Title: Do not look away! Spontaneous frontal EEG theta/beta ratio as a marker for cognitive control over attention to mild and high threat

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Do not look away! Spontaneous frontal EEG theta/beta ratio as a marker for cognitive control over attention to mild and high threat.

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Highlights

- EEG theta/beta ratio marks cognitive control over emotional information processing.
- This cognitive control moderates effect of threat-level on spatial attentional bias.
- Low cognitive control individuals attend mild threat.
- High cognitive control/low trait anxious individuals do not avoid high threat.
- Cognitive control is crucial in the manifestation of attentional bias
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ABSTRACT

Background: Low spontaneous EEG theta/beta ratio (TBR) is associated with greater executive control. Their role in regulation of attentional bias for stimuli of different threat-levels is unknown.

Objectives: To provide the first relations between frontal TBR, trait anxiety and attentional bias to mildly and highly threatening stimuli at different processing-stages.

Methods: Seventy-four healthy volunteers completed spontaneous EEG measurement, a self-report trait anxiety questionnaire and a dot-probe task with stimuli of different threat-level and 200 and 500 ms cue-target delays.

Results: Participants with high TBR directed attention towards mildly threatening and avoided highly threatening pictures. Moreover, the most resilient participants, (high TBR and low trait anxiety) showed attention towards highly threatening stimuli. There were no effects of delay.