Persecutory delusions and catastrophic worry in psychosis: Developing the understanding of delusion distress and persistence

Helen Startup*, Daniel Freeman, Philippa A. Garety

Department of Psychology, Institute of Psychiatry, P.O. Box 77, King's College London, Denmark Hill, London SE5 8AF, UK

Abstract

In a recent theoretical account of persecutory delusions, it is suggested that anxiety and worry are important factors in paranoid experience [Freeman, D., Garety, P. A., Kuipers, E., Fowler, D., & Bebbington, P. E. (2002). A cognitive model of persecutory delusions. *British Journal of Clinical Psychology*, *41*(4), 331–347]. In emotional disorders worry has been understood in terms of catastrophising. In the current study, the concept of catastrophising is applied for the first time with persecutory delusions. Thirty individuals with current persecutory delusions and 30 non-clinical controls participated in a cross-sectional study. The group with persecutory delusions was also followed up at 3 months to assess predictors of delusion persistence. At its most severe, 21% of individuals with persecutory delusions had clinical worry, 68% had levels of worry comparable with treatment seeking GAD patients. Further, high levels of anxiety, worry and catastrophising were associated with high levels of persecutory delusion distress and with the persistence of delusions over 3 months. If future research replicates these findings, worry reduction interventions for individuals with persecutory delusions may be warranted.

© 2006 Elsevier Ltd. All rights reserved.

Keywords: Delusions; Anxiety; Worry; Catastrophic worry; Paranoia

Introduction

In the last 10 years, advancements have been made in our understanding of cognitive and behavioural factors relevant to delusions and this has been accompanied by advancements in psychological treatment (e.g. Sensky et al., 2000). Nonetheless, at least one-third of individuals with persistent positive symptoms do not demonstrate measurable benefit from interventions such as cognitive behavioural therapy (CBT) and remain distressed by symptoms (Kuipers et al., 1998). One route to improving treatment interventions is to further our understanding of pathways that lead to delusion distress and persistence. In the current study, we focus upon understanding the contribution of anxiety to the experience of persecutory delusions.

*Corresponding author. Tel.: +44 7796 273441.

E-mail address: h.startup@iop.kcl.ac.uk (H. Startup).

Anxiety and delusions

Anxiety is known to be present at all stages of delusion formation and maintenance (cf. Freeman, Garety, Kuipers, Fowler, & Bebbington, 2002). Mueser et al. (1998) report that levels of anxiety are high in many years before the development of psychosis. Further, prospective, retrospective and clinical studies find that in a majority of cases (60–80%), symptoms of anxiety, depression and irritability precede by 2–4 weeks the appearance of positive symptoms, often accompanied by subtle cognitive changes and later, by low-level psychotic phenomena (Birchwood, Macmillan, & Smith, 1992; Docherty, Van Kammen, Siris, & Marder, 1978). There is also a high comorbidity of anxiety disorders and psychosis. Cosoff and Hafner (1998) report that 43% of 60 consecutive inpatients with schizophrenia have an anxiety disorder. Thus, anxiety has the potential to play a role at all stages of persecutory belief formation.

The importance of anxiety to the delusional experience is highlighted in a recent theoretical model of persecutory delusions (Freeman et al., 2002). For instance, anxiety is considered to provide the threat theme integral to a persecutory delusion; anxiety and worry processes are hypothesised to lead to delusional thoughts becoming distressing; and anxiety related processes such as worry and safety behaviours are hypothesised to contribute to delusion persistence. One study of delusions is of particular interest here. Freeman and Garety (1999) compared individuals with persecutory delusions and individuals with Generalized Anxiety Disorder (GAD) on measures of anxiety, worry and meta-worry. It was found that (i) both the tendency to worry and the frequency of general worry for the persecutory delusions group were comparable with that found in the anxious group and (ii) many patients with persecutory delusions endorsed meta worry items (such as 'I worry that I cannot control the thoughts about the belief') and the presence of such meta-worry and trait anxiety were strongly correlated with delusion *distress*. This study provides the first empirical evidence that worry may be important to the delusional experience.

Worry and catastrophising

It is argued that worry in delusions can be understood in terms of the same processes as worry in anxiety disorders. The focus here is on catastrophic worry specifically (for a review of general theories of worry, see Davey & Wells, 1996). Worry by individuals with persecutory delusions may be understood by the process of catastrophising known to drive worry in GAD (Davey & Levy, 1998; Startup & Davey, 2001; Vasey & Borkovec, 1992). Catastrophising occurs when individuals persistently iterate the problematic features of their worry topic. However, rather than bringing the worry problem to a satisfactory close, catastrophising leads to the worrier perceiving progressively worse outcomes to the worry topic. It is often characterized as the worrier posing internal, automatic questions of the "what if…?" kind (Kendall & Ingram, 1987). Recent studies of perseverative catastrophising have utilised an experimental interview procedure based on the cognitive therapy technique of decatastrophising (Kendall & Ingram, 1987). This interview procedure invites the participant to iterate successive steps in the catastrophising process, providing a quantative assessment of catastrophic worry (i.e. the number of catastrophising steps generated). The interview begins with the experimenter asking the question "What is it that worries you about (X)?" where X is traditionally the participant's current main worry. The experimenter then repeats this question but substituting the participant's answer to the first question for X. For example, if the individual's worry topic is—arguments with my partner, the first question will be "what is it that worries you about arguments with your partner?" If the participant replies, "that she might leave me", the experimenter then asks "what is it that worries you about your partner leaving you?" and so on. The catastrophising interview is terminated when participants report that they can think of no more responses.

Studies have consistently found that worriers generate significantly more catastrophising steps than non-worriers, report a significant increase in subjective discomfort as catastrophising unfolds, and rate events in the catastrophising sequence as significantly more likely to occur than non-worriers (Davey & Levy, 1998; Startup & Davey, 2001, 2003; Vasey & Borkovec, 1992). Moreover, similar relationships have been replicated for individuals meeting criteria for GAD (Hazlett-Stevens & Craske, 2003). Davey and Levy (1998) have found that worriers will not only iterate over negative material to a greater degree than non-worriers but that they will iterate over positive material to a greater degree too. They thus suggest that worriers may have a

'general perseverative iterative' cognitive style that operates independently of the valence of the iterative material. In order to explore such hypotheses a 'reverse' catastrophising interview procedure is used, which is identical in format to the catastrophising interview but invites participants to iterate steps for a *positively* valanced hypothetical scenario (such as why it would be a good thing to be a weather forecaster cf. Davey & Levy, 1998).

The current study

The current research is designed to test the paranoia model predictions of a role for worry in delusional experience (Freeman et al., 2002). A key process characteristic of worry-catastrophising—is explored within a population of individuals with persecutory delusions. In addition a 'reverse' catastrophising procedure is employed to explore the predictions of Davey and Levy (1998). Following Freeman and Garety (1999), associations between catastrophic worry and the dimensions of the delusional experience are then considered. The relationships between worry and delusional persistence will also be explored at 3-month follow-up. Based upon our literature review, the following hypotheses are tested:

(1) The majority of individuals with persecutory delusions will have high levels of anxiety and worry compared with a non-clinical control group.
(2) In individuals with persecutory delusions, worry will be associated with a greater number of catastrophising steps in the catastrophising interview.
(3) In individuals with persecutory delusions worry will also be associated with greater 'reverse' catastrophising.
(4) Anxiety and worry will be associated with increased severity and likelihood ratings for catastrophic outcomes.
(5) Anxiety and worry will be associated with levels of delusional distress.
(6) Anxiety and worry will be associated with less recovery in delusions over 3 months (i.e. delusion persistence).

Method

The initial part of the study addressed the first five hypotheses and used a cross-sectional design with two groups (those with persecutory delusions and non-clinical). The second part of the study was longitudinal: the group with delusions was assessed at a 3-month follow-up to investigate the sixth hypothesis, concerning the prediction of delusion persistence.

Participants

Participants with persecutory delusions
Thirty individuals with current persecutory delusions took part in the study. They were all inpatients at the time. Inpatients were selected so that current acute delusions were present, which would, in a proportion naturally recover over the subsequent 3 months (cf. Lewis et al., 2002). Paranoia questions from the PSE-10 were used for screening purposes. The inclusion criteria were as follows: (a) a current persecutory delusion meeting the criteria set out by Freeman and Garety (2000), i.e. more than 'fairly' sure that harm was going to occur to them and that their persecutor(s) had the intention to cause them harm. (b) Aged between 18 and 65. Thirty-three individuals were approached for the study and three did not take part, one because he or she declined and the other two because on interview they did not meet the necessary criteria.

Control participants
The control group was recruited by placing adverts in the local job centre, shopping centre and other public locations. Individuals were screened by interview and were excluded from the control group if they were currently suffering from or reported a history of mental illness or if they currently or previously used

recreational drugs or had had a head injury. In total, 30 individuals were selected. Attempts were made to broadly match participants with the experimental group in terms of age and gender.

Procedure

The main assessment was completed in one session lasting an hour. The follow up meeting with the clinical group occurred 3 months after the initial assessment and lasted approximately 15 min. The order of the items in the assessment was fixed.

Assessments

The positive symptoms of psychosis. The presence of positive symptoms of psychosis was assessed in an initial mental state examination using the Present State Examination-10 (WHO, 1992) and verified by inspection of medical notes. Diagnostic assignments were made from case note data.

The nature of the persecutory delusion was explored during the clinical interview, which aimed to (1) establish the topic of the persecutory delusion, (2) to verify it met criteria for a delusion to be classified as persecutory as set out by Freeman and Garety (2000) (A. The individual believes that harm is occurring, or is going to occur, to him or her. B. The individual believes that the persecutor has the intention to cause harm). For further points of clarification see Freeman and Garety (2000). Further the persecutory delusion was rated on the multi-dimensional symptom measure the Psychotic Symptoms Rating Scales (PSYRATS; Haddock, McCarron, Tarrier, & Faragher, 1999).

The PSYRATS is a 17-item, 5-point (0–4) measure of delusions and hallucinations. Symptoms over the last week are rated and only the Delusions subscale is reported here. The measure is increasingly being used in psychological treatment studies (Lewis et al., 2002). Inter-rater reliability for the scale is very good (intra-class correlation coefficients for the items range from 0.79 to 1.0), but test–retest statistics have not been reported. When specific hypotheses are being tested then results using the appropriate individual PSYRATS item are reported (conviction, amount of preoccupation, amount of distress and intensity of distress), at all other times the overall PSYRATS total score is reported (including all 6 delusion items).

Assessment of premorbid IQ. An estimate of pre-morbid IQ was made using the National Adult Reading Test (NART; Nelson, 1982). This measure was included in order to establish whether differences in premorbid IQ between the clinical and non-clinical groups could account for the predictions made concerning worry and number of catastrophising steps.

Assessment of anxiety and worries. The Beck Anxiety Inventory (BAI) (Beck, Epstein, Brown, & Steer, 1988) was completed as a measure of the severity of anxiety. It is a 21-item self-report inventory. Respondents are required to indicate how much they have been "troubled by each symptom during the past week including today." Items are scored on a 0–3 point scale (total score ranging from 0 to 63). The BAI has high internal consistency and test–retest reliability (Beck et al., 1988).

The Penn State Worry Questionnaire (PSWQ) was used as a measure of general worry (Meyer, Miller, Metzger, & Borkovec, 1990). It is a 16-item measure of trait worrying designed to capture the generality, excessiveness and uncontrollability of pathological worry (Fresco, Mennin, Heimberg, & Turk, 2003). Startup and Erickson (2006) report a mean score of 47.42 ($N = 2271$, SD $= 13.40$) for a sample of unselected, predominantly student samples and a mean score of 63.24 for a GAD analogue clinical sample identified by screening with the Generalized Anxiety Disorder Questionnaire (GADQ; Roemer, Borkovec, Posa, & Borkovec, 1995) ($N = 324$, SD $= 9.33$). Fresco et al. (2003) report an optimal cut-off score of 65 (optimising both sensitivity and specificity) on the PSWQ as a means of correctly classifying individuals with GAD and distinguishing them from individuals with social anxiety. Behar, Alcaine, Zuellig, and Borkovec (2003) found that a PSWQ score of 45 optimised sensitivity and specificity in discriminating treatment-seeking GAD clients from non-anxious controls.

Catastrophising interview

The catastrophising interview was modelled on that reported by Vasey and Borkovec (1992) and contains the methodological refinements introduced by Startup and Davey (2001, 2003). These refinements

include; (1) writing down the participants' catastrophising responses as they are offered rather than audio taping them. Although encouraging briefer responses, this method has been shown to encourage participants to tease out the worry steps *themselves* rather than the experimenter doing so post hoc (Startup & Davey, 2001); (2) during the catastrophising interview, participants are specifically questioned 'what is it that worries you about X', rather than, 'what is it that is fearful or bad about X' as was the case in the original procedure of Vasey and Borkovec (1992). This latter wording is not considered commensurate with understanding worry per se (Davey & Levy, 1998; Startup & Davey, 2001); also (3) the participants were presented with an example worry topic of "exams", including the first five catastrophising steps as an example of the interview format that would follow. The example was included at this stage of the procedure because prior research has shown that it is useful for participants to have an awareness of the format of the interview before engaging with it at a personal level (cf. Startup & Davey, 2001).

The persecutory beliefs held by the individuals with delusions and the main worry of the control participants were then subject to the catastrophising interview.

The interview begins with the experimenter (HS) asking the question "What is it that worries you about (X)?" where X is traditionally the participant's current main worry (in the case of control participants for this study) or in the case of the participants with delusions, the topic of their persecutory delusion. The experimenter then repeats this question but substituting the participant's answer to the first question for X. For example, the first question will be "what is it that worries you about being spied on through the cameras?" If the participant replies, "people will know my secrets", the experimenter then asks "What is it that worries you about people knowing your secrets?" and so on. This standardised form of questioning was adopted throughout the catastrophising interview to avoid any experimenter bias in the way questions were worded. The catastrophising interview was terminated when the participants said that they could think of no further responses.

After completing the catastrophising interview, all participants were asked to rate on two separate 0–100 point analogue scales, the likelihood of the *final* step in the catastrophising sequence occurring and the severity of this outcome should it occur (where 0 = not all likely/severe and 100 = extremely likely/severe).

Participants were then presented with an example of a reverse catastrophising worry topic—"going on holiday", including the first five reverse catastrophising steps as an example of the interview format that would follow (cf. Startup & Davey, 2001).

Thus, participants in the experimental group and control participants both took part in the 'reverse' catastrophising interview. The same topic (being a weather forecaster) was utilised for both groups.

Participants were asked to imagine that they are a weather forecaster, and that they are actually very happy in their job. Being a weather forecaster was then subject to the 'reverse' catastrophising procedure described below.

This interview begins with the experimenter asking the question "What is it about being a weather forecaster that is good?" If the participant's response was, for example, "earning lots of money", they were then asked, "what is it about earning lots of money that is good?" and so on. This process continued until the participant could think of no more responses.

The number of steps in each interview is then calculated. The number of steps was judged according to whichever of the following two criteria was first met: (1) the participant did not give any further answers, or (2) the participant repeated the same or a similar answer three times (cf. Vasey & Borkovec, 1992). This condition is usually determined by post interview examination of the responses. In the case where repetition may have occurred this would be examined by a second independent rater. In this study, however, it was clear that no participant sequence met this criterion. Thus, in all cases the total number of catastrophising steps generated by the participant was the outcome variable.

Demographic and clinical information

A number of demographic and clinical variables (age, gender, diagnostic assignment, ethnic group and details of anti-psychotic medication) were obtained from psychiatric case notes. So that comparisons of dose across the anti-psychotic medications could be made, the quantities of antipsychotic medication taken by each individual at the time of testing were converted to Chlorpromazine equivalents, and are summarised as a low, medium or high dose (where low = 200 mg or less, medium = 201 mg–400 mg, high = >400 mg).

Assessment at 3-month follow-up

Three months following the initial meeting, the experimental group was assessed again using the PSYRATS.

Statistical analysis

Analyses were conducted using SPSS for Windows (Version 11.0, SPSS, 2001). Results are quoted as two-tailed probabilities. We used t tests for the comparison of groups on dimensional measures because necessary assumptions for parametric data were met, and 95% confidence intervals (CI) are presented. The χ^2 tests were used for group comparisons on dichotomous variables. Spearman's correlation coefficients were used to explore hypothesised relationships where the necessary assumptions for parametric tests were not met. For Hypothesis 1, comparing group worry scores, the study had 90% power to detect an estimated effect size of 0.85 using a 2-tailed t-test at 5% significance. For Hypothesis 2 (correlating number of catastrophising steps with levels of anxiety), the study had 90% power to detect a correlation coefficient of 0.85 using a 2-tailed t-test at 5% significance.

Results

Participant characteristics

In terms of key demographic variables, groups were matched on age, $t(58) = -0.71$, $p = 0.48$ and gender, χ^2 are (df = 1) = 1.15, $p = 0.21$. There was a significant group difference in premorbid IQ as assessed by the NART, $t(57.94) = -3.83$, $p < 0.001$, such that the control group had a higher mean IQ than the group with delusions. However, NART scores were not significantly associated with the number of catastrophising steps, in either the clinical or control group.

All participants in the experimental group were on anti-psychotic medication (however, data for medication are missing for 3 participants) and when converted to Chlorpromazine equivalents levels were as follows: low ($n = 11$), medium ($n = 11$), high ($n = 5$) (Table 1).

Clinical characteristics

Predominantly, the group with delusions had a case note diagnosis of schizophrenia ($n = 22$). A small number of participants had a diagnosis of schizoaffective disorder ($n = 3$), delusional disorder ($n = 1$), bipolar affective disorder ($n = 3$) and personality disorder ($n = 1$).

Table 1
Demographic details of the participants

	Group with delusions, $N = 30$	Non-clinical controls, $N = 30$
Mean age (SD)	34.67 (10.22)	36.53 (10.25)
Gender	17M, 13F	21M, 9F
Mean IQ (SD)	95.87 (12.83)	108.27 (12.42)
Ethnic group	White—14	White—14
	Black Caribbean—9	Black Caribbean—12
	Black other—7	Black other—4
Employment	Full-time employed—0	Full-time employed—12
	Unemployed—30	Part-time employed—6
		Voluntary worker—1
		Unemployed—10
		Student—1
Marital status	Single—26	Single—23
	Married—3	Married 5
	Divorced separated—1	Divorced/separated—2

The majority of individuals with delusions had additional positive symptoms. The most frequently identified co-occurring positive symptoms were auditory hallucinations ($n = 15$), followed by delusions of reference ($n = 13$), other types of hallucination ($n = 5$), thought disorder ($n = 5$), and grandiose delusions ($n = 4$). Three participants were identified as *only* having a persecutory delusion.

The clinical group had high levels of conviction in the persecutory belief at the time of initial testing, and the delusions were preoccupying and distressing for them (see Table 2). Internal reliability for the PSYRATS total score was good (Cronbach's alpha = 0.81).

The presence of anxiety and general worry

To examine Hypothesis 1, data from the anxiety and worry measures are presented in Table 3. The group with delusions were significantly more anxious than the non-clinical control group, $t(56) = 4.34$, $p < 0.001$, 95% CI 7.5–21.01. For the group with delusions, scores for the BAI ($n = 29$) were as follows (see Beck et al., 1988): 7 participants reported a score placing them in the 'not' anxious category (BAI < 10), 5 reported a score placing then in the 'mild/moderately' anxious category (BAI 10–18), 8 participants fell into the 'moderate-severely' anxious category (BAI 19-29), and 9 participants fell within the 'severely' anxious category (BAI > 30).

The mean anxiety score of the group with delusions is comparable with that reported by other authors who have sampled a population of individuals with persecutory delusions (e.g. $N = 11$, mean = 20.0, SD = 16.1, Freeman & Garety, 1999) and is similar to that reported for individuals with GAD (e.g. $N = 13$, mean = 22.9, SD = 14.2, Freeman & Garety, 1999). For the control participants scores for the BAI ($n = 30$) were as follows: 20 participants, scored within the 'not' anxious category (BAI < 10), 8 reported a score which placed them in the 'mild/moderately' anxious category (BAI 10–18), 0 participants fell into the 'moderate-severe' category (BAI 19–29), and 2 participants fell within the 'severely' anxious category (BAI > 30).

The non-clinical control group were comparable with community groups in other studies as measured by the BAI (e.g. $N = 242$, mean = 6.6, SD = 8.1, Gills, Haaga, & Ford, 1995).

The group with delusions also scored significantly higher than the control group on general worry, $t(55) = 2.79$, $p < 0.001$, 95% CI 2.88–17.65, as measured by the PSWQ. On reviewing the literature Startup and Erickson (2006) suggest a mean PSWQ score of 67.16 (SD = 9.16) for clinical GAD participants (as

Table 2
Summary data for persecutory beliefs ($N = 30$) as measured by the PSYRATS

PSYRATS item	Mean (SD)	% scoring 0	% scoring 1	% scoring 2	% scoring 3	% scoring 4
Conviction	3.40 (0.93)	0	6.70	10.00	20.00	63.30
Preoccupation with delusion	2.73 (1.08)	0	13.30	33.30	20.00	33.30
Duration of preoccupation	2.60 (0.93)	0	6.70	50.00	20.00	23.30
Amount of distress	2.73 (1.20)	0	20.00	26.70	13.30	40.00
Intensity of distress	2.90 (1.21)	0	16.70	26.70	6.70	50.00
Disruption to life caused by belief	3.43 (0.86)	0	3.30	13.30	20.0	63.30
Scale total	17.80 (4.48)					

Table 3
Scores for anxiety, worry and catastrophising steps

	N	Group with delusions	Range	N	Non-clinical control group	Range	Significance level
Mean Beck Anxiety Inventory (SD)	28	23.21 (8.83)		30	8.83 (9.74)		$p < 0.001$
Mean Penn State Worry Questionnaire (SD)	28	50.64 (15.91)		29	40.38 (11.66)		$p < 0.001$
Mean no. of Catastrophising Steps (SD)	30	5.73 (3.31)	2–16	30	5.30 (3.31)	1–15	$p = 0.61$
Mean no. of Reverse catastrophising steps (SD)	26	4.73 (1.66)	2–19	30	4.50 (2.08)	2–11	$p = 0.70$

Table 4
The Persecutory Delusions Group. Anxiety worry and measures of the delusional experience

	Convict	Preoc.	Distress (I)	Distress (A)	PSWQ	BAI	Cat steps	Reverse Cat	Likelihood	Severity	NART
PSYRATS											
Preoccupation	0.52**										
Distress (I)	0.09	0.24									
Distress (A)	0.16	0.44*	0.66**								
Worry and anxiety											
PSWQ	0.06	0.46*	0.42*	0.48**							
BAI	−0.015	0.16	0.32	0.34	0.55**						
Cat steps	−0.08	0.19	0.38*	0.16	0.74**	0.35*					
Reverse cat	−0.17	0.07	−0.01	−0.16	0.33	0.13	0.74**				
Likelihood	0.21	0.37	0.32	0.33	0.4*	0.08	0.47*	0.33			
Severity of outcome	0.12	0.27	0.33	0.48**	0.42*	0.68**	0.25	0.01	0.15		
Premorbid IQ											
NART	−0.02	−0.1	0.23	0.05	0.27	0.47*	0.16	−0.12	0.17	0.34	

Spearman's correlation coefficients. *$p<0.05$, **$p<0.01$, two-tailed tests.
PSWQ, Penn State Worry Questionnaire; BAI, Beck Anxiety Inventory; Cat Steps, number of catastrophising steps; Reverse cat, number of reverse catastrophising steps; Likelihood, rating of the likelihood of the final catastrophic step occurring; Severity of outcome, Severity of the final catastrophic step should it occur; NART, National Adult Reading Test.

Table 5
The control group—associations between anxiety worry and features of the worry experience

	PSWQ	BAI	Cat steps	Reverse Cat	Likelihood	Severity	NART
Worry and anxiety BAI	0.58**						
Cat steps	0.74**	0.51**					
Reverse cat	0.54**	0.46**	0.71**				
Likelihood	0.32	0.25	0.17	0.06			
Severity of outcome	0.29	0.2	0.25	0.13	0.11		
Premorbid IQ NART	0.06	−0.3	−0.1	−0.18	0.02	0.21	

Spearman's correlation coefficients: *$p<0.05$, **$p<.01$, two-tailed tests.
PSWQ, Penn State Worry Questionnaire; BAI, Beck Anxiety Inventory; Cat Steps, number of catastrophising steps; Reverse cat, number of reverse catastrophising steps; Likelihood, rating of the likelihood of the final catastrophic step occurring; Severity of outcome, Severity of the final catastrophic step should it occur; NART, National Adult Reading Test; Need for Closure, Need for Closure Scale.

assessed by structured diagnostic interview), 6 of those in the persecutory delusions group scored within this clinical range, that is 21% of the sample for which data is available. In total, 68% of the clinical group scored in a comparable range to treatment seeking GAD patients (e.g. a PSWQ cut score above 45, cf. Behar et al., 2003).

The non-clinical group seems to be fairly typical of unselected groups in terms of worry (mean PSWQ score = 40.38, SD = 11.66); for example, Startup and Erickson (2006) reported a mean score of 47.42 (N = 2271, SD = 13.40) for an unselected sample of predominantly college samples and a mean of 42.67 (N = 405, SD 11.71) for an unselected community sample. As would be expected, in the case of both the group with delusions and the control group, there was a significant correlation between worry score and BAI score. See Tables 4 and 5.

The presence of catastrophic worry

There was no significant difference between the two groups in the number of catastrophising steps, $t(58) = 0.51$, $p = 0.61$, or reverse catastrophising steps (see Table 3), $t(54) = .39$, $p = 0.70$. The mean scores for both the clinical and non-clinical groups are comparable with those of non-clinical participants in other

studies (e.g. Davey & Levy, 1998, Mean = 6.61, SD = 2.44) and are lower than those reported for individuals meeting criteria for GAD (Mean number of steps = 8.74, SD = 2.87)(Hazlett-Stevens & Craske, 2003).

Testing Hypotheses 2 and 3 (see Table 4), it was found that for the group with delusions the number of catastrophising steps correlated highly with PSWQ scores and there was also a significant relationship with BAI scores. High worry and anxiety scores were associated with a greater number of catastrophising steps. However, the number of 'reverse' catastrophising steps did not significantly correlate with BAI, $r = 0.13$, $p = 0.26$, or PSWQ scores, $r = 0.33$, $p = 0.10$, though the direction of the relationships are as predicted.

In the non-clinical group (see Table 5), there were significant correlations between number of catastrophising steps and BAI and PSWQ scores, and between the number of 'reverse' catastrophising steps generated and BAI, and PSWQ scores. High worry and anxiety scores were associated with higher levels of catastrophising and reverse catatstrophising.

Finally, as would be expected (cf. Startup & Davey, 2001), in the clinical group (see Table 4) there was a significant correlation between the number of catastrophising steps and reverse catastrophising steps generated and this finding was also present in the non-clinical group (see Table 5).

Catastrophic worry and severity and likelihood ratings for the catastrophic outcome

Correlations for the group with delusions between anxiety and worry and the clinical measures are presented in Table 4. In line with Hypothesis 4, those individuals with delusions who scored higher in terms of general worry and number of catastrophising steps also tended to rate the final outcome of their catastrophising sequence as being more likely to actually occur. Similarly, higher severity ratings for the final catastrophic step were associated with higher general worry scores and higher trait anxiety scores. However, severity ratings were not significantly associated with catastrophising steps. These relationships failed to reach significance for the control group.

Catastrophic worry, trait anxiety and the delusional experience

A key question is whether anxiety and catastrophic worry are linked to the delusional experience (Hypothesis 5). See Table 4 for correlations for the group with delusions between anxiety and worry and the clinical measures.

The key finding was that within the persecutory delusion group, general worry (as measured by the PSWQ) and number of catastrophising steps were related to delusional distress (either the amount of distress or intensity of distress). High levels of worry were related to high levels of delusional distress, both the intensity and amount experienced. Also, a greater number of catastrophising steps were related to higher levels of delusion distress intensity. The tendency toward general worry was also associated with delusional preoccupation. There were no associations between the conviction with which the delusions were held and general worry, trait anxiety, or catastrophic worry.

Delusion persistence

It was predicted that the variables of anxiety and worry would be related to the *maintenance* of the persecutory experience (Hypothesis 6). Twenty-five of the original sample (83%) were successfully reassessed. Five people were not reassessed because contact could not be re-established (e.g. change of address with no forwarding details) rather than because of refusal to participate in the second part of the study. Symptom scores for the reassessed sample are shown in Table 6.

Of the sample, 9 participants showed change in delusional symptomatology over the 3-month time period. Twenty-four percent of the sample ($n = 6$) had a reduction in their delusions as assessed by the PSYRATS (where improvement was defined as a change of at least one point on at least two of the PSYRATS sub scales or two points on one sub scale). Three participants may have had symptoms that worsened (an increase of at least one point on one of the PSYRATS scales).

Change in delusional status tended to occur across a number of PSYRATS sub scales *within* the same individuals. It was not considered appropriate to report predictors of change separately for each of the PSYRATS dimensions. Rather, in order to test the specific hypothesis that anxiety variables (trait anxiety, worry, and catastrophic worry) would be associated with delusion persistence, a change score was calculated for the overall PSYRATS measure taken at Time One minus that recorded at Time Two. This was then

Table 6
Scores for anxiety worry and PSYRATS for the sample followed up at 3 months

	Mean (SD)
BAI—Time 1	24.79 (15.53)
PSWQ—Time 1	52.71 (16.00)
Number of CAT steps—Time 1	6.16 (3.40)
PSYRAT delusion total—Time 1	18.28 (3.79)
PSYRATS delusion total—Time 2 (at follow-up)	16.28 (6.24)

correlated with the key variables (BAI, PSWQ, CAT steps). Initial PSYRATS scores (i.e. initial severity level) were controlled for the analysis. Partial correlations indicated a significant association between general worry (PSWQ) and change on the PSYRATS, such that those who worried more at Time One tended to show less symptom improvement by the three month follow up, $r = -0.52$, $p < 0.01$, as did those who were generally more anxious (as measured by the BAI), $r = -0.49$, $p < 0.05$. Also those who generated more catastrophising steps for the topic of their delusion tended to show less improvement by the 3-month follow-up, $r = -0.46$, $p = 0.05$. In summary, anxiety, worry and catastrophising were associated with delusion persistence. (This pattern of findings was also found if a dimensional approach to the PSYRATS data was used.) Further, medication taken at Time One did not predict outcome at Time Two, $r = 0.28$, $p = 0.22$.

Discussion

The objective of the study was to further the understanding of worry in individuals with persecutory delusions. Overall, it was predicted that worry in delusions can be understood in terms of similar mechanisms to worry in non-psychotic disorders. A number of key relationships were hypothesised. It was predicted that anxiety, worry and catastrophic worry would be a significant problem for individuals with persecutory delusions and that anxiety and worry would be associated with increased severity and likelihood ratings for catastrophic outcomes. Importantly, it was hypothesised that worrying would be linked with delusional experience, particularly the distress associated with delusions. Finally, the inclusion of a 3-month follow-up condition enabled us to test the prediction that anxiety and worry would be associated with delusional persistence.

The presence of anxiety and worry in individuals with persecutory delusions

An important step in investigating the contribution of anxiety and worry to the delusional experience was to verify its presence as a phenomenon amongst individuals with persecutory delusions. It was found that individuals with persecutory delusions were not only significantly more anxious than the non-clinical control group, but scored in a similar range to a sample of individuals with GAD. Indeed, almost one third of the group with delusions ($n = 9$) scored within the 'severely' anxious range, as measured by the BAI. In terms of worry, when compared to the most stringent criteria (clinical GAD assessed by structured diagnostic interview) 6 of those in the persecutory delusions group scored within this clinical range, that is 21% of the sample (Startup & Erickson, 2006). A majority, 68% of the clinical group scored in a comparable range to treatment seeking GAD patients. In the current study, the PSWQ scores reported for the group with delusions was very similar to that reported in the only comparable study conducted (Freeman & Garety, 1999). Worry seems a co-morbid problem for a significant proportion of individuals with paranoia.

Catastrophising and 'reverse' catastrophising

It was found that the tendency to worry was associated with the number of catastrophising steps generated for the topic of persecutory delusions. Thus, catastrophic worry is also a specific problem for this group and suggests that worry in people with delusions may be understood in terms of similar processes studied in

emotional disorders. The quantity of steps generated by the group with delusions was comparable with that reported for non-clinical high worriers (Davey & Levy, 1998; Startup & Davey, 2001; Vasey & Borkovec, 1992) and for individuals meeting at least partial criteria for GAD (Provencher, Freeston, Dugas, & Ladouceur, 2000). However, it could seem surprising that the persecutory delusion group were higher in anxiety and worry than the control group but did not generate more catastrophising steps. However, such a *between* groups prediction was not made at the outset since other factors may be influential when making group comparisons. For example, it was anticipated that the clinical group would be hindered on the task because individuals with psychosis often have executive functioning difficulties such as reduced verbal fluency (e.g. Frith, 2004). Therefore, this would constrain catastrophising compared with other groups. Indeed, given a general finding that individuals with psychosis do poorer on most experimental tasks (cf. Hemsley, 1987) it could perhaps equally be argued that it is surprising that they match the non-clinical control group in the catastrophising task. Also the *quality* of each catastrophising step may be important. Observation of the steps generated by the group with delusions suggests that there may be greater leaps between each of their steps. One suggestion for this is that the group with delusions may incorporate a greater number of extraordinary possibilities when compared with those of the non-anxious controls. Thus further exploration of *within* group differences in the quality and quantity of catastrophising may be warranted. One possibility is to perform content analyses of the catastrophising chains.

In the persecutory delusions group, the number of catastrophising steps correlated with ratings of the 'likelihood' of the final catastrophising step occurring. This is consistent with the findings of others with different participant groups (Davey & Levy, 1998; Vasey & Borkovec, 1992) and suggests that the process of catastrophising may play a pivotal role in the maintenance of threat beliefs by distorting individuals perceptions of the likelihood that the most feared outcome will take place. Further, there was also a significant correlation between the number of catastrophising steps generated for the topic of delusions and the number of 'reverse' catastrophising steps generated for a hypothetical scenario (being a weather forecaster). This replicates the findings of Davey and Levy (1998) and Startup and Davey (2001) and perhaps can be explained by the ideas of Davey and Levy (1998). The authors put forward the idea that worriers have a 'general perseverative iterative style', that is they will iterate over potentially ruminative material regardless of the valence of the iterative task (positive vs. negative), and this seems to apply for people with persecutory delusions. However, other explanations may be relevant too. Firstly, it is possible that catastrophising and 'reverse' catastrophising might require different cognitive and emotional functions. For example, 'reverse' catastrophising is not based on a 'real' concern and so would require greater abstract thinking. Furthermore, both tasks might be limited by reduced verbal fluency typical of the clinical group (Frith, 2004).

Anxiety, worry and persecutory delusions—is worry related to the experience of delusion distress?

Freeman and Garety (1999) hypothesise that anxiety and worry processes may contribute to delusion *distress.* The current study found that general worry and the number of catastrophising steps generated for the topic of their delusion were related to ratings of delusion distress. Higher levels of worry and catastrophic worry were associated with higher levels of delusion distress but not associated with levels of delusion conviction. This is consistent with the idea that different factors may be associated with different dimensions of delusional experience (Freeman et al., 2004). Clearly, the current study is concerned with our understanding of persecutory delusions, and worry is particularly likely to be a factor in this sub-type, but it would also be interesting to consider the role of anxiety and worry processes in other delusion sub-types.

In seeking an explanation of this finding, one possibility is that the tendency to worry may lead the individual to become distressed. It is well known that amongst non-clinical worriers as worry unfolds an individual's negative emotional state increases (Vasey & Borkovec, 1992). What is more, the relationship between worry and negative emotion is likely to be bi-directional, such that increases in negative emotion further feed back into the worry process, providing additional mood-congruent material and facilitating anxiety driven attention biases and interpretation biases which further fuel the worry episode (see Johnston & Davey, 1997; Mathews, 1990). Thus, what we know from the anxiety literature specifically and from cognition and emotion research generally, is that cognitively engaging with future negative possibilities (worry), particularly in a catastrophic fashion would increase negative emotion both generally and in relation to the

topic in focus (i.e. the delusion when catastrophising). However, one cannot rule out the possibility that worry and anxiety may be just *consequences* of the delusion distress.

Anxiety, worry and delusion persistence

It was found that individuals who worried more, those who catastrophised about their delusional topic more, and those who scored high on measures of trait anxiety showed less improvement in their delusions over three months. The current longitudinal aspect of the study extends the findings of Freeman and Garety (1999) by suggesting that anxiety and worry processes play an important role in the persistence of delusions. This is a potentially important finding if replicated since it indicates that not only does worry co-occur with the delusional experience but it actually *predicts* persistence of that symptom. It is also a plausible finding. If we consider how worry is initiated, one factor well known to instigate worry is the presence of top down beliefs about the function of worry, and there is evidence that such a cognitive style is present in individuals with persecutory delusions (Freeman & Garety, 1999; Wells, 1995). Once initiated, the process of worry causes an increase in state negative mood (Startup & Davey, 2001; Vasey & Borkovec, 1992), online shifts of attention toward threatening stimuli (Mogg & Bradley, 1998), mood congruent recall of threatening material (Mathews, 1990; Vasey & Borkovec, 1992) and a tendency to interpret ambiguous or even neutral stimuli in a threatening way (Mathews, 1990). In addition, worrisome beliefs persist because disconfirmatory evidence is prevented from reaching awareness due to the abundance of safety behaviours that are associated with being a worrier (Freeman, Garety, & Kuipers, 2001; Salkovskis, Clark, Hackmann, Wells, & Gelder, 1999). Thus, in essence worry is one of many factors that provide individuals with input that *confirms* their threat beliefs, whilst discouraging interaction with the environment, which could disconfirm the beliefs (Freeman et al., 2002).

Limitations

Given that the current study adopted a single symptom approach, it was not considered appropriate to use a structured interview to establish diagnoses for the clinical group. Because of this, however, diagnostic reliability cannot be assured and one cannot therefore conclude that the findings of the current study are specific to persecutory delusions. Also, it might have been considered worthwhile to include a clinical control group, such as a group with GAD, rather than a non-clinical control group. As such the findings may be due to differences in psychopathology per se rather than anxiety. It is also a weakness of the study that the control group was not assessed for the presence of mental illness using a structured assessment tool. For example, they could also have been administered the PSE-10.

Studying change in delusions prospectively using experimental measures is too rarely undertaken. Unfortunately, despite efforts to do so, it was not possible to follow up all of the participants with persecutory delusions at the 3-month follow-up. This is a weakness of the study. Also, the robustness of the conclusions concerning persistence is limited by the fact that relatively few people showed improvement over the 3-month period, thus reducing the study power. Also the PSYRATS does not have test–retest data available at present, thus limiting confidence in conclusions about persistence. Future research would benefit from a larger sample size; thereby increasing the chances of symptom change over time. That little improvement in delusional symptoms occurred over three months, and some individuals actually got worse, confirms the importance of the clinical problem and the necessity of future research. Furthermore, one cannot conclude from these data that worry and anxiety *cause* symptom persistence. It is possible, for example, that another secondary variable may mediate the relationship between worry and symptom persistence. Much is now understood about the mechanisms that drive catastrophic worry amongst non-clinical and GAD samples and these findings could be explored within a population of individuals with delusions (cf. Startup & Davey, 2001, 2003). For example, recent studies have successfully applied predictions from the mood-as-input hypothesis to perseveration in catastrophic worrying (Startup & Davey, 2001, 2003), depressive rumination (Watkins & Mason, 2002), and perseverative checking in an analogue checking task (MacDonald & Davey, 2005). The importance of these potential mechanisms to processes in delusion formation and maintenance could usefully extend this research area.

Implications for clinical interventions

A central goal of this research is to identify potential modifications to clinical practice. Should the findings of the current study be replicated worry interventions for individuals with persecutory delusions may be clinically beneficial. The results highlight the value of placing worry on the agenda from the outset when working with individuals with persecutory delusions. In line with a multi-factorial approach (cf. Freeman et al., 2002) worry is a significant problem for some individuals with persecutory delusions. Not only is general worry a significant concern for these individuals but so too is catastrophic worry. The study of worry and anxiety based interventions is indicated for people with delusions (see Key, Craske, & Reno, 2003), analogous to the study of interventions for low self-esteem in psychosis (Hall & Tarrier, 2003). This highlights the importance of routinely assessing for worry when working with these individuals. The PSWQ represents a brief, reliable and valid assessment tool for use with this population (Startup & Erickson, 2006). Furthermore, worry is associated with more delusion distress. This link can be explored with patients. The catastrophising interview provides a framework for eliciting the more idiosyncratic worries in a structured, straightforward manner, such that a quantative assessment of catastrophic worry is provided and the cognitive content can then be evaluated using basic CBT techniques. In addition catastrophising as a basic thinking error can be explored using CBT principles (Beck, 1967). It might also be useful to identify idiosyncratic triggers for worry using self-monitoring procedures. In addition interventions to contain these experiences can be practiced within sessions, providing a sense of mastery and a reduction in anxiety. This could be achieved through the use of worry periods and worry diaries, imagery techniques or through mindfulness principles. Eliciting and evaluating an individual's beliefs about worry (both positive and negative) and their reliance on safety behaviours might also prove beneficial (Freeman & Garety, 1999; Freeman et al., 2001). Overall, such findings are heartening; they suggest that what lies behind some of the distress experienced by individuals with delusions can be understood and conceptualised drawing on the basic psychological models of cognition and emotion. Thus, there is every reason to assume such distress can be reduced and contained.

References

Beck, A. T. (1967). *Depression: Causes and treatment*. Philadelphia, PA: University of Pennsylvania Press.

Beck, A. T., Epstein, N., Brown, G., & Steer, R. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology*, *56*, 893–897.

Behar, E., Alcaine, O., Zuellig, A. R., & Borkovec, T. D. (2003). Screening for generalized anxiety disorder using the Penn State Worry Questionnaire: A receiver operating characteristic analysis. *Journal of Behavior Therapy and Experimental Psychiatry*, *34*, 25–43.

Birchwood, M., Macmillan, F., & Smith, J. (1992). Early intervention. In M. Birchwood, & N. Tarrier (Eds.), *Innovations in the psychological management of schizophrenia* (pp. 115–145). Chichester: Wiley.

Cosoff, S. J., & Hafner, R. J. (1998). The prevalence of comorbid anxiety in schizophrenia, schizoaffective disorder and bipolar disorder. *Australian and New Zealand Journal of Psychiatry*, *32*, 67–72.

Davey, G. C. L., & Wells, A. (1996). *Worry and its psychological disorders: Theory assessment and treatment*. Chichester: Wiley.

Davey, G. C. L., & Levy, S. (1998). Catastrophic worrying: Personal inadequacy and a perseverative iterative style as features of the catastrophising process. *Journal of Abnormal Psychology*, *107*, 576–586.

Docherty, J. P., Van Kammen, D. P., Siris, S. G., & Marder, S. (1978). Stages of onset of schizophrenic psychosis. *American Journal of Psychiatry*, *135*, 420–426.

Freeman, D., & Garety, P. A. (1999). Worry, worry processes and dimensions of delusions: An exploratory investigation of a role for anxiety processes in the maintenance of delusional distress. *Behavioural Cognitive Psychotherapy*, *27*, 47–62.

Freeman, D., & Garety, P. A. (2000). Comments on the content of persecutory delusions: Does the definition need clarification? *British Journal of Clinical Psychology*, *39*, 407–414.

Freeman, D., Garety, P. A., Fowler, D., Kuipers, E., Bebbington, P. E., & Dunn, G. (2004). Why do people with delusions fail to choose more realistic explanations for their experiences? An empirical investigation. *Journal of Consulting and Clinical Psychology*, *72*(4), 671–680.

Freeman, D., Garety, P. A., & Kuipers, E. (2001). Developing the understanding of belief maintenance and emotional disorders. *Psychological Medicine*, *31*(7), 1293–1306.

Freeman, D., Garety, P. A., Kuipers, E., Fowler, D., & Bebbington, P. E. (2002). A cognitive model of persecutory delusions. *British Journal of Clinical Psychology*, *41*(4), 331–347.

Fresco, D. M., Mennin, D. S., Heimberg, R. G., & Turk, C. (2003). Using the Penn State Worry Questionnaire to identify individuals with generalized anxiety disorder: A receiver operating characteristic analysis. *Journal of Behaviour Therapy and Experimental Psychiatry*, *34*, 283–291.

Frith, C. D. (2004). Schizophrenia and theory of mind. *Psychological Medicine*, *34*, 385–389.

Gills, M. M., Haaga, D., & Ford, G. (1995). Normative values for the Beck Anxiety Inventory, Fear Questionnaire, Penn State Worry Questionnaire and Social Phobia and Anxiety Inventory. *Psychological Assessment*, *7*, 450–455.

Haddock, G., McCarron, J., Tarrier, N., & Faragher, E. B. (1999). Scales to measure dimensions of hallucinations and delusions: The psychotic symptom rating scales (PSYRATS). *Psychological Medicine*, *29*, 879–889.

Hall, P. L., & Tarrier, N. (2003). The cognitive-behavioural treatment of low self-esteem in psychotic patients. A pilot study. *Behaviour Research and Therapy*, *41*(3), 317–332.

Hazlett-Stevens, H., & Craske, M. G. (2003). The catastrophizing worry process in Generalized Anxiety Disorder: A preliminary investigation of an analog population. *Behavioural and Cognitive Psychotherapy*, *31*, 387–401.

Hemsley, D. R. (1987). An experimental psychological model for schizophrenia. In H. Hafner, W. F. Gattaz, & W. Janzarik (Eds.), *Search for the causes of schizophrenia*. Heidelberg: Springer.

Johnston, W. M., & Davey, G. C. L. (1997). The psychological impact of negative TV news bulletins: The catastrophising of personal worries. *British Journal of Psychology*, *88*, 85–91.

Kendall, P. C., & Ingram, R. E. (1987). The future for cognitive assessment of anxiety: Let's get specific. In L. Michaelson, & L. M. Ascher (Eds.), *Anxiety and stress disorders: Cognitive-behavioral assessment and treatment*. New York: Guildford.

Key, F. A., Craske, M. G., & Reno, R. M. (2003). Anxiety-based cognitive-behavioural therapy for paranoid beliefs. *Behavior Therapy*, *34*, 97–115.

Kuipers, E., Fowler, D., Garety, P. A., Chisholm, D., Freeman, D., Dunn, G., et al. (1998). The London-East Anglia randomised controlled trial of cognitive behavioural therapy for psychosis III. Follow-up and economic evaluation. *British Journal of Psychiatry*, *173*, 61–68.

Lewis, S., Tarrier, N., Haddock, G., Bentall, R., Kinderman, P., Kingdon, D., et al. (2002). Randomised controlled trial of cognitive-behavioural therapy in early schizophrenia: Acute-phase outcomes. *British Journal of Psychiatry*, *181*(s43), s91–s97.

MacDonald, C., & Davey, G. C. L. (2005). A mood-as-input account of perseverative checking: The relationship between stop rules, mood and confidence in having checked successfully. *Behaviour Research and Therapy*, *43*(1), 69–91.

Mathews, A. (1990). Why worry? The cognitive structure of anxiety. *Behaviour Research and Therapy*, *28*, 455–468.

Meyer, T. J., Miller, M. L., Metzger, R. L., & Borkovec, T. D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy*, *28*, 487–495.

Mogg, K., & Bradley, B. P. (1998). A cognitive-motivational analysis of anxiety. *Behaviour Research and Therapy*, *36*, 809–848.

Mueser, K. T., Goodman, L. B., Trumbetta, S. L., Rosenberg, S. D., Osher, F. C., Vidaver, R., et al. (1998). Trauma and posttraumatic stress disorder in severe mental illness. *Journal of Consulting and Clinical Psychology*, *66*, 493–499.

Nelson, H. E. (1982). *National adult reading test* (2nd ed). Windsor: NFER-Nelson.

Provencher, M. D., Freeston, M. H., Dugas, M. J., & Ladouceur, R. (2000). Catastrophizing assessment of worry and threat schemata among worriers. *Behavioural and Cognitive Psychotherapy*, *28*, 211–224.

Roemer, L., Borkovec, M., Posa, S., & Borkovec, T. D. (1995). A self-report diagnostic measure of generalized anxiety disorder. *Journal of Behaviour Therapy and Experimental Psychiatry*, *26*, 345–350.

Salkovskis, P. M., Clark, D. M., Hackmann, A., Wells, A., & Gelder, M. G. (1999). An experimental investigation of the role of safety-seeking behaviours in the maintenance of panic disorder with agoraphobia. *Behaviour Research and Therapy*, *37*(6), 559–574.

Sensky, T., Turkington, D., Kingdon, D., Scott, J. L., Scott, J., Siddle, R., et al. (2000). A randomised controlled trial of cognitive-behavioural therapy for persistent symptoms of schizophrenia resistant to medication. *Archives of General Psychiatry*, *57*, 165–172.

SPSS. (2001). *SPSS base 11 user's guide*. Chicago, IL: SPSS Inc.

Startup, H. M., & Davey, G. C. L. (2001). Mood as input and catastrophic worrying. *Journal of Abnormal Psychology*, *110*(1), 83–96.

Startup, H. M., & Davey, G. C. L. (2003). Inflated responsibility and the use of stop rules for catastrophic worrying. *Behaviour Research and Therapy*, *41*(4), 495–503.

Startup, H. M., & Erickson, T. M. (2006). The Penn State Worry Questionnaire (PSWQ). In G. C. L. Davey, & A. Wells (Eds.), *Worry and its psychological disorders: Theory, assessment & treatment*. Chichester: Wiley.

Vasey, M., & Borkovec, T. D. (1992). A catastrophising assessment of worrisome thoughts. *Cognitive Therapy and Research*, *16*, 505–520.

Watkins, E., & Mason, A. (2002). Mood as input and rumination. *Personality and Individual Differences*, *32*(4), 577–587.

Wells, A. (1995). Meta-cognition and worry: A cognitive model of generalized anxiety disorder. *Behavioural and Cognitive Psychotherapy*, *23*, 301–320.

World Health Organisation (WHO). (1992). *SCAN: Schedules for clinical assessment in neuropsychiatry*. Geneva: World Health Organisation.

Further reading

Borkovec, T. D. (1994). The nature, functions and origins of worry. In Davey, & Tallis (Eds.), *Worrying: Persepectives on theory, assessment and treatment*. Wiley: Chichester.

Cartwright-Hatton, S., & Wells, A. (1997). Beliefs about worry and intrusions. The Meta-Cognitions Questionnaire and its correlates. *Journal of Anxiety Disorders*, *11*(3), 279–296.

DiNardo, P. A., & Barlow, D. H. (1988). *Anxiety disorders interview schedule—revised (ADIS-R)*. Author.

Garety, P. A., & Freeman, D. (1999). Cognitive approaches to delusions: A critical review of theories and evidence. *British Journal of Clinical Psychology*, *38*, 113–154.

Wells, A. (1997). *Cognitive therapy of anxiety disorders. A practice manual and conceptual guide*. Wiley: Chichester.