

Stepping back from diagnosis: using eye movements to delineate trait impulsivity in the bipolar disorder spectrum

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BACKGROUND

Enhanced impulsivity is present in episodes of mania or hypomania in bipolar disorder.¹

Delineating trait (i.e., stable in time) versus state (i.e., present only in acute episodes) components of impulsivity helps identify risk and evaluate disease progression.²

Eye movements are sensitive indicators of cognitive processes and can be used to probe for impulse control.³

Can eye movements help us resolve trait and state impulsivity in the bipolar disorder spectrum?

Objective

To relate deficits in impulse control to hypomania proneness using sensitive tests based on eye movements.

METHODS

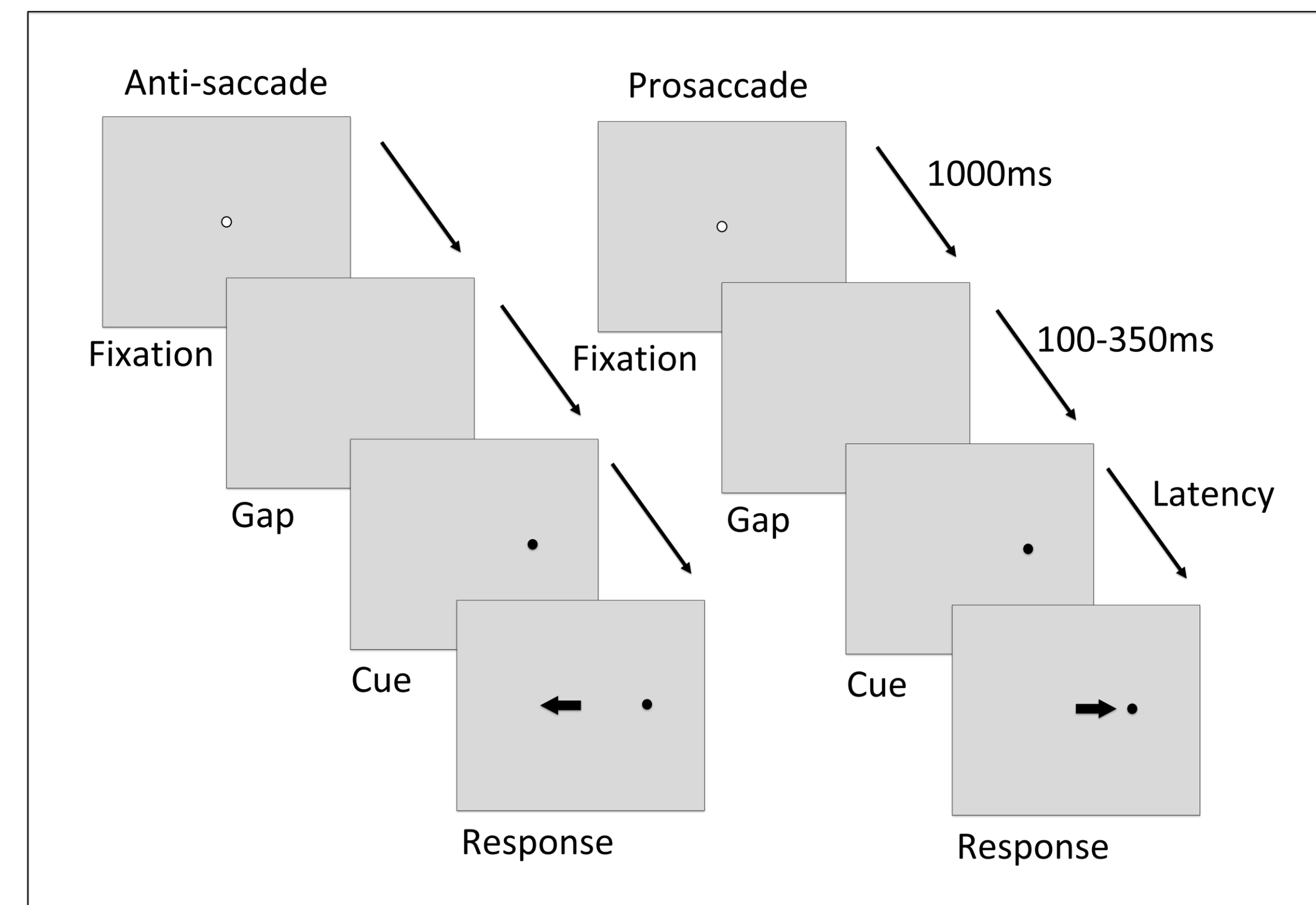
Study procedure

- Twenty-five healthy young adults (9 male) completed the Hypomanic Personality Scale [HPS]⁴ to assess for hypomania proneness.
- Next, the matrices subtest of the Kaufman Brief Intelligence Test [KBIT]⁵ was administered to the participants.
- The anti-saccade task was implemented using the internationally standardized protocol⁶ for clinical populations, with the following block design:

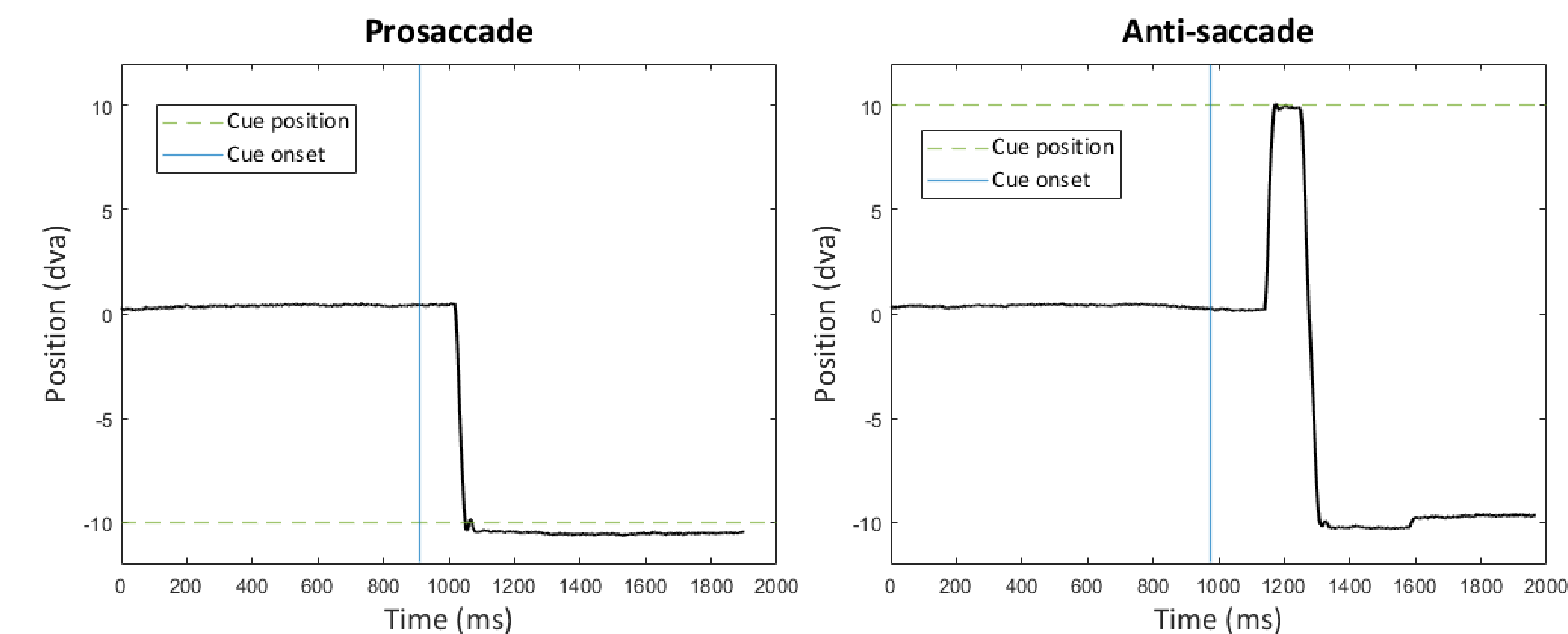
60 prosaccades | 40 anti-saccades | 40 anti-saccades | 40 anti-saccades | 60 prosaccades

- Participants viewed all stimuli for the eye movement tasks in a computer screen and eye movements were recorded using a video-based eye tracker (Eyelink 1000⁷) at 1000Hz.

Anti-saccade task

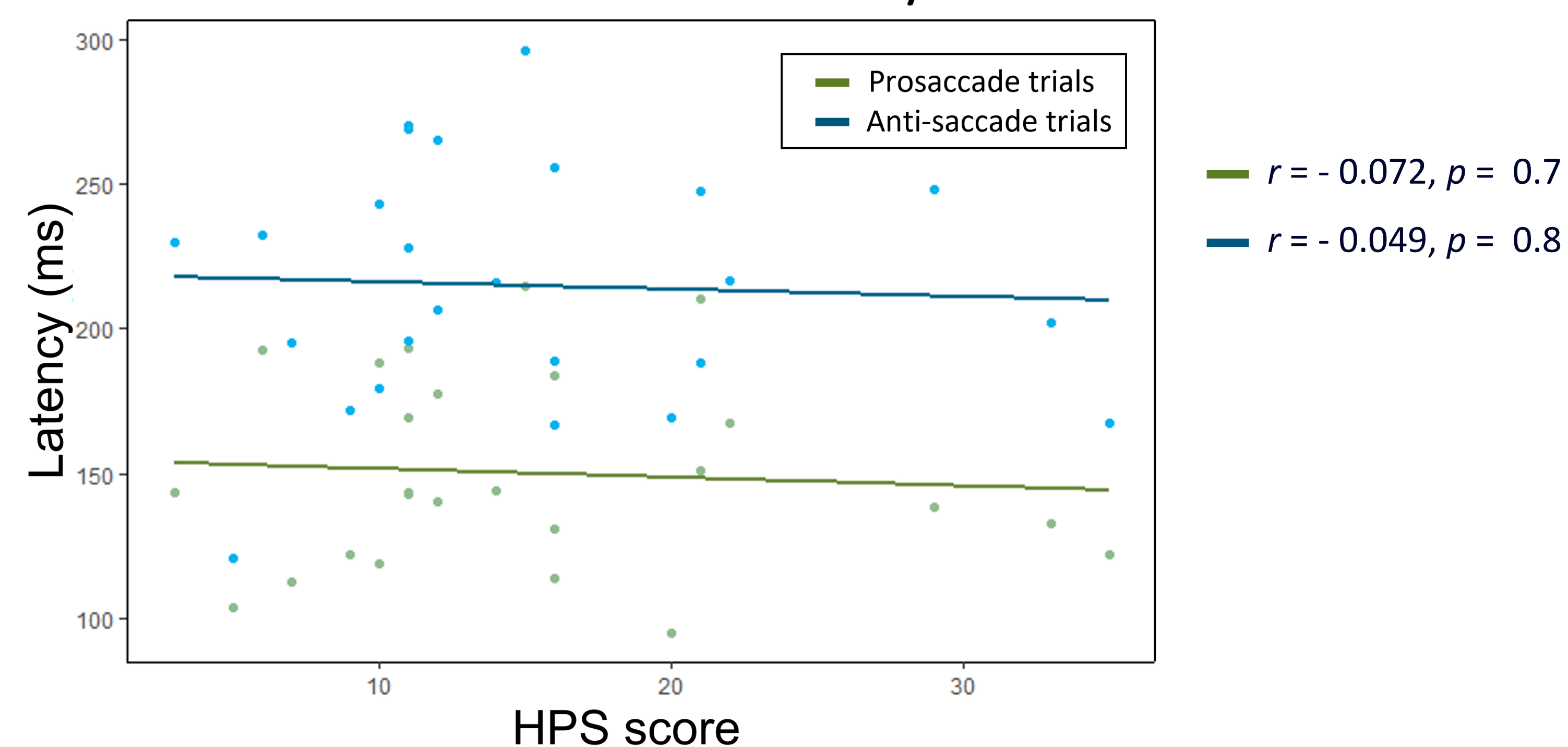


Horizontal eye position traces in a prosaccade trial (left) and an anti-saccade trial (right).

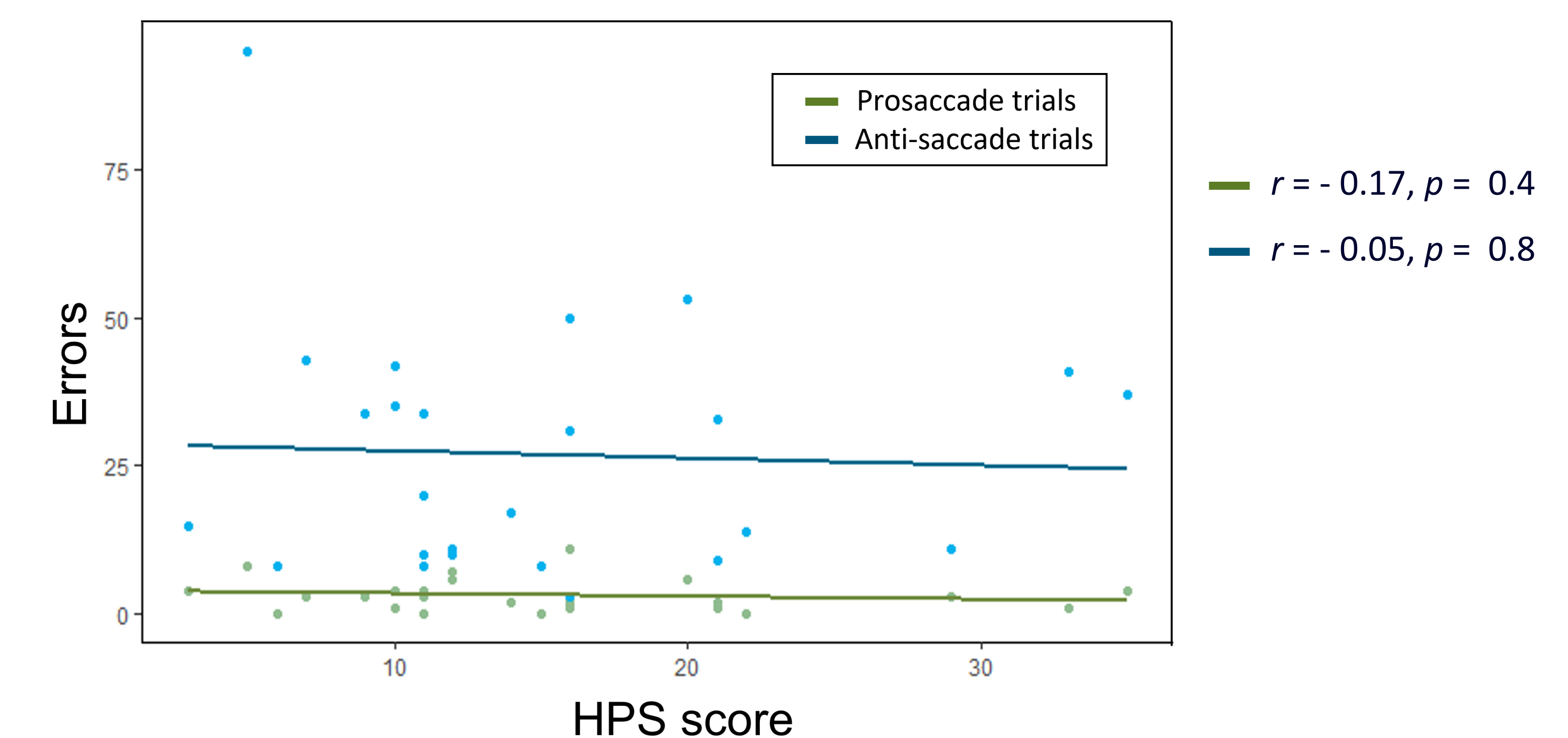


RESULTS

Mean saccade latency



Errors



DISCUSSION

- Our preliminary data suggests that mean saccade latency and error rate do not correlate with HPS score.
- Anticipatory saccades have been proposed as endophenotypes in the affective disorders' spectrum.⁸
- Saccade vigor scales with reward and value in delay discounting decision making tasks^{9,10}, paradigms that are used to measure impulsivity.¹¹
- Further analysis relating these measures to HPS score is needed to confirm or discard eye movements as a reliable tool to delineate trait vs state impulsivity in the context of the bipolar disorder spectrum.

References

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