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The roles of thought suppression and metacognitive beliefs in proneness to auditory verbal hallucinations in a non-clinical sample

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Abstract

In a non-clinical sample ($N = 751$), we investigated relations among two subscales (self-reported intrusiveness of unwanted thoughts and thought suppression) of the White Bear Suppression Inventory (WBSI), metacognitive beliefs, and proneness to auditory verbal hallucinations (AVHs). Both subscales of the WBSI were found to be related to AVH-proneness and strongly positively related to metacognitive beliefs about the uncontrollability and danger of thoughts. Regression analyses were used to test models of the relations among AVH-proneness and a range of metacognitive beliefs. When the WBSI subscale relating to the self-reported intrusiveness of unwanted thoughts was controlled for, the metacognitive style that was the strongest predictor of AVH-proneness was cognitive self-consciousness. Cognitive confidence and beliefs about the uncontrollability of thoughts were also significant predictors of AVH-proneness. These findings are used to revise existing models of the relations between metacognitive beliefs and AVHs. Implications for the management of AVHs are discussed.

Keywords: Auditory verbal hallucinations; Intrusiveness of unwanted thoughts; Metacognitive beliefs; Thought suppression

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1. Introduction

1.1. Thought suppression and AVHs

Despite the long documented history of auditory verbal hallucinations (AVHs), the cognitive mechanisms underlying why individuals report hearing speech in the absence of any external stimulation remain poorly understood. One prominent model of AVHs proposed by Hoffman (1986) suggested that it was the "experiential unintendedness" (p. 503) of a thought that led it to be experienced with "hallucinatory otherness" (p. 503). Notwithstanding problems with this model (e.g., Akins & Dennett, 1986), it seems uncontroversial that these experiences are somehow intrusive, arising unbidden with no conscious volition on the part of the AVH-hearer.

Some recent research offers a potentially fruitful new way of characterizing this aspect of AVHs. Wegner (2002) has investigated the relation between conscious volition and the experience of ownership of mental phenomena, noting that the tendency to attribute unintended thoughts to other agents is not limited to conditions such as schizophrenia. The plausibility of this suggestion is strengthened by recent findings that hallucinations are relatively prevalent in the normal population (e.g., Tien, 1991). Posey and Losch (1983) found that 71% of college students reported some experience with brief, auditory hallucinations of the voice type in wakeful situations. It is hence possible that research into individual differences in proneness to AVHs in non-clinical populations will help us understand the cognitive mechanisms behind AVHs in pathological conditions.

Morris and Wegner (2000), in an unpublished study, tested the hypothesis that healthy individuals' thoughts that are inconsistent with their current stream of consciousness may be experienced as words spoken by another. This was done through encouraging participants to suppress thoughts, defined by Wegner (1992) as "the intentional conscious removal of a thought from subsequent conscious attention" (p. 194). This process of attempting to suppress a thought has been shown to, paradoxically, cause the thought to intrude into consciousness in a manner that is unexpected and inconsistent with the current task (Salkovkis & Campbell, 1994; Wegner, Schneider, Carter, & White, 1987). As Dostoyevsky noted, if one sets oneself the task of not thinking of a white bear, "the cursed thing will come to mind every minute" (cited in Wegner, 1992, p. 193). Thus it would appear that the thought suppression paradigm is an ideal tool to induce intrusive, unintended thoughts of the sort Hoffman (1986) postulated to be at the root of AVHs.

In Morris and Wegner's (2000) experiment, participants were asked to listen to 'subliminal messages' over headphones. In fact, they only heard the sounds of unintelligible voices recorded from a cafeteria. Participants were then asked to try not to think about a certain topic (such as a car or a mountain) whilst they wrote their thoughts down. A control group was told to think of one of the same topics on purpose. The participants were then asked to judge the degree to which the 'subliminal messages' had influenced their thoughts. Those who had been instructed to suppress certain words were more likely to say the thoughts came from the messages. Wegner (2002) concluded from this that suppression of a thought can create the experience that the thought is coming from "somewhere outside oneself" (p. 88).

Although Morris and Wegner's (2000) experiment remains unpublished, its theoretical thrust and preliminary findings can be used to generate a number of testable hypotheses. Firstly, it can be hypothesized that the thoughts that intrusively rebound into consciousness as a conse-

quence of thought suppression may, in certain circumstances, come to be experienced as AVHs. In which case, individuals' predisposition to experience AVHs should be positively correlated with their tendency to suppress thoughts. Secondly, it can be hypothesized that the greater one's proneness to AVHs, the greater the number of self-reported unwanted intrusions will be experienced.

If high thought suppression levels are a risk factor for AVHs, it must also be asked what factors cause some individuals to undertake more thought suppression than others. Wenzlaff and Wegner (2000) note that metacognitions, "beliefs, expectations and judgments about our own mental processes and products" (p. 68), may influence whether an individual attempts to suppress thoughts, and suggest that the most important metacognition in this respect is believing that thought suppression can succeed. Individuals' success or failure in controlling their thoughts should influence how likely they are to try to suppress them. Fear of not having such control may also motivate thought suppression. These specific types of metacognitive beliefs may therefore determine an individual's level of thought suppression, which in turn may determine their proneness to hallucinations.

1.2. Metacognitions and AVHs

The arguments outlined above suggest a model whereby the suppression of a thought leads to the intrusive, unwanted rebound into consciousness of the thought, which in certain circumstances comes to be experienced as an AVH. The role played by metacognitions in this model is in determining the extent to which the individual engages in thought suppression. However, other work suggests that this mechanism may be too simplistic. Morrison, Haddock, and Tarrier (1995) made the plausible proposal that metacognitive beliefs work to cause AVHs, not through raising the likelihood of thought suppression and intrusive thoughts, but through affecting how one deals with intrusive thoughts once they occur. They suggest that the process by which intrusive thoughts come to be misattributed to an external source, and hence experienced as AVHs, is mediated by metacognitive beliefs. Thus, if an intrusive thought occurs which is not consonant with one's metacognitive beliefs—for example, experiencing an intrusive thought but believing that not having control of one's thoughts is dangerous—then, in order to reduce cognitive dissonance, the intrusive thought is attributed to an external source and as a result is experienced as an AVH.

Wegner's (2002) work on the relations between thought suppression and intruding, rebounding thoughts may be combined with Morrison et al.'s (1995) model to form a model of AVHs as shown in Fig. 1. This figure allows that metacognitive beliefs may be involved at two stages in the process of AVH-generation. Firstly, metacognitive beliefs may affect how likely thought suppression, and hence the particular kind of intrusive thoughts that are proposed often to follow thought suppression, are to occur. Secondly, once intruding thoughts occur, metacognitive beliefs may affect how likely these thoughts are to be attributed to an external source.

What is unclear is what types of metacognitive beliefs are involved at the two different points of influence described in this model. Fortunately, Morrison et al.'s (1995) findings have inspired a number of studies investigating the relations among metacognitive beliefs and AVHs. These papers typically use Cartwright-Hatton and Wells' (1997) Metacognitions Questionnaire, or its shorter form, Wells and Cartwright-Hatton's (2004) MCQ-30, to operationally define and measure an individual's metacognitive beliefs. These questionnaires consist of five subscales.

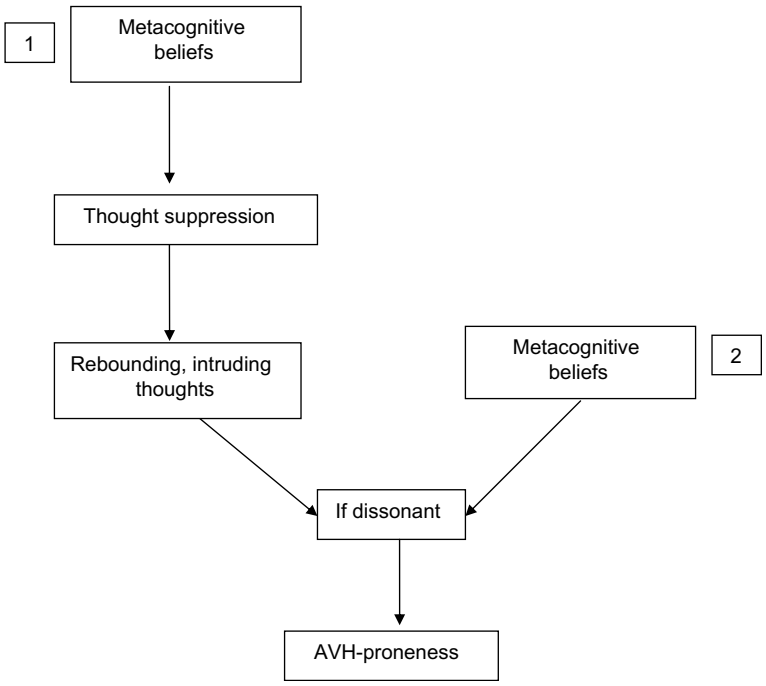

Fig. 1. The Morrison–Wegner model of AVHs.

'Positive Beliefs About Worry' indexes the extent to which an individual believes worrying is a helpful and good quality. 'Uncontrollability' produces high scores in individuals who believe that they worry uncontrollably and that this is dangerous for them. 'Cognitive Confidence' measures individuals' likelihood of doubting their own memory. 'Need to Control Thoughts' produces high scores if individuals believe that not controlling their worrying thoughts is undesirable. Finally, 'Cognitive Self-Consciousness' determines whether individuals pay close attention to their thoughts.

Laroi, Van der Linden, and Marczewski (2004) found all five subscales of the MCQ to correlate with hallucination-proneness in a non-clinical sample. They went on to argue, following Morrison et al. (1995), that one is more likely to attribute one's thoughts to an external person (i.e., have an externalizing bias) if one scores highly on the MCQ. In contrast, a later study by Cangas, Errasti, García-Montes, Álvarez, and Ruiz (2006) found that positive beliefs about worry did not correlate with hallucination-proneness. One limitation of both studies is the failure to control for the level of unwanted intrusions participants may have. This is problematic because, as the model described in Fig. 1 suggests, metacognitive beliefs are able to influence the genesis of AVHs at two points. Although Laroi et al. (2004) do not make this distinction, their work suggests that all five types of metacognitive beliefs have a role in AVH production due to their effects at Point 2 in Fig. 1. Thus their model would predict that, if the level of unwanted intrusions were controlled for, then all MCQ-30 subscales should still be significant predictors of AVH-proneness. We set out to test this prediction by controlling for levels of self-reported intrusiveness of unwanted thoughts, specifically those postulated to occur as a result of thought suppression.

We also aimed to evaluate Wenzlaff and Wegner's (2000) claim that metacognitions affect the probability of thought suppression being undertaken (through their action at Point 1 in Fig. 1). Wenzlaff and Wegner's work would predict that the Uncontrollability subscale of the MCQ-30 will be negatively correlated with thought suppression levels. This is because a high score on Uncontrollability indicates a belief that dangerous worrying thoughts are unlikely to be successfully stopped, which should in turn discourage thought suppression from being undertaken.

In summary, we investigated four hypotheses: (1) that thought suppression (as assessed on the WBSI) would correlate positively with AVH-proneness (as assessed using the LSHS-R); (2) that Uncontrollability scores would correlate negatively with thought suppression; (3) that all metacognitive beliefs would correlate positively with AVH-proneness; and (4) that positive relations between metacognitive beliefs and AVH-proneness would remain when the self-reported intrusiveness of unwanted thoughts subscale of the WBSI was controlled for through multiple regression analyses.

2. Method

2.1. Participants

A circular e-mail was sent to undergraduates enrolled on a range of different programs at a British university informing them of a website where they could take part in the study. 751 undergraduates (328 males and 423 females) with a mean age of 20.1 years ($SD = 2.6$) participated. No incentive was offered for participation.

2.2. Measures

Participants completed three online questionnaires in the same order, as follows:

WBSI: The White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994) is a 15-item self-report measure of tendency to suppress thoughts. Each item is scored on a five-point Likert scale consisting of: "strongly agree" (5), "agree" (4), "neutral or do not know" (3), "disagree" (2), "strongly disagree" (1). Total scores can range from 15 to 85. Higher scores indicate a greater tendency to suppress thoughts.

Muris, Merckelbach, and Horselenberg (1996) have argued that the WBSI taps intrusive thinking as well as thought suppression. As such they devised a "corrected WBSI" (p. 505) which removed all items relating to intrusion (items 2, 3, 4, 5, and 9). This was found to have satisfactory internal reliability and test-retest reliability. The items on the WBSI making up the corrected WBSI, which we term $WBSI_{sup}$, were used as a measure of self-reported thought suppression.

Following Muris et al. (1996), numerous factor analyses have confirmed that the WBSI measures both thought suppression and intrusive thoughts. Blumberg (2000), Höping and de Jong-Meyer (2003) and Rassin (2003) all identified subtly different 'unwanted intrusive thoughts' factors of the WBSI. However, all these studies found what Muris et al. (1996) identified as the 'intrusion items' on the WBSI (items 2, 3, 4, 5 and 9) to load onto this factor. Thus, we used items 2, 3, 4, 5, and 9 as a separate measure of self-reported intrusiveness of unwanted thoughts ($WBSI_{intru}$).

LSHS-R: The revised Launay-Slade Hallucination Scale (Launay & Slade, 1981, modified by Bentall & Slade, 1985) is a 12-item instrument designed to measure predisposition to

hallucination-like experiences. Each item is scored on a five-point Likert scale consisting of: "certainly applies to me" (4), "possibly applies to me" (3), "unsure" (2), "possibly does not apply to me" (1), "certain does not apply to me" (0). Total scores can range from 0 to 48. Higher scores indicate a greater predisposition to hallucination-like experiences.

MCQ-30: The Metacognitions Questionnaire 30 (MCQ-30; Wells & Cartwright-Hatton, 2004) is a 30-item self-report measure of individual differences in metacognitive beliefs, judgments, and monitoring tendencies. Its five sub-scales, derived by factor analysis, include Cognitive Confidence, Positive Beliefs, Cognitive Self-Consciousness, Uncontrollability and Danger of Thoughts, and Need to Control Thoughts. Each item is scored on a four-point Likert scale consisting of: "agree very much" (4), "agree moderately" (3), "agree slightly" (2), "do not agree" (1). Total scores can range from 30 to 120.

3. Results

Mean scores and standard deviations for all variables are presented in Table 1. Cronbach's alphas for all scales used were greater than 0.7, except for the Need to Control Thoughts subscale of the MCQ-30 which had an alpha of 0.65 (cf. 0.72 in Wells & Cartwright-Hatton, 2004).

Parametric statistical analysis was performed on the data using multiple linear regression. The assumption of independence of residuals was assured as the Durbin–Watson value of the model was 2.07. A Kolmogorov–Smirnov test indicated that the standardized residuals did not deviate from normality ($D = 0.02$, $p > 0.05$). Examination of a plot of standardized residuals against standardized predicted values suggested no violation of the assumption of homoscedasticity. $WBSI_{intru}$ and MCQ subscale scores were centered prior to forming the multiplicative term as recommended by Jaccard, Turrisi, and Wan (1990) to remove multicollinearity.

Bivariate correlations are presented in Table 2. In order to account for the effects of shared method variance, the correlation between a variable theoretically unrelated to LSHS-R score was used as a method variance marker variable (Lindell & Whitney, 2001). The variable selected was participants' university department, as there was thought to be no theoretical relationship between this and LSHS-R score. The correlation between department and LSHS-R was

Table 1
Descriptive statistics

Variable	Mean	Standard deviation
LSHS-R	17.16	8.18
$WBSI_{sup}$	33.09	6.54
$WBSI_{intru}$	18.04	3.24
MCQ		
Cognitive confidence	10.60	3.81
Positive beliefs	10.32	3.95
Cognitive self consciousness	14.06	4.27
Uncontrollability/danger	10.82	4.14
Need to control thoughts	9.88	3.02

Table 2
Bivariate correlations

	1	2	3	4	5	6	7	8
1. LSHS-R		.32**	.37**	.21**	.09*	.30**	.33**	.21**
2. $WBSI_{sup}$			.55**	.18**	.09*	.14**	.44**	.26**
3. $WBSI_{intru}$				.21**	.14**	.22**	.41**	.14**
4. MCQ: Cognitive confidence					.13**	.08*	.31**	.20**
5. MCQ: Positive beliefs						.25**	.30**	.20**
6. MCQ: Cognitive self consciousness							.28**	.31**
7. MCQ: Uncontrollability/danger								.41**
8. MCQ: Need to control thoughts								

* Correlation significant at the 0.05 level (2-tailed).
** Correlation significant at the 0.01 level (2-tailed).

$r = 0.05$, n.s., supporting the conclusion that the correlation co-efficients in Table 2 were not significantly contaminated by common method variance.

A hierarchical Multiple Linear Regression was performed with LSHS-R score as the dependent variable. Age and gender were entered into the model in the first block (direct entry). $WBSI_{intru}$ was entered in a second block. All MCQ subscales were entered in a third block with their interactions with $WBSI_{intru}$ being entered in a fourth block (see Table 3). For the regression analysis Model 1, R was 0.06 and not significant, $F(2, 748) = 1.39$, n.s.. For the overall Model 2, R was 0.37 and was significant, $F(3, 747) = 40.45$, $p < 0.001$. This step was significant, $\Delta R^2 = 0.14$, $\Delta F(1,747) = 118.12$, $p < 0.001$. For the overall Model 3, R was 0.48 and was significant, $F(8, 742) = 27.64$, $p < 0.001$. This step was significant, $\Delta R^2 = 0.09$, $\Delta F(5,742) = 17.31$, $p < 0.001$. The addition of the interaction terms in the fourth block was not significant, $\Delta R^2 = 0.01$,

Table 3
Multiple regression statistics for LSHS-R scores (Models 1, 2, and 3)

Variable	Beta	Lower CI	Upper CI	p
Model 1				
Age	−.04	−.33	.12	.34
Gender	−.05	−2.02	.34	.17
Model 2				
Age	−.01	−.21	.21	.99
Gender	−.03	−1.62	.58	.35
$WBSI_{intru}$	.37	.77	1.11	<0.001
Model 3				
Age	.01	−.20	.20	.99
Gender	−.04	−1.76	.41	.23
$WBSI_{intru}$	.26	.47	.82	<0.001
MCQ: Cognitive confidence	.11	.08	.37	<0.01
MCQ: Positive beliefs	−.07	−.28	.01	.06
MCQ: Cognitive self-consciousness	.21	.26	.53	<0.001
MCQ: Uncontrollability	.12	.09	.40	<0.01
MCQ: Need to control	.06	−.05	.35	.14

$\Delta F(5,737) = 1.8$, n.s., and hence is not reported in Table 3. In the overall Model 3, four variables were significant predictors of LSHS-R score, namely $WBSI_{intru}$ and the MCQ-30 subscales of Cognitive Confidence, Cognitive Self-Consciousness, and Uncontrollability. Of the MCQ-30 subscales that were significant predictors of hallucination-proneness, the strongest was Cognitive Self-Consciousness, followed by Uncontrollability and Cognitive Confidence. Both of the latter variables had approximately half the predictive effect size of Cognitive Self-Consciousness, as indicated by beta scores.

As noted earlier, different studies have identified slightly different sets of items as loading onto the intrusiveness of unwanted thoughts factor of the WBSI. Accordingly, we reran our analysis using the factor "Unwanted Intrusive Thoughts" (items 2–7, 9, 12, and 15 of the WBSI) identified by Höping and de Jong-Meyer (2003) in place of our $WBSI_{intru}$. We also reran our analysis using the "Intrusion" (items 2–5, 8, and 9 of the WBSI) factor identified by Rassin (2003) in place of our $WBSI_{intru}$. Neither of these alternative analyses altered the pattern of our findings.

4. Discussion

We set out to investigate relations among two subscales (self-reported intrusiveness of unwanted thoughts and thought suppression) of the WBSI, metacognitive beliefs, and AVH-proneness. In support of our first hypothesis, both subscales of the WBSI were positively correlated with AVH-proneness. Our second hypothesis, that the Uncontrollability subscale of the MCQ-30 would negatively correlate with thought suppression levels, was not supported. As predicted by our third hypothesis, Laroi et al.'s (2004) finding of positive correlations among all MCQ-30 subscale scores and LSHS-R scores was replicated. Our final hypothesis stated that, when $WBSI_{intru}$ was held constant through a multiple regression analysis, the relations among all MCQ-30 subscales and AVH-proneness would remain. This prediction was not supported. When $WBSI_{intru}$ was controlled for, Positive Beliefs and Need to Control Thoughts were no longer significant predictors of AVH-proneness.

Our findings lend some support to the model outlined in Fig. 1. According to this model, metacognitive beliefs will be a factor in determining the amount of thought suppression undertaken, through the influence of such beliefs at Point 1. All subscales of the MCQ-30 were found to correlate positively with both subscales of the WBSI. Although an estimate of the correlation inflation due to common method variance suggests these correlations would all remain significant, it seems conservative, with such a large sample, only to accept correlations above 0.3 as having both practical and statistical significance. On these criteria, the only metacognitive belief to correlate significantly with thought suppression was Uncontrollability. Wenzlaff and Wegner's (2000) model would predict a negative, rather than a positive, correlation. One explanation of our finding of a positive correlation might be that, although a positive score on Uncontrollability indicates that thought suppression is failing, it also indicates that thought suppression is being performed. One possibility for future research might be a longitudinal investigation into whether those scoring highly on Uncontrollability, whose responses to the MCQ would seem to indicate that thought suppression is failing, would later come to reduce their levels of attempted thought suppression accordingly. The present findings suggest that individuals' levels of thought suppression (however they are in turn influenced by metacognitive beliefs) will indeed relate to such individ-

uals' AVH-proneness. We can therefore conclude that the present findings provide support for this part of the model.

The results of the multiple linear regression suggest that the influence of metacognitive beliefs at Point 1 of the model is not in itself sufficient to explain why AVHs occur. Rather, metacognitive beliefs were also hypothesized to play a role once thought suppression had generated rebounding intrusive thoughts. Only three of the five MCQ-30 subscales were found to be significant predictors of AVH-proneness once $WBSI_{intru}$ was controlled for. The strongest of these predictors was Cognitive Self-Consciousness, which represents how much attention individuals pay to their thoughts and how aware of them they are. Following Morrison et al. (1995), this may be because the more attention one pays to one's thoughts, the more likely one is to notice when they are dissonant with one's other metacognitive beliefs, and hence the more likely they are to be externalized. An alternative reason for this metacognitive style being causal in AVHs is the potential dissociative effects of taking a third-person stance to one's own cognitions. Many artists and writers who have undertaken close introspections of their own cognitive processes have concluded that thoughts come by themselves (Nietzsche, 1886/1998; Sass, 1992). Thus, it may be that those who come to pay close attention to their thoughts, because of the very nature of thoughts themselves, may have an increased proneness to AVHs.

The other notable finding of this study was that Need to Control Thoughts was not a predictor of AVH-proneness once $WBSI_{intru}$ was controlled for. Morrison et al.'s (1995) model, in contrast, would predict that, for a given level of intrusive thoughts, the need to control one's thoughts will relate to the dissonance caused when intrusive thoughts are actually experienced, and hence to an individual's likelihood of externalizing the intrusive thought and experiencing it as an AVH. These findings suggest that the Morrison et al. (1995) model needs to be revised. Instead of a model that relies exclusively upon dissonance between intrusive thoughts and metacognitive beliefs causing an externalizing bias, we submit that the findings are better accounted for by the model shown in Fig. 2.

We propose that the model should be interpreted in the following way. The experience of unwanted intrusive thoughts, produced by, among other mechanisms, thought suppression, may form the raw material of some AVHs. Once an individual experiences an intrusive thought, it is primarily the individual's degree of awareness of these thoughts (Cognitive Self-Consciousness) that predicts whether they will be experienced as AVHs. That is, individuals who endorse MCQ-30 items such as "I pay close attention to the way my mind works" will be more prone to AVHs. Other factors that increase the individual's proneness to AVHs are the individual's low confidence in their memory of the authorship of the thought (leading them to endorse, for example, an item such as "I have a poor memory"), and the potentially distressing combination of beliefs about the uncontrollability of thoughts (e.g., "I cannot ignore my worrying thoughts") and the actual experience of intrusive thoughts.

A number of caveats must be made about these results. Firstly, we used a subscale of the WBSI as a measure of the intrusiveness of unwanted thoughts. It remains to be seen whether the present findings will be replicated with measures such as the Intrusive Thoughts Questionnaire (Dougall, Craig, & Baum, 1999). Secondly, it has been noted that the WBSI tends to focus on failing suppression attempts (Rassin, 2003). Thus our finding that thought suppression levels correlate with AVH-proneness should be taken as meaning that it is only when thought suppression fails (rather than succeeds), and thoughts rebound intrusively, that AVH-like experiences may be engendered.

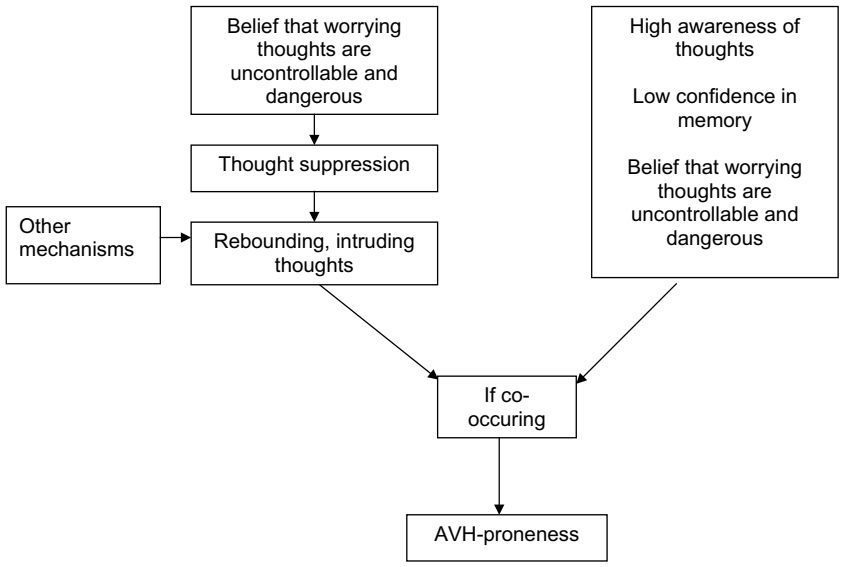

Fig. 2. Revised model of proneness to AVHs.

Furthermore, although we argued above that higher levels of thought suppression will cause greater AVH-proneness, correlation does not imply causation, and so these results cannot be taken to substantiate or establish the direction of any causal relations. In order to build on the findings reported here, longitudinal investigations are needed to examine whether levels of thought suppression prospectively predict experience of AVHs later in life. Finally, although it is possible that our use of on-line questionnaires may have led to biased patterns of responding, we note that such a method has recently been demonstrated to be a reliable method for gathering such data (Freeman, Dunn, & Garety, 2005).

We conclude by considering some implications of our findings for clinical interventions. Firstly, attempts to reduce thought suppression may be effective in reducing the greater levels of intrusive thoughts that AVH-hearing patients with schizophrenia have been found to experience, compared to psychiatric and non-patient control groups (Morrison & Baker, 2000). Secondly, interventions targeted at those metacognitive factors identified as increasing the risk of hallucination proneness, such as the belief that uncontrollable thoughts are worrying and dangerous, may reduce the proneness of those with AVHs to experience such intrusive thoughts as alien. Such recommendations are contingent on our model being validated for a clinical population. Previous studies examining metacognitive factors in a clinical population (e.g., Lobban, Haddock, Kinderman, & Wells, 2002) have not controlled for levels of intrusive thoughts, and such a study would certainly aid our understanding of the roles of metacognitions in AVHs. Another challenge for future research is to examine how different methods of undertaking thought suppression may have differential effects on individuals' predisposition to AVHs. As García-Montes, Cangas, Perez-Álvarez, Fidalgo, and Gutiérrez (in press) have found, undertaking thought suppression through attempting to worry about matters of less importance appears to be related to greater disposition to hallucinations. It is possible that clinical targeting of particular kinds of thought suppression may be most effective in reducing individuals' proneness to AVHs.

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