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Strategic Cognition in Paranoia: The Use of Thought Control Strategies in a Non-Clinical Population

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Background: Recent work in the area of cognition and emotion has focused on the process as well as the content of thought. Metacognitive approaches have included studies of people's relationship with internal experience (cf. Teasdale and Barnard, 1993), and the overarching beliefs that guide allocation of internal resources to manage distress (cf. Wells, 2000). At the same time, cognitive models of psychosis have emphasized the clinical value of a multidimensional understanding of paranoia (Chadwick, 2006; Freeman and Garety, 2004b). **Method:** This study examined paranoia in a non-clinical group, specifically (i) the relationship between a single measure of trait paranoia and dimensions of paranoid thought frequency, belief conviction and distress, and (ii) the metacognitive strategies that people use. It was predicted that trait paranoia would be associated with (i) dimensions of thought frequency, belief conviction and distress, and (ii) the internal strategies of "punishment" and "worry." **Results:** Regression analyses showed that trait paranoia uniquely predicted frequency, conviction and distress associated with paranoid thoughts. Trait paranoia accounted for the use of "reappraisal", whereas "punishment" and "worry" were accounted for by anxiety. **Conclusions:** The implications for clinical work and further research are discussed.

Keywords: Paranoia, psychosis, metacognition, Paranoid Cognitions Questionnaire.

Introduction

Paranoia

Paranoia is the belief that others intend to cause the person harm. Following the cognitive model (Beck, 1967, 1976), the expectation of threat is likely to elicit anxiety and initiate

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attempts to manage this danger. Paranoid beliefs, and their consequences, are characteristic of a number of psychiatric diagnoses, including schizophrenia and schizoaffective disorder (DSM IV; American Psychiatric Association, 1994), but are not confined to individuals who meet these diagnostic criteria. Studies of the general adult population have found that a significant minority of people report paranoid ideation (e.g. Ellett, Lopes and Chadwick, 2003; Johns et al., 2004; Verdoux et al., 1998), and it has been suggested that paranoid thought may be almost as common as the symptoms of anxiety and depression (Freeman, Garety et al., 2005). Some authors (Combs and Penn, 2004; Ellett et al., 2003) have concluded that these findings support a continuum model of paranoia with many people who experience occasional paranoia, which does not significantly affect their level of functioning, and a minority of individuals who have frequent paranoid thoughts that seriously impede their daily life (Freeman, Garety et al., 2005).

Cognitive behavioural interventions focus on the key cognitions and behaviours associated with distress and disability. In the area of psychosis, it is therefore important to elucidate the relationship between paranoia and the cognitive strategies used to manage distress, and that we do so across the different dimensions of the experience.

Dimensions of paranoia

Paranoia can be assessed from a multidimensional perspective, including frequency of thoughts, belief conviction and associated distress (Chadwick, 2006; Freeman, Garety et al., 2005). Indeed, previous studies have shown that people report differences in the extent to which they believe paranoid thoughts, and the extent to which they are preoccupied and distressed by them (Ellett et al., 2003; Freeman, Garety et al., 2005). Despite the recognized clinical value of assessing paranoia across a number of dimensions, there is just one formal measure designed for this purpose (Freeman, Garety et al., 2005). The majority of measures of paranoia that are available (e.g. the Paranoia Scale, Fenigstein and Vanable, 1992) yield a single score and do not provide information about these different aspects of paranoia. To remedy this gap, the Paranoid Cognitions Questionnaire was devised for the purposes of the current study.

Strategic cognition

Within the cognitive model, the recent move to examine the process as well as the content of thought has led to a fuller understanding of the maintenance of mental health problems (see Chadwick, 2006; Teasdale and Barnard, 1993; Wells, 2000). Theoretical developments in this area have focused on our relationship to internal experience, including covert strategies designed to manage distressing thoughts. People experiencing psychological distress make active attempts to cope with their situation (Bentall, 2003). Recent approaches formulate the role of metacognitive beliefs in the maintenance of distress, and emphasize the importance of assessing the active internal attempts people make to reduce the threat they experience (Chadwick, 2006; Wells, 2000).

Certain beliefs and coping strategies are likely to reduce the distress associated with persecutory delusions, while others may be ineffective or detrimental (Freeman, Garety, Kuipers, Fowler and Bebbington, 2002). A number of studies have examined the impact of beliefs about paranoia on different dimensions of the experience, and Morrison and colleagues developed the Beliefs about Paranoia Scale to investigate this specific category of metacognitive belief (Morrison et al., 2005). These authors found that beliefs about paranoia as a survival strategy were associated with frequency of paranoia, and negative

beliefs about paranoia were associated with distress, in a non-clinical group (Morrison et al., 2005). Similarly, Freeman and Garety (2004b) assessed a clinical group of people with persecutory delusions, and found that participants' beliefs about their ability to control the delusions and associated anxiety were related to distress.

Other studies have focused on people's responses to paranoia, and the impact of certain coping strategies. Within the general population, frequency of paranoid thoughts was associated with "emotional" or "avoidant" coping, whereas "detached" or "rational" coping styles were related to fewer paranoid cognitions, and lower conviction and distress (Freeman, Garety et al., 2005).

In their influential work defining and researching classes of metacognition, Wells and colleagues (e.g. Wells, 2000; Wells and Davies, 1994) describe the knowledge, experiences and control strategies involved in the appraisal, monitoring and control of cognition. Following this work, "strategic cognition" is used here to refer to a particular class of metacognitive control strategy: the conditional assumptions and strategies that influence the allocation of internal and external resources directed at actively managing distress.

"Thought control strategies" describe covert attempts made by people to manage unpleasant and unwanted thoughts (Wells and Davies, 1994). Since people differ in their ability to control (Luciano, Algarabel, Tomas and Martynez, 2005) and avoid (Andrews, Troop, Joseph, Hiskey and Coyne, 2002) unwanted thoughts, it is likely that some techniques are more effective than others. Wells and Davies (1994) propose five broad thought control strategies derived from factor analysis of numerous strategies initially elicited by semi-structured interviews with patients who presented with anxiety disorders. The strategies are: "distraction" (focusing one's thoughts on something other than the unwanted cognition); "punishment" (either thinking negatively about, or behaving negatively towards, oneself in reaction to the unwanted thought); "reappraisal" (concentrating on the unwanted thought in order to assess validity); "worry" (replacing the thought with another anxiety-provoking thought); and "social control" (discussing the thought with others and seeking advice). The Thought Control Questionnaire (Wells and Davies, 1994) was constructed to measure use of each of these strategies.

Thought control strategies in mental health

Particular thought control strategies are associated with a number of mental health problems. In their original study, Wells and Davies (1994) found that the use of "punishment" and "worry" was associated with emotional vulnerability and perception of impaired control over cognition, using a number of state and trait psychopathology scales. Subsequently, Coles and Heimberg (2005) reported that people with generalized anxiety disorder used these two strategies significantly more than non-anxious controls, and used "distraction" and "social control" significantly less. Use of "punishment" and "worry" also distinguished people with obsessive compulsive disorder (OCD) from non-patient controls, and was related to the severity of obsessional thoughts (Abramowitz, Whiteside, Kaley and Tolin, 2003; Amir, Cashman and Foa, 1997). The use of other thought control strategies in OCD is less clear; Amir et al. (1997) found that people with OCD used "reappraisal" and "social control" significantly more, and "distraction" significantly less, than controls, whereas Abramowitz et al. (2003) found that they used both "distraction" and "social control" less.

In an experimental study, Abramowitz et al. (2003) assessed the use of thought control strategies in participants with OCD before and after 15 sessions of CBT. Following therapy, participants were categorized as treatment responders or non-responders according to their

scores on the Yale-Brown Obsessive Compulsive Scale (Goodman et al., 1989). Treatment responders used significantly more "distraction" and significantly less "punishment" than they did pre-therapy, whereas non-responders did not differ in their pre and post-therapy TCQ scores.

Bryant, Moulds and Guthrie (2001) found that CBT for acute stress disorder led to a reduction in "punishment" and "worry", and an increase in the use of "social control" and "reappraisal". No significant difference was found between the use of "distraction" 2 weeks after the trauma and 6 months post treatment. Reduction in symptoms was associated with increased use of "social control" and "reappraisal", and decreased use of "worry".

In relation to psychosis, patients with a diagnosis of schizophrenia used "punishment" and "worry" significantly more, and "distraction" significantly less than non-patient controls (Morrison and Wells, 2000). In a non-clinical group, students identified as having a high predisposition to hallucinations reported more frequent use of "punishment" and "worry" compared with those with a lower predisposition (Morrison, Wells and Northard, 2000). There have been no further studies of the relationship between psychosis related phenomena and thought control strategies, and none focusing on paranoia specifically.

Taken together, these results indicate that people differ in the strategies adopted to manage unwanted thought. "Punishment" and "worry" tend to be associated with psychopathology in both clinical and non-clinical groups, including psychosis related phenomena. There are mixed results regarding the use of other strategies, with some evidence that "distraction" is used less.

Rationale and hypotheses

Particular thought control strategies are associated with a number of mental health problems, but little research has examined the use of these strategies in psychosis, and none have focused on paranoia. Assuming a continuum model (following Chadwick, 2006; Freeman and Garety, 2004b), this study assessed the relationship between paranoia and strategic cognition directed at managing unpleasant and unwanted thoughts in a non-clinical group. In addition to mapping these processes in the general population, this is likely to be a useful source of information about the more severe form of paranoia, persecutory delusions, experienced by people in clinical groups (see Combs and Penn, 2004; Morrison et al., 2000).

We hypothesized that there would be a significant relationship between trait paranoia and dimensions of the experience, as well as the use of particular thought control strategies. Specifically we proposed that: a) Trait paranoia will be positively associated with the dimensions of paranoid thought frequency, belief conviction and distress, and b) Trait paranoia will be positively associated with use of "punishment" and "worry". Exploratory analyses were also carried out between trait paranoia and the other thought control strategies assessed.

Method

Design

The study initially used a correlational design to examine associations between paranoia and (i) dimensions of paranoid thought frequency, belief conviction and distress, and (ii) thought control strategies.

Regression analyses were then completed. The predictor variable was the single measure of trait paranoia. The outcome variables were (i) the dimensions of paranoid thought (frequency, belief conviction and distress), and (ii) the measures of thought control (distraction, punishment, reappraisal, worry and social control). It was predicted that trait paranoia would be associated with (i) paranoid thought frequency, belief conviction and distress, and (ii) the internal strategies of "punishment" and "worry", after controlling for anxiety and depression.

Participants and procedure

An opportunity sample of 150 people aged between 18 and 65 was recruited using a "snowballing" method in which people who had agreed to participate were asked to recommend others who might also be willing to do so. Participants received questionnaire packs, by post or in person, containing a covering letter, information sheet, consent form, the questionnaires listed below, and a debriefing statement. Every fifth person to return the questionnaires received a second copy of the Paranoid Cognitions Questionnaire (PCQ) 2 weeks later, which they were invited to complete in order to assess test-retest reliability.

Measures

Thought Control Questionnaire (TCQ). This 30-item questionnaire (Wells and Davies, 1994) comprises five subscales designed to assess how often the following strategies are used to control unpleasant and unwanted thoughts: "worry", "punishment", "reappraisal", "social control" and "distraction." Participants rate the frequency with which they use each strategy on a 4-point scale (1 = never, 4 = almost always). Scores on each subscale range from 6 to 24, with higher scores indicating more use of the strategy. Test-retest reliability of the TCQ total score is high ($r = 0.83$), internal consistency of the subscales is regarded as satisfactory ($\alpha = 0.64 - 0.79$) and the authors judged the five subscales to be relatively independent of each other (Wells and Davies, 1994), although the factor structure of the scale has yet to be confirmed.

Paranoia Scale (PS). The PS (Fenigstein and Vanable, 1992) was designed to assess paranoia in non-clinical groups. The questionnaire consists of 20 items rated on a 5-point scale (1 = not at all applicable to me, 5 = extremely applicable to me). A single total score is calculated, ranging from 20 to 100. The scale shows good test-retest reliability ($r = .70$), internal consistency ($\alpha = 0.84$), and convergent and divergent validity (Fenigstein and Vanable, 1992). Limitations of the questionnaire are that (i) it contains items that are not necessarily persecutory (e.g. "people often disappoint me") and (ii) the single score does not provide information about the multidimensionality or state changes of paranoia. The Paranoid Cognitions Questionnaire was therefore devised for the purposes of the current study (see also Freeman, Garety et al., 2005).

Paranoid Cognitions Questionnaire (PCQ). This questionnaire was developed as a clinical measure of the different dimensions of paranoia (following Freeman and Garety, 2004b), and is based on the structure of the Social Cognitions Questionnaire (SCQ; Stopa, 1995). The PCQ assesses the number, frequency, conviction and distress of automatic thought level paranoid cognitions (see Appendix). Like the SCQ, it is a clinical measure of paranoia over the previous week. The number of paranoid thoughts is the sum of items endorsed. Mean frequency is

calculated by summing all frequency scores and dividing by the number of items endorsed. Mean conviction is calculated by summing all conviction scores for items with frequency greater than one, and dividing by the number of items endorsed. Mean distress is calculated by summing all distress scores for items with frequency greater than one, and dividing by the number of items endorsed. Reliability and validity data for the PCQ are given in the Results section. It should be noted that a measure designed for similar purposes, the Paranoia Checklist (PC; Freeman, Garety et al., 2005), was published after the current study had commenced. Differences between the two are that (i) the PCQ is specifically designed to assess automatic thoughts as opposed to other levels of cognition, and (ii) the PCQ relates to the previous week whereas the PC assesses paranoia over several time periods. Nevertheless, the two measures might usefully validate each other in future research.

The PCQ was developed by taking items judged to reflect automatic thought level cognition from the PS (Fenigstein and Vanable, 1992), the Peters et al. Delusions Inventory (Peters, Joseph and Garety, 1999) and "Bats among Birds" (Freeman and Garety, 2004a). This generated 49 items that were then assessed for face validity by expert review (four psychologists and one psychiatrist expert in CBT for psychosis). These five people were asked to judge how well the wording of each item captured what people with paranoia tend to actually say or think on a 0 – 10 point scale (0 = completely unlike what someone with paranoia would report, 10 = completely typical of someone experiencing paranoia). Any items that did not meet the arbitrary criteria of a mean rating of six or above, and a standard deviation of less than three, were excluded from the final questionnaire. Where two similar items met the criteria (e.g. "people are watching me" and "I'm being watched") the item with the higher mean score was included. The final PCQ comprises 23 items. As a new questionnaire, the factor structure of the PCQ has not yet been confirmed, and the size of the current study was too small to do so.

Hospital Anxiety and Depression Scale (HADS). The HADS (Zigmond and Snaith, 1994) measures anxiety and depression in non-psychiatric populations. Each of the 14 items is scored on a 4-point scale (with variable anchors), with a higher rating indicating greater psychopathology. Scores on each subscale range from 0 to 21, and scoring bands aid interpretation. A study of healthy individuals found good test-retest reliability ($r = 0.92$ for depression subscale, $r = 0.89$ for anxiety subscale) (Zigmond and Snaith, 1994). In an independent review, both reliability and validity were found to be satisfactory (Clark and Fallowfield, 1986).

Results

Demographic characteristics of the participants

An opportunity sample of 150 people aged between 18 and 65 was recruited. Of these, 108 completed and returned the questionnaires, yielding a response rate of 72%. The sample was made up of 58 (54%) women and 50 (45%) men. The age range was 18–63 years ($M = 31.1$, $SD = 13.2$).

Reliability and validity of the Paranoid Cognitions Questionnaire

To assess test-retest reliability of the PCQ, every fifth person who participated (20% of the original sample) was asked to complete the measure a second time 2 weeks later. Twenty-one

participants received the questionnaire a second time, and 16 were returned (a response rate of 76%). Test-retest reliability showed that frequency ($r = 0.67$, $p < .05$) and distress ($r = 0.80$, $p < .00$) correlated well from time one to two. Test-retest reliability was low for belief conviction ($r = 0.52$, $p < .05$), possibly indicating variation over time. Split-half reliability was good for frequency ($r = 0.84$), belief ($r = 0.86$) and distress ($r = 0.91$); Cronbach's alpha coefficients also indicated good internal reliability for frequency ($\alpha = 0.90$), belief ($\alpha = 0.94$) and distress ($\alpha = 0.95$).

The relationship between trait paranoia and paranoid thoughts as measured by the PCQ

The experience of paranoid thought across the different dimensions measured by the PCQ was then examined. Participants reported experiencing between 0 and 19 (out of 23) paranoid thoughts in the week prior to completing the questionnaire ($M = 6.39$, $SD = 5.20$). Mean subscale scores were as follows: frequency = 1.33 ($SD = 0.35$), belief = 34.90 ($SD = 25.61$), and distress = 22.88 ($SD = 21.51$).

As would be expected, there were associations between the four subscales. The number of items experienced in the previous week correlated with frequency ($r_s = 0.97$, $p < .00$), belief ($r_s = 0.41$, $p < .00$) and distress ($r_s = 0.54$, $p < .00$). Frequency was associated with belief conviction ($r_s = 0.42$, $p < .00$) and distress ($r_s = 0.54$, $p < .00$). Belief and distress were strongly correlated ($r_s = 0.79$, $p < .00$).

Trait paranoia correlated significantly with the dimensions of thought frequency ($r_s = 0.59$, $p < .00$), belief conviction ($r_s = 0.41$, $p < .00$) and distress ($r_s = 0.50$, $p < .00$). In order to see the extent to which trait paranoia predicted the dimensions of paranoid thought on the PCQ, we conducted a regression analyses in which depression and anxiety, using the HADS, were also entered as predictor variables. All variables were log-transformed to control for skewness and to normalize the distribution. The log transformations normalized trait paranoia scores and improved HADS-anxiety and PCQ distress ratings, but some variables remained significantly skewed. Preliminary results identified cases that were more or less than three standard deviations above the mean and these cases were removed. Trait paranoia uniquely predicted frequency of paranoid thoughts ($F(3,86) = 20.17$; $p < .001$) and accounted for 41% of the variance, after controlling for depression and anxiety. Trait paranoia predicted belief conviction of paranoid thoughts ($F(3, 78) = 8.92$, $p < .001$), and accounted for 26% of the variance, after controlling for depression and anxiety. Trait paranoia also predicted distress ($F(3,78) = 15.49$, $p < .001$), accounting for 37% of the variance, after controlling for anxiety and depression. Each regression analysis was checked to assess model fit and generalization (Field, 2005). There was no evidence of multicollinearity in any of the regression analyses, but there was an indication of autocorrelation in the regression analyses of belief and of distress (Durbin-Watson = 0.94 for belief and 0.89 for distress; critical values should range between 1.59–1.69). The analyses of belief and of distress should therefore be interpreted with caution (see Table 1).

The relationship between trait paranoia and the use of thought control strategies as measured by the TCQ

The TCQ measures five thought control strategies. Table 2 gives descriptive statistics for each strategy. The sample size of the current study was too small to examine the factor structure of

Table 1. Regression analyses for dimensions of paranoia (PCQ)

Predictor variable	β	p	R	R squared
Dependent variable – Paranoia frequency				
Paranoia scale	.605	< 0.001	.643	.413
HADS depression scale	−.147	–		
HADS anxiety scale	.16	–		
Dependent variable – Paranoia belief conviction				
Paranoia scale	.524	< 0.001	.505	.255
HADS depression scale	−.048	–		
HADS anxiety scale	−.021	–		
Dependent variable – Paranoia distress				
Paranoia scale	.621	< 0.001	.611	.373
HADS depression scale	−.112	–		
HADS anxiety scale	.056	–		

Table 2. Use of the five thought control strategies for the entire sample – descriptive statistics

Thought control strategy ($N = 107$)	*M (SD)*
Distraction	14.6 (2.6)
Punishment	9.3 (2.2)
Reappraisal	13.7 (2.9)
Worry	8.5 (2.3)
Social control	12.4 (3.4)

Table 3. Regression analyses for Thought Control Strategies (TCQ)

Predictor variable	β	p	R	R squared
Dependent variable – Punishment				
Paranoia scale	.201	= .063	.373	.139
HADS depression scale	−.058	–		
HADS anxiety scale	.279	< 0.01		
Dependent variable – Re-appraisal				
Paranoia scale	.288	< 0.05	.309	.095
HADS depression scale	−.141	–		
HADS anxiety scale	.076	–		
Dependent variable – Worry				
Paranoia scale	.167	–	.420	.177
HADS depression scale	−.118	–		
HADS anxiety scale	.362	< 0.001		

the TCQ, but intercorrelations were calculated. The only significant correlation was between "distraction" and "worry" ($r_s = 0.31, p < .001$).

In order to investigate the relationship between trait paranoia and thought control strategies, correlations between the PS and TCQ were calculated (see Table 3). Paranoia correlated

significantly with the thought control strategies "punishment" ($r_s = 0.33$, $p < .001$) "worry" ($r_s = 0.24$, $p < .01$) and "reappraisal" ($r_s = 0.24$, $p < .01$). In order to perform regression analyses with trait paranoia, anxiety and depression as predictors, punishment was log transformed and outliers were removed to improve skewness and kurtosis, although the transformation failed to normalize the distribution. Transformations did not improve worry and therefore untransformed scores were used for these variables. Reappraisal was normally distributed and therefore untransformed scores were used for the subscale. For punishment, the overall model was significant (F (3,86) = 4.64, p <.005 and accounted for 14% of the variance. Anxiety was the unique predictor for punishment, although trait paranoia was close to significance ($p = .063$). Anxiety alone predicted the use of "worry" (F (3,90) = 6.44, $p < .001$), accounting for 18% of the variance. Trait paranoia uniquely predicted the use of "reappraisal" (F (3,90) = 3.17, $p < .05$), and accounted for 10% of the variance. Again, there was some evidence of autocorrelation in all of the models (Durbin-Watson values were 2.47 for punishment, 2.01 for reappraisal, and 1.99 for worry; critical values should range between 1.61 and 1.71, although Field (2005) indicates that in general values below 1 or greater than 3 are a cause for concern). There was no evidence of multicollinearity in any of the regressions.

Discussion

Findings and current literature

People use active coping strategies to manage distressing thoughts and feelings, and to reduce perceived threat (Bentall, 2003; Chadwick, 2006; Wells, 2000). Cognitive behavioural interventions focus directly or indirectly on the key cognitions associated with distress and disability to effect change in these areas (Beck, 1967, 1976). An understanding of strategic cognition in paranoia, and the effectiveness of these strategies, is therefore likely to be of clinical value. This study is one step in this process.

This research examined the relationship between trait paranoia and (i) dimensions of paranoid thought frequency, belief conviction and distress, and (ii) the use of strategic cognition, specifically of particular thought control strategies, in a non-clinical population. Interestingly, trait paranoia predicted frequency, conviction and distress of paranoid thoughts, controlling for depression and anxiety, but to varying degrees. Assessment of the different dimensions of paranoia and measures of mood, over specific periods of time, is therefore likely to be useful to clinicians.

Intercorrelations of the TCQ subscales in the current study found an association between "distraction" and "worry", in the entire sample. By contrast, dimensions of paranoia were associated with the use of "punishment", "worry" and "reappraisal". The finding that paranoia is associated with the use of "punishment" and "worry" as a means of managing unpleasant and unwanted cognition is consistent with previous research that has identified a link between these two thought control strategies and mental health problems in clinical and non-clinical groups (Abramowitz et al., 2003; Amir et al., 1997; Coles and Heimberg, 2005; Ellis and Cropley, 2002; Morrison et al., 2000; Morrison and Wells, 2000; Wells and Davies, 1994). Paranoia was also associated with the use of "reappraisal", which has been inconsistently associated with measures of psychopathology (Amir et al., 1997; Bryant et al., 2001). Importantly, however, when controlling for depression and anxiety, these associations varied: anxiety predicted "punishment", and the contribution of trait paranoia failed to reach significance;

"worry" was predicted by anxiety alone, and "reappraisal" was predicted by trait paranoia alone. These results suggest that paranoia is associated with the strategy of "reappraisal", and that any association with "worry" is likely to be due to concurrent anxiety. Further investigation of the role of these strategies as a means of managing paranoid thought would be of interest, given the research to date and the current findings. The analyses show significant but modest relationships, indicating that a proportion of the variance is accounted for by the models.

It is of interest that "reappraisal" of an unwanted or distressing thought (concentrating on the unwanted thought in order to assess validity) was associated with paranoia. Wells and Davis (1994) found that "reappraisal" was associated with a measure of private self-consciousness. However, given the mixed findings in the literature, the relationship with paranoia found here would need to be replicated. It is of note that the strategy is consistent with clinical experience that people with paranoia attempt to "work out" whether their thoughts are true, albeit often in ways that are unhelpful, perhaps due to information processing biases associated with paranoia (see Freeman and Garety, 2004b).

If replicated with clinical populations, these findings are likely to be useful therapeutically. If we know that certain internal strategies are associated with paranoia, these can be assessed and included in cognitive behavioural formulations of the maintenance of distress and disability, and targeted for intervention.

Paranoid Cognitions Questionnaire

The structure and scoring of the PCQ was based on the SCQ to measure dimensions of paranoia. Mean scores of conviction and distress were calculated from items occurring over the previous week, whereas mean frequency was calculated as a proportion of all items. This yielded low frequency scores because, unlike the social anxiety concerns listed in the SCQ, relatively few paranoid cognitions were endorsed by each person. In addition, the questionnaire gave no opportunity for recording and rating idiosyncratic beliefs. Future use of the questionnaire should calculate frequency as a proportion of items occurring over the previous week (as for belief conviction and distress), and include space for the inclusion of idiosyncratic thoughts, rated for frequency, conviction and distress as for other items. The PCQ can be amended in this way or an amended version is available from the authors.

Correlations between the PCQ and the PS were significant but variable, probably due to the difference in purpose of the two questionnaires. The PS is a measure of trait paranoia, while the PCQ assesses dimensions of paranoia over the previous week and is intended to be a state measure. Interestingly, the state and trait scales of the State-Trait Anxiety Inventory (Spielberger, Gorsuch and Lushene, 1970), a well established measure of anxiety, correlate to a similar degree ($r = 0.44$–0.55 for female undergraduates; $r = 0.51$–0.67 for male undergraduates). Convergent validity may be better assessed by comparison with the more recently developed Paranoia Checklist (Freeman, Garety et al., 2005).

There are questions about the items included in the PCQ. The questionnaire contains items designed to measure a number of aspects of paranoia, including persecutory thoughts (e.g. "someone has it in for me"), ideas of reference (e.g. "I'm being watched"), a general mistrust ("I can't trust anyone"), and a belief that life is unjust ("I'm being punished unfairly"). These have all been judged to be components of paranoia within a non-psychiatric population (Rawlings and Freeman, 1996). However, a limitation of this broad understanding of paranoia is that not

all items satisfy the defining criteria identified by Freeman and Garety (2004b) for persecutory beliefs: (i) that harm is involved to the person, and (ii) that this is intentional.

The PCQ, like the PC, is likely to be of use to clinicians in assessing and monitoring the different aspects of paranoia over time. It will be interesting to determine the impact of specific interventions on frequency, belief conviction and distress, and whether certain interventions affect particular dimensions of paranoia. For example, whether a reduction in social or other environmental stressors reduces frequency of these thoughts, and whether behavioural experiments designed to re-evaluate paranoid beliefs affect conviction.

The PCQ might now be used to examine strategic cognition across the dimensions of frequency, belief conviction and distress. Further research might then examine the causality of relationships between dimensions of paranoia and particular thought control strategies.

Limitations

This study is limited by the use of two questionnaires with unconfirmed factor structures, the TCQ and the PCQ. These can be assessed in larger scale evaluations. Test-retest reliability of conviction of paranoid thought in the PCQ was found to be low over 2 weeks. If this was due to fluctuation in conviction over relatively short periods of time, this raises the question of how to assess reliability in state measures.

Conclusion

The finding that paranoia is reported by people in a non-clinical sample is consistent with previous findings that this is a common experience in the general population (e.g. Ellett et al., 2003; Freeman, Dunn et al., 2005; Freeman, Garety et al., 2005) and supports a continuum model of psychopathology. Indeed, Ellett et al. (2003) argue that the term "paranoia" should no longer be solely associated with mental ill health, but formulated with reference to normal psychological processes.

This study found that non-clinical paranoia was associated with the strategy of "reappraisal", and an association with "worry" and "punishment" was likely to be due to concurrent anxiety. This adds to a small but growing body of evidence implicating the use of particular strategies in the management of thought in clinical and non-clinical psychopathology, and in psychosis related phenomena specifically. These relationships can now be examined in clinical populations, to inform cognitive behavioural formulation and therapeutic interventions.

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Appendix: Paranoid cognitions questionnaire

Listed below are some thoughts that go through people's minds concerning themselves, others and certain situations. For each thought, please rate the following:

1. *Frequency* – How often has each thought occurred *in the last week* (rate 1 – 5)?
   1) Thought never occurs
   2) Thought rarely occurs
   3) Thought occurs half the time
   4) Thought usually occurs
   5) Thought always occurs

2. *Belief* – When you had this thought, how much did you believe it (rate 0 – 100)?

0 ——————————————————- 100

I do not believe this thought at all — I am completely convinced that this thought is true

3. *Distress* – When you had this thought, how distressing was it (rate 0 – 100)?

0 ——————————————————- 100

not at all distressing — extremely distressing

	Frequency How often? (1–5)	*Belief* How much? (0–100)	*Distress* How bad? (0–100)
Someone has it in for me			
I'm being followed			
People are trying to read my mind			
I'm being punished unfairly			
I'm being persecuted			
People are trying to steal my ideas			
I can't trust anyone			
Other people are getting at me			
I'm being watched			
My family pick on me			
I have to protect myself			
Strangers look at me critically			
People are spying on me			
They're trying to irritate me			
People are trying to mess with my mind			
People are trying to bring me down			
My parents and family are getting at me			
Other people take advantage of me			
People are trying to upset me			
People are talking about me behind my back			
I can't trust other people's motives			
They're being hostile towards me			
People keep saying insulting things about me			

Paranoid Cognitions Questionnaire: Scoring key
The PCQ yields four totals: number, frequency, belief and distress, as follows:

Number (number of items endorsed): _____
Frequency (sum/number endorsed): _____
Belief (sum/number endorsed): _____ *for all items where frequency >1*
Distress (sum/number endorsed): _____ *for all items where frequency >1*