

# Quality of hallucinatory experiences: differences between a clinical and a non-clinical sample

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*In this study, we asked people from two samples (a clinical one, consisting of patients with schizophrenia, and a non-clinical one, including university students) to complete the Revised Hallucination Scale (RHS) as a self-questionnaire. When the participants responded positively to an item, they were encouraged to provide further detailed descriptions (i.e., examples of their own experiences) concerning that item. We found that the kinds of descriptions provided by the two groups were very different. We suggest that it is not advisable to explore the presence of hallucinations in non-clinical samples using research protocols based exclusively on yes-or-no answers to questionnaires like the RHS. Hallucinatory or hallucinatory-like experiences cannot be reliably and validly assessed without a precise characterization of the phenomenal quality of the experience.*

**Key words:** Continuum model, hallucinations, psychotic-like experiences, phenomenology, qualitative analysis, schizophrenia

(*World Psychiatry* 2012;11:110-115)

The notion that apparently healthy people can experience psychotic symptoms such as delusions and hallucinations “is now becoming the accepted dogma” (1). Part of this “dogma” is the assumption that the experiences reported by non-clinical samples are overlapping, or at least show some similarity, with those reported by clinical samples (i.e., that “psychotic-like experiences” exist on a continuum between general and clinical populations) (2).

In 1981, Launay and Slade (3) published the Launay-Slade Hallucination Scale (LSHS), a 12-item self-report questionnaire aimed to assess the prevalence of perceptual pathological experiences and sub-clinical forms related to hallucinations. This scale started a tradition of almost 30 years of studies of hallucinations in non-clinical samples. Since then, several modified versions of LSHS have been developed (4-6). In order to assess in detail visual hallucinations, Morrison et al (5) modified the LSHS excluding three original items and adding four new ones. This version of LSHS was called Revised Hallucination Scale (RHS) (Table 1) and has been used in clinical and non-clinical samples (7,8).

Although the LSHS and similar scales were constructed to measure predisposition to hallucinatory experiences (3) (i.e., the vulnerability phenotype and not the illness phenotype), subsequent studies have used the results obtained through these scales in non-clinical populations as the main argument suggesting that hallucinations – i.e., a significant component of the supposed illness phenotype of psychosis – are a relatively common phenomenon in the general population. A very influential example of this trend is encapsulated in the following quotation (9): “A number of studies have assessed hallucinatory experiences in samples of healthy college students using questionnaire measures. These studies have yielded consistent findings, showing that a considerable proportion of individuals experience hallucinations at some time in their lives”.

Having identified the presence of hallucinations in non-clinical samples, studies have started to explore the relationships between these experiences and other psychological or psychopathological variables or domains such as anxiety, depression and stress (10), emotions (11), personality (12), and metacognition (13). Based on the analysis of these results, important theoretical assumptions have been made: a) that the same symptoms seen in patients with psychotic disorders can be found and measured in non-clinical populations (2); b) that the clinical definition of psychosis may encompass only a minority of the whole (not necessarily clinical) phenotypic continuum (9); c) that the population showing a non-clinical psychosis phenotype may represent an appropriate group for studying the etiology of clinical psychosis (13).

Despite the wide empirical evidence that a substantial proportion of the healthy general population has psychosis-like experiences, virtually no studies have addressed whether

**Table 1** Items of the Revised Hallucinations Scale (RHS)

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1. My thoughts seem as real as actual events in my life
  2. No matter how much I try to concentrate on my work, unrelated thoughts always creep into my mind
  3. I have had the experience of hearing a person's voice and then found that there was no one there
  4. The sounds I hear in my daydreams are usually clear and distinct
  5. The people in my daydreams seem so true to life that I think they are real
  6. In my daydreams I can hear the sound of a tune almost as clearly as if I were actually listening to it
  7. I hear a voice speaking my thoughts aloud
  8. I have been troubled by hearing voices in my head
  9. I have seen a person's face in front of me when no one was there
  10. When I look at things they appear strange to me
  11. I see shadows and shapes when there is nothing there
  12. When I look at things, they look unreal to me
  13. When I look at myself in the mirror I look different
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the experiences reported by non-clinical samples are indeed similar to the experiences of clinical samples. In other terms, if both populations respond positively to an item of the RHS, it is unclear whether they are referring to the same (or similar) experience.

In the present study, we asked people who responded positively to items of the RHS to further comment on and describe their personal experiences related to those items, in order to characterize the *quality* of those experiences. The purpose was to assess the way individuals from non-clinical and clinical populations understand each RHS item and then compare the two populations looking for similarities and differences.

## METHODS

We randomly selected a clinical and a non-clinical sample. The clinical sample consisted of 23 patients diagnosed with schizophrenia according to DSM-IV-TR, recruited from day-care hospitals of the National Health Care Service in the province of Almeria (Spain). Their age ranged from 21 to 63 years; 73% were men and 27% women. All patients were born in Spain and unemployed, none was immigrant. All of them were receiving antipsychotic and/or antidepressant medication at the time of the assessment. The non-clinical sample included 60 university students from Southern Spain (Andalusia). Their age ranged from 17 to 29 years; 48% were men and 52% women.

All participants completed the RHS as a self-questionnaire. When they responded positively to an RHS item, they were encouraged to provide further detailed descriptions, i.e., comments or examples of their own experiences. The interviewers transcribed these responses verbatim.

Blinded to the sample to which each subject belonged, each researcher read the descriptions independently (line-by-line examination of the data), seeking concepts and assigning them codes. Next, the descriptions were grouped according to phenomenal analogies (e.g., dreams and dream-like experiences), or similarities of the context in which the experiences had occurred (e.g., hypnagogic/hypnopompic states). The final categories were established by comparing, and discussing when necessary, each researcher's coding. These categories were named using a comprehensive instrument for psychopathological assessment (AMPD System) (14). Those descriptions which were not covered by an AMPD item were classified according to further psychopathological categories from a standard handbook of descriptive psychopathology (15).

The study protocol was approved by the Ethics Committees of the Hospital of Almeria and the Hospital of Poniente.

## RESULTS

Prototypes of the descriptions given by the interviewees are presented in Tables 2 and 3. The types of descriptions provided by the two groups were remarkably different. For example, on items 3, 4, 8, 9, 12 (see Table 1), the non-clinical sample described hypnagogic and hypnopompic hallucinations (e.g., "I'm half asleep, not quite asleep nor fully awake, and I hear people calling me by name"), dreams and dream-like experiences (e.g., "In my daydreaming I could see my father's face"), and pseudo-hallucinations (e.g., "When I'm at home studying, I hear my mother's voice calling me. She lives with me and calls me often, and this might make me think that I hear her calling me when she really is not"). On the contrary, on the same items, the clinical sample described

**Table 2** Prototypical descriptions of experiences provided by the clinical sample

RHS items	Categories	Descriptions
1	Dereistic thinking	I believe that my brother was dead when he was really alive
1, 3, 8, 10, 11	Centrality experiences	Watching TV and thinking they were talking to me
3, 7, 8	Auditory verbal hallucinations	I hear a voice that asks me to do something or tells me something about someone
3, 4, 5, 9	Visual hallucinations	I see my mother or brother [ <i>as an apparition</i> ], and they show me their pain
6	Vivid imaginations	I often only have to imagine the song and I hear it in my head with all of its instruments and parts
2, 12	Obsessions-compulsions	Sometimes I just attack people when I'm really a good person who hasn't done anything bad to anyone
10, 13	Derealization-depersonalization	When looking at people, they sometimes seem strange, like they're not real, and the things in the house too
4, 9, 11, 12	Tangential responses	Listening to the song of Ana Belen, "...watching the time pass, the Gate of Alcalá", I'm from Madrid and it makes me cry because it brings back good memories of my days as a student
2, 3, 5, 7, 13	Residual category	Having tried to talk to the thought, thinking it was saying something. In that moment I thought I had power and that others were able to hear me [Thought transmission] I imagined that another woman was me ( <i>that there was another woman inside of her</i> ) [Passivity experience]

RHS - Revised Hallucination Scale

**Table 3** Prototypical descriptions of experiences provided by the non-clinical sample

RHS items	Categories	Descriptions
1, 4, 5, 8, 9	Dreams and dream-like experiences	In my daydreaming I could see my father's face
3, 4, 8, 9	Hypnagogic and hypnopompic hallucinations	I'm half asleep, not quite asleep nor fully awake, and I hear people calling me by name
3, 4, 7, 8, 9, 12	Pseudo-hallucinations	When I'm at home studying, I hear my mother's voice calling me. She lives with me and calls me often, and this might make me think that I hear her calling me when she really is not
4, 5, 6	Vivid imaginations	When I really like a song, I can listen to it without needing to hear it in reality
1	Magical thinking	Sometimes I imagine situations that I want to happen to me and they happen
2	Thoughts interference	When I try to study my course material, the constant fights with my partner come into my head
2	Distraction	I have problems at home and I'm having a hard time concentrating on my studies
10, 12	Attentive/reflexive processes	After observing the faces of people for a long time, I see them differently. What I mean is that they are not the way I thought they were before
13	Mood fluctuations	There are days that I'm more energetic, and I look prettier because I don't see the wrinkles around my eyes and other days when I say "Today I would not even walk out the front door"
11	Affective illusions	When I'm in bed and alone at home, I see shadows on the walls and then I realize that it's the light from the street coming through the window
8, 12	Residual category	When I am very nervous, sometimes people and what they are doing and everything stop making sense and it seems like they are "a joke" [Derealization] When I have a slight fever, I hear voices. As a child this happened to me quite often [Organic hallucination]

RHS - Revised Hallucination Scale

auditory verbal hallucinations (e.g., "I hear a voice that asks me to do something or tells me something about someone"), centrality experiences (e.g., "Watching TV and thinking they were talking to me"), and visual hallucinations (e.g., "I see my mother or brother [as an apparition], and they show me their pain"); or provided tangential responses (e.g., "Listening to the song of Ana Belen, '... watching the time pass, the Gate of Alcalá'. I'm from Madrid and it makes me cry, because it brings back good memories of my days as a student").

On RHS item 1 ("My thoughts seem as real as actual events in my life"), the non-clinical sample described experiences classifiable as magical thinking (e.g., "Sometimes I imagine situations that I want to happen to me and they happen"), whereas the clinical sample described experiences reflecting dereistic thinking (e.g., "I believe that my brother was dead when he was really alive"). On RHS item 2 ("No matter how much I try to concentrate on my work, unrelated thoughts always creep into my mind"), the non-clinical sample described instances of thought interference (e.g., "When I try to study my course material, the constant fights with my partner come into my head"), whereas the clinical sample described obsessive-compulsive phenomena (e.g., "Sometimes I just attack people when I'm really a good person who hasn't done anything bad to anyone").

On item 10 ("When I look at things they appear strange to me"), the non-clinical sample described experiences related to an attentive/reflexive process (e.g., "After observing the faces of people for a long time, I see them differently. What I mean is that they are not the way I thought they were before"), whereas the clinical sample described experiences of

derealization (e.g., "When looking at people, they sometimes seem strange, like they're not real, and the things in the house too").

On item 11 ("I see shadows and shapes where there is nothing there"), the non-clinical sample described affective illusions (e.g., "When I'm in bed and alone at home, I see shadows on the walls and then I realize that it's the light from the street coming through the window"), whereas the clinical sample reported centrality experiences (e.g., "I realize that they were there for me").

Only on item 6 ("In my daydreams I can hear the sound of a tune almost as clearly as if I were actually listening to it"), the two groups provided overlapping descriptions of experiences related to vivid imagination (e.g., in the non-clinical sample, "When I really like a song, I can listen to it without needing to hear it in reality", and in the clinical sample, "I often only have to imagine the song and I hear it in my head with all of its instruments and parts").

## DISCUSSION

Our results show that people with schizophrenia and healthy university students endorsing RHS items provide very different descriptions of their experiences. What is different is the personal quality of these experiences.

Hallucinatory or hallucinatory-like experiences cannot be reliably and validly assessed only as a matter of frequency or intensity. Their assessment requires a precise characterization of the phenomenal quality of the experience. A very im-

portant difference between our two samples was that, in patients with schizophrenia, the experiences were intimately related to the person's identity, with enduring anomalies in their sense of self and with a characteristic metamorphosis of the self-world relationship (16-18), while in the non-clinical group they were related to a circumstantial event (e.g., a situation of mourning), or were reported as a single or isolated phenomenon.

As recently argued by Kendler (19), psychopathological assessment should neither be confined to determining the presence or absence of a given symptom, nor should it simply focus on surface symptoms picked for their reliability. Rather, it should look for deeper phenomena which may emerge only from careful phenomenological analysis.

The results of this study suggest that it is not advisable to analyze and study hallucinations, especially in non-clinical populations, using research protocols based solely on yes-or-no answers to questionnaires. This is not to deny the importance of studies on hallucinations in non-psychotic persons or the presence of hallucinations in normal population, but rather to challenge the kind of methodology used to date to assess this phenomenon. The issue addressed by this paper is the importance of the quality of such experiences, and what makes them similar or radically different from those in persons with schizophrenia.

We need an in-depth, fine-tuned characterization of the phenomenal quality of abnormal perceptual experiences, including hallucinations. This characterization can avoid diagnostic mistakes, e.g., overdiagnosis of schizophrenia, as well as the development of unreliable models of the pathogenesis of hallucinations based on an inaccurate assessment of abnormal perceptual experiences in non-clinical populations. Without such an effort to phenomenologically characterize normal as well as abnormal experiences, any attempt at a comparison is at risk of leading to non-informative conclusions (20).

A limitation of this study is that the non-clinical sample was made up only of students and cannot be considered representative of the general population. In addition, the details provided by the participants must be understood within the specific Spanish cultural context. In future research, it would be of interest to compare these results with those obtained in samples from other cultures, as well as in different clinical (e.g., manic-depressive) and non-clinical (e.g., adult general population) samples.

## Acknowledgements

This work was supported by the Spanish Ministry of Education and Science (grants SEJ2006-02342/PSIC; FPU/AP2007-02810).

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