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ORIGINAL ARTICLE

Auditory verbal hallucinations in patients with borderline personality disorder are similar to those in schizophrenia

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Background. Auditory verbal hallucinations (AVH) in patients with borderline personality disorder (BPD) are frequently claimed to be brief, less severe and qualitatively different from those in schizophrenia, hence the term 'pseudohallucinations'. AVH in BPD may be more similar to those experienced by healthy individuals, who experience AVH in a lower frequency and with a more positive content than AVH in schizophrenia. In this study the phenomenology of AVH in BPD patients was compared to that in schizophrenia and to AVH experienced by non-patients.

Method. In a cross-sectional setting, the phenomenological characteristics of AVH in 38 BPD patients were compared to those in 51 patients with schizophrenia/schizoaffective disorder and to AVH of 66 non-patients, using the Psychotic Symptom Rating Scales (PSYRATS).

Results. BPD patients experienced AVH for a mean duration of 18 years, with a mean frequency of at least daily lasting several minutes or more. The ensuing distress was high. No differences in the phenomenological characteristics of AVH were revealed among patients diagnosed with BPD and those with schizophrenia/schizoaffective disorder, except for 'disruption of life', which was higher in the latter group. Compared to non-patients experiencing AVH, BPD patients had higher scores on almost all items.

Conclusions. AVH in BPD patients are phenomenologically similar to those in schizophrenia, and different from those in healthy individuals. As AVH in patients with BPD fulfil the criteria of hallucinations proper, we prefer the term AVH over 'pseudohallucinations', so as to prevent trivialization and to promote adequate diagnosis and treatment.

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Key words: Auditory verbal hallucinations, borderline personality disorder, schizophrenia.

Introduction

Since the 1940s transient psychotic episodes have been recognized as possible symptoms of borderline personality disorder (BPD; Hoch & Polatin, 1949), but it took until 1987 before they were included in DSM-III-R which stated that 'during extreme stress, transient psychotic symptoms may occur' (APA, 1987). With the introduction of DSM-IV in 1994, all that remained of this criterion was 'transient, stress-related paranoid ideation' (APA, 1994). As BPD is conceptualized as a combination of affective dysregulation, impulsive-behavioural dyscontrol, cognitive-perceptual symptoms (such as suspiciousness, ideas of reference, paranoid ideation, illusions, derealization, depersonalization, and hallucination-like symptoms), and disturbed interpersonal relatedness (APA, 2000; Skodol *et al*. 2002), psychotic symptoms occurring in the context of BPD are by definition considered to be transient, and misperceptions to be at best 'hallucination-like' in nature.

And yet there is currently no consensus on the phenomenology and severity of hallucinations and other psychotic phenomena associated with BPD. As the diagnostic criteria of BPD fail to account for the occurrence of longer-lasting hallucinations, clinicians and researchers often find themselves struggling for words when confronted with AVH experienced by patients thus diagnosed. This is reflected in the BPD-related nomenclature, which features such varying terms as 'micropsychotic episodes' (Soloff, 1979),

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'hysterical psychosis' (Lotterman, 1985), 'factitious psychosis' (Pope *et al*. 1985), 'quasi-psychotic thought' (Zanarini *et al*. 1990), 'traumatic-intrusive hallucinosis' (Yee *et al*. 2005), 'stress-related psychosis' (Glaser *et al*. 2010), 'pseudohallucinations' (Heins *et al*. 1990), and 'hallucination-like symptoms' (Skodol *et al*. 2002). Like the DSM criteria, these terms would seem to suggest that psychotic symptoms in BPD are short-lasting, less severe, and qualitatively different from those in psychotic disorders such as schizophrenia. Then, AVH in BPD would be more similar to those perceived by non-patients, who experienced voices less frequently and with a shorter duration than patients with a psychotic disorder, and experienced lower levels of ensuing distress (Daalman *et al*. 2011). However, empirical evidence for this suggestion is virtually lacking. In fact, the few studies that explored BPD-related psychotic symptoms in a structural manner focused on the presence of auditory hallucinations which occurred in 21% and 54%, respectively (Chopra & Beatson, 1986; George & Soloff, 1986). The prevalence of auditory *verbal* hallucinations (AVH) was 50%, but this was explored in only one small study (Kingdon *et al*. 2010). In that study the phenomenology of AVH in 15 patients with BPD was compared to AVH in 35 patients with schizophrenia and 17 patients with both schizophrenia and BPD using the Psychotic Symptom Rating Scales (PSYRATS; Haddock *et al*. 1999). The groups were similar in their experiences of voices, except for distress and negative content of voices (BPD alone greater than the other groups). What those studies indicate is that the occurrence and severity of AVH in BPD are underexposed and in need of further study. More specifically, it would seem necessary to assess the phenomenological characteristics of AVH in BPD patients, and to determine whether they are perhaps more similar to the non-pathological types often encountered in the healthy population (Sommer *et al*. 2010; Daalman *et al*. 2011). We therefore performed a prospective, cross-sectional study to answer the following questions:

(1) What are the phenomenological characteristics and the ensuing distress of AVH in BPD?
(2) What are the differences and similarities between AVH in BPD, schizophrenia/schizoaffective disorder, and healthy voice hearers?

Methods

Participants

In the present study we included only women, as the majority of the patients treated for BPD are female (Korzekwa *et al*. 2008). Patients receiving psychiatric services from the Parnassia Bavo Group and the University Medical Centre Utrecht (UMCU) and diagnosed with either BPD or schizophrenia/schizoaffective disorder were recruited from May 2007 until April 2011.

Inclusion criteria for the patients diagnosed with BPD were: (1) aged $\geqslant$18 years, (2) AVH more than once per month, and for a duration of over 1 year, (3) the diagnosis BPD was confirmed with the aid of the Structured Clinical Interview for DSM-IV, Axis II personality disorders (SCID-II; Maffei *et al*. 1997), and (4) the patient did not meet the criteria for schizophrenia, schizoaffective disorder, bipolar disorder, major depression with psychotic symptoms or schizotypal personality disorder according to the Comprehensive Assessment of Symptoms and History (CASH; Andreasen *et al*. 1992) and the SCID-II. As a consequence, all BPD patients presenting with delusions were excluded.

Patients diagnosed with schizophrenia/schizoaffective disorder were allowed to participate if the following criteria were met: (1) aged $\geqslant$18 years, (2) AVH for at least once a month, and for a duration of over 1 year, and (3) a diagnosis of schizophrenia/schizoaffective disorder was established with the aid of CASH by a psychiatrist experienced in the field of psychotic disorders.

Reasons for exclusion in both groups were alcohol abuse of three or more units per day, the use of hard drugs during the month prior to inclusion, and the daily use of cannabis.

Healthy females experiencing AVH were recruited with the help of a Dutch website called 'Explore Your Mind' (www.verkenuwgeest.nl). They were selected if they had a high score on items 8 and 12 ('In the past, I have had the experience of hearing a person's voice and then found that no-one was there' and 'I have been troubled by voices in my head', respectively) of the Launay–Slade Hallucination Scale (LSHS; Laroi *et al*. 2004). In addition, the following inclusion criteria were used: (1) aged $\geqslant$18 years, (2) AVH at least once a month, and for a duration of over 1 year, (3) no diagnosed psychiatric disorder, other than depressive or anxiety disorder in complete remission, and (4) no alcohol or drug abuse for at least 3 months. The CASH and SCID-II were used to exclude a psychiatric diagnosis. The non-patients and some of the patients with schizophrenia/schizoaffective disorder in this study show some overlap with the study of Daalman and colleagues (2011).

The study was approved by the Institutional Review Board of the UMCU and the Parnassia Bavo Psychiatric Institute, The Netherlands. Prior to the onset of the study, the participants received oral and written information regarding the content and goals of

Table 1. *Demographic data*

	Controls with AVH ($n=66$)	BPD ($n=38$)	Schizophrenia/ schizoaffective disorder ($n=51$)	p
Age, mean (S.D.)	37 (11.4)	34 (10.5)	37 (9.8)	0.28
Outpatient, *n* (%)	66 (100)	38 (100)	49 (96)	0.13
Medication, *n* (%)				
Classic antipsychotics	0	7 (19)	8 (16)	<0.001
Atypical antipsychotics	0	13 (36)	35 (70)	
Antidepressive agents	0	21 (58)	15 (30)	<0.001
Mood stabilizers	0	3 (8)	6 (12)	0.02
Benzodiazepines	4 (6)	14 (38)	29 (59)	<0.001
Years of education, mean (S.D.)	13 (2.2)	10 (2.8)	12 (4.1)	<0.001

AVH, Auditory verbal hallucinations; BPD, borderline personality disorder; S.D., standard deviation.

the study. Written informed consent was obtained from all the participants.

Interviews and questionnaires

The SCID-II was used to confirm the diagnosis of BPD and to exclude a schizotypal personality disorder. With the aid of the CASH, the diagnoses schizophrenia, schizoaffective disorder, bipolar disorder, and major depression with psychotic symptoms were either confirmed or ruled out.

The PSYRATS AVH-related items were used to describe the phenomenological characteristics and ensuing distress of AVH. The following dimensions of AVH were explored on a five-point scale (0–4): frequency, duration, perceived location, loudness, beliefs about origin, amount of negative content, degree of negative content, degree of distress, intensity of distress, disruption of life, and controllability. Furthermore, this questionnaire assessed the length of time experiencing hearing voices. Finally, a family history of schizophrenia was assessed in the patients with BPD.

Statistics

A one-way analysis of variance (ANOVA) was performed to compare continuous demographic data among the three groups. In case of significant differences among the three groups, this variable was used as a covariate in the analysis of the AVH-related items of the PSYRATS.

The differences and similarities between AVH experienced by the members of the three groups were analysed by means of a Multivariate General Linear Model analysis with grouping variables 'BPD', 'schizophrenia/schizoaffective disorder', and 'no diagnosis'. The Benjamini–Hochberg correction was used for multiple comparisons.

Results

Thirty-eight patients diagnosed with BPD, 51 patients with schizophrenia/schizoaffective disorder (schizophrenia $n=36$, schizoaffective disorder $n=15$), and 66 non-patients were included. The demographic data are presented in Table 1. All the participants were females. The mean ages of the three groups did not differ significantly. Except for two patients in the schizophrenia/schizoaffective disorder group, all of the patients were treated in an outpatient setting. Use of medication was higher in the patients with schizophrenia/schizoaffective disorder. Patients with schizophrenia/schizoaffective disorder and non-patients had more years of education than patients with BPD. Three patients were excluded from the study as they had not experienced AVH in the recent months prior to inclusion.

The results mentioned in the text below correspond to the mean score of the AVH-related items of the PSYRATS.

Phenomenology of AVH and ensuing distress in BPD patients

The mean scores of the AVH-related items of the PSYRATS are presented in Table 2 and Fig. 1. Patients diagnosed with BPD had experienced AVH for a long duration (mean 18 years). The majority of them experienced AVH more than once per day, with a duration of at least several minutes. The hallucinations were mostly experienced inside the head, and attributed to intracorporeal causes. Scores on the items 'negative content', 'distress', 'disruption of life', and 'controllability' were high among this group. In 8% of

Table 2. *Results of the Psychotic Symptom Rating Scales – auditory verbal hallucination-related items*

	Controls with AVH ($n=66$)	BPD ($n=33$)	Schizophrenia/ schizoaffective disorder ($n=66$)	F	p
Frequency	1.5 (1.2)	2.8 (1.1)	3.1 (0.9)	37.055	<0.001*
Duration	1.6 (0.8)	2.7 (1.2)	2.8 (1.1)	27.097	<0.001*
Perceived location	2.1 (1.2)	1.7 (1.0)	2.2 (1.2)	1.817	0.17
Loudness	1.9 (0.6)	2.1 (1.0)	1.9 (0.9)	0.037	1.0
Beliefs about origin	3.3 (1.1)	2.1 (1.3)	2.4 (1.3)	12.726	<0.001*
Amount of negative content	0.4 (1.0)	2.8 (1.5)	2.8 (1.2)	66.934	<0.001*
Degree of negative content	0.5 (1.1)	2.7 (1.3)	3.0 (1.1)	76.033	<0.001*
Amount of distress	0.6 (1.2)	3.0 (1.4)	3.1 (1.1)	75.542	<0.001*
Intensity of distress	0.4 (0.9)	2.7 (1.2)	2.6 (0.8)	106.988	<0.001*
Disruption of life	0.2 (0.6)	1.8 (0.9)	2.4 (0.8)	126.550	<0.001*
Controllability	1.7 (1.4)	2.9 (1.3)	3.0 (1.1)	20.654	<0.001*
Length of time AVH (years)	24 (15.7)	18 (11.1)	17 (11.7)	4.161	0.018*

AVH, Auditory verbal hallucinations; BPD, borderline personality disorder; S.D. standard deviation; F, F test, degrees of freedom 2.

Values given are mean (S.D.)

*Significant after Benjamini–Hochberg correction.

the patients with BPD only one family member was diagnosed with schizophrenia.

Differences and similarities between AVH and other hallucinations in BPD, schizophrenia/schizoaffective disorder, and healthy subjects

The results of the analyses are presented in Table 2 and Fig. 1. Significant differences were found for all AVH-related items between healthy individuals with AVH on the one hand, and the two other groups on the other, except for 'perceived location', and 'loudness'. *Post-hoc* analyses revealed significant differences between the group without a diagnosis and the BPD group for all other items ('length of time experiencing AVH', $F=4.967$, df = 1, $p=0.028$; other items $F \geqslant 19.311$, df = 1, $p \leqslant 0.001$). No significant differences were found between patients with BPD and those with schizophrenia/schizoaffective disorder, except for 'disruption of life' ($F=11.236$, df = 1, $p=0.001$) which was higher in patients with schizophrenia/schizoaffective disorder. Furthermore, the mean age of onset of AVH was 13, 16, and 20 years for healthy subjects, BPD, and schizophrenia/schizoaffective disorder, respectively. In 8% of the patients with BPD one family member was diagnosed with schizophrenia.

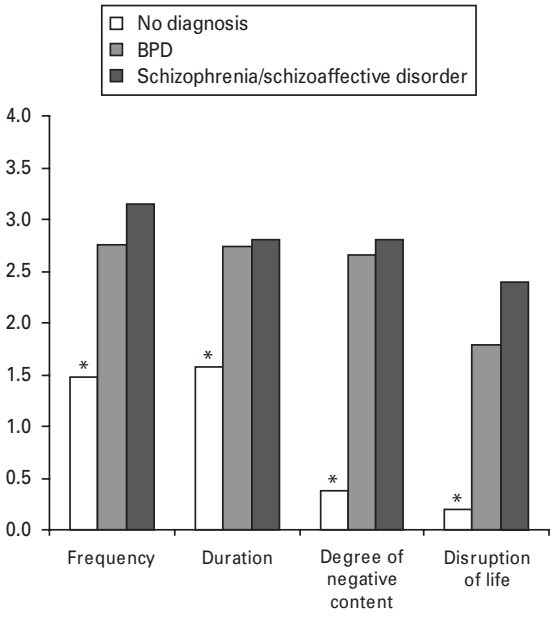

Fig. 1. Mean score on Auditory Verbal Hallucinations-related items of the Psychotic Symptom Rating Scales. BPD, Borderline personality disorder. * Significantly different from the other two groups.

Discussion

AVH in patients diagnosed with BPD are frequently claimed to be less severe and qualitatively different from those in psychotic disorders, hence the somewhat trivializing terms 'pseudohallucination' and 'transient psychotic symptom'. In that case AVH among patients with BPD would be equal to those in a non-patient sample. The usage of those terms was not justified by our data. In contrast, we found that AVH

experienced by BPD patients were severe, and that they lasted for lengthy periods of time, i.e. for a mean duration of 18 years. In the majority of these patients, the AVH were experienced at least daily, for at least several minutes. Moreover, 61% of the BPD patients experienced those AVH only inside the head, and the majority had the conviction that their voices were internally generated. The scores on the items 'negative content', 'distress', and 'disruption of life' were high among this group. For most of the time, the subjects experienced no control over their voices.

When we compared the AVH experienced by the BPD group with the schizophrenia/schizoaffective disorder group, no significant differences were revealed as regards their phenomenological characteristics. Neither did we find any differences on the items relating to their ensuing distress, except for 'disruption of life', which was scored higher by the latter group. These results confirm – and extend – the study by Kingdon and colleagues who also identified many similarities between AVH in BPD and in schizophrenia (Kingdon *et al*. 2010). However, in contrast to our results, the BPD patients in Kingdon *et al*.'s sample presented with higher scores on the items 'distress' and 'negative content of voices'. These higher scores for BPD patients found in Kingdon *et al*. (2010), might occur by chance as the sample of BPD patients was small.

In contrast, many significant differences were found between patients with BPD and the group of non-patients experiencing AVH. In BPD, AVH occurred more frequently and for a longer duration. BPD patients presented with higher scores on ensuing distress (i.e. the items 'negative content', 'distress', and 'disruption to life'). Furthermore, the controllability of the voices was lower in BPD patients.

Therefore, AVH in BPD patients are different from those in non-patients. This can be due to a difference in severity *or* phenomenology of AVH. The higher scores for frequency, duration and distress of AVH among the BPD population fit into the first possibility; the strong discrepancy in the content of the voices (i.e. a positive content in the majority of non-patients and a negative content in BPD patients) suggests a difference in the phenomenology of AVH. The findings of Sommer and colleagues (2010) indicate that the global level of functioning was lower and there was a general increased schizotypal and delusional tendency in a non-patient sample with AVH compared to individuals without AVH. Combining these results, we suggest a continuum in severity of AVH with non-patients and patients with schizophrenia on the borders.

Our results imply that AVH in BPD patients are very similar to AVH in patients diagnosed with schizophrenia or schizoaffective disorder. Combined with the high prevalence of AVH in BPD patients reported in the literature (Kingdon *et al*. 2010), more attention should be paid to the occurrence, concomitant distress, and treatment of AVH in BPD. Therefore, more research is needed, especially to find a treatment method for this distressing symptom among this specific population.

Limitations

Although this is the largest study to date assessing the phenomenological characteristics of AVH in the context of BPD, the population sample of patients diagnosed with BPD can still be considered modest. And yet the majority of the differences between AVH in BPD and in non-patients were highly significant, with p values <0.001, while the similarities between AVH in BPD and in schizophrenia were striking.

A sampling bias may have occurred due to the fact that only BPD patients reporting AVH for at least once per month were included. As only three patients were excluded for this reason, we do not think that the frequency criterion has resulted in a sampling bias.

Another matter of concern is the possibility that the BPD patients might go on to develop a psychotic disorder such as schizophrenia in the future. However, we do not expect the patients in our sample to do so, given their relatively old age, and the fact that they have been experiencing AVH for a mean duration of 18 years already.

A third limitation is that only females were included in this study. This yielded optimal uniformity among the groups, but reduced the possibility of extrapolating our findings to male patients. However, the current results apply to 75% of the BPD population, as BPD is diagnosed most frequently in women (Korzekwa *et al*. 2008).

In sum, the patients diagnosed with BPD experienced AVH for long periods of time, with a high frequency, and high levels of ensuing distress. No differences were found in the phenomenological characteristics of AVH, and in six out of seven of the PSYRATS items pertaining to the associated distress between patients diagnosed with BPD and those diagnosed with schizophrenia/schizoaffective disorder. In comparison with healthy subjects experiencing AVH, the BPD patients scored much higher on almost all of those items.

These results imply that AVH experienced by patients with BPD are hardly different from those experienced by patients diagnosed with schizophrenia/schizoaffective disorder. Therefore, it is neither justifiable nor helpful to designate those AVH as 'hallucination-like symptoms', 'pseudohallucinations' or

'micropsychotic episodes'. As a corollary, we argue that more attention should be paid to the occurrence, the associated distress, and the need for treatment of the AVH experienced by BPD patients.

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Declaration of Interest

None.

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