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When errors count: an EEG study on numerical error monitoring under performance pressure.

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Summary: In high-stake tests, students often display lower achievements than expected based on their skill level – a phenomenon known as choking under pressure. This imposes a serious problem for many students, especially for test-anxious individuals. Among school subjects, mathematics has been shown to be particularly vulnerable to choking. To succeed in a mathematics test, it is important to monitor ongoing responses, and to dynamically adapt to errors. However, it is largely unknown how academic pressure changes response monitoring and whether this depends on individual differences in test anxiety. In the present study, we aimed to start answering these questions by combining behavioral performance measurements with electroencephalography (EEG) indices of response monitoring. Eighteen participants performed a numerical Stroop task in two pressure scenarios: a high pressure condition modeling a real-life test situation and a low pressure control condition. While behavioral performance data provided mixed evidence, EEG indices suggested changed response monitoring in the high pressure condition as well as in relatively test-anxious participants. These findings highlight the role of response monitoring under academic performance pressure.

Classification: C80 F30 D70 C30 C20

Keywords: choking under pressure; test anxiety; response monitoring; event-related negativity (ERN)

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