

**The Role of Cognitive Biases in the Development, Maintenance and
Treatment of Delusional Belief across the Psychosis Continuum**

Ryan P. Balzan

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School of Psychology and Discipline of Psychiatry
The University of Adelaide

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SUMMARY

Cognitive approaches to the study of delusional beliefs have been the focus of much research over the last decade. The present thesis builds on this research output through six manuscripts. These manuscripts incorporate three distinct pieces of research, which collectively represent an investigation into the role that cognitive biases have in the development, maintenance and treatment of delusions.

The first aim of the thesis was to observe the validity of the Jumping to Conclusions (JTC) bias, and particularly the “over-adjustment” component of this bias, which holds that people with delusions over-react to disconfirmatory evidence. Paper 1 investigated the possibility that “over-adjustment” is an artefact of the “beads task”, which is the most commonly used task to elucidate the effect. Importantly, Paper 1 offered qualitative evidence that “over-adjustment” is likely to be due to a miscomprehension of this task’s instructional set. Paper 2 was an extension of these findings and included an intervention designed to improve comprehension during the beads task. The intervention successfully improved comprehension and simultaneously reduced the “over-adjustment” effect, further suggesting that this effect was driven by miscomprehension.

The second aim of the thesis was to investigate the validity of the “hypersalience of evidence-hypothesis matches” mechanism. “Hypersalience” has recently been put forward as the underlying mechanism responsible for cognitive reasoning biases that affect people with delusions, such as the JTC. The ensuing three papers tested whether people with delusions, and those identified as delusion-prone, were hypersalient to evidence-hypothesis

matches by observing whether these groups were more susceptible to confirmation biases (Paper 3), reasoning heuristics (Paper 4), and illusory correlations and illusions of control (Paper 5) relative to non-delusion-prone controls. Collectively, these papers offered empirical support for the “hypersalience” mechanism and demonstrated that delusional beliefs may be caused and maintained by a heightened propensity to confirmation biases, reasoning heuristics, and illusory associations via this mechanism.

The third and final aim of this thesis was to investigate the efficacy of a targeted metacognitive training (MCT) program, incorporating a single module which focussed on the “hypersalience of evidence-hypothesis matches” mechanism (Paper 6). MCT represents a novel approach for the treatment of delusions in people with schizophrenia, as it targets the cognitive biases thought to underlie the development and maintenance of delusional belief; in this case, the hypersalience mechanism. Relative to controls, participants in the targeted MCT treatment group exhibited significant decreases in delusions, significant increases in perceived quality of life and insight, and significant improvements in performance on two cognitive bias tasks.

The findings presented within this thesis contribute to our understanding of the cognitive processes underlying the formation and maintenance of delusional beliefs, and offer new treatment possibilities for people with psychotic illnesses, such as schizophrenia.

DECLARATION

I, Ryan Balzan, certify that this work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

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PUBLISHED WORKS

Chapter Three: Paper 1

Balzan, R. P., Delfabbro, P. H., & Galletly, C. (in press). Delusion-proneness or miscomprehension? A re-examination of the jumping-to-conclusions bias. *Australian Journal of Psychology*. DOI: 10.1111/j.1742-9536.2011.00032.x

Chapter Four: Paper 2

Balzan, R. P., Delfabbro, P. H., Galletly, C., & Woodward, T. S. (in press). Over-adjustment or miscomprehension? A re-examination of the jumping to conclusions bias. *Australian and New Zealand Journal of Psychiatry*. DOI: 10.1177/0004867411435291

Chapter Five: Paper 3

Balzan, R. P., Delfabbro, P. H., Galletly, C., & Woodward, T. S. (in press). Confirmation biases across the psychosis continuum: The contribution of hypersalient evidence-hypothesis matches. *British Journal of Clinical Psychology*. [accepted for publication 24 February 2012]

Chapter Six: Paper 4

Balzan, R. P., Delfabbro, P. H., Galletly, C., & Woodward, T. S. (in press). Reasoning heuristics across the psychosis continuum: The contribution of hypersalient evidence-hypothesis matches. *Cognitive Neuropsychiatry*. DOI: 10.1080/13546805.2012.663901

UNPUBLISHED WORKS

Chapter Seven: Paper 5

Balzan, R. P., Delfabbro, P. H., Galletly, C., & Woodward, T. S. (submitted).
Illusory correlations and control across the psychosis continuum: The contribution of hypersalient evidence-hypothesis matches.

Chapter Eight: Paper 6

Balzan, R. P., Delfabbro, P. H., Galletly, C., & Woodward, T. S. (submitted).
Metacognitive training for patients with schizophrenia: Preliminary evidence for a targeted single-module program.

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