

Assessing the value of event-related potentials (ERPs) as an implicit correlate of explicit supernatural beliefs: a high-powered preregistered EEG study

Athina Bruss¹, Josephine Marschall¹, Antonia Lilja², Uffe Schjoedt³, and Michiel van Elk¹

¹Leiden University

²Hamburg University of Technology

³Aarhus Universitet

December 23, 2022

Abstract

In this pre-registered study, we assessed the value of event-related potentials (ERPs) as an implicit measure of individual differences in supernatural beliefs and attitudes. Across two experiments (A and B), two groups of participants (believers vs. non-believers) were presented with attitude and belief statements about religious, spiritual and control phenomena. The ERP analysis focused on the N400-effect, which is often used as a proxy for the effortful semantic processing of information that conflicts with one's worldview (e.g., when believers read atheist statements, and vice versa). At the explicit behavioral level (i.e., button-press to agree/disagree with a statement), the two groups of participants responded in accordance with their self-reported beliefs. We failed, however, to find any of the hypothesized differences on the N400-effect. Whether the absence of the expected N400-effect may be attributed to (1) heterogeneity in believers and non-believers, (2) design and stimulus material, and (3) choices made in the analysis, is discussed, and improvements are suggested for future research using ERPs as an implicit marker of supernatural belief and unbelief.

Hosted file

N400_ImplicitBelief_Manuscript_Tables2.docx available at <https://authorea.com/users/569188/articles/614890-assessing-the-value-of-event-related-potentials-erps-as-an-implicit-correlate-of-explicit-supernatural-beliefs-a-high-powered-preregistered-eeg-study>



