Mental state decoding v. mental state reasoning as a mediator between cognitive and social function in psychosis
Nicola McGlade, Cáragh Behan, Judy Hayden, Therese O’Donoghue, Rosie Peel, Farhan Haq, Michael Gill, Aiden Corvin, Eadbhard O’Callaghan and Gary Donohoe
BJP 2008, 193:77-78.
Access the most recent version at DOI: 10.1192/bjp.bp.107.044198

Supplementary Material
Supplementary material can be found at: http://bjp.rcpsych.org/content/suppl/2008/07/01/193.1.77.DC1.html

References
This article cites 0 articles, 0 of which you can access for free at: http://bjp.rcpsych.org/content/193/1/77#BIBL

Reprints/permissions
To obtain reprints or permission to reproduce material from this paper, please write to permissions@rcpsych.ac.uk

You can respond to this article at http://bjp.rcpsych.org/cgi/eletter-submit/193/1/77

Downloaded from http://bjp.rcpsych.org/ on March 7, 2013
Published by The Royal College of Psychiatrists

To subscribe to The British Journal of Psychiatry go to: http://bjp.rcpsych.org/site/subscriptions/
Mental state decoding v. mental state reasoning as a mediator between cognitive and social function in psychosis

Nicola McGlade, Caragh Behan, Judy Hayden, Therese O’Donoghue, Rosie Peel, Farhan Haq, Michael Gill, Aiden Corvin, Eadbhard O’Callaghan and Gary Donohoe

Summary
Theory of mind deficits in schizophrenia have been parsed into mental state reasoning and mental state decoding components. We report that mental state decoding as measured by the ‘Eyes task’ better predicted social function than mental state reasoning as measured by the ‘Hinting task’ in 73 out-patients with chronic schizophrenia. Mental state decoding task performance also partly mediated the influence of basic neuropsychological performance on social function. We discuss these findings in terms of the accumulating evidence that mental state decoding has particular relevance for understanding deficits in social function in schizophrenia.

Declaration of interest
None. Funding detailed in Acknowledgements.

Theory of mind is an aspect of social cognition that describes the ability to infer other people’s mental state. A recent meta-analysis of almost 30 studies reported a large effect size for theory of mind impairment in schizophrenia. Investigations of these deficits have employed tasks that index false beliefs/deception (reasoning about the mental state of others), indirect speech (understanding irony, hints and ‘faux pas’), and mental state decoding (using information such as facial expression to infer mental state). Differences between tasks (at both behavioural and neuroanatomical levels) have resulted in a distinction between mental state reasoning ability and mental state decoding ability. Following evidence linking affective recognition and social function, Bora et al suggested that mental state decoding may be more important than mental state reasoning for social outcome in schizophrenia. They argue that this was due to mental state decoding tasks being based on more spontaneous/automatic inferential processing than theory of mind tasks involving effortful verbal processing. Furthermore, they suggest that decoding affective states from facial expressions (e.g. eyes) is likely to be closely related to empathy and the neural network underpinning empathy (inferior frontal/anterior temporal lobe function); empathy has previously been shown to be important to social function in schizophrenia.

Here we aimed to test whether mental state reasoning and mental state decoding ability differ in their ability to: (a) predict social function; and (b) mediate the relationship between neuropsychological and social function in chronic schizophrenia.

Method
After we received written informed consent, we assessed 73 patients (49 male) from a suburban Dublin psychiatric out-patient clinic using the Structured Clinical Interview for DSM-IV disorders’ to confirm diagnosis of schizophrenia or schizoaffective disorder. Criteria for participation included being aged 16–65 years, having no history of intellectual disability, acquired brain injury resulting in loss of consciousness or substance misuse in the preceding 6 months (all based on chart review). Mean age was 41.4 years, mean duration of illness was 18.2 years, and almost all were prescribed atypical antipsychotic medication. Patients’ theory of mind and neuropsychological performance was compared with the normal population using a sample of 78 age- and gender-matched healthy comparison participants recruited through the local media.

Results
Eyes task and Hinting task performance were significantly correlated ($r=0.389$; $P=0.001$). Despite this, patients only performed significantly below controls on the Eyes task ($r=−2.3$; $d.f.=149$; $P=0.023$). Eyes task performance correlated with verbal and performance IQ, and verbal and spatial working memory ($P=0.003$–0.000006) but not with verbal episodic memory. Hinting task performance by contrast was correlated with verbal episodic and working memory ($P=0.008$–0.02) but not IQ or spatial memory performance. Neither task correlated with attention control. Eyes task performance alone was moderately negatively correlated with positive symptom severity ($r=−0.25$;
This study provides further evidence that mental state decoding rather than mental state reasoning ability predicts social function in patients with chronic schizophrenia. Bora et al argue that the mental state decoding requires emotional perception and empathy. Perceptual deficits in social cognition (e.g. affect recognition) are reported as stable over time in schizophrenia, apparent in both patients with first-episode schizophrenia and those who are chronically ill, and mediate the relationship between verbal IQ and ILS scores. Again, the statistical significance of these results was unchanged by considering patients with schizophrenia and patients with schizoaffective disorder separately.

We performed two further stepwise multiple regression analyses. In the first analysis, when verbal IQ (the neuropsychological measure most highly correlated with ILS performance) was entered on the first step of the analysis followed by Eyes task performance partly mediated the relationship between verbal IQ and ILS scores. Again, this study demonstrates the importance of understanding specific deficits in cognitive function associated with schizophrenia, a challenge for studies of specific cognitive functions (either basic or social) to establish whether any specific deficit has a unique or particular value in explaining social function. In the regression analyses undertaken, mental state decoding performance on the Eyes task was able to explain variance in social function even after the variance explained by general cognitive ability (measured by verbal IQ) was already accounted for. Furthermore, accounting for the variance in mental state decoding led to attenuation in the amount of variance explained by general cognition. These results lead us to conclude that mental state decoding is not simply reflecting more general aspects of cognitive decline in schizophrenia, but instead is important in its own right in explaining social function. As further confirmation of these findings, and the earlier report by Bora et al, it may be helpful to investigate this relationship between mental state decoding and social function using multiple mental state decoding tasks within the same study design. Finally, for future studies, the ILS measure employed here, although previously validated in schizophrenia, is a proxy measure for social function and outcome; further theory of mind studies may benefit from more direct outcome measures.