



Safety-seeking behaviours and verbal auditory hallucinations in schizophrenia



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ABSTRACT

Verbal auditory hallucinations can have a strong impact on the social and professional functioning of individuals diagnosed with schizophrenia. The safety-seeking behaviours used to reduce the threat associated with voices play a significant role in explaining the functional consequences of auditory hallucinations. Nevertheless, these safety-seeking behaviours have been little studied. Twenty-eight patients with schizophrenia and verbal auditory hallucinations were recruited for this study. Hallucinations were evaluated using the Psychotic Symptom Rating Scale and the Belief About Voice Questionnaire and safety behaviours using a modified version of the Safety Behaviour Questionnaire. Our results show that the vast majority of patients relies on safety behaviours to reduce the threat associated with voices. This reliance on safety behaviours is mostly explained by beliefs about origin of voices the omnipotence attributed to hallucinations and the behavioural and emotional reactions to the voices. Safety-seeking behaviours play an important role in maintaining dysfunctional beliefs with respect to voices. They should be better targeted within the cognitive and behavioural therapies for auditory hallucinations.

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1. Introduction

Psychotic symptoms may have significant consequences on behaviour, even if this was originally underestimated (Buchanan et al., 1993; Wessely et al., 1993). Auditory hallucinations can interfere with the social (Favrod et al., 2004) and professional functioning of individuals who experience them (Goghari et al., 2013). They may also interfere with compliance to medication treatment plans (Moritz et al., 2013).

Behaviours subsequent to beliefs associated with psychotic symptoms can contribute to the maintenance of those initial beliefs. Salkovskis (1991) has shown that safety-seeking behaviours are a crucial factor in maintaining anxiety disorders. He suggested that anxious individuals attempt, through these behaviours, to obtain a certain safety with respect to perceived threats. However, the use of these safety-seeking behaviours prevents the individual from learning to attribute the absence

of a negative consequence to the fallacy of their beliefs about the threat in the first place. The individual believes instead, wrongly, that a catastrophe has been avoided because of their safety-seeking behaviours. Safety-seeking behaviours can be defined as preventative actions completed in order to achieve safety (Freeman et al., 2001) preventing from taking into consideration the lack of threat which would allow the reduction of anxiety (Gaynor et al., 2013).

In early research, Freeman et al. (2001) identified safety-seeking behaviours in individuals suffering from persecutory delusions. They put together a questionnaire (Safety Behaviour Questionnaire—SBQ) and identified the following behavioural categories: avoidance strategies, “in-situation” threat management strategies, escape behaviours: leaving a threatening situation, strategies of compliance, help-seeking strategies, confrontation strategies, also called aggression strategies and “delusional” strategies.

A first study (Freeman et al., 2001) with 25 patients experiencing symptoms along the schizophrenia spectrum demonstrated that the strategies the most commonly used are the following: avoidance (92%); in-situation behaviour strategies (68%); help-seeking (36%); escape (36%); compliance (24%); confrontation (20%); delusional strategies without any apparent logic (8%). A high score on the SBQ

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questionnaire, notably on the avoidance scale, is associated with a high level of anxiety. A high score for compliance is associated with low self-esteem. In a second study, [Freeman et al. \(2007\)](#) studied a group of 100 participants with persecutory delusions and a diagnosis of schizophrenia or schizoaffective disorder. The results of this study showed that safety-seeking behaviours occurred in 96% of all participants. They replicate the proportions described above with a few variations. Again, relying on safety behaviours is associated with anxiety and depression. A third study observed safety-seeking behaviours with individuals presenting verbal auditory hallucinations ([Hacker et al., 2008](#)). This study included 30 participants with schizophrenia. The strategies the most often used were the following: avoidance (76.7%); in-situation behaviour strategies (70%); confrontation (53.3%); compliance (50%); help-seeking (40%) and escape (23.3%). This study differentiated safety-seeking strategies (found in 10% of patients) from help-seeking strategies. Safety-seeking strategies include in-situation support such as active help from external parties which would have prevented the threat from producing itself. All the same, these strategies overlap with help-seeking ones. The results of this study show that using safety-seeking behaviours is strongly associated with the omnipotence and malevolence attributed to voices. Certain aspects of the voices such as the degree and quantity of negative content as well as voice volume are significantly linked to the use of safety-seeking strategies as a means to reassure one-self. However, there exists a small literature on the omnipotent quality of voices and how that is linked to functional outcomes ([Chadwick and Birchwood, 1994](#); [Mawson et al., 2010](#); [Peters et al., 2012](#)). Finally, a fourth study ([Gaynor et al., 2013](#)) compared safety-seeking behaviours in a group of patients requiring care (clinical group), and a group of patients without care (non-clinical group). The study included 67 participants in all. The 39 patients in the non-clinical group had never been treated or had never sought help for their psychotic experience. The 28 patients in the clinical group were being treated for psychotic disorders at the time of the study. The two groups did not differ in terms of psychotic symptoms, but the non-clinical group presented less distress, depression or anxiety compared to the clinical group. Patients under treatment estimated to be more at risk of a threat and relied more on safety-seeking behaviours compared to the participants of the non-clinical group. Relying on safety-seeking behaviours was associated with the estimation of risk of danger and with distress. Threat evaluation and reliance on safety behaviours seemed to maintain distress, a characteristic of the clinical group. These four studies were conducted in England.

The interest of this study is to replicate in a French-speaking context previous studies. We hypothesise that patients who hear voices engage in the safety behaviours and that safety behaviours are driven by an increased conviction in beliefs.

2. Method

2.1. Participants

Participants were ambulatory patients followed by the Department of Psychiatry at the Lausanne-Vaud University Hospital and the HorizonSud Foundation in Marsens, Switzerland. To participate in the study, participants had to be between 18 and 65 years old, meet the criteria for a schizophrenia or schizoaffective disorder diagnosis as well as present with verbal auditory hallucinations. The study protocol was accepted by the Vaud Cantonal Ethics committee on human-subject research and the participants signed an informed consent form as well as demonstrated their capacity for consent ([Jeste et al., 2007](#)).

2.2. Measures

Data were collected using the following:

The safety-seeking behaviours questionnaire, SBQ ([Freeman et al., 2001](#)) was adapted for auditory hallucinations using the research by [Hacker et al. \(2008\)](#). This

questionnaire measures the frequency of safety-seeking behaviours. During a semi-structured interview, participants were asked to describe the actions or behaviours which they had used over the past month in an attempt to confront, minimise or stop threats experienced through verbal auditory hallucinations. In the version used, the first question situated the participant in a general way. Next, the evaluator asked more specific questions for each category of safety-seeking behaviour. An action was considered a safety-seeking behaviour if the interviewee indicated that s/he had performed said action with the aim of reducing risks leading to feared outcomes. Next, if the interviewee did not describe a safety-seeking behaviour, examples were then proposed. If the interviewee accepted a proposition, the evaluator verified how the behaviour reduced the threat before accepting it. Once a safety behaviour was identified, the interviewee was invited to measure its frequency over the course of the last month. The frequency scale involved the following anchor points: 1) Appeared at least once or occasionally. 2) Appeared at least once a week. 3) Appeared several times a week. 4) Appeared daily. Categories included avoidance, in-situation strategies, escape, compliance, help-seeking, and confrontation. Scores were calculated by multiplying the number of safety-seeking behaviours by their frequency. The total score was the sum of the different sub-scores. At the end of the interview, interviewees were asked to score (on a scale of 0 to 10) the effectiveness of their safety behaviours at reducing threat.

Suffering and interference with life were rated on a scale of 0 to 10. The SBQ has a good inter-rater agreement, acceptable test–retest reliability and validity ([Freeman et al., 2001, 2007](#); [Hacker et al., 2008](#)). Essentially, in this study, participants' *ad verbatim* responses to the initial questions were classed into different categories by two pairs of evaluators. Results gave kappas higher than 0.80 between two pairs of evaluators on 87 observations.

The French version of the auditory hallucinations scale of the Psychotic Symptom Rating Scales (PSYRATS) ([Haddock et al., 1999](#); [Favrod et al., 2012](#)) was used to measure verbal auditory hallucinations and delusions. Each item was measured on a scale from 0 to 4. Each item is explained using a description. The auditory hallucination scale includes 11 items: frequency, duration, location, loudness, beliefs about the origin of voice, negative content, degree of negative content, degree of distress, intensity of distress, disruption of life and control over voices. The delusion scale includes six items. The French version of the PSYRATS has an excellent inter-rater reliability and showed concurrent validity ([Favrod et al., 2012](#)).

Beliefs concerning hallucinations were evaluated using the Beliefs About Voices Questionnaire ([Chadwick and Birchwood, 1995](#); [Favrod et al., 2004](#)). This is a self-administered questionnaire. It measures an individual's beliefs concerning verbal auditory hallucinations. It includes a scale for omnipotence, malevolence, benevolence, resistance and engagement. The French version of the BAVQ showed a good internal consistency as well as construct and concurrent validity ([Favrod et al., 2004](#); [Monestes et al., 2014](#)).

2.3. Statistical analyses

Statistical analyses were carried out using IBM SPSS Statistics, Version 21. Correlations were calculated using bilateral Pearson product-moment correlation coefficients. Bonferroni adjustment has been set to the number of correlations to protect against type 1 error at $p < 0.003$. A hierarchical regression analysis was used to treat the role of beliefs, certain characteristics of verbal auditory hallucinations and reactions to voices versus other predictive variables when assumptions of normality were met. Bonferroni adjustment has been set to the number of correlations to protect against type 1 error at $p < 0.002$.

3. Results

Twenty-eight participants were recruited. There were 10 women and 18 men. Average age was 36.5 years (S.D.: 9.6). Anti-psychotic medication dose in Chlorpromazine equivalents was 478 mg (S.D. 206.4) ([Andreasen et al., 2010](#)) with the same treatment for 4.9 years (S.D.: 5.3). Twenty-seven participants met the criteria for schizophrenia and one for schizoaffective disorder; 11 live in an independent living situation, two with their parents, five in supervised living and 10 in group homes; 21 participants work in supported employment situations, the others are unemployed. Five participants did not completed compulsory school, 10 completed compulsory school but did not obtained a professional diploma, six completed a professional apprenticeship and seven participants have secondary training. Six participants have a previous history of psychological treatment of psychotic symptoms. The average participant score on the PSYRATS hallucination scale was 24.9 (S.D. 7.4). Seven participants heard voices at least once a week, 14 at least once a day, five at least once an hour and two reported hearing voices on a nearly continual basis.

Table 1 shows that 27 out of 28 participants relied on safety-seeking behaviours.

Avoidance strategies were used by 93% of all participants. These include strategies such as the avoidance of taking public transport, not attending work, avoidance of thinking or doing certain actions, taking refuge in sleep or using earplugs. In-situation behaviour strategies were used by 75% of all participants and included strategies such as negotiating with voices, closing doors, windows and/or shutters, to be on one's guard, placing traps throughout one's living space. Escape strategies (64%) included having to leave a place or give up an activity because of voices. Compliance strategies (61%) involved obeying the voices, mentally or actively, and following voice instructions. Help-seeking strategies (68%) observed in this study included seeking help from health professionals, family members and/or friends. Several patients sought help from God or other protective spirits. Confrontation strategies (46%) included yelling at the voices, hitting furniture. One participant had physically shoved another person because of voices. Two participants stated a need for protection when leaving their homes (pepper spray or pocket knife). In this study only one participant described a delusional strategy which involved fashioning a particular hairstyle. The participant was unable to explain how this reduced a threat. Three participants described therapeutic strategies learned in therapy groups. These strategies essentially involved relaxation techniques or listening to one's voices in a state of mindfulness.

SBQ total score correlated significantly at $p < 0.003$ for Bonferroni adjustment with the frequency and belief about origin items and total score of the PSYRATS Hallucination scale and with the Omnipotence and resistance scales of the BAVQ. The delusion scale of the PSYRATS does not correlate significantly with the SBQ total score (**Table 2**).

Variables were processed using a hierarchical multiple regression analysis with the goal of establishing the relative influence of different variables on the use of safety behaviours. The total score of safety-seeking behaviours was considered to be the dependent variable. Results of the analysis are presented in **Table 3**. Only variables that correlated with the SBQ were introduced.

Overall, the model is significant (4.23) 16.255, $p < 0.000$. The adjusted R^2 value, which takes the sample size into consideration, reveals that overall Model 4 explains 69% of the variance of the total SBQ score. The significant predictive variables are beliefs about origin of voices ($\beta = 0.554$), resistance toward the voices ($\beta = 0.381$) and omnipotence of the voices ($\beta = 0.183$). This last element explains 11% of the additional variance with respect to the previous model (Model 2 on **Table 3**). Resistance toward the voice explains only 9% of the additional variance. These results indicate that beliefs about origin of voices, voice resistance and omnipotence play an important role in predicting safety-seeking behaviours.

Table 1
Frequency of safety-seeking behaviours.

	At least one safety-seeking behaviour in the last month	%	Mean	S.D.	Range
Avoidance	26	93	10.2	6.7	0–26
In-situation	21	75	5.9	5.7	0–18
Escape	18	64	1.5	1.8	0–6
Compliance	17	61	1.9	2.1	0–6
Help-seeking	19	68	2.2	2.4	0–7
Confrontation	13	46	1.0	1.3	0–4
Total	27	96	22.3	15.3	1–51

Table 2
Correlations between safety-seeking behaviours and clinical variables.

	Total SBQ
PSYRATS	
Frequency	0.56* ($p = 0.002$)
Duration	0.07 ns
Location	0.28 ns
Loudness	0.25 ns
Belief about origin	0.68* ($p = 0.000$)
Quantity of negative content	0.12 ns
Degree of negative content	0.46 ns
Degrees of distress	0.40 ns
Intensity of the distress	0.45 ns
Disruption of Life	0.51 ns
Control over voices	0.20 ns
Overall PSYRATS hallucination	0.62* ($p = 0.000$)
Overall PSYRATS delusion	0.31 ns
BAVQ	
Omnipotence	0.56* ($p = 0.002$)
Malevolence	0.39 ns
Resistance	0.50* ($p = 0.001$)

* $p < 0.003$ with Bonferroni adjustment for multiple correlations analyses.

4. Discussion

The goal of this study was to measure the frequency of safety-seeking behaviours with respect to verbal auditory hallucinations in a francophone context and study any associations with characteristics of voice hallucinations. Our results on the frequencies of safety-seeking behaviours with respect to verbal auditory hallucinations replicate fairly precisely the data published by [Hacker et al. \(2008\)](#) except for help-seeking and escape strategies. Nevertheless, our questionnaire differs somewhat because we regrouped rescue strategies into the “help-seeking” category. This is because these authors had signalled an overlap between the “help-seeking strategies” and “rescue strategies”. For the escape strategies, we classed into this category the act of leaving a place or stopping an activity once a hallucination is experienced. The two samples include participants of the same age, the same diagnosis and a fairly similar division between male and female. Our version of the SBQ could have increased the rate of responses since potential known reactions were passed systematically under review after the spontaneous response of the participants. Nevertheless, the fact that our results strongly replicate those of the [Hacker et al.](#) study contradicts this explanation.

The study highlights the link between voice characteristics and safety-seeking behaviours. Essentially, these behaviours are associated with the belief the patient holds regarding the origin of voices, the attribution of omnipotence and reactions of resistance to the voices. These data replicate in part [Hacker et al. \(2008\)](#) data notably regarding the fact that the omnipotence attributed to the voices seems particularly important in the prediction, explaining an additional 11% of the variance with respect to the overall SBQ score. Resistance toward the voices explain a supplementary 9% of the variance. One study has shown that the perception that voices are controlling the individual is associated with depression ([Thomas et al., 2009](#)).

Generalising on the results of this study is limited by the sample size. However, our results are similar to other recent and similar studies ([Close and Garety, 1998](#); [Freeman et al., 2001](#); [Favrod et al., 2004](#); [Hacker et al., 2008](#)). In spite of clearly obtained results, this study does not control aspects linked to other psychotic symptoms like delusional ideas. Certain responses may

Table 3

Hierarchical multiple regression with the overall score of the safety-seeking behaviours scale as dependent variable.

Model	R	R ²	Adjusted R ²	Standard estimation error	Change in statistics				
					R ² variation	F variation	ddl1	ddl2	Significant F variation
1	0.559 ^a	0.313	0.286	12.891	0.313	11.820	1	26	0.002
2	0.736 ^b	0.542	0.505	10.730	0.229	12.527	1	25	0.002
3	0.806 ^c	0.650	0.606	9.576	0.108	7.392	1	24	0.01
4	0.859 ^d	0.739	0.693	8.450	0.089	7.819	1	23	0.01

^a Predicted values: frequency of voices.^b Predicted values: frequency of voices and beliefs about origin of voices.^c Predicted values: frequency of voices, beliefs about origin of voices and voice omnipotence.^d Predicted values: frequency of voices ($B=1.321$; $\beta=0.074$), beliefs about origin of voices ($B=6.835$; $\beta=0.554$), voice omnipotence ($B=1.634$; $\beta=0.183$), voice resistance ($B=1.184$; $\beta=0.381$).

be linked to other psychotic symptoms and it is frequently difficult to distinguish what is specifically linked to verbal auditory hallucinations from what is linked to delusional ideas, since symptoms may be quite intermixed from the patient's perspective. However, our results do not show a significant correlation between PSYRAT delusion scale and SBQ, suggesting a possible independence between SBQ related to auditory hallucinations from those related to delusions. The lack of measures of depression, anxiety, and functioning is also a limitation of the study. Also, in future studies more attention might be paid to voice characteristics and experience.

The first version of the SBQ (Freeman et al., 2001) does present certain limitations due to the fact that the section devoted to avoidance strategies contains proposed choices. This bias is reduced in our study because we proposed choices for all the categories. Furthermore, the strategies of intimidation, categorised in “in-situation threat management strategies” in Freeman et al. (2001), were classed under the heading of “confrontation” in our study.

Studies on safety-seeking behaviours are useful for developing interventions because they play a strong role in maintaining dysfunctional beliefs. Traditionally, avoidance strategies were used by professionals to help reduce the anxiety linked to psychotic symptoms. But several studies have shown that strategies of awareness to psychotic symptoms lead to more sustained clinical improvement compared to distraction strategies (Haddock et al., 1998). Nevertheless, distraction strategies remain advised because of their acceptability (Crawford-Walker et al., 2005). Recently, several pilot studies have shown that confronting the psychotic experience through mindfulness strategies leads to a reduction of psychotic symptoms (Chadwick et al., 2009; Newman Taylor et al., 2009; Bards-Linder et al., 2013). If awareness strategies reduce avoidance and fear with respect to psychotic symptoms, it would be equally useful to study whether self-assertiveness strategies (Favrod et al., 2007; Leff et al., 2013) reduce compliance strategies or whether training strategies in urban environments (Ellett et al., 2008) might reduce the use of in-situational threat management strategies. It would be useful in next cognitive behavioural therapy of verbal auditory hallucinations studies to examine how improvements in characteristics of voices and different cognitive variables can predict reduction of safety-seeking behaviours.

In conclusion, this study complements a previous study by Hacker et al. (2008) on the frequency of reliance on safety-seeking behaviours with people having a schizophrenia diagnosis involving verbal auditory hallucinations. Our study replicates previous results indicating that these reactions are linked to the degree of conviction, the distress triggered by voices and beliefs regarding the origin of voices. This study also replicates the importance of the belief in omnipotence attributed to voices. Additional studies comparing the reactions to different psychotic symptoms in more

detail would be useful to specify the link between safety-seeking behaviours and these different psychotic symptoms.

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