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The use of intuitive and analytic reasoning styles by patients with persecutory delusions



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ABSTRACT

Background and objectives: A previous study has shown an association of paranoid thinking with a reliance on rapid intuitive ('experiential') reasoning and less use of slower effortful analytic ('rational') reasoning. The objectives of the new study were to replicate the test of paranoia and reasoning styles in a large general population sample and to assess the use of these reasoning styles in patients with persecutory delusions.

Method: 30 Patients with persecutory delusions in the context of a non-affective psychotic disorder and 1000 non-clinical individuals completed self-report assessments of paranoia and reasoning styles.

Results: The patients with delusions reported lower levels of both experiential and analytic reasoning than the non-clinical individuals (effect sizes small to moderate). Both self-rated ability and engagement with the reasoning styles were lower in the clinical group. Within the non-clinical group, greater levels of paranoia were associated with lower levels of analytic reasoning, but there was no association with experiential reasoning.

Limitations: The study is cross-sectional and cannot determine whether the reasoning styles contribute to the occurrence of paranoia. It also cannot be determined whether the patient group's lower reasoning scores are specifically associated with the delusions.

Conclusions: Clinical paranoia is associated with less reported use of analytic and experiential reasoning. This may reflect patients with current delusions being unconfident in their reasoning abilities or less aware of decision-making processes and hence less able to re-evaluate fearful cognitions. The dual process theory of reasoning may provide a helpful framework in which to discuss with patients decision-making styles.

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1. Introduction

Persecutory delusions are one of the most common psychotic experiences (Sartorius et al., 1986), associated with low levels of psychological well-being (Freeman et al., 2013), depression (Vorontsova, Garety, & Freeman, 2013), and psychiatric hospital admission (Castle, Phelan, Wessely, & Murray, 1994). The central problem is that unfounded beliefs that others are trying to cause harm remain uncorrected by the evidence. This failure to correct the fears is likely to be caused by, for example, the use of safety behaviours that prevent the full processing of disconfirmatory evidence (Freeman et al., 2007), repetitive worry keeping improbable

fears in mind (Freeman, Evans, & Lister, 2012; Freeman, Stahl, et al., 2012), and ambiguous events being negatively interpreted (Bentall et al., 2008). A failure to correct beliefs also implicates reasoning biases. The most studied reasoning bias in relation to delusions has been jumping to conclusions, reaching a decision on the basis of limited data-gathering (Garety, Hemsley, & Wessely, 1991). But once data are gathered, the dual-process theory of reasoning indicates that they are then considered by either a rapid, intuitive, effortless decision-making process dominated by current affective state (experiential reasoning) or a slow, effortful, analytic review process (rational reasoning) (e.g. Epstein, 1994; Evans & Over, 1996; Sloman, 1996; Stanovich, 1999). Each reasoning system has advantages and disadvantages for accuracy in decision-making. Experiential reasoning is assumed to provide the default response, unless analytic reasoning is called upon (Evans & Stanovich, 2013). Paranoid fears may be partly driven by rapid gut feeling intuitions that are not then kept in check by the application of effortful logical reasoning.

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One study has considered experiential and rational reasoning specifically in relation to paranoid ideation (Freeman, Evans, et al., 2012). Five hundred individuals in the general population completed the Rational–Experiential Inventory (REI), a self-report questionnaire of experiential (e.g. ‘I believe in trusting my hunches’, ‘I like to rely on my intuitive impressions’ ‘I trust my initial feelings about people’) and rational (e.g. ‘I have no problem thinking things through carefully’ ‘Using logic usually works well for me in figuring out problems in my life’ ‘I usually have clear explainable reasons for my decision’) reasoning (Epstein, Pacini, Denes-Raj, & Heier, 1996; Pacini & Epstein, 1999). Both higher levels of experiential reasoning and lower levels of rational reasoning were independently associated with persecutory ideation. The effect sizes were small. The use of experiential and rational reasoning styles were independent, supporting the idea that they are separate reasoning systems, but a combination of low experiential and high rational reasoning was associated with lower levels of paranoia compared with a combination of high experiential reasoning and low rational reasoning. The aim of the current study was to replicate these tests between paranoia and reasoning styles in the general population, but, also, for the first time to assess self-reported experiential and analytic reasoning styles in patients with persecutory delusions. The primary hypothesis was that patients with persecutory delusions would report higher levels of experiential reasoning but lower levels of analytic reasoning compared with the non-clinical population. The secondary hypothesis was that within each group the more severe the paranoia the less use of analytic reasoning and the greater the reliance on experiential reasoning. Within the non-clinical group we also tested, as before, the combination of reasoning styles.

2. Method

2.1. Participants

The non-clinical population comprised one thousand people from Oxfordshire. The data were collected during the screening phase for an experimental study (Freeman et al., 2014). Our team sent leaflets to local postcodes, and local radio adverts were also played, with the wording: “Volunteers Required for Psychological Research. We are looking for volunteers to take part in a medical research study being carried out at the university. The research would take three hours and you would be compensated for your time. If you would like to hear more about the research, then please contact us. We send detailed information about the study so that you can consider whether you would like to take part.” The individuals who responded were then invited to take part in a screening stage, when the measures in the current study were completed. Depending on participant preference, the screening questionnaires were either sent in the post or were made available via a web-link. This was a new cohort from that reported by Freeman, Evans, et al. (2012).

The clinical group comprised thirty patients with current persecutory delusions. They completed the REI during the baseline assessment for a randomised controlled trial testing the effects of a brief CBT intervention for the reduction of negative ideas about the self (ISRCTN06118265). The REI was completed before randomisation to condition. The inclusion criteria were: a current persecutory delusion as defined by Freeman and Garety (2000); scoring at least 3 on the conviction scale of the PSYRATS (Haddock, McCarron, Tarrier, & Faragher, 1999); the delusion had persisted for at least three months; a clinical diagnosis of schizophrenia, schizoaffective disorder or delusional disorder (i.e. a diagnosis of non-affective psychosis (F2) in the International Classification of Diseases and Diagnostic and Statistical Manual 10; negative beliefs about the self as indicated by endorsing at least one negative

schematic belief on the Brief Core Schema Scale (BCSS; Fowler et al., 2006)); aged between 18 and 70; and medication had been stable for at least one month. No patients with persecutory delusions were excluded on the basis of BCSS scores. The exclusion criteria were: a primary diagnosis of alcohol or substance dependency; organic syndrome or learning disability; a command of spoken English inadequate for engaging in therapy or the assessments; or currently having individual CBT. All of the patient group were prescribed neuroleptic medication.

2.2. Measures

2.2.1. Paranoid Thoughts Scale Part B (GPTS-B; Green et al., 2008)

The GPTS-Part B measures persecutory ideation, as defined by Freeman and Garety (2000), over the past month. Each of the sixteen items in the scale (e.g. ‘Certain individuals have had it in for me’ ‘People have been hostile towards me on purpose’ ‘I was sure someone wanted to harm me’ ‘I was convinced there was a conspiracy against me’) are rated by the person on a 5-point scale (1–5). Scores can range from 16 to 80, with 16 indicating the absence of persecutory ideation and higher scores indicating greater persecutory ideation. The questionnaire has shown good psychometric properties in both clinical and non-clinical populations, and been validated against an experimental assessment of the occurrence of paranoid thinking (e.g. Freeman, Pugh, Vorontsova, Antley, & Slater, 2010). In the present study the Cronbach's alpha of the scale was .95 in the non-clinical group and also .95 in the clinical group.

2.2.2. Rational–Experiential Inventory (REI; Pacini & Epstein, 1999)

The REI is a 40-item measure of an individual's preference for two different thinking styles: rational and experiential. Each style is assessed using 20-item scales. The assessment of each style can be further broken down into 10-item subscales, assessing self-evaluated ability in the given style (ability subscales) and reliance on and enjoyment of the given style (engagement subscales). Examples of items from the rational scale include, “I have a logical mind” (rational ability) and “I enjoy solving problems that require hard thinking” (rational engagement). Examples from the experiential scale include, “I trust my initial feelings about people” (experiential ability) and “I often go on my instincts when deciding on a course of action” (experiential engagement). Items are rated on a five point Likert scale where 1 is “completely false” and 5 is “completely true”. The four subscale scores were calculated first, and each are presented as a mean endorsement score. The rational total and experiential total scores were constructed from adding the two subscale scores together. Higher scores indicate greater reliance on the reasoning style. Internal consistencies for both the rational and experiential scales, and all four ability and engagement subscales are high (e.g. Björklund & Bäckström, 2008), as is the test-retest reliability of the scale (e.g. Handley, Newstead, & Wright, 2000). In the non-clinical group the Cronbach's alpha for the experiential scale was .90, and for the rational scale it was .87. In the clinical group the Cronbach's alpha for the experiential scale was .88, and for the rational scale it was .90.

2.2.3. Brief Core Schema Scales (BCSS; Fowler et al., 2006)

The BCSS, developed with non-clinical and psychosis groups, has 24 items assessing negative and positive beliefs about the self and others each rated on a five-point scale (0–4). Higher scores reflect greater endorsement of items. The subscale of interest in the current study was negative beliefs about self, which contains six items (e.g. ‘I am unloved’ ‘I am worthless’ ‘I am weak’). The Cronbach's alpha for the clinical group was .77.

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