Deficient multisensory integration in schizophrenia: 
An event-related potential study

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Abstract
The N1 component of the event-related brain potential (ERP), reflecting neural activity associated with basic sound processing, can be suppressed if a sound is accompanied by a video that predicts sound onset. In this study we examined whether visual predictive information induces auditory deactivation in patients with schizophrenia. The electroencephalography (EEG) was recorded in 18 patients with schizophrenia and compared with that of 18 healthy volunteers. As stimuli we used video recordings of natural actions in which visual information preceded and predicted the onset of the concordant sound (e.g., a video recording of hand clapping). For the healthy control group, visual information substantially reduced the auditory-evoked N1 if compared to a sound-only condition. This reduction of the N1 was absent in patients with schizophrenia. The results show a deficit in multisensory processing in patients with schizophrenia and suggest that multisensory integration dysfunction may be an important and, to date, under-researched aspect of schizophrenia.

Keywords
Schizophrenia, event-related brain potentials, auditory N1, multisensory perception, audiovisual integration, temporal prediction


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