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Letter to the Editors

The contribution of a cognitive bias against disconfirmatory evidence (BADE) to delusions: A study in an Asian sample with first episode schizophrenia spectrum disorders

Dear Editors,

Previous work on chronic schizophrenia patients living in Canada suggested that a generalized bias against disconfirmatory evidence (BADE) may be associated with delusions (Woodward et al., in press). Participants were gradually presented with a sequence of three pictures that increasingly disambiguated a delusion-neutral scenario, and were asked to rate the plausibility of four interpretations of this scenario. Relative to non-delusional patients, delusional patients were less willing to change their beliefs about this scenario when presented evidence that disconfirmed their original interpretation. In contrast, no differences emerged for processing of confirmatory evidence. In the present study we attempted to replicate this finding in Asian first episode schizophrenia spectrum patients.

Forty-three first-episode patients diagnosed with DSM-IV schizophrenia spectrum disorders were recruited from the early psychosis clinics at two psychiatric Hospitals in Hong Kong, China. Seventeen healthy control participants served as controls, and were matched to the patient group on age and education. Psychopathology was assessed using the Positive and Negative Syndrome Scale (PANSS). 14 subjects were considered acutely delusional, because they were rated 4 (moderate) or higher on PANSS items tapping delusion or paranoid ideation.

A computerized version of the BADE task was presented in Cantonese. Subjects were presented with scenario descriptions (e.g., Stella answers the phone at work), and asked to rate the plausibility of four causal interpretations (e.g., Stella is a secretary, Stella is a lawyer). Subsequently, two additional scenario descriptions providing further information (e.g., Stella went to law school) were successively presented, and participants adjusted their ratings if necessary. The "true" interpretation (e.g., lawyer) appeared less plausible initially but eventually proved most plausible, whereas "lure" interpretations (e.g., secretary) appeared valid initially, but ultimately proved less plausible. Plausibility ratings were recorded by moving a slider bar along a scale of 1 to 10. Each interpretation was associated with its own rating scale, and directly below each rating sale were the numbers 0 to 10, with the labels "Poor", "Possible", "Good", and "Excellent" evenly distributed over the scale.

The degree to which participants revised their ratings in light of new evidence was the main parameter of interest. The BADE measure was computed as the *decrease* in plausibility ratings from scenario sentence #1 to scenario sentence #3 for lure interpretations. The confirmatory measure (indexing a possible bias against confirmatory evidence; BACE) was computed as the *increase* in plausibility ratings from scenario sentence #1 to scenario sentence #3 for true interpretations.

Table 1
Mean *decreases* (for integration of disconfirmatory evidence as elicited by the Lure Interpretations; BADE measure) and *increases* (for integration of confirmatory evidence as elicited by the True Interpretations; BACE measure), presented as a function of group (standard errors in brackets)

Integrated information	Group		
	Delusional	Non-delusional	Healthy controls
Disconfirmatory evidence (lure)	0.46[a,b] (0.31)	1.21[a] (0.20)	1.22[b] (0.32)
Confirmatory evidence (true)	2.83 (0.46)	2.80 (0.37)	3.11 (0.33)

t test results (one-tailed, hypothesized direction congruent with previous BADE study): [a]$t(41)=2.06$, $p<0.05$, delusional vs. non-delusional patients; [b]$t(29)=1.67$, $p=0.05$, delusional patients vs. controls.

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In line with our prior research, a bias against disconfirmatory evidence (BADE), but not for or against confirmatory evidence (BACE), was observed for delusional compared to non-delusional patients and healthy controls (see Table 1).

These results suggest that a BADE, in conjunction with the well-established jumping to conclusions bias and other reasoning biases, may contribute to the formation and/or maintenance of delusions.

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