, 1983), anxiety (Slade, 1972), sadness and anger (Nayani & David, 1996) may also trigger hallucinations.

Formation of hallucinations

From this moment on, the individual starts to experience and appraise certain private events (self-verbalizations, memories, images, etc) as strange. This means that the individual considers those events occur spontaneously and unintentionally.

We propose that the sense of strangeness appears in those individuals who are "living" inside the context of the previous experiences above mentioned, and that the emotional disorder provoked by the onset of such triggers interferes in the feedback process which usually takes place in all private events (thoughts, self-verbalizations, images, etc). As a results of all this, the individual does not recognise such events as his own. It is the same as walking along the street and not being able to feel our legs, neither the feedback of the weight of our body, or the cenesthesic sensations provoked by the contact of our feet with the pavement, etc. Yet, we would notice that we walk because our position changes. This would probably make us think that we are moving in a strange way. Something similar occurs at the onset of auditory hallucinations. The

individual has a series of thoughts, verbalizations, etc, but he cannot perceive the corresponding proprioceptive feedback. As a result, the individual, at first, loses the sense of familiarity with those voices. He thinks they are unintended and therefore, he cannot recognise them.

According to the literature reviewed, verbal auditory hallucinations are accompanied by subvocalisation. According to Frith (1992), Kandinskii was the first author who in 1890 suggested the existence of a relationship between hallucinations and inner speech. Subsequently, Gould (1949) using microphones and McGuigan (1966) measuring the potential activity of the tongue and chin musculature in hallucinators, confirmed that the onset of voices coincided with the production of whispers in the first case and with a significant increase in the activity of the oral muscle, in the second. Similar results were reported by Inouye & Shimizu (1970), Green & Preston (1981) and Green & Kinsbourne (1990).

Therefore, we may speculate that hallucinators are unable to recognise their unintended inner speech because they cannot perceive, or perhaps, interpret correctly the peripheral feedback of the musculature involved in the production of such inner speech. Although it does not contribute any empirical data, a similar hypothesis has been put forward by Burns, Heiby & Tharp (1983), with an experimental analysis perspective on verbal behaviour. Nevertheless, the work of some authors who defend a cognitive model comes closer to this hypothesis, though indirectly. For instance, Johns, Rossell, Frith, Ahmad, Hemsley, Kuipers & McGuire (2001) put a series of subjects to a task consisting in reading aloud different adjectives. The investigators manipulated the kind of feedback hallucinators and non-hallucinators received from their speech. This feedback occurred with different degrees of distortion and was produced either by other people or by the individual himself. Immediately after pronouncing the word and receiving its corresponding feedback, subjects had to identify the origin of the word being put into feedback (“me”, “others”, “I’m not sure”). The results obtained showed that hallucinators had problems to perform the task correctly and that they were particularly prone to misattribute their speech to others, mainly when the affective content of the speech was negative. Johns & McGuire (1999) obtained similar results using a similar method. They proved not only that hallucinators had difficulty in recognising their own speech when the feedback was distorted, but also that they made more mistakes when trying to identify the origin of words with pejorative meanings in comparison to neutral words or praise.

We must take into account that the fact that individuals have problems in perceiving the feedback of their inner speech correctly may act in a selective way and may associate the previous emotional disorder with a loss of feedback of different private experiences. Moreover, this may occur in different degrees, so that the loss of feedback of experiences may be partial or total. Also, age and the cognitive deterioration of individuals may help generalize the loss of feedback and, as a result, hallucinations may affect other issues or situations, so that further private events, not necessarily related to the original experiences, may also be regarded as strange.

When analysing these phenomena it is important to distinguish between the cognitive event itself or the current event taking place at that moment (that is, the loss

of feedback of private events) and *the subject's appraisal of the event*. The subject appraises or interprets certain private events as strange or alien because of the loss of feedback of the cenesthesic characteristics of such private events. If this loss persists, it may create, in time, a barrier between the normal flow of conscious experiences and others the subject considers as alien to him. As a result, the subject considers the former as his own and the latter as "strange" or "not me".

Two processes must take place so that the "not me" experience is consolidated:

- The first one is associated with an external bias. This means that when the subject thinks his private events are not his, it is easy to attribute them to an external source. In the scientific literature, this phenomenon is called *bias in reality monitoring* or, in a more general sense, *bias in source monitoring*. The subject finds it difficult to discriminate the source or origin of a private event, and misattributes it to an external source. Such bias has been observed in schizophrenic patients (for example, Harvey, 1985; Keefe, Arnold, Bayen & Harvey, 1999), but more precisely in schizophrenic patients who experience hallucinations (for example, Bentall & Slade, 1985; Bentall, Baker & Havers, 1991; Brébion, Amador, David, Malaspina, Sharif & Gorman, 2000), and in non-psychiatric patients prone to suffer hallucinations (for example, Rankin & O´Carroll, 1995). In spite of this, we hypothesize that it is possible to find subjects undergoing this first stage of poor feedback of the cenesthesic characteristics of their private events, considering them alien, but who do not necessarily experience a bias in reality monitoring. In this case, we face what in psychiatric literature is known as *pseudo-hallucinations*. This means that, the subject does not recognise his own private events, but considers they are "inside his head". However, we consider this external bias a dimensional variable and, depending on their frequency and intensity, they may provoke a series of phenomena including, apart from what the literature calls "true psychic hallucinations" and "pseudo-hallucinations", voices, thought broadcasting, thought insertion, passivity experiences, persecutory delusions, etc.
- The second process concerns a change in the structure of private speech characterised by a change in the person of the pronoun. What was previously expressed in the first person is now expressed in the second or third person, as it is considered an alien thought. For example, if the origin of a subject's problems has to do with the bad relationship, he has with his father and he does not accept his negative feelings towards his progenitor, the subject will soon experience as alien these negative judgements of resentment he feels towards his father. All this will facilitate that the judgements this person makes of his own behaviour (as for instance "I'm an idiot", "I'm being cruel to my father") provoke a change in pronouns from first to second (and/or third) person and become expressed as "you're an idiot", "you're being cruel to your father", which increases even more the sense of strangeness and hinders the feedback of such experience as his own. Therefore, the subject may address such experience in the second person and, at the same time, answer to himself using the second and sometimes the

third person. This produces a vicious circle that causes the breakdown of the psychological integrity of the individual.

Consolidation of hallucinatory process

All the previously described would conform the hallucinatory experience itself (this is, depending also on the degree of deterioration of feedback processes, of the structure of private speech and of bias) and all the phenomenology already mentioned.

At this point, the subject experiencing hallucinations establishes a new type of relationship with himself in which certain networks of private events conformed by thoughts, self-verbalisations, images and even emotions and behaviours, dissociate from the common core of his experiences giving way to one or more "egos" which can act autonomously from each other and start a socialization process.

From this moment onwards, the relationship the individual establishes with his voices begins to acquire the same characteristics as any other kind of social relationship. In this sense, it is interesting to mention the study conducted by Leudar, Thomas and co-workers in which they define hallucinations as "inner speech endowed with pragmatic properties". This means that, hallucinations consist of words or phrases, which are heard as if they were spoken. They are addressed at the hearer and cannot be directly heard by others" (Leudar, Thomas, McNally & Glinski, 1997; Leudar & Thomas, 2000).

Taking into account the previous definition, these investigators have carried out a study in order to check the pragmatic and dialogic properties of hallucinations in schizophrenic patients experiencing them and in non-psychiatric hallucinators. The results have revealed that in both groups hallucinations share a number of characteristics that fit perfectly a pragmatic model of voices. The characteristics are the following:

* Individualization and Personification of Voices. Some subjects associate and identify their voices with concrete individuals of their immediate social environment, such as relatives, friends or public figures. Others either cannot associate those voices with specific persons, or associate them with deceased people. However, they can always describe their behaviour and intentions, and in all these cases voices have certain characteristics such as tone, accent, sex, age and status.
* Participant positioning of voices. Voices address the hearer or take part in conversations in a specific way. They may establish a dialogue among them, so that the hearer is simply an observer of the dialogue, or they may address the hearer one by one or all at the same time, giving different or similar pieces of advice. In addition, they may take part in the conversations the hearer maintains with relatives or friends, interrupting the conversation to express their opinion.
* Sequential properties of voices. It has also been proved that the relationship with voices is organised in sequences between two contiguous elements (hearer vs. voice) that interact, for example: sequence between question-answer, request-denial, assertion-agreement, etc.

Conversely, Benjamín (1989) conducted a pioneering study where he put a number of schizophrenic patients with hallucinations to the *Structural Analysis of Social Behavior*

Questionnaires (Benjamín, 1974, 1984), in order to evaluate some relational patterns the hallucinator establishes with his voices. The results revealed that all hallucinators had incorporated the voices into their daily lives and they maintained coherent interpersonal relationships with each of them. The investigators concluded that the social relationship the subject establishes with his voices had an adaptive function.

On the other hand, Birchwood, Meaden, Trower, Gilbert & Plaistow (2000), taking as a starting point the "ranking" theory (Price, Sloman, Gardner, Gilbert & Rohde, 1994), have also proved that the relationship an individual establishes with his voices may be described from a social point of view. They have found that these individuals maintain a similar balance between power and subordination as that maintained by normal individuals with their social environment. More specifically, this study suggests that the balance between a subject and his voices may be the result of the judgement the individual makes concerning his social status and his sense of belonging to a group. This means that the difference of power between the hallucinator and his voices resemble the difference of power such an individual establishes with the people in his immediate social environment, that is, it seems that the voices mirror their social life. This would obviously explain the content of voices, because, as we have observed in our clinical practice, voices usually deal with issues concerning the social experience of patients. Sometimes this becomes evident from the patient's speech, others his speech takes a metaphoric form adopting a bizarre, outrageous shape.

The end result of all the process previously described is the arousal of a series of beliefs, responses and emotions that foster the consolidation of the whole hallucinatory process, characterised by the establishment of a special relationship between the subject and certain private events in which hallucinations become a crucial factor.

Investigators such as Chadwick, Birchwood and others (1994,1995), Close & Garety (1998), Chadwick, Lees & Birchwood (2000) have distinguished a series of beliefs subjects have about their auditory hallucinations:

1) *The belief that voices have an identity*. Most patients hold much elaborated beliefs about the origin of voices. The subject thinks they come from other people or entities, that is, they attribute them to an external source.
2) *The belief about the purpose and meaning of voices*. This aspect is closely related to the previous one. Apart from inferring the identity of the voices, patients usually search for the purpose and meaning of these voices. In most cases, the subject thinks that either the voices want to hurt him (voices with a malevolent meaning) or they want to help him (benevolent voices).
3) *The belief in the power of voices*. The individual thinks voices are very mighty and he cannot cope with them. This belief is closely related to the idea that voices are omnipotent and omniscient. This means, the subject feels defenceless against them and unable to control them. Moreover, the voices know each and every one of the more intimate details of the life of the subject. Therefore, increasing the feeling of defencelessness that may have negative effects in the subject's self-esteem.
4) *The belief in the consequences of subjection or resistance to the voices*. The

individual may think they must obey the voices, otherwise something evil may happen to him or any of his relatives.

Chadwick & Birchwood (1994), who support a cognitive model, claim that the behaviour of hallucinators is the result of the beliefs previously mentioned. In our opinion, beliefs are a key element to understand the hallucinatory process, but they are not necessarily at the onset of the causal chain of events and, as a result, they are not necessarily the antecedents of such behaviour. From our arguments, the reader may clearly deduce that the interaction of the subject with his voices, which clearly have dialogic properties and function like a social relationship, is the immediate antecedent of both the beliefs and the behaviour.

Safety behaviours may be related to the maintenance of the special relationship the subject has established with himself. Such behaviours are another variable analysed in emotional disorders and are thought to be also associated with hallucinations.

Safety behaviours in relation to anxiety disorders have been defined by Salkovskis (1991) as responses designed to prevent a supposed threat the subject uses to prevent any negative outcomes that are implied in those threatening events. The main consequence of safety behaviours is that they contribute to maintain the fear and anxiety, as they hinder the possibility for disconfirmation of the interpretation of the hallucination. As a result, the subject does not take into account or does not experience those events that should provide evidence against the supposed threat because he engages in such safety behaviours.

According to Morrison (1998), safety behaviours also occur in hallucinators as an attempt to prevent a threat to their physical or psychological integrity, but they have the disadvantage of maintaining the hallucinatory process as they hinder the possibility of disconfirmation of the events described by the voices. More recently, Nothard, Morrison & Wells (2000) have used a semi-structured interview to elicit the interpretation of voices and their corresponding safety behaviours. These investigators found that most of the subjects included in their sample used this type of behaviours. On the other hand, a good number of studies have proved that safety behaviours together with coping behaviours do not solve the problems of these patients, but in most cases do have the paradoxical effect of reinforcing the beliefs they have about their sources (for instance, Romme & Escher, 1989; Frederick & Cotanch, 1995; Nayani & David, 1996; Farhall & Gehrke, 1997; for an extended review see Perona Garcelán & Galán Rodríguez, 2001). Also, Morrison (1998; 2001) argue that another consequence of safety behaviours is that they increase the frequency of intrusive thoughts and, therefore, also increase and contribute to maintaining auditory hallucinations.

Finally, the last link of variables leading to the consolidation of hallucinations is that of the emotional responses provoked by the interaction of the subject with himself, with safety behaviours and with his beliefs. These responses may consist of negative emotions such as anxiety, anger or despair, or of positive emotions such as joy, frenzy, satisfaction, etc. On the one hand, these responses together with beliefs and safety behaviours may provide feedback of the interaction between the subject and his voices, reinforcing and creating a particular and idiosyncratic story between them. On

the other hand, they may affect the triggers such as intrusive thoughts, making them important for the occurrence of new voices.

The hallucinatory episode

So far, based on the data provided by different research works on the issue, we have proposed a theory attempting to explain the development of the overall hallucinatory process, that is, how it appears and how voices are consolidated in a vulnerable subject. However, we consider that this is not enough to explain hallucinations, as we must also understand what happens afterwards, once the hallucinatory process is completely established and consolidated in a subject. Therefore, we must describe and explain how hallucinatory episodes develop and are maintained in time, because, as we argued at the beginning of this paper, the variables involved in the establishment of hallucinations do not have to coincide with those involved in their development and consolidation in the course of time. In order to do so, we must include in our theoretical model an explanation of hallucinatory episodes which, broadly speaking, consist of periods of variable duration within the overall hallucinatory process, in which different voices are heard with a clearly defined duration.

In our opinion, voice episodes are contextualized in the overall hallucinatory process. As a result, the personal antecedents already mentioned (metacognitive beliefs, suggestionability and personality traits) influence the process and probably determine its activation and deactivation in the course of time.

Once the process is completely formed and consolidated, the traumatic and stressful situations that provoked it are no longer required. Once the first experiences of voices have occurred, and especially when these have acquired pragmatic and dialogic properties, the subject becomes completely familiar with them and it is increasing easier for voices to appear and reappear on many occasions without the occurrence of a very intense stressing event that triggers them. This means that stressing events may be enough to trigger hallucinations but not necessary.

We propose that what triggers a hallucinatory episode is self-focused attention on private events (intrusive thoughts, memories, images, etc). Wells & Mathews, in their *Self-Regulatory Executive Function Model, S-REF* (Wells & Mathews, 1994) have stressed the role of self-focused attention in the etiology and maintenance of emotional disorders.

To put it briefly, their model claims that an emotional disorder is associated with a certain cognitive-attentional syndrome characterized by heightened levels of self-focused attention, ruminative processing, attentional bias and activation of dysfunctional beliefs and self-evaluation.

Self-focused attention was defined by Ingram (1990) as the awareness a subject has of self-generated information in opposition to the externally information generated coming from sensory receptors. In the context of cognitive psychology, this concept has been associated with a great variety of psychopathological disorders (Ingram, 1990). According to Morrison *et al.* (1995), self-focused attention contributes to the maintenance of hallucinations. More specifically, Morrison & Haddock (1997a) in an empirical

investigation asked a number of schizophrenic patients with hallucinations, psychiatric patients without hallucinations and non-psychiatric patients to complete a scale of self-focused attention (self-consciousness scale devised by Fenigstein, Scheier, & Buss, 1975). The results revealed that patients experiencing hallucinations exhibited higher levels of private self-consciousness than psychiatric control subjects. In addition, those high levels of self-focused attention predicted the occurrence of hallucinations.

In our opinion, these data support the hypothesis above mentioned, that whenever a subject has a long history of voices, he is extremely aware of his own private events, such as his intrusive thoughts, and the threshold needed to activate the occurrence of such voices is therefore so low that a minimal effort may trigger them. As an example we provide our own clinical experience: sometimes when we teach coping strategies to hallucinators, simply asking them to have certain thoughts may easily provoke the hallucinatory episode. In this way it is possible to put such coping strategies into direct practice (Perona Garcelán & Cuevas Yust, 2002).

Self-focused attention is closely related to the life-style led by many psychotic patients. These patients are usually isolated and do not leave their rooms or perform solitary tasks. This life style encourages self-focused attention and as a result, they spend their time ruminating their own worries. Nevertheless, when these patients begin to attend rehabilitation programmes, which promote social and occupational activities, self-focused attention decreases, the attention to external social stimuli is encouraged and some patients experience a decrease in frequency and intensity of hallucinatory episodes.

Ensum & Morrison (2003) investigated the relationship between source monitoring and self-focused attention in a series of patients with hallucinations. The patients performed a source-monitoring task after they had performed a different task in which their self-focused attention was successfully increased (internal focus of attention) or reduced (external focus of attention). The source-monitoring task consisted of a word association exercise (words had negative, positive or neutral emotional meanings) in which subjects were asked to evaluate their degree of internalisation and controllability of words when faced with the stimuli words presented by the experimenter. According to the results, patients scored lower when their self-focused attention was increased than when it was reduced. Moreover, investigators found that the results of internalisation and controllability were also lower when patients reacted to positive or negative emotional stimuli in comparison to neutral stimuli, and such differences became more important when self-focused attention was increased than when it was reduced.

Therefore, once the subject focuses his attention on certain triggering events, voices become activated and as a result of the different trials the subject has gone through in his previous history of voices, an interactive episode begins again between the subject and his voices in which all the beliefs, safety behaviours and emotions that consolidate and stabilize the interaction are also updated (see Figure 2).

At this point, once an interactive sequence is established between the subject and his voices within any hallucinatory episode, we must take into account his current metacognitive beliefs concerning the identity of the voices or the conceptualisation the subject makes of them. Following Romme & Escher (1989), we will call these

metacognitive beliefs “frames of reference” to distinguish them from the beliefs patients hold concerning the content of the voices, that is, who produces the voices, what they intend, what will happen to the subject if he does not obey the voices, etc.

Romme & Escher (1989) have analysed those frames of reference in hallucinators and they have made the following classification:

- Conceptualisation of the voices as a psychological phenomenon with an internal origin inside the mind of the subject:

a) With a psychodynamic origin. The voices are understood as a response to extremely traumatic experiences such as incest, sadistic upbringing models, accidents threatening one’s life, kidnapping and experiences of war. Within this frame of reference, the trauma may occur as flashback, persecutory delusions, aggressive voices or terrifying images.
b) With a mystic origin. Within this frame of reference, voice hearers assume they are able to expand their consciousness in order to attain spiritual development. The voices are then considered part of this spiritual expansion.
c) With a para-psychological origin. Voices are considered to arise from a special kind of sensitivity or gift and they occur at subtle levels of consciousness. The voice hearer regards himself as a sort of medium with the ability to contact with such levels of consciousness.

- Conceptualisation of the voices as an external, non-psychological phenomenon:

a) With a biological origin. The voices are considered a disease and are thought to be produced by a brain disorder.
b) With a spiritual origin. The voices are interpreted as the spirit of deceased people still wandering upon the Earth.

Taking into account all of these ideological frames of reference, the subject experiencing hallucinations may explain what his voices are, defining the sort of relationship he will have with them. The subject may either consider he is experiencing something real and unusual or that the voices are provoked by biological or psychological disorder. In general terms, when the patient ignores that he suffers from a disorder, the interaction he establishes with the voices becomes more intense and he may even maintain a very intimate relationship with them.

Psychological Function of Hallucinatory Episodes

Reaching this point, we must remark that the hallucinatory episode in a subject who conceptualises his voices as people or entities with their own purpose and life, they are not a series of meaningless acts, but rather play a role within the personal and social network of the patient. In our opinion, this must be the key aspect in a psychological theory of hallucinations.

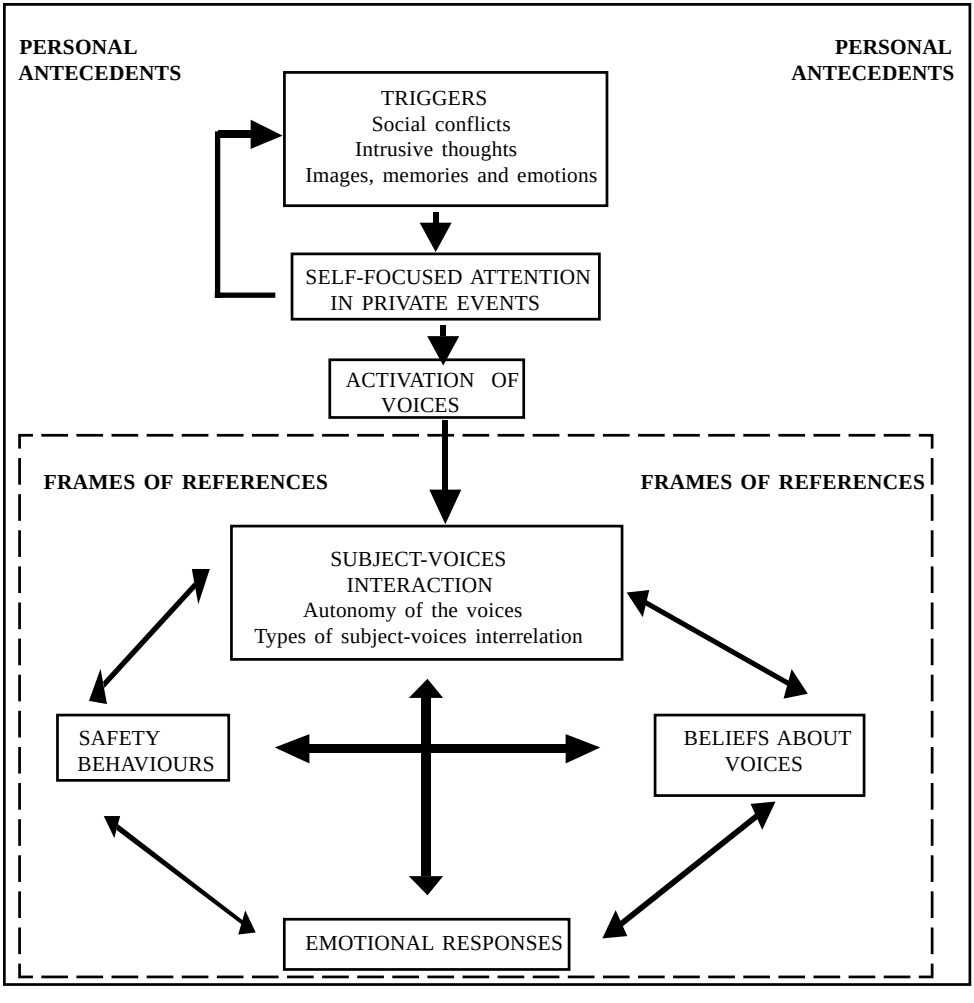

Figure 2. Hallucinatory episode

So far we have described what we might call "the structure of the general process and of the particular hallucinatory episode", putting forward hypotheses as regards to the variables involved in the process and the relationships among such variables. But, the entire network previously described acts as the base of new ways in which the subject tries to adapt in his social environment.

Leudar and co-workers (1997) claim that the voices regulate the behaviour and activities of the subject. However, we consider that such an argument is not enough. Though speech behaviour may, in general, play such a regulatory role and hallucinations are a sort of speech behaviour too, these authors do not explain the function or specific

meaning of the hallucinatory episode at a particular point of the subject's life.

In our opinion, hallucinatory episodes may have, in general terms, a regulatory function for the subject's behaviour, but "within a particular personal and historical context". And, more specifically, at least in psychiatric patients, hallucinations may have two functions:

1. S*ocio-emotional function*. It consists in highly specialized and subtle ways of avoiding certain private events within the emotional disorder the hallucinator suffers from. All emotional disorders, to a greater or lesser extent, usually consist in avoidance patterns, but the degree of avoidance observed in each of them may be quantitatively and qualitatively different. Hallucinators show more subtle and specialised avoidance patterns, so that the subject does not attempt to avoid concrete external events or the anguish provoked by important personal losses in his environment, but rather his own behaviours, cognitions and emotions, using the hallucination as a way of freeing himself of responsibility for them. A phenomenon we might call "metacognitive avoidance" takes place, which means that the subject does not accept himself and avoids his own cognitive and behavioural products.

Within this general metacognitive avoidance context, that is, from the same hallucinatory process and episode, the subject is able to act in a more confident way or at least with less anxiety within his environment. If things took place in a different way, anxiety would increase because it would be addressed to the subject himself. The hallucination makes it possible that the distress the subject feels about his emotional disorder takes the form of an argument between the subject and other "people". This way, the argument becomes less serious than if it was dealt with by the subject with himself. Private events concerning low self-esteem, feelings of guilt and disdain are avoided and, though such a solution is obviously a partial one, it is useful for the subject if compared to the traumatic experience of having to accept these private events.

2. *Socio-instrumental function.* The hallucinatory episode may also play an adaptive function of the subject to his daily routine within a social environment. In this case the voices are self-regulatory substitutes of his own habitual speech behaviour, so that they would control and direct his behaviour but within a new relational context. The hallucinatory episode acts as a response to a social problem the subject faces but feels unable to cope with. Sometimes the voices serve as a clear support that regulates and directs the behaviour of the subject. An example is found when the voices help a person to make certain decisions concerning a social or instrumental problem. In other occasions, the voices simply offer advice or encourage the subject to face daily difficulties and other times they only tell him how to act. (Leudar *et al.* 1997).

Nevertheless, as we have already argued, in the case of psychiatric patients, this is always a partial solution to the problem, as in some of them this latter function intermingles with the former and they may become a problem rather than a solution. We frequently find that such pieces of advice and orientations turn into criticism and negative evaluations of the person's ability to manage his daily life (Nayani & David, 1996).

This often happens when the socio-emotional and the socio-instrumental functions combine. Then old and current patterns of social interrelation experienced by the subject

with relevant individuals of his social environment (parents, partner, acquaintances, etc) are repeated in the relationship he establishes with himself in the hallucination.

Conclusions

In the present paper, we have put forward a theoretical model, which attempts to integrate and provide coherence for the most relevant data found in the scientific literature in relation to hallucinations. On one hand, we have distinguished the formation and consolidation of the overall hallucinatory process from the particular episode; on the other hand, we have distinguished the structural from the functional characteristics of the hallucinatory episode.

To sum up, we claim that subjects prone to experience hallucinations are characterized by their suggestibility and emotional instability. Moreover, these subjects develop a series of metacognitive beliefs throughout their lives that make them consider their private events as more problematic. Considering all this, when a vulnerable individual faces a series of triggers (social conflicts, intrusive thoughts, etc) the high level of stress he feels interferes with the feedback of the cenesthesic properties of those private events, encouraging their evaluation as alien events. This faulty evaluation of private events facilitates, on one hand the misattribution of real situations to external sources and, on the other hand a change in the structure of private speech where personal pronouns change from the first to the second and third persons. All these phenomena contribute to broaden the gap between the subject and certain private events.

All that has been previously mentioned allows us to understand how hallucinations are formed, but their consolidation takes place when the gap between the subject and his private events is so great that he starts to interact with them as if it was some sort of interpersonal situation. Social and family experiences before the disorder are very important in this sense, because they will somehow determine the kind of relationship the subject will establish with his voices (dominance vs. subjugation). From this moment onwards a series of beliefs, safety behaviours and emotions begin to arise within the interplay subject-voices that reinforces such interplay, also affecting triggering events, making them relevant for the occurrence of future voice episodes.

Once the hallucinatory process is formed, voices may appear and reappear in the daily life of the subject, but high levels of stress are no longer necessary to trigger them. We speculate that self-focused attention on private events enables a voice episode to activate and, as a result, provokes a new interactive episode, this mechanism allowing voices to self-perpetuate over time.

However, the main issue is how the process and the hallucinatory episode are conceptualised. From our model, voices themselves lack significance. We must consider them within the overall frame of reference and analyse their role in the interaction the subject establishes with his immediate socio-familiar environment. Therefore, we suggest that voices, at least in the case of psychiatric patients, play two key functions:

The first one has been called “socio-emotional” and has to do with a highly specialized form of avoidance of the private events that provoke the emotional disorder. The second one is the “socio-instrumental” and is related to the self-regulation of the

patient's behaviour at a certain personal and historical moment of his life. The main difficulty the patient faces occurs when these two functions intermingle, because they accentuated his emotional unease and his problems in adjusting to his environment.

Obviously, our theory takes as a starting point the data offered by the vast bibliography on the issue, and from this we have created a model attempting to incorporate these data and provide them with coherence. We think that, although it must be proved empirically, it has a series of advantages over current cognitive models. Among such advantages we can stress that our model does not consider voices only as a simple problem related to the monitorization of reality and, therefore, a cognitive bias. Nor does it consider them as a symptom separated from the rest of the life of the subject. Following García & Pérez Alvarez (2003), in our model we defend the role of the individual in the comprehension of the hallucinatory process. The hallucinator is, first of all, an individual with his own history within a certain social and cultural environment (Cangas, García, López & Olivencia, 2003). On the other hand, we think that our model also explains some aspects of the hallucinatory phenomenon, so far unresolved. For instance, this model helps us better understand why voices may sometimes be positive or negative for the subject, why the subject cannot recognize his private events, why voices occur in the second and third person, why they have their own properties (accent, sex, tone, etc) and how their content is formed. To date, these aspects have not been included in any theory.

We consider that the answer to all of these questions is the particular and specific way in which the interaction between subject and voices is established. This sort of "special relationship between the subject and himself" enables the creation of a history with the subject in which voices acquire the functional characteristics, the points of view and "egos" of those concrete individuals with whom they are identified just as the subject knows them and interacts with them in the "external" social environment. Moreover, that relationship is determined by the analogy established with different situations in his daily life and, as mentioned before, this relationship is a reflection of the social environment of the subject, metaphorically speaking. Assuming this point of view, it is obvious that the content of voices (and also of delusions) arise from daily routine of the subject and it is reflected (again through analogy) in the relationship he establishes with his voices. However, very often these contents may be expressed in a bizarre or metaphorical way.

Finally, as regards to clinical contributions, it is clear that on the basis of our theory, the general goal of therapy would not necessarily imply the elimination of voices, because as we have previously explained they help the subject become adapted to his environment. Therapy in our opinion should help subjects accept voices (Perona Garcelán & Galán Rodríguez, 2001) and avoid fighting and directly confronting them as a psychological problem (García & Pérez Alvarez, 2001; Pankey & Hayes, 2003). Therefore, we recommend the use of interventions that facilitate the normal adjustment of the hallucinator to his environment (Perona Garcelán & Cuevas Yust, 1996,1997), through the use of strategies that allow the subject to experience directly the cenesthesic properties of his private events (for instance, exposure to private events, focalisation techniques, ACT, etc) and through direct intervention that may help the subject understand

his relationship with his voices as any other type of social interaction, attempting to change the subjugation of the subject to his voices for a more assertive attitude that puts him on equal footing with them (Perona Garcelán & Cuevas Yust, 2002). In this sense, both belief modification and acceptance-compromise therapies may be appropriate interventions.

References

Allen, T.E . & Argus, B. (1968). Hyperventilation leading to hallucinations. *American Journal of Psychiatry, 125*, 632–637.

Baker, C. & Morrison, A.P. (1998). Metacognition, intrusive thoughts and auditory hallucinations. *Psychological Medicine, 28*, 1199-1208.

Barber, T.X. & Calverley, D.S. (1964). An experimental study of "hypnotic" (auditory and visual) hallucinations. *Journal of Abnormal and Social Psychology, 63*, 13-20.

Barrett, T.R. & Etheridge, J.B. (1994). Verbal Hallucinations in normals-III: Dysfunctional personality correlates. *Personality and Individual Differences, 16*, 57-62.

Benjamin, L.S. (1974). Structural analysis of social behavior. *Psychological Review, 81*, 392-425.

Benjamin, L.S. (1984). Principles of prediction using of Structural Analysis of Social Behavior. In R.A. Zucker, J. Aronoff & A.J. Rabin (eds.), *Personality and the predicition of behavior.* New York: Academic Press.

Benjamin, L.S. (1989). Is Chronicity a function of the relationship between the person and the auditory hallucinations? *Schizophrenia Bulletin, 15*, 291-309.

Bentall, R.P. & Slade, P.D. (1985). Reality testing and auditory hallucinations: a signal detection analysis. *British Journal of Clinical Psychology, 24*, 159-169.

Bentall, R.P., Baker, G. & Havers, S. (1991). Reality monitoring and psychotic hallucinations. *British Journal of Clinical Psychology, 30*, 213-222.

Birchwood, M., Meaden, A., Trower, P., Gilbert, P. & Plaistow, J. (2000). The power and omnipotence of voices: Subordination and entrapment by voices and significant others. *Psychological Medicine, 30*, 337-344.

Blakemore, S-J. & Frith, C. (2003). Disorders of self-monitoring and the symptoms of schizophrenia. In T. Kircher & A. David (Eds.), *The Self in neuroscience and psychiatry.* Cambridge: Cambridge University Press.

Brébion, G., Amador, X., David, A., Malaspina, D., Sharif, Z. & Gorman, J.M. (2000). Positive symptomatology and source-monitoring failure in schizophrenia. An analysis of symptom-specific effects. *Psychiatry Research, 95*, 119.131.

Burns, C.E.S., Heiby, E.M. & Tharp, R.G. (1983). A verbal behavior analysis of auditory hallucinatios. *The Behavior Anayist, 6*, 133-143.

Butler, R.W., Mueser, K.T.; Sprock, J. & Braff, D.L. (1996). Positive symptoms of psychosis in post-traumatic stress disorder. *Biological Psychiatry, 39*, 839–844.

Cangas, A.J., García, J.M., López, M., Olivencia, J.J. (2003). Social and personality variables related to the origin of auditory hallucinations. *Interantional Journal of Psychology and Psychological Therapy, 3*, 195-208..

Chadwick, P. & Birchwood, M. (1994). The omnipotence of voices: A cognitive approach to auditory hallucinations. *British Journal of Psychiatry, 164*, 190-201.

Chadwick, P. & Birchwood, M. (1995). The omnipotence of voices II: The beliefs about voices questionnaire (BAVQ). *British Journal of Psychiatry, 166*, 773-776.

Chadwick, P., Birchwood, M. & Trower, P. (1996). *Cognitive therapy for delusions, voices and paranoia*. Chichester: Wiley.

Chadwick, P., Lees, S. & Birchwood, M. (2000). The revised Beliefs About Voices Questionnaire (BAVQ-R). *British Journal of Psychiatry, 177***,** 229-232.

Close, H. & Garety, P. (1998). Cognitive assessment of voices: Further developments in understanding the emotional impact of voices. *British Journal of Clinical Psychology, 37*, 173-188.

Cooklin, R., Sturgeon, D. & Leff, J. (1983). The relationship between auditory hallucinations and spontaneous fluctuations of skin resistance in schizophrenia. *British Journal of Psychiatry, 142*, 47–52.

David, A.S. (1994). The neuropsychological origin of auditory hallucinations. In A.S. David & J.C. Cutting (Eds.), *The neuropsychology of schizophrenia.* Hove: Erlbaum.

Ensink, B.J. (1992). *Confusing realities: A study on child sexual abuse and psychiatric symptoms*. Amsterdam: Free University Press.

Ensum, I. & Morrison, A.P. (2003). The effects of focus of attention on attributional bias in patients experiencing auditory hallucinations. *Behaviour Research and Therapy, 41*, 895-907.

Eysenck, H.J. & Eysenck, S.B.G. (1976). *Psychoticism as a dimension of personality*. London: Hodder y Stoughton.

Farhall, J. & Gehrke, M. (1997). Coping with hallucinations: exploring stress and coping framework. *British Journal of Clinical Psychology, 36***,** 259-261.

Frederick, J. & Cotanch, P. (1995). Self-help techniques for auditory hallucinations in schizophrenia. *Issues in Mental Health Nursing, 16*, 213-224.

Fenigstein, A., Scheier, M.F. & Buss, A.H. (1975). Public and private self-consciousness: Assessmentand theory. *Journal of Consulting and Clinical Psychology, 43*, 522-527.

Frith, C.D. (1992). *The cognitive neuropsychology of schizophrenia.* Hove: Erlbaum.

García Montes, J.M. & Pérez Álvarez, M. (2001). ACT como tratamiento de síntomas psicóticos. El caso de las alucinaciones auditivas [ACT as a treatment for psychotic symptoms. The case of auditory hallucinations]. *Análisis y Modificación de Conducta, 27*, 455-472.

García Montes, J.M. & Pérez Álvarez, M. (2003). Reivindicación de la persona en la esquizofrenia. *Revista Internacional de Psicología Clínica y de la Salud, 3*, 107-121.

García Montes, J.M.; Pérez Álvarez, M.; Cangas Díaz, A.; Perona Garcelán, S. & Cuevas-Yust, C. (2002). Metacognitions and hallucinatory experiences: comparisons among different groups of clinical population. Paper presented at the *VI Congreso Internacional sobre Conductismo y Ciencias de la Conducta.* Aurburn, Alabama (USA).

Gould, L.N. (1949). Auditory hallucinations and subvocal speech. *Journal of Nervous and Mental Disease***,** *109*, 418-427.

Grassian, G. (1983). Psychopathology of solitary confinement. *American Journal of Psychiatry, 140*, 1450–1454.

Green, M.F. & Kinsbourne, M. (1990). Subvocal activity and auditory hallucinations: Clues for behavioral treatments. *Schizophrenia Bulletin, 16*, 617-625.

Green, P. & Preston, M. (1981). Reinforcement of vocal correlates of auditory hallucinations by auditory

feedback: a case study. *British Journal of Psychiatry, 139*, 204-208.

Haddock, G., Slade, P.D. & Bentall, R.P. (1995). Auditory hallucinations and the verbal transformation effect: The role of suggestions. *Personality and Individual Differences, 19*, 301-306.

Harvey, P.D. (1985). Reality monitoring in mania and schizophrenia. The association of thought disorder and performance. *Journal of Nervous and Mental Disease,173*, 67-73.

Heilbrum, A.B. (1980). Impaired recognition of self-expressed thought in patients with auditory hallucinations. *Journal of Abnormal Psychology, 89*, 728-736.

Hemsley, D.R. (1993). A simple (o simplistic?) cognitive model for schizophrenia. *Behaviour Research and Therapy, 31*, 633-645.

Hoffman, R.E. (1986).Verbal hallucinations and language production processes in schizophrenia. *Behavioural and Brain Science, 9*, 503-548.

Honig, A., Romme, M.A., Ensink, B.J., Escher, S.D., Pennings, M.H. & Devries, M.W. (1998). Auditory hallucinations: A comparison between patients and non patients. *Journal of Nervous and Mental Disease, 186*, 646–651.

Ingram, R.E. (1990). Self-focused attention in clinical disorders: Review and a conceptual model. *Psychological Bulletin, 107*, 156-176.

Inouye, T. & Shimizu, A. (1970). The electromyographic study of verbal hallucination. *Journal of Nervous and Mental Disease, 151*, 415-422.

Johns, L.C. & McGuire, P.K. (1999) Verbal self-monitoring and auditory hallucinations in schizophrenia. *Lancet, 353*, 469-70.

Johns, L.C., Rossell, S., Frith, C., Ahmad, F., Hemsley, D., Kuipers, E. & McGuire, P.K. (2001). Verbal self-monitoring and auditory verbal hallucinations in patients with schizophrenia. *Psychological Medicine, 31*, 705-715.

Keefe, R.S.E., Arnold, M.C., Bayen, U.J. & Harvey, P.D. (1999). Source monitoring deficits in patients with schizophrenia: a multinomial modelling analysis. *Psychological Medicine, 29*, 903-914.

Kinzie, J.D. & Boehnlein, J.J. (1989). Post-traumatic psychosis among Cambodian refugees. *Journal of Traumatic Stress, 2*, 185–198.

Leudar, I. & Thomas, P. (2000). *Voices of reason, voices of insanity: studies of verbal halluciantions*. London: Routledge.

Leudar, I., Thomas, P., McNally, D. & Glinski, A. (1997). What voices can do with words: pragmatics of verbal hallucinations. *Psychological Medicine, 27*, 885-898.

Lobban, F., Haddock, G., Kinderman, P. & Wells, A. (2002). The role metacognitive beliefs in auditory hallucinations. *Personality and Individual Differences, 32*, 1351-1363.

López Rodrigo, A.M., Paíno Piñeiro, M.M., Martínez Suárez, P.C., Inda Caro, M. & Lemos Giráldez, S. (1996). Alucinaciones en población normal: Influencia de la imaginación y de la personalidad [Hallucinations in normal population: Imagery and personality influences]. *Psicothema, 8*, 269-278.

Margo, A., Hemsley, D.R. & Slade, P.D. (1981). The effects of varying auditory input of schizophrenic hallucinations. *British Journal of Psychiatry, 139*, 122-127.

McGuigan, F. (1966). Covert oral behaviour and auditory hallucinations. *Psychophysiology, 3*, 73-80.

Millon, T. (1983). *Millon Clinical Multiaxial Inventory*. Interpretative Scoring Systems: Minneapolis.

Millon, T. (1987). *Millon Clinical Multiaxial Inventory manual II*. National Computer Systems: Minneapolis.

Mintz, S. & Alpert, M. (1972). Imagery vividness, reality testing and schizophrenic hallucinations. *Journal of Abnormal Psychology, 79*, 310-316.

Morrison, A.P. (1998). A cognitive analysis of auditory hallucinations: are voices to schizophrenia what bodily sensations are to panic? *Behavioural and Cognitive Psychotherapy, 26*, 289-302.

Morrison, A.P. (2001). The interpretation of intrusions in psychosis: An integrative cognitive approach to psychotic symptoms. *Behavioural and Cognitive Psychotherapy*, *29*, 257-276.

Morrison, A.P. & Baker, C.A. (2000). Intrusive thoughts and auditory hallucinations: A comparative study of intrusions in psychosis. *Behaviour Research and Therapy*, *38*, 1097–1106.

Morrison, A.P., Frame, L. & Larkin, W. (2003). Relationships between trauma and psychosis: A review and integration. *British Journal of Clinical Psychology, 42*, 331-353.

Morrison, A.P. & Haddock, G. (1997a). Self-focused attention in schizophrenic patients and normal subjects: A comparative study. *Personality and Individual Differences, 6*, 937-941.

Morrison, A.P. & Haddock, G. (1997b). Cognitive factors in source monitoring and auditory hallucinations. *Psychological Medicine, 27*, 669-679.

Morrison, A.P., Haddock, G. & Tarrier, N. (1995). Intrusive thoughts and auditory hallucinations: a cognitive approach. *Behavioural and Cognitive Psychotherapy, 23*, 265-280.

Morrison, A.P. & Wells, A. (2003). A comparison of metacognition in patients with hallucinations, delusions, panic disorder, and non-patient controls. *Behavioral Research and Therapy, 41*, 251-256.

Nayani, T.H. & David, A.S. (1996). The auditory hallucination: A phenomenological survey. *Psychological Medicine, 26*, 177–189.

Nothard, S.; Morrison, A. P. & Wells, A. (2000). *Safety behaviours and auditory hallucinations: An exploratory study*. Manuscrito en preparación.

Oswald, I. (1974). *Sleep*. Penguin: Harmondsworth.

Pankey, J. & Hayes, S. (2003). Acceptance and commitment therapy for psychosis. *International Journal of Psychology and Psychological Therapy*, *3*, 311-328.

Perona Garcelán, S. & Cuevas Yust, C. (1996). Intervenciones cognitivo-conductuales sobre las alucinaciones auditivas en sujetos psicóticos. Una revisión [Cognitive-behavioural interventions for auditory hallucinations in psychotic patients. A review] *Psicologemas, 10*, 225-256.

Perona Garcelán, S. & Cuevas Yust, C. (1997). Tratamiento conductual de las alucinaciones auditivas en un paciente esquizofrénico: un estudio de caso [Behavioral treatment of auditory hallucinations in a schizophrenic outpatient: a single case]. *Psicothema, 9*, 33-45.

Perona Garcelán, S. & Cuevas Yust, C. (2002). Aplicaciones de la Terapia Cognitivo-Conductual sobre las ideas delirantes y las alucinaciones en un sujeto con el diagnóstico de esquizofrenia [Application of cognitive-behavioural therapy to delusions ideas and hallucinations in a patient with diagnosis of schizophrenia]. *Psicothema,14,* 26-33.

Perona Garcelán, S. & Galán Rodríguez, A. (2001). Estrategias de afrontamiento en psicóticos: Conceptualización y resultados de la investigación [Coping strategies in psychotics: conceptualization and research results]. *Clínica y Salud, 12*, 145-178.

Price, J., Sloman, L., Gardner, R., Gilbert, P. & Rohde, P. (1994). The social hypothesis of depression. *British Journal of Psychiatry, 164*, 309-315.

Ramanathan, A. (1984a). A study of interference with the activities of schizophrenics by auditory hallucinations. *Indian Journal of Psychiatry, 26*, 206-212.

Ramanathan, A. (1984b). A study of coping with auditory hallucinations in schizophrenics. *Indian Journal of Psychiatry, 26,* 229-236.

Ramanathan, A. (1986). An exploratory story on the relation between neuroticism and certain aspects of auditory hallucinations in schizophrenics. *Indian Journal of Psychiatry, 28,* 69-72.

Rankin, P. & O'Carroll, P. (1995). Reality monitoring and signal detection in individuals prone to hallucinations. *British Journal of Clinical Psychology, 34,* 517-528.

Raune, D., Kuipers, E. & Bebbington, P. (1999). *Psychosocial stress and delusional and verbal auditory hallucination themes in first episode psychosis: Implications for early intervention*. Psychological Treatments of Schizophrenia Meeting, Oxford, Great Britain.

Romme, M.A. & Escher, S. (1989). Hearing voices. *Schizophrenia Bulletin, 15*, 209-216.

Romme, M.A. & Escher, S. (1996). Empowering people who hear voices. In G. Haddock & P. D. Slade (Eds.), *Cognitive-Behavioural interventions with psychotic disorders*. London: Routledge.

Salkovskis, P.M. (1991). The importance of behaviour in the maintenance of anxiety and panic: A cognitive account. *Behavioural Psychotherapy, 19,* 6-19.

Sartorius, N.; Shapiro, R. & Jablensky, A. (1974). The international pilot study of schizophrenia. *Schizophrenia Bulletin, 1*, 21-25.

Schneider, K. (1959). *Clinical psychopathology*. Grune and Stratton: New York

Slade, P.D. (1972). The effects of systematic desensitisation on auditory hallucinations. *Behaviour Research and Therapy, 10,* 85–91.

Slade, P.D. & Bentall, R.P. (1988). *Sensory deception: A scientific analysis of hallucination*. London: Croom Helm.

Young, H.F., Bentall, R.P., Slade, P.D. & Dewey, M.E. (1986). Disposition towards hallucination, gender and IQ scores. *Personality and Individual Differences, 7,* 247-249.

Young, H.F., Bentall, R.P., Slade, P.D. & Dewey, M.E. (1987). The role of brief instructions and suggestibility in the elicitation of auditory and visual hallucinations in normal and psychiatric subjects. *Journal of Nervous and Mental Disease, 175*, 41-48.

Wells, A. (1997). *Cognitive therapy for anxiety disorders*. Chichester: Wiley.

Wells, A. & Matthews, G. (1994). *Attention and Emotion*. Hove: Erlbaum.

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