Negative Beliefs about Voices in Patients with Borderline Personality Disorder Are Associated with Distress: A Plea for Cognitive-Behavioural Therapy?

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Keywords
Auditory hallucinations · Borderline personality disorder · Cognitive therapy · Hallucinations · Psychosis · Psychotic symptoms

Abstract
Background: Auditory verbal hallucinations (AVH) are experienced by 21–54% of patients diagnosed with a borderline personality disorder (BPD), and ensuing distress is often high. Little is known about the beliefs these patients foster about their voices, and the influence thereof on distress and need for hospitalisation.

Methods: In a convenience sample of 38 BPD outpatients with AVH, data were collected with the aid of the Psychotic Symptom Rating Scales (PSYRATS), Beliefs about Voices Questionnaire (BAVQ), Social Comparison Rating Scale (SCRS), and Voice Power Differential Scale (VPDS).

Results: The majority of patients with BPD who experience AVH rate their voices as malevolent and omnipotent, and higher in social rank than themselves. Moreover, their resistance against them tends to be high. These parameters correlate positively and significantly with high levels of distress experienced in relation to these AVH. The need for hospitalisation, in turn, is associated with high scores for omnipotence of the voices and distress due to AVH. However, these findings could not be confirmed in regression analyses.

Conclusions: As negative beliefs can be altered with cognitive-behavioural therapy (CBT), we expect CBT to be beneficial in the treatment of AVH in BPD patients, whether or not in combination with antipsychotic medication.
tive, with benevolent ideas about the voices to match, and low levels of distress [5]. It is suggested that the amount of distress due to AVH depends largely on the beliefs patients hold about them [6–9]. Thus, voices tend to cause higher degrees of distress when they are thought to be malevolent and powerful, and lower degrees of distress when they are believed to be benevolent and helpful. The linguistic and emotional content of voices may be an important determinant of distress, and people’s beliefs about their voices are thought to be even more important [10]. While it is difficult to change the emotional content of voices, beliefs about their omnipotence and source are amenable to change under the influence of psychotherapeutic interventions such as cognitive-behavioural therapy (CBT). For patients with schizophrenia-spectrum disorder, CBT is often provided as an augmentation of antipsychotic medication to reduce distress of voices. This strategy may also be applicable to patients with BPD.

Our knowledge of AVH is mainly derived from patients with psychotic disorders [11]. However, AVH are also experienced in the context of numerous other disorders, including Parkinson disease, epilepsy, dementia, mood disorders, substance abuse disorders, dissociative disorders, and BPD [12]. The prevalence of AVH in patients with BPD varies between 21 and 54% [3]. We previously reported that in the latter group, AVH are experienced with a mean frequency of at least once per day, that they last several minutes or more per episode, and that the ensuing distress is comparable to – and sometimes even higher than – the distress due to AVH in schizophrenia [1, 2]. Moreover, the phenomenological characteristics of AVH experienced by BPD patients do not differ substantially from those in patients diagnosed with schizophrenia [1, 2], whereas they do differ from those in individuals without a psychiatric diagnosis [2]. As in schizophrenia, AVH in the context of BPD frequently consist of harmful commands, hateful remarks, and comments addressing the patient personally [2]. As a consequence, AVH in BPD should no longer be conceptualised as the “psychotic-like hallucinations” or “pseudohallucinations” they were once thought to be, but rather as hallucinations proper, i.e., percepts experienced by a waking individual, in the absence of an appropriate stimulus from the extracorporeal world [2, 13]. Furthermore, AVH in BPD are associated with suicidal behaviour and hospitalisation [14]. The presence of AVH might therefore be indicative of severe forms of BPD. Hence, it is of utmost significance to design adequate treatment paradigms for hallucinations in this patient group.

To our knowledge, only 1 prior study explored the beliefs about voices held by patients with BPD [15]. That study, which compared 10 BPD patients to 23 patients with schizophrenia and 12 with both disorders, found no substantial differences in beliefs about the power and malevolent intent of the participants’ dominant voices [15].

**Aims of the Present Study**

Our hypotheses are that in patients with BPD, (1) scores for negative beliefs about voices are high, (2) negative beliefs about voices are associated with the emotional characteristics of AVH, and (3) the number of hospital admissions correlates positively with negative beliefs about voices. To test these hypotheses, we aim to (1) investigate beliefs about voices in a relatively large sample of BPD patients, (2) study the association between distress due to AVH and beliefs about AVH, and (3) explore the association between the number of hospital admissions and beliefs about AVH.

**Materials and Methods**

For the purpose of this cross-sectional study, patients were recruited from the Outpatient Department of Personality Disorders of Parnassia Psychiatric Institute, The Hague. The study was approved by Parnassia’s Institutional Review Board (registration No. 6237). Criteria for inclusion were a diagnosis of BPD, as established with the Structured Clinical Interview for DSM IV Axis 2 Personality Disorders (SCID-II) [16], age ≥ 18 years, frequency of AVH of at least once per week, and written informed consent. Patients were excluded from participation if they had schizophrenia or schizoaffective disorder, as diagnosed with either the Comprehensive Assessment of Symptoms and History (CASH) [17] or the MINI International Neuropsychiatric Interview Plus (MINI PLUS) [18]. Preluding on the new diagnostic criteria of the DSM-5, we did not exclude patients whose AVH consisted either of a running commentary on their behaviour or thoughts, or multiple voices conversing. The study was conducted at the Department of Personality Disorders, Parnassia Psychiatric Institute.

**Instruments**

The following outcome measures were used: the 3 categories of the AVH-related items of the Psychotic Symptom Rating Scales (PSYRATS) [19], consisting of (i) 4 items regarding physical characteristics of AVH (i.e., frequency, duration, perceived location, and loudness), (ii) 4 items assessing emotional characteristics (i.e., amount and degree of negative content, and amount and intensity of distress), and (iii) 3 items assessing cognitive interpretations (i.e., beliefs about origin, disruption of life, and controllability of the voices). All items were rated on a Likert scale varying between 0 (e.g., “voices not present or present less than once a week”) and 4 (“voices occur continuously or almost continuously, i.e., stop for
Beliefs about voices were explored using 3 questionnaires, the first of which was the Beliefs about Voices Questionnaire (BAVQ) [20] with 35 questions on people’s beliefs about AVH (addressing the subdomains “malevolence,” “benevolence,” and “omnipotence”) and their emotional and behavioural reactions to them (addressing the subdomains “engagement” and “resistance”). The first 3 subdomains consist of 6 items, and the latter 2 of 8 and 9 items, respectively; all items were rated on a 4-point Likert scale with scores varying from 1 (“I disagree that my voice is punishing me for something I have done”) to 4 (“I strongly agree that my voice is punishing me for something I have done”). Secondly, we used the Voice Power Differential Scale (VPDS) [21] to explore beliefs about the power attributed to AVH. The VPDS consists of 7 items with scores varying from 1 (e.g., “I am much more powerful than my voice”) to 5 (“my voice is much more powerful than I”). High scores on the VPDS imply that the participant rates the voices as more powerful than him- or herself. Finally, we used the Social Comparison Rating Scale (SCRS) [22] to assess the participants’ self-esteem in comparison to the voices in social interaction. The SCRS consists of 11 items with scores varying from 1 (e.g., “feeling inferior”) to 10 (‘feeling superior to my voices”). Low scores on this scale mean that the participant views him- or herself as inferior compared to the voices.

Data regarding hospitalisation, including the number of days until hospitalisation within 2 years after participation in our study, were derived from the patients’ medical records at Parnassia Psychiatric Institute.

Statistical Analysis

Data were analysed with the Statistical Package for the Social Sciences (SPSS) version 20. Demographic data, outcomes of the 3 subdomains of the PSYRATS, questionnaires regarding beliefs about voices, and data on hospitalisation within 2 years after participation in this study are presented in a descriptive manner. Pearson correlation was used to search for an association with the 3 categories of the PSYRATS and the questionnaires regarding beliefs about voices. As a normal distribution for number of (days until) hospital admission was lacking, a correlation with the subdomains of the PSYRATS and the questionnaires regarding beliefs about voices was explored with the aid of Spearman rho. Benjamini-Hochberg correction was used to correct for multiple testing [23]. Twenty-one statistical tests were performed to explore which degree of the predictors towards 0. If a variable had regression coefficient 0, this variable was erased from the regression model. Cross-validation was used to explore which degree of penalisation led to the smallest prediction error. The dependent factor was hospitalisation (present/absent), and independent variables were the item “frequency” of AVH, summed score of the SCRS, summed score of the VPDS, subdomains of the BAVQ, summed score of BPD criteria, and the 3 subdomains of the PSYRATS. Furthermore, the above-mentioned regularisation techniques were used to conduct a Cox regression in order to explore predictive factors for number of days until hospitalisation within 2 years after inclusion into this study (dependent factor), and as independent factors the item “frequency” of AVH, summed score of the SCRS, summed score of the VPDS, subdomains of the BAVQ, summed score of BPD criteria, and the 3 subdomains of the PSYRATS.

Table 1. Demographic data of patients with borderline personality disorder and auditory verbal hallucinations

<table>
<thead>
<tr>
<th></th>
<th>PSYRATS subgroup (n = 27)</th>
<th>BPD patients (n = 38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years</td>
<td>37.7 ± 11</td>
<td>39 ± 10.5</td>
</tr>
<tr>
<td>Education, years</td>
<td>11 ± 3</td>
<td>12 ± 3</td>
</tr>
<tr>
<td>Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>69</td>
<td>76</td>
</tr>
<tr>
<td>Voluntary</td>
<td>19</td>
<td>16</td>
</tr>
<tr>
<td>Paid</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>School/study</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Relationship</td>
<td>56</td>
<td>52</td>
</tr>
<tr>
<td>BPD criteria, n</td>
<td>6.7 ± 1.3</td>
<td>6.7 ± 1.3</td>
</tr>
<tr>
<td>Psychopharmica</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>Classical antipsychotics</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Atypical antipsychotics</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Mood stabilizers</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Antidepressive agents</td>
<td>46</td>
<td>46</td>
</tr>
</tbody>
</table>

Data are presented as mean ± SD or %, as appropriate. PSYRATS subgroup: the findings of the items of the Psychotic Symptom Rating Scales (PSYRATS) of 27 (71%) of the BPD patients. BPD, borderline personality disorder.

Results

Beliefs about Voices in BPD

We included 38 BPD patients. Their demographic data are presented in Table 1. Table 2 renders the results of the
3 subcategories of the PSYRATS, the questionnaires regarding beliefs about voices, and the data on hospital admissions within 2 years post-baseline. The findings of the items of the PSYRATS of 27 (71%) of these patients have been described before by Slotema et al. [2] (2012). Data regarding the presence of critical comments and command hallucinations were derived from this subgroup. AVH consisting of critical comments were experienced by 70%, and command hallucinations by 56%. Demographic data did not differ between the group of 38 and the subgroup of 27 patients. Thirty-six percent of these patients received antipsychotics. Scores for negative beliefs about voices were high; scores for benevolence and engagement were low. Patients tended to rank themselves socially inferior and less powerful than their voices.

**Association between Distress due to AVH and Beliefs about AVH**

Table 3 presents correlations between subdomains of the PSYRATS and questionnaires regarding beliefs about voices. Significant correlations were found between the emotional items of the PSYRATS BAVQ subdomains “malevolence” (Pearson correlation 0.687, \( p < 0.001 \)), “omnipotence” (Pearson correlation 0.691, \( p < 0.001 \)), and “resistance” (Pearson correlation 0.570, \( p < 0.001 \)). Inverse correlations were found for scores on the SCRS (Pearson correlation –0.521, \( p = 0.001 \)) and for the BAVQ subdomains “benevolence” (Pearson correlation –0.512, \( p = 0.001 \)) and “engagement” (Pearson correlation –0.459, \( p = 0.004 \)).

### Table 2. Results of the PSYRATS: beliefs about voices among patients with borderline personality disorder and auditory verbal hallucinations

<table>
<thead>
<tr>
<th></th>
<th>n = 27</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical comments</td>
<td>19 (70)</td>
<td></td>
</tr>
<tr>
<td>Commands</td>
<td>15 (56)</td>
<td></td>
</tr>
</tbody>
</table>

### Table 3. Correlations between subdomains of the PSYRATS, beliefs about voices questionnaires, and hospital admissions among patients with borderline personality disorder with auditory verbal hallucinations

<table>
<thead>
<tr>
<th></th>
<th>Pearson correlation</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYRATS-EMO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCRS</td>
<td>–0.521</td>
<td>0.001*</td>
</tr>
<tr>
<td>VPDS</td>
<td>0.444</td>
<td>0.007</td>
</tr>
<tr>
<td>BAVQ-malevolence</td>
<td>0.687</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>BAVQ-benevolence</td>
<td>–0.512</td>
<td>0.001*</td>
</tr>
<tr>
<td>BAVQ-omnipotence</td>
<td>0.691</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>BAVQ-engagement</td>
<td>–0.459</td>
<td>0.004*</td>
</tr>
<tr>
<td>BAVQ-resistance</td>
<td>0.570</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>PSYRATS-PHY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAVQ-malevolence</td>
<td>0.347</td>
<td>0.033</td>
</tr>
<tr>
<td>BAVQ-omnipotence</td>
<td>0.504</td>
<td>0.001*</td>
</tr>
<tr>
<td>PSYRATS-COG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAVQ-malevolence</td>
<td>0.451</td>
<td>0.006*</td>
</tr>
<tr>
<td>BAVQ-omnipotence</td>
<td>0.438</td>
<td>0.009</td>
</tr>
</tbody>
</table>

Data are presented as \( n \) (%) or mean ± SD, as appropriate. PSYRATS, Psychotic Symptom Rating Scales; BAVQ, Beliefs about Voices Questionnaire; VPDS, Voice Power Differential Scale; SCRS, Social Comparison Rating Scale.

Solely the results with \( p \) value <0.05 are presented. PSYRATS-EMO, PHYS, COG, Psychotic Symptom Rating Scales emotional, physical, and cognitive subdomains, respectively; SCRS, Social Comparison Rating Scale; VPDS, Voice Power Differential Scale; BAVQ, Beliefs about Voices Questionnaire. * Signiﬁcant with Benjamini–Hochberg correction.
More-ever, these associations were too small to be confirmed in the sample. Furthermore, scores for distress correlated strongly and positively with the number of hospital admissions and number of BPD criteria, presence of mood swings, impulsivity, and paranoid thinking/dissociation (criteria of BPD) were non-significant.

Regarding the logistic regression analysis, the only variable that had not been erased from the model with optimal penalisation was the subdomain “omnipotence” of the BAVQ (regression coefficient $8.5 \times 10^{-18}$). This regression coefficient was very small, and may therefore be neglected. The Cox regression analysis revealed 2 variables that had not been erased from the model, i.e., the subdomains “omnipotence” and “resistance” of the BAVQ (regression coefficients 0.0592 and 0.00019, and hazard ratios of 1.061 and 1.002, respectively). This implies that an increase of the “omnipotence” and “resistance” subdomains of 1 point results in an increase in the risk for hospitalisation within 2 years after inclusion of 6 and 0.2%, respectively.

**Discussion**

We studied 38 patients diagnosed with BPD who experienced AVH at least once per week, and assessed their beliefs about the voices they heard, as well as the relation between those beliefs and the experienced levels of distress and need for hospitalisation. In conformity with our hypotheses, the participants’ scores for “negative beliefs about voices” were high, whereas those for the items “benevolence of the voices” and “engagement with the voices” were low. Compared to their voices, patients tended to rank themselves socially inferior and less powerful. These findings are similar to those observed in patients with schizophrenia spectrum disorders [15, 27]. Moreover, scores for distress correlated strongly and positively with negative beliefs about the voices, and were inversely related to positive beliefs about the voices. Hospitalisation was associated with high scores on the estimated omnipotence of the voices and the distress they caused. However, these associations were too small to be confirmed in the regression analyses. As a consequence, no variable could predict hospitalisation within 2 years after participation in the present study.

Our knowledge of treatment methods for AVH in patients with BPD is poor, and currently only few BPD patients receive therapies specifically aimed at helping them cope with their voices. This is in line with our finding that only 36% of these patients received antipsychotics. Antipsychotics can reduce the frequency and severity of AVH in patients with psychotic disorders [28], and may therefore also be beneficial to patients with BPD. However, at present the evidence for this is small. Antipsychotics have been studied in patients with BPD for cognitive-perceptual symptoms, i.e., suspiciousness, referential thinking, paranoid ideation, illusions, derealisation, depersonalisation, and hallucination-like symptoms or “psychotic symptoms” [29]. In 3 meta-analyses small to moderate effect sizes were found [29–31]. In comparison to patients with schizophrenia, RCTs including BPD patients used lower doses, which may explain the lower efficacy in this group. However, the effect of antipsychotics explicitly on the severity of AVH has not been investigated so far. In addition, antipsychotics are associated with side effects, which can be severe. Alternatively, in patients with schizophrenia, in addition to antipsychotics, beliefs about voices and their alleged power are effective altered with CBT [32, 33]. Given the high scores on malevolence and omnipotence of the voices that we found in our group of BPD patients, and the strong correlation between distress and negative beliefs about voices, BPD patients might therefore benefit foremost from CBT to reduce the distress caused by AVH and the need for hospitalisation. Moreover, CBT may be effective in helping patients cope with command hallucinations. In a study by Trower et al. [33], improvements were recorded in the treatment group regarding the power attributed to the voices, the perceived need to comply, and the levels of concomitant distress and depression. Bucci et al. [34] found that, especially in impulsive patients, the appraisal of voices as omnipotent predicts compliance with voice commands. As CBT is effective in reducing that compliance [35], it may thus play a significant role in reducing the self-harm and suicide attempts that are so prevalent in this patient group.

This study has various limitations. In the first place, the sample size was relatively small. Secondly, due to the cross-sectional design of our study we were unable to prove any causal relations between the phenomenological characteristics of voices on the one hand, and distress and need for hospitalisation on the other. Thirdly, only females were included. Therefore, the results may not be...
generalisable to mixed gender cohorts or pure male samples. Fourthly, we did not include patients with schizophrenia. Therefore, no direct comparisons could be made between beliefs about voices in BPD and schizophrenia. Finally, it should be noted that we focussed exclusively on the role of beliefs about voices, whereas other possible determinants of distress and need for hospitalisation, such as depression, anxiety, trauma, comorbidity, and duration of AVH, were left out of the equation. Obviously these determinants deserve proper attention, too, when we assess the need for treatment of AVH in BPD patients.

In conclusion, in patients diagnosed with BPD, negative beliefs about voices are strongly correlated with the distress caused by those voices. Moreover, a high estimated power of the voices is associated with an increased chance for hospitalisation. As these 2 aspects are sensitive to the effects of CBT, this therapy may well be beneficial for AVH experienced by patients with BPD, whether or not in combination with antipsychotic medication.

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Disclosure Statement

All authors declare that there are no financial interests or potential conflicts of interest.

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