



# Attentional avoidance increases voice hearing in an analogue task in people with psychosis: An experimental study



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## ABSTRACT

Cognitive models of psychosis suggest that unhelpful ways of responding to experiences can maintain such experiences and the associated distress. The response styles of attentional avoidance and attentional focusing were manipulated in an analogue voice-hearing task. Predictions were that both would increase detection of words in response to an ambiguous audio-recording but that attentional avoidance would lead to a greater increase than focusing. We also predicted that there would be a greater increase in anxiety and distress in the avoidance group. Predictions were tested in a sample of 44 participants with a diagnosis of schizophrenia. Participants were randomly assigned to either attentional avoidance or focusing while listening to an ambiguous auditory task. Number of words identified and anxiety and distress were recorded. As predicted, there was an increase in the number of words identified in both groups; however, this increase was greater in the avoidance group. The prediction that there would also be an increase in distress that would be greater in the avoidance group was not supported. It is possible that emotional reactions relate more closely to appraisals of the voice. The results suggest that avoidance of experiences is particularly counterproductive and can result in greater detection of experiences.

## 1. Introduction

### 1.1. Misattribution theories of voice hearing

It has been suggested that auditory hallucinations are experienced as a result of normal intrusive thoughts being misattributed to an external source (Morrison et al., 1995). Tasks such as signal detection, which require participants to pick out speech from background noise (e.g. Varese et al., 2012), or source monitoring, which require distinguishing between words generated by themselves and others (e.g. Bendall et al., 2011), have been utilised as experimental tests of the misattribution theory. A meta-analysis of these studies found robust evidence for an association between voice hearing in both clinical and non-clinical populations and misattribution biases (Brookwell et al., 2013).

There could be several reasons why this happens, one theory being that it is an attempt to reduce cognitive dissonance (Morrison et al., 1995). Cognitive dissonance occurs when thoughts or feelings are experienced that conflict with each other, so creating a state of anxiety (Festinger, 1962). As dissonance is an uncomfortable state, active attempts are made to reduce it (Festinger, 1962). If an intrusive thought is

experienced that doesn't fit with the person's self-concept such as a violent thought, this could produce dissonance. This dissonance can therefore be reduced by attributing the thought to an external source rather than to the self, thereby reducing the internal conflict. The likelihood of an intrusion being attributed to an external source could be influenced by metacognitive beliefs (Jones and Fernyhough, 2006). For instance, if it is believed that it is dangerous for thoughts to be out of control, then a thought experienced as intrusive may be attributed externally to reduce dissonance between the metacognitive belief and the experience (Jones and Fernyhough, 2006). In support of this theory it has been found that participants hearing voices had a more negative attitude towards intrusive thoughts and experienced them as more uncontrollable than control groups (Morrison and Baker, 2000). A recent meta-analysis found that metacognitive beliefs such as positive beliefs about worry and beliefs about uncontrollability and danger were all significantly higher in participants experiencing psychosis as compared to nonclinical controls (Sellers et al., 2017). Scores were similarly elevated in a group experiencing general emotional distress. The psychosis group scored higher than this group on only one belief, positive beliefs about worry (Sellers et al., in press). This suggests that metacognitive beliefs are associated with vulnerability to distress in general,

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rather than specifically with unusual experiences (Sellers et al., in press). It has been found that high levels of metacognitive beliefs are associated with need for care in people experiencing psychosis, demonstrating that this is an important variable in this client group (Brett et al., 2009).

Other differences that have been found between clinical and non-clinical voice hearers include voice content being more negative, a greater frequency of voices and lower feelings of control over the voice in clinical samples (Andrew et al., 2008; Daalman et al., 2011). Further, clinical voice hearers believe their voices to be more malevolent and omnipotent and respond with greater resistance whilst nonclinical voice hearers believe their voices to be benevolent and respond by engaging (Andrew et al., 2008). Consistent with this it has been found that people who hear voices but do not have a need for care report responding more mindfully to their voices and are more accepting of them than a clinical group (Peters et al., 2016). Similarly, a different sample of non-clinical voice hearers most frequently endorsed doing nothing as a coping response (Kråkvik et al., 2015). This was in contrast to a clinical sample that employed more resistant strategies such as pleading with the voice to stop talking (Kråkvik et al., 2015).

### 1.2. Responding to voices

Within cognitive models of voice hearing the appraisal of experiences is central as it is this that is likely to result in emotional and behavioural responses to the experience (e.g. Chadwick and Birchwood, 1994; Morrison et al., 1995). If the appraisal is threatening, for example, “it is the voice of the devil”, then this may illicit distress and responses which may actually serve to maintain the experiences (Morrison, 2001). Such responses are known as safety seeking responses and are carried out to protect against a perceived threat, but can actually have the effect of maintaining distress through failure to disconfirm faulty threat appraisals (Salkovskis, 1991).

The responses of resistance and engagement discussed above could be considered as safety seeking behaviours within a cognitive framework. Responses classified as resistance include trying to stop the voice or arguing with it whereas engagement includes listening to the voice and following its advice (Chadwick and Birchwood, 1994). It has been consistently found that resistance is positively related to voice malevolence and negatively to voice benevolence, while the opposite relationship is observed with the response style engagement (e.g. Chadwick et al., 2000). This suggests that behavioural response is meaningfully related to appraisal as suggested. However, findings have been less consistent in terms of the association between response styles and distress. One study has reported that participants classified as depressed used more of both resistance and engagement than the participants considered “not depressed” (Uphthegrove et al., 2014). Others have reported that resistance is positively associated with measures of distress while engagement is negatively associated with the same measures (Chadwick et al., 2000; Soppitt and Birchwood, 1997). Finally, others have found no significant relationships between these response styles and various measures of distress (Morris et al., 2014). As these studies do not control for the positive or negative tone (the valence) of the voice, it is difficult to interpret the effect of response style on distress as this could be confounded by the nature of the voice. It is, therefore, not currently known whether such responses are caused by distress or if they themselves cause distress or if a more complex relationship exists. For example, previous research has found that the relationship between responses and distress is mediated by appraisals relating to the power of the voice (Hacker et al., 2008).

A study that compared response styles to an analogue task in clinical and nonclinical groups found that the clinical groups were more likely to use responses considered maladaptive, such as resistance (distraction) and engagement (rumination). In contrast, the nonclinical group were more likely to endorse responses considered adaptive, such as reappraisal and mindfulness (Ward et al., 2014). As both groups in this

study reported experiences associated with psychosis, it was concluded that response styles might be important for determining whether an individual has a need for care in relation to their experiences of psychosis (Ward et al., 2014).

Resistance response styles could be compared to thought suppression as both include trying to stop or control an intrusion (with thought suppression, this is an intrusive thought, whereas with resistance, it is an auditory hallucination experienced as an external voice). Given the relationship between voice hearing and intrusive thoughts as discussed above, thought suppression may be of relevance here.

The effect of thought suppression has frequently been studied and consistently reported to be an unhelpful behavioural response to intrusive thoughts. One of the earliest studies of thought suppression found both an immediately unhelpful effect (initial enhancement) and also a delayed or rebound effect (Wegner et al., 1987). In relation to voice hearing, a study in a non-clinical sample using auditory material designed to induce auditory illusions, found no evidence of initial enhancement but found a delayed increase in both groups, leading them to conclude that suppression was unhelpful but not counterproductive (Rassin and Van Der Heiden, 2007).

Focusing has been studied as a treatment option for auditory hallucinations. This involves supporting the client to gradually begin to monitor their voices in terms of their physical characteristics, content, the emotions they raise and the possible meaning of the experience (Haddock et al., 1998). This could have some similarities with the response style of engagement as both include attending to the voice and trying to understand it. Focusing has been compared to distraction in a treatment study with follow up over two years (Haddock et al., 1998). The authors predicted that both strategies would be helpful in the management of voices but that focusing would be more effective in the long term. This prediction was made as it was thought that focusing on experiences may reduce the likelihood of misattribution to an external source occurring (Haddock et al., 1998). As predicted, participants receiving the focusing therapy did show an increase at follow up in the degree to which they believed their voices came from an internal source. However, there were no significant differences in distress, disruption or frequency of voices. The authors concluded that there was no distinct advantage of focusing over distraction (Haddock et al., 1998). To our knowledge, there has not been a more recent investigation comparing two response styles and so further research of this nature is needed.

Experimental manipulation of responses such as resistance or engagement is difficult because their operationalisation confounds behavioural components (e.g. compliance/disobedience) with cognitive components (e.g. focusing/distraction).

### 1.3. Attention

Response styles such as resistance and engagement could consist of various elements including distraction, attempts at cognitive control, threat monitoring and attentional avoidance. These response styles are implicated as part of a Cognitive Attentional Syndrome (CAS) in the Self-Regulatory Executive Function (S-REF) Model (Wells and Matthews, 1994). This metacognitive model suggests that coping styles such as these are ineffective and can compromise effective self-regulation (Wells and Matthews, 1994). An important dimension of self-regulation in this model is the control of attention. Psychological disorder is considered to be associated with failure to disengage processing that is caused by conflicted or paradoxical metacognitions. For example, when individuals hold both positive (e.g. “Worrying helps me cope”) and negative (e.g. “Worrying is uncontrollable”) beliefs about a thought process, effective regulation can be adversely affected (Wells and Carter, 2001). Predictions derived from the S-REF model would therefore be that resistance, suppression, engagement and focusing could all be unhelpful self-regulatory strategies because they involve extended processing of intrusions. However, it would also be expected that

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