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Mismatch negativity (MMN) and schizotypy in nonclinical young adults

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Abstract

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Keywords

nonclinical, schizotypy, young, mismatch, adults, mmn, negativity

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Mismatch negativity (MMN) and schizotypy in nonclinical young adults

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Aims: The auditory mismatch negativity (MMN) is a marker of sensory memory and is thought to index the functionality of glutamatergic NMDA receptor mediated neurotransmission. MMN amplitude is robustly attenuated in patients, and attenuated in unaffected family members of patients with schizophrenia relative to controls. The extent to which MMN amplitude varies as a function of schizotypal traits, which are associated with schizophrenia liability in a healthy population, is unclear. The aim of the current study was to explore the association between MMN and schizotypy in a nonclinical sample. **Method:** Thirty-eight healthy undergraduate students were administered the Schizotypal Personality Questionnaire (SPQ, Raine, 1991) and took part in a multifeature MMN paradigm (standards 82%, 50 ms, 1000 Hz, 80 dB) with duration (100 ms), frequency (1200 Hz) and intensity (90 dB) deviants (6%). Associations between SPQ total and subscale scores and MMN amplitude at Fz for each deviant condition were explored. **Results:** SPQ total score was not found to correlate with MMN amplitude in any condition ($p > 0.100$), however we did observe a trend association between the suspiciousness subscale and frequency MMN ($\rho = -.306$, $p = .073$). To explore this further we divided the sample using a median split into high and low scorers on Suspiciousness. MMN amplitude was then compared between the two groups using a group by deviant condition repeated measures ANOVA. This analysis revealed a significant main effect of group such that the high suspiciousness group had larger MMN amplitude compared to the low group ($p = .048$). No interaction between group and deviant condition was identified. **Conclusions:** Larger MMN in high suspiciousness scorers is in contrast to the robustly attenuated MMN amplitude observed in patients with schizophrenia. These results may point to a complex association between NMDA receptor function and psychotic liability in the healthy population but require replication.

Keywords: mismatch negativity (MMN), Schizotypal Personality Questionnaire (SPQ), event-related potential (ERP), Schizophrenia, Electrophysiology

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