

Abstract

Background: Delusions are firmly held false beliefs despite proof to the contrary. Previous research found that patients with delusions showed deteriorated working memory and reduced belief flexibility (i.e. the ability to reflect on their own beliefs, change them and generate alternatives). They also found that belief flexibility was negatively associated with delusional conviction. Yet, it is unclear whether their working memory deficits contribute to their reduced belief flexibility, thus resulting in higher delusional conviction.

Methods: A total of 45 patients with non-affective schizophrenia spectrum disorders aged from 22 to 64 years were assessed at baseline and after 6 months. Their working memory was assessed using the *n*-back task. Their belief flexibility was measured by the possibility of being mistaken (PM) item and the reaction to hypothetical contradiction (RTHC) item on the Maudsley Assessment of Delusions Schedule and the Explanation of Experiences Assessment (EoE). Their delusional conviction was measured using the Psychotic Symptom Rating Scales. Regression and mediation analyses were conducted to examine the relationships between the within-subject change variables in working memory, belief flexibility, and delusional conviction.

Results: Participants' improvement in working memory (as indicated by a faster response time in the 2-back task) predicted increased belief flexibility (as indicated by a higher score on the RTHC item) ($p = .015$). Their improvement in belief flexibility (as indicated by the PM and RTHC items) also predicted a reduction in their delusional conviction ($p = .015$ and $.019$ respectively). The within-subject change in working memory did not predict the within-subject change in delusional conviction ($p > .050$). The mediating effect of working memory on delusional conviction via belief flexibility was non-significant ($p > .050$).

Conclusion: Findings from this study helped clarify the relationships among working memory, belief flexibility, and delusional conviction. Our results suggested that patients' working