



## “I am sane but he is mad”: Insight and illness attributions to self and others in psychosis

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### ABSTRACT

We attempted to explore whether lack of insight in patients with psychosis is related to their genuine inability to recognise symptoms of mental illness as opposed to denial. We addressed this by examining participants' judgments of illness in vignettes in which they were either the protagonist or were commenting on others' behaviour. We recruited 44 first episode psychosis patients and 23 healthy controls to make judgements of specially constructed vignettes describing psychotic symptoms. Insight, Theory of Mind (ToM) and IQ was also measured. Patients' and controls' rating of vignettes overall did not differ significantly with respect to their attribution of mental illness. Patients and controls rated 2nd person vignettes similarly; patients were less likely to attribute mental illness to a character described in the 3rd person. This effect correlated with insight scores. Vignette judgments were significantly correlated with ToM performance but this was moderated by IQ. In conclusion, patients with lower insight tend to make the same attributions to others as to themselves, whilst healthy controls tend to think of mental illness as something seen in other people. There was no support for a 'denial' explanation for lack of insight in these patients.

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### 1. Introduction

A common experience on psychiatric wards is that patients are willing and able to make illness judgments about others that they do not (or cannot) make about themselves: “There's nothing wrong with me, but *he* is mad!” This was highlighted in Rokeach's classic case study *The Three Christs of Ypsilanti* (Rokeach, 1964) in which three patients with chronic schizophrenia all present with analogous delusions of being Jesus Christ. All maintained their own identity claim whilst dismissing the others as mad. Lack of insight has been increasingly investigated over recent years, with much work focusing on the extent to which there is a small but reliable neurocognitive deficit at the heart of poor insight in psychosis (Aleman et al., 2006; Morgan and David, 2004). Such work has tended to show differences in general cognitive ability as well as specifically, executive functioning. However, there has been comparatively little work attempting to investigate other mechanisms and social psychological processes which might contribute to lack of insight such as self-serving bias and

motivated denial (Moore et al., 1999; Subotnik et al., 2005; Garrett et al., 2011). One approach is to examine the extent to which patients are able to make accurate judgments regarding the illness of others, and how this relates to their insight. The assumption being that a clear difference in criteria or threshold applied to self versus other would tend to favour more social-psychological mechanisms perhaps in the form of an exaggeration of 'normal' biases.

McEvoy et al. (1993) presented vignettes describing characters with mental illness to patients with schizophrenia, as well as their clinicians, and found significant differences between clinicians' and patients' ratings of the extent to which the characters experiences represented mental illness, most of all when patients considered their own versus another patient's illness. They also found that patients with worse insight tended to rate vignettes as less pathological than those with better insight. Swanson et al. (1995) found that patients with schizophrenia rated themselves as significantly less similar to vignettes of illness than did their doctors. Patients tended to think that descriptions in the vignettes were 'probably not' indicative of mental illness. Startup (1997) found no differences between patients and controls, or between patients with high and low insight, in their attributions of illness to characters in vignettes. The results of Chung et al. (1997) from Hong Kong suggested that healthy controls were less likely than

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patients or their relatives to say that vignettes portrayed symptoms of mental illness. Patients' attitudes to their own illness did correlate with attitudes to the symptoms in the vignettes. Most recently, Garrett et al. (2011) presented vignettes to schizophrenia patients and healthy controls describing illnesses ranging from purely 'medical' through to psychotic disorders with 'fantastic' delusions, those with 'conceivable but improbable' beliefs, to non-psychotic and finally no illness categories. Both groups ranked the nature of the disorders similarly although patients tended to underestimate the need for treatment, and the specific and general evidence of mental illness contained in each vignette. Clinician rated insight did not correlate significantly with 'third person insight'.

These studies provide little consensus, most likely due to the stage of illness of patient participants (who may well differ in terms of their insight), the types of healthy controls used, the cultural setting and the material in the vignettes. They do suggest, however, that the vignette method may be able to tap into people's beliefs and attitudes which are distinct from the traditional clinician-rated judgement of insight, and further work which investigates the relationship between judgments made to oneself (insight) and others is necessary.

There are clear links between the ability to make accurate judgements of oneself or others and the ability to accurately attribute mental states, that is, Theory of Mind (ToM). The latter ability has been shown to be disrupted in schizophrenia (Harrington et al., 2005; Sprong et al., 2007), and more recently, studies have looked at the extent to which ToM is related to insight. There are clear conceptual similarities between the two in the need to step into the mental shoes of someone else, and there are also similarities between the neuropsychological and neuroanatomical correlates of the two phenomena (Pousa et al., 2008; van der Meer et al., 2010). Empirical work on this relationship has been mixed, with some studies finding a relationship (Bora et al., 2007; Langdon et al., 2006; Langdon and Ward, 2009) and others finding no straightforward relationship (Drake and Lewis, 2003; Pousa et al., 2008; Stewart et al., 2010). It may be that ToM begins with the ability to make judgments of others' minds generally, which then provides the basis for insight into one's own mind, including one's own mental illness (see Carruthers, 2009; Wiffen and David, 2009).

The aims of this study were as follows: first, to use vignettes to explore patients' judgements about the presence of mental illness in a first episode psychosis sample. We hypothesised that if patients are able to make accurate judgments about illness in other people (3rd person vignettes), yet deny that the same events would constitute illness if displayed by they themselves (2nd person vignettes), this would suggest that they understood the nature of mental illness but there was a problem in applying illness schema to themselves. This might be because of motivated denial or a self-serving bias present in patients lacking insight into their illness, or because of cognitive deficits. Second, we sought to assess the interrelationships of clinician-rated insight, ToM and judgment of illness in others.

Further specific hypotheses under test were:

- (1) There will be a greater discrepancy between vignette judgments of illness for hypothetical self (2nd person) and other (3rd person) in patients compared with healthy controls, which will be expressed statistically as a significant interaction between illness judgment and diagnosis.
- (2) Patients who make more accurate judgments of vignettes in general (i.e., higher scores; stronger illness attribution), will have better insight into their own illness.
- (3) Ability to make accurate judgments of vignettes will be related to Theory of Mind ability and this will not be simply a reflection of lower cognitive ability in poorer insight patients.

## 2. Methods

### 2.1. Participants

We recruited patients experiencing their first episode of psychosis, and healthy controls from South London as part of the National Institute of Health Research (NIHR) Biomedical Research Centre Genetics and Psychosis (GAP) study. The study has a cross-sectional case-control design, and investigates a wide variety of potential risk factors, biological markers and socio-demographic differences in patients presenting to psychiatric services for the first time with psychosis, and healthy controls.

Eligibility of patients for the study was determined through examination of the clinical notes of all new admissions in specified inpatient units and community teams, as well as consultation with clinical teams. Patients aged between 18 and 65 presenting with a functional psychosis, defined as the presence of psychotic symptoms for at least 7 days which score more than 3 on at item of the Positive and Negative Syndrome Scale for schizophrenia (PANSS; Kay et al., 1987), were approached as soon as possible (up to a maximum of 6 months after first contact with services). The patients fulfilled ICD-10 criteria F20–29 or F30–34 (equiv to DSM IV 295.x, 298.x and Bipolar I Disorder with psychotic features). The PANSS has been shown to be a valid measure of psychotic symptoms in bipolar as well as schizophrenia patients (Moëller et al., 2010). The study was explained to all patients and informed consent taken from willing participants. Exclusion criteria were severe learning disability, poor English fluency, other psychiatric disorders including affective disorder without psychosis and a known organic cause for psychosis.

Controls were recruited from the same geographical area to match patients' age, sex and ethnicity. This was done through recruitment websites, door-to-door recruitment, leafletting the local area and adverts in newspapers and online. Those interested in participating completed the Psychosis Screening Questionnaire (Bebbington and Nayani, 1995), with individuals appearing to meet criteria for past or current psychosis being excluded.

## 3. Materials

### 3.1. Schedule for the Assessment of Insight—Expanded version (Kemp and David, 1997)

The SAI-E is a 12 item semi-structured interview. It assesses insight based on 3 factors: recognition of having a mental illness, relabelling of symptoms as abnormal, and compliance with treatment. In addition to these, it includes an item assessing 'hypothetical contradiction', which refers to a patients' reaction if someone were to disbelieve their psychotic experiences. The compliance items include behavioural measures scored by a patient's primary nurse. Factors can be analysed separately, or combined to make a total insight score. The scale is reliable and correlates well with other measures of insight (Sanz et al., 1998). Insight was assessed through a semi-structured clinical interview and rated on the SAI-E by a member of the research team who received extensive training in the use of the scale from the scale author. Inter-rater reliability is very good following such training (Morgan et al., 2010). In seven patients who did not have total scores on the SAI-E due to non completion of individual items, subscale scores were used.

### 3.2. Vignettes

We set out to use case vignettes to assess the judgments of mental illness made by psychosis patients and healthy controls, and the effect of insight on these judgments. Vignettes were required that showed a number of 'typical' psychotic presentations and were relatively brief so as not to load excessively on memory processes or fatigue the patients, and which included questions that were compatible with a multi-dimensional characterisation of insight, and particularly the SAI-E.

Vignettes used in other similar studies looking at insight were assessed (McEvoy et al., 1993; Chung et al., 1997 and Startup, 1997). Startup's vignettes contained a good variety of symptoms, as well as the use of 'control' statements which are more ambiguous (e.g. 'he believes he is too easily influenced by strong-minded people'). We modified Startup's vignettes for the present investigation by constructing new questions in order to increase compatibility with the SAI-E and taking four descriptive elements for each vignette: two showing symptoms and two control statements. Four vignettes were constructed in this manner. Each contained one delusion present and one delusion absent, then either a hallucination present and thought disorder absent, or thought disorder present and hallucination absent. See Appendix A.

For each participant, one vignette described a male ('John') and the other female ('Jane'). They were always 27 and 28 years old. This was in an attempt to make them similar to the 'average' patient. The dependent variable was the extent to which participants agreed with statements on a Likert scale of 1 to 7 ranging from 'Do not agree at all' to 'Agree completely'. A higher score represents rating

the vignette as more representative of mental illness. The first 3 were adapted from the different factors of insight as defined by the SAI-E (see also Garrett et al., 2011). In the 3rd person variant, the statements were as follows:

This person has something wrong with them, like a mental illness.  
This person needs treatment for what is happening to them.  
These events and experiences are in this person's mind.

In order to investigate the effect of getting the participant to 'imagine' that these psychotic experiences were happening to them, we used 2nd person vignettes. It is possible that there would be differences in the effect that this instruction would have related to how a patient felt about their own illness. If a patient had little insight into their own illness, yet readily labelled vignettes as pathological and meriting treatment then this would imply that they understood the concept of mental illness and recognised its features, yet had difficulty in applying such concepts to themselves. A difference in scores on the 2nd and 3rd person versions of the vignettes suggests an unwillingness to admit any illness to the investigator, even a hypothetical one. This could be considered evidence of a 'denial' strategy in the sense of conscious presentation management. Low scores for both types of vignette would indicate a general avoidance of psychiatric attributions. The statements rated as dependent variables in the 2nd person variant were as follows:

If you were experiencing these events:

I would think there was something wrong with me like a mental illness.  
I would think I need treatment for what was happening to me.  
I would think these events and experiences were in my mind.

Vignettes were piloted by a group of 9 healthy controls to test clarity and readability, as well as mode of presentation. No problems were reported and so vignettes were deemed to be acceptable for use in the total sample. Vignettes were counterbalanced and pseudo-randomised such that the 4 stories were equally distributed amongst the conditions, half of the participants completed 3rd person vignettes first and the other half completed 2nd person vignettes first.

### 3.3. Theory of Mind—The Strange Stories Task (Happé, 1994)

The Strange Stories Task tests attribution of mental states through verbal content rather than drawings, unlike other ToM tasks (see Harrington et al., 2005), and was therefore more appropriate to relate to the vignette task. We chose to use just 4 of the 8 social stories available: 2 'mistakes', and one 'double bluff' and one 'lie', given the limited time frame for the battery. In each case, the participant has to explain a story character's utterance, by inferring their mental state (e.g. intention to deceive). Answers to stories were scored 0, 1 or 2 by a single researcher, based on the accuracy of the mental state attribution.

### 3.4. IQ—Tasks from the Wechsler Adult Intelligence Scale—Third edition (Wechsler, 1997)

5 subtests were taken from the WAIS-III to measure IQ: Block design, Information, Digit span, Digit-symbol coding and Matrix reasoning. These tasks were completed by 43 patients and 13 controls since cognitive function in controls was not considered a central element of the study. The purpose of estimating IQ was to be able to account for its independent effect on insight and ToM reasoning which might otherwise confound performance.

### 3.5. Procedure

The SAI-E and WAIS-III were administered to participants by highly trained research workers as part of an expansive clinical interview to ascertain prominent symptoms. The vignette task and stories task were presented together in a booklet. Participants chose whether to fill the answers in for themselves, or to have the stories read to them and their responses recorded by the experimenter. This aimed to reduce the cognitive load of the task to eliminate any effect of reading ability or memory on performance from patients or healthy controls.

## 4. Results

We recruited 44 patients and 23 healthy controls (See Table 1 for sample information). Patients and controls were well matched for age and gender; 40 of the patients were on low/standard dose atypical antipsychotic medication. Duration of untreated

**Table 1**  
Demographic and clinical characteristics of sample.

Characteristic	Patients (N=44)	Controls (N=23)	Significance test
% Male	63.6	43.5	$\chi^2=1.89, p=0.17$
Mean age (S.D.); range=18–59	27.5 (6.7)	28.5 (11.3)	$t=1.06, p=0.29$
Mean SAI-E total (S.D.)	14.6 (7.5)		
Mean PANSS (S.D.)	56.7 (11.7)		
Mean IQ (S.D.)	93.5 (14.8)	106.9 (9.9)	$t=3.13, p=0.03$
Mean theory of mind (S.D.)	5.8 (2.0)	7.2 (1.0)	$U=254, p=0.001$
Diagnoses			
Non-affective psychosis	19		
Schizoaffective disorder	6		
Affective episode with psychosis	12		
Delusional disorder	1		
Psychosis NOS	6		

Note. The Schedule for the Assessment of Insight—Expanded version (SAI-E) is from Kemp and David (1997) and has a range of 0–28. The Positive and Negative Syndrome Scale (PANSS) is from Kay et al. (1987) and has a range from 0 to 210. IQ was calculated using 5 subtests from the Wechsler Adult Intelligence Scale—Third Edition (Wechsler, 1997). The Theory of Mind task was a shortened version of the Story Task (Happé, 1994) and had a range of 0 to 8. Diagnoses were conducted based on clinical notes by trained clinicians.

psychosis was 33 days (median) and the mean time between that presentation and assessment was 58.5 days (range 5–150), i.e. median total duration of illness=91.5 days. Patients had a lower IQ but were well within the normal range. They were also less accurate on ToM stories (Mann Whitney U test,  $p=0.001$ ). Insight scores were in the moderate range according to previous studies using the SAI-E (David, 2004).

### 4.1. Vignettes

For each story there were 3 items rated on 7 point Likert scales representing the 3 dimensions of insight from the SAI-E. Total scores for each item in the 2 different vignettes were calculated, as well as a total for each of the 3 items from both vignettes. The same was done for 2nd and 3rd person versions. There was minimal variation between scores on the 3 items of the vignettes within groups (i.e. no mean differences of more than 0.6) so in order to reduce the number of required tests and thus chance of type 1 error, analysis was only carried out on total scores for 2nd person and 3rd person vignettes.

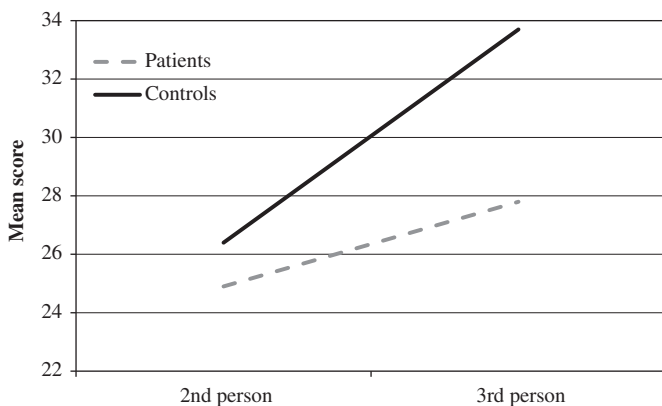
#### 4.1.1. Analyses—main effects and interactions

Using analysis of variance (ANOVA) there was a significant effect of vignette type (Wilks Lambda=0.79),  $F(1,65)=17.68, p<0.001$  but no significant effect of group ( $p=0.094$ ). A mixed ANOVA tested the significance of the hypothesised interaction between patient-control status and total responses on 3rd and 2nd person variants of the task. There was a near significant interaction between patient-control status and vignette type (Wilks Lambda=0.95,  $F(1,65)=3.47, p=0.067$ ). This interaction is illustrated in Fig. 1. Given the trend towards statistical significance and the a priori hypothesis, two  $t$ -tests were carried out to test whether there were differences in vignette judgments based on patient-control status in the 2nd and 3rd person tasks. Controls rated 3rd person vignettes significantly higher than patients (mean=33.7 (8.0) vs. 27.8 (9.3);  $p=0.011$ ). On 2nd person vignettes, there was no significant difference between patients and controls (mean (S.D.)=26.4 (9.8) vs. 24.9 (11.0);  $p=0.583$ ). For controls, ratings of 2nd and 3rd person vignettes

differed significantly ( $p < 0.01$ ), while for patients, there was only a trend toward significance ( $p = 0.07$ ).

#### 4.1.2. Correlational analyses

**4.1.2.1. The relationship between insight and judgment of vignettes.** Pearson's correlations were conducted to show the relationship between clinical insight and vignette judgment (see Table 2). There was no significant relationship between insight and 2nd person vignettes. There were small to medium correlations, which were either significant or at trend level, between all dimensions of clinical insight and 3rd person vignette scores. That is, greater insight was associated with a greater tendency to label characters in 3rd person vignettes as mentally ill. Once the effect of IQ was statistically controlled for, correlation coefficients reduced (ranging from .18 to .24) and were no longer statistically significant (all  $p$  values  $> 0.15$ ).



**Fig. 1.** Graph showing differences between patients and controls in mean responses to 2nd and 3rd person vignettes (max score = 42, i.e. complete agreement that the person in the vignette has a mental illness/needs treatment etc).

**Table 2**

Pearson's correlation coefficients of vignettes (with subject in the 2nd or 3rd person) and clinical insight (Schedule for the Assessment of Insight—Expanded) in patients. Higher correlation suggests that the stronger the attribution of mental illness the greater the components of clinician rated insight.

Vignette type	Total insight		Recognition		Compliance		Relabelling	
	<i>r</i>	<i>P</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>
2nd	0.12	0.457	0.12	0.446	0.07	0.641	0.09	0.613
3rd	0.33	0.043	0.27	0.094	0.25	0.115	0.31	0.060

*r* = correlation coefficient; *p* = significance level.

**Table 3**

Pearson's correlation coefficients of vignettes with Theory of Mind task (ToM) and IQ. Higher correlation suggests that the stronger the attribution of mental illness the greater the performance on ToM tasks and greater the IQ.

	Cases						Controls					
	3rd person vignettes		Total ToM <sup>a</sup>		IQ		3rd person vignettes		Total ToM <sup>a</sup>		IQ	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>P</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>P</i>	<i>r</i>	<i>p</i>
2nd	0.56	< 0.001	0.28	0.068	0.09	0.551	0.61	0.002	0.31	0.152	-0.01	0.971
3rd	-	-	0.39	0.009	0.36	0.019	-	-	0.34	0.118	0.22	0.458

*r* = correlation coefficient; *p* = significance level.

<sup>a</sup> Non-parametric Spearman's correlations used for ToM, as data were substantially non-normal.

#### 4.2. The relationship between ToM, insight and judgment of vignettes

Clinical insight showed small to medium Spearman's correlations with ToM. For the total insight score, ToM correlated at  $r = 0.30$  ( $p = 0.06$ ). For the recognition, compliance and symptom relabelling, the correlation coefficients were  $r = 0.33$  ( $p = 0.04$ ),  $r = 0.03$  ( $p = 0.84$ ) and  $r = 0.23$  ( $p = 0.18$ ).

The role of ToM in judgments of vignettes was then investigated. Due to the lower number of controls to complete the neuropsychological battery, this analysis was not carried out in the control sample. There was a non-significant correlation between 2nd person total score and total ToM ( $r = 0.28$ ,  $p = 0.068$ ), and a significant medium relationship between 3rd person score and total ToM ( $r = 0.39$ ,  $p = 0.009$ ) in patients. Partial correlations were carried out to investigate whether the relationship between vignette response and ToM was significant beyond the effect of IQ. The partial correlation coefficients were  $r = 0.39$  ( $p = 0.011$ ) for 2nd person vignettes, and  $r = 0.29$  ( $p = 0.061$ ) for 3rd person vignettes. This means that whilst for 3rd person vignettes, IQ moderates the relationship between ToM and vignette score, in the 2nd person vignettes, the strength of the relationship actually increases once IQ has been controlled for statistically. Raw Spearman's correlations between ToM and vignette judgment were of the same magnitude in controls as in cases, though these were not statistically significant due to the low numbers (see Table 3).

## 5. Discussion

The first important finding was the significant difference between ratings of 3rd person vignettes compared with 2nd person vignettes. Taken together, all participants were more likely to rate the experiences in the vignettes as representing illness when describing other people than when they imagined themselves experiencing the same thing. This points to the presence of a universal self-serving bias present in the explanation of unusual experiences. This could be seen as a form of the fundamental attribution error, whereby people tend to place increased value on internal and personality explanations of observed behaviour in others (Jones and Harris, 1967). Many studies demonstrate that across a wide range of domains, people are prone to make more negative attributions to other people than they do to themselves (Pronin et al., 2004). People seem to think of mental illness as something that happens to other people and it may be that this attitude has a protective function. This is the first study to our knowledge to demonstrate such a bias in the context of mental health attributions.

Overall judgment made of vignettes of mental illness did not differ between patients and controls (there was no main effect of group). Patients in their first episode of psychosis, who have had relatively little exposure to therapeutic input and may not have been 'socialised' by repeated hospitalisations, share this bias with

healthy participants from the same geographical region. It should be acknowledged that the sample size of patients and especially controls was relatively small and that further work with larger samples would be able to explore the effects of length of illness and other socio-demographic factors in this effect. Our findings concur with some prior studies (Startup, 1997; Garrett et al., 2011), but not all (Chung et al., 1997), in not finding a significant difference in these judgments between patients and controls.

### 5.1. *Insight and vignette judgment*

The key finding of this study was the differences between participants in their comparative reactions to vignettes presented in the 2nd and 3rd person. The healthy controls made stronger attributions to mental illness to the 3rd person vignettes than did patients. This was the contrary to what was hypothesised on the basis of there being an exaggerated self-serving bias in psychosis patients, particularly those with poorer insight, based on the correlations. If patients who lacked insight into their illness were demonstrating motivated denial (i.e. they had some awareness, either explicitly or implicitly, that they were ill but unwilling to share that), we might have predicted a larger discrepancy between 3rd and 2nd person vignettes, such that they were more willing to attribute mental illness to others than they were to themselves. Within the patient group, there was a correlation between better insight and attribution of mental illness to the 3rd person vignettes, which became non-significant when the effect of IQ was taken into account. Nevertheless, the direction of the correlation was opposite to that predicted. There was no significant correlation between clinician-rated insight and attribution of illness to 2nd person vignettes.

The relationship between IQ and vignette judgment is worthy of comment. There was a medium strength correlation between them in the 3rd person vignettes (such that those with higher IQ were more likely to attribute illness to 3rd person vignettes) but no such correlation in 2nd person vignettes. This suggests that making these judgments of illness about others is reliant, at least to an extent, upon general cognitive ability. However, when it comes to making hypothetical judgments about ourselves, this is not the case. These hypothetical judgments, as well as relying more heavily on ToM ability, are more likely to reflect facets of personality, personal experience of mental health or self-confidence. Further work is needed to elucidate what factors may be involved in these hypothetical judgments.

Can the low attribution of illness and lack of discrepancy between 2nd and 3rd person observed in patients still be interpreted as evidence of motivated denial? Low insight patients may recognise their own experiences in those of the vignette characters, and in order to be consistent with their stance that they are not ill, they must judge these characters as also not being ill. To rate the 3rd person vignettes, who may be having similar experiences to them, as representing mental illness may be interpreted as some sort of acceptance that what they themselves were experiencing was not normal: 'I am not ill. This person is experiencing similar things to me. Therefore they are not ill.' However, we do not favour this explanation since this would require a fairly complex level of ToM, which is clearly disrupted in psychosis, according to several other studies (Brüne, 2005) as well as here, especially in the context of poor insight (Langdon and Ward, 2009; see also Stewart et al., 2010).

### 5.2. *Theory of mind and vignette judgment*

The relationship between insight and ToM is noteworthy. We found small to medium correlations with recognition of illness and symptom relabelling, and statistically significantly with the total insight score. Though this has not been a consistent finding in the literature to date, it is clearly intuitive that the concepts would be

linked. Indeed, a classic characterisation of insight as the ability "to see ourselves as others see us" (David, 1999) suggests that we need to be able to understand the minds of other people (i.e. have good ToM) in order to have good insight. However, it is unclear which is primary – the ability to reflect on ourselves and in turn apply that reflection to others, or the ability to understand others and then apply that to ourselves (Carruthers, 2009). The lack of a correlation between the compliance subscale and ToM is noteworthy. It seems that compliance is less influenced by cognitive processes generally (Morgan et al., 2010), and is more likely to be influenced by social and cultural factors. Compliance relates to patients' attitudes towards their treatment, rather than the judgments they make about their experiences and how these might constitute illness.

The correlation between ToM and 2nd and 3rd person vignettes (even after controlling for the effect of IQ) was significant. This suggests that the ability to make illness judgments about others and about oneself is likely to be related to the ability to understand other people's mental state more generally. That is, when making judgments about the illness state of others, people tend to imagine what it would be like to experience those events 'from the inside out' rather than applying a theory based on external knowledge of what might constitute mental illness. Although given the medium size of the correlations, other characteristics must have a role in these judgments as well. Indeed, such factors as social, cultural and family background are likely to affect insight (Tranulis et al., 2008).

There are several limitations to the study. The diagnostic heterogeneity may have diluted some of the findings—if they were highly specific to schizophrenic psychoses. We were not able to obtain IQs on all the controls or more detailed neuropsychological data on patients so could not fully explore the relationship between cognitive ability and attributions. Finally, in terms of the paradigm, we can never be sure that participants – particularly patients – truly adopted the 2nd vs. 3rd person perspective as instructed as opposed to following a more simple algorithm in tackling the problem.

In conclusion, we found that both first episode psychosis and healthy participants show a bias against attributing symptoms to illness in themselves compared to others, with some reluctance generally to whole-heartedly attribute symptoms and signs to mental illness. However this tendency was expressed less strongly in the patients and tended to be lower still in those with lower insight. This provides no evidence for a 'motivated' denial of illness model of lack of insight, and instead suggests a cognitive deficit, likely to include social cognition, as a more likely cause. Finally one implication of the findings for treatment is that it may be more beneficial to patients to help them appreciate the signs and symptoms of mental disorder in helping them recognise them in themselves, rather than tackling lack of insight 'head-on'.

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## Appendix A. Vignettes used in the study

These are the 3rd person vignettes presented to participants. 2nd person versions transferred 'he/she' for 'you'. The statements were also converted for 2nd person versions.

- A. Jane is 27 years old. She believes that radioactivity from a nearby power station is a danger to everyone in the locality. When she is alone she frequently hears a voice that threatens to kill her. Her speech is lively and full of ideas. She believes that many of her thoughts are not her own; they are inserted into her head by other people.
- B. John is 28 years old. He believes he is too easily influenced by strong-minded people. It is almost impossible to understand what he says because he jumbles many different ideas together. He often criticises himself for the mistakes he makes. He believes that everyone knows what he is thinking because his thoughts are broadcast like television.
- C. John is 27 years old. He believes it is easy for people to guess what he is thinking because he is poor at concealing his feelings. Much of the time he hears a voice in his head commenting on everything he does. He is not very good at logical argument. He believes he is the son of Winston Churchill but no one, not even his family, can make any sense of this.
- D. Jane is 28 years old. She believes she is descended from the Duke of Marlborough. Her family agree that this is true. She is hard to understand because she makes up lots of new words of her own. Sometimes she gets upset when she overhears her neighbours gossiping about her. She believes that agents from the Belgian government are directing harmful rays at her head.

## References

- Aleman, A., Agrawal, N., Morgan, K.D., David, A.S., 2006. Insight in psychosis and neuropsychological function: meta-analysis. *British Journal of Psychiatry* 189, 204–212.
- Bebbington, P.E., Nayani, T., 1995. The Psychosis Screening Questionnaire. *International Journal of Methods in Psychiatric Research* 5, 11–19.
- Bora, E., Sehitoglu, G., Aslier, M., Atabay, I., Veznedaroglu, B., 2007. Theory of mind and unawareness of illness in schizophrenia: is poor insight a mentalizing deficit? *European Archives of Psychiatry and Clinical Neuroscience* 257, 104–111.
- Brüne, M., 2005. "Theory of mind" in schizophrenia: a review of the literature. *Schizophrenia Bulletin* 31, 21–42.
- Carruthers, P., 2009. How we know our own minds: the relationship between mindreading and metacognition. *Behavioral and Brain Sciences* 32, 121–138.
- Chung, K.F., Chen, E.Y.H., Lam, L.C.W., Chen, R.Y.L., Chan, C.K.Y., 1997. How are psychotic symptoms perceived? A comparison between patients, relatives and the general public. *Australian and New Zealand Journal of Psychiatry* 31, 756–761.
- David, A.S., 1999. "To see ourselves as others see us": Aubrey Lewis's insight. *British Journal of Psychiatry* 175, 210–216.
- David, A.S., 2004. The clinical importance of insight: an overview. In: Amador, X.F., David, A.S. (Eds.), *Insight and Psychosis: Awareness of Illness in Schizophrenia and Related Disorders*, 2nd Ed Oxford University Press, New York, NY, pp. 359–392.
- Drake, R.J., Lewis, S.W., 2003. Insight and neurocognition in schizophrenia. *Schizophrenia Research* 62, 165–173.
- Garrett, M., Singh, A., Amanbekova, D., Kamarajan, C., 2011. Lack of insight and conceptions of mental illness in schizophrenia assessed in the third person through case vignettes. *Psychosis* 3, 115–125.
- Happé, F., 1994. An advanced test of theory of mind: understanding of story characters' thoughts and feelings by able autistic, mentally handicapped, and normal children and adults. *Journal of Autism and Developmental Disorders* 24, 129–154.
- Harrington, L., Siegert, R., McClure, J., 2005. Theory of mind in schizophrenia: a critical review. *Cognitive Neuropsychiatry* 10, 249–286.
- Jones, E.E., Harris, V.A., 1967. The attribution of attitudes. *Journal of Experimental Social Psychology* 3, 1–24.
- Kay, S.R., Fiszbein, A., Opler, L.A., 1987. The Positive and Negative Syndrome Scale (PANSS) for Schizophrenia. *Schizophrenia Bulletin* 13, 261–276.
- Kemp, R., David, A.S., 1997. Insight and Compliance. In: Blackwell, B. (Ed.), *Treatment Compliance and the Therapeutic Alliance*. Harwood Academic Publishers, Amsterdam, pp. 61–86.
- Langdon, R., Corner, T., McLaren, J., Ward, P.B., Coltheart, M., 2006. Externalizing and personalizing biases in persecutory delusions: the relationship with poor insight and theory-of-mind. *Behaviour Research and Therapy* 44, 699–713.
- Langdon, R., Ward, P., 2009. Taking the perspective of the other contributes to awareness of illness in schizophrenia. *Schizophrenia Bulletin* 35, 1003–1011.
- McEvoy, J.P., Schooler, N.R., Friedman, E., Steingard, S., Allen, M., 1993. Use of psychopathology vignettes by patients with schizophrenia or schizoaffective disorder and by mental health professionals to judge patients' insight. *American Journal of Psychiatry* 150, 1649–1653.
- Moëller, H.J., Jaëger, M., Riedel, M., Obermeier, M., Strauss, A., Bottlender, R., 2010. The Munich 15-year follow-up study (MUFUSSAD) on first-hospitalized patients with schizophrenic or affective disorders: comparison of psychopathological and psychosocial course and outcome and prediction of chronicity. *European Archives of Psychiatry and Clinical Neuroscience* 260, 367–384.
- Moore, O., Cassidy, E., Carr, A., O'Callaghan, E., 1999. Unawareness of illness and its relationship with depression and self-deception in schizophrenia. *European Psychiatry* 14, 264–269.
- Morgan, K.D., David, A.S., 2004. Neuropsychological studies of insight in patients with psychotic disorders. In: Amador, X.F., David, A.S. (Eds.), *Insight and Psychosis: Awareness of Illness in Schizophrenia and Related Disorders*. Oxford University Press, New York, NY.
- Morgan, K.D., Dazzan, P., Morgan, C., Lappin, J., Hutchinson, G., Suckling, J., Fearon, P., Jones, P.B., Leff, J., Murray, R.M., David, A.S., 2010. Insight, grey matter and cognitive function in first-onset psychosis. *British Journal of Psychiatry* 197, 141–148.
- Pousa, E., Duñó, R., Blas Navarro, J., Ruiz, A.I., Obiols, J.E., David, A.S., 2008. Exploratory study of the association between insight and Theory of Mind (ToM) in stable schizophrenia patients. *Cognitive Neuropsychiatry* 13, 210–232.
- Pronin, E., Gilovich, T., Ross, L., 2004. Objectivity in the eye of the beholder: divergent perceptions of bias in self versus others. *Psychological Review* 111, 781–799.
- Rokeach, M., 1964. *The Three Christs of Ypsilanti*. Knopf, New York, NY.
- Sanz, M., Constable, G., Lopez-Ibor, I., Kemp, R., David, A.S., 1998. A comparative study of insight scales and their relationship to psychopathological and clinical variables. *Psychological Medicine* 28, 437–446.
- Sprong, M., Schothorst, P., Vos, E., Hox, J., Van Engeland, H., 2007. Theory of mind in schizophrenia: meta-analysis. *British Journal of Psychiatry* 191, 5–13.
- Startup, M., 1997. Awareness of own and others' schizophrenic illness. *Schizophrenia Research* 26, 203–211.
- Stewart, S.L.K., Corcoran, R., Lewis, S., Drake, R.J., 2010. The relationship between theory of mind and insight in psychosis: evidence for specificity. *Psychosis: Psychological, Social and Integrative Approaches* 2, 34–40.
- Subotnik, K.L., Nuechterlein, K.H., Irzhevsky, V., Kitchen, C.M., Woo, S.M., Mintz, J., 2005. Is unawareness of psychotic disorder a neurocognitive or psychological defensiveness problem? *Schizophrenia Research* 75, 147–157.
- Swanson, C.L., Freudenreich, O., McEvoy, J.P., Nelson, L., Kamaraju, L., Wilson, W.H., 1995. Insight in schizophrenia and mania. *Journal of Nervous and Mental Disease* 183, 752–755.
- Tranulis, C., Corin, E., Kirmayer, L.J., 2008. Insight and psychosis: comparing the perspectives of patient, entourage and clinician. *International Journal of Social Psychiatry* 54, 225–241.
- van der Meer, L., Costafreda, S., Aleman, A., David, A.S., 2010. Self-reflection and the brain: a theoretical review and meta-analysis of neuroimaging studies with implications for schizophrenia. *Neuroscience and Biobehavioral Reviews* 34, 935–946.
- Wechsler, D., 1997. *Wechsler Adult Intelligence Scale*. Third edition. Administration and Scoring Manual. The Psychological Corporation, San Antonio, TX.
- Wiffen, B., David, A.S., 2009. Metacognition, Mindreading and Insight in Schizophrenia. *Behavioral and Brain Sciences* 32, 161–162.