

# Emotion perception, emotion regulation variability, and flexibility modulate the effect of stressful life events on the course of illness in affective disorders

Center for Mind, Brain and Behavior

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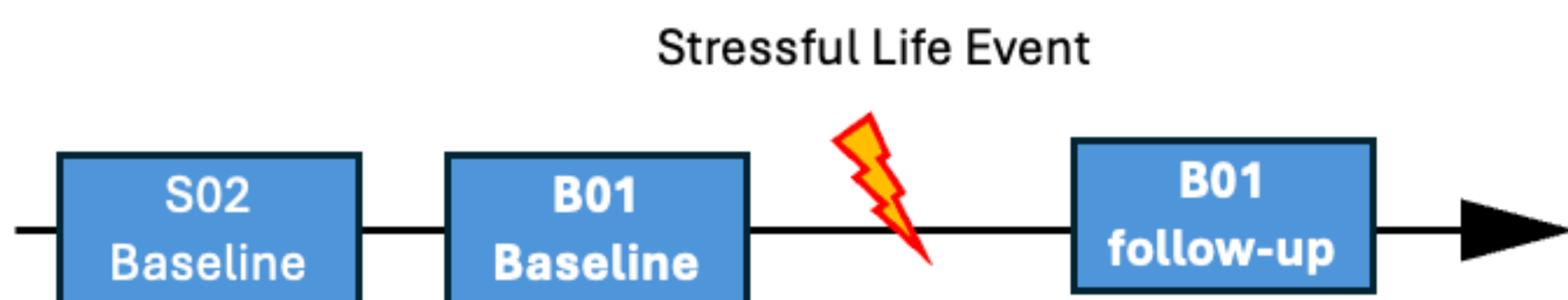
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## INTRODUCTION

The subproject B01 of the SFB investigates whether patients with affective disorders process emotions differently compared to healthy controls. Furthermore, we aim to determine whether these differences can explain why some individuals develop depression more quickly than others following a stressful life event.



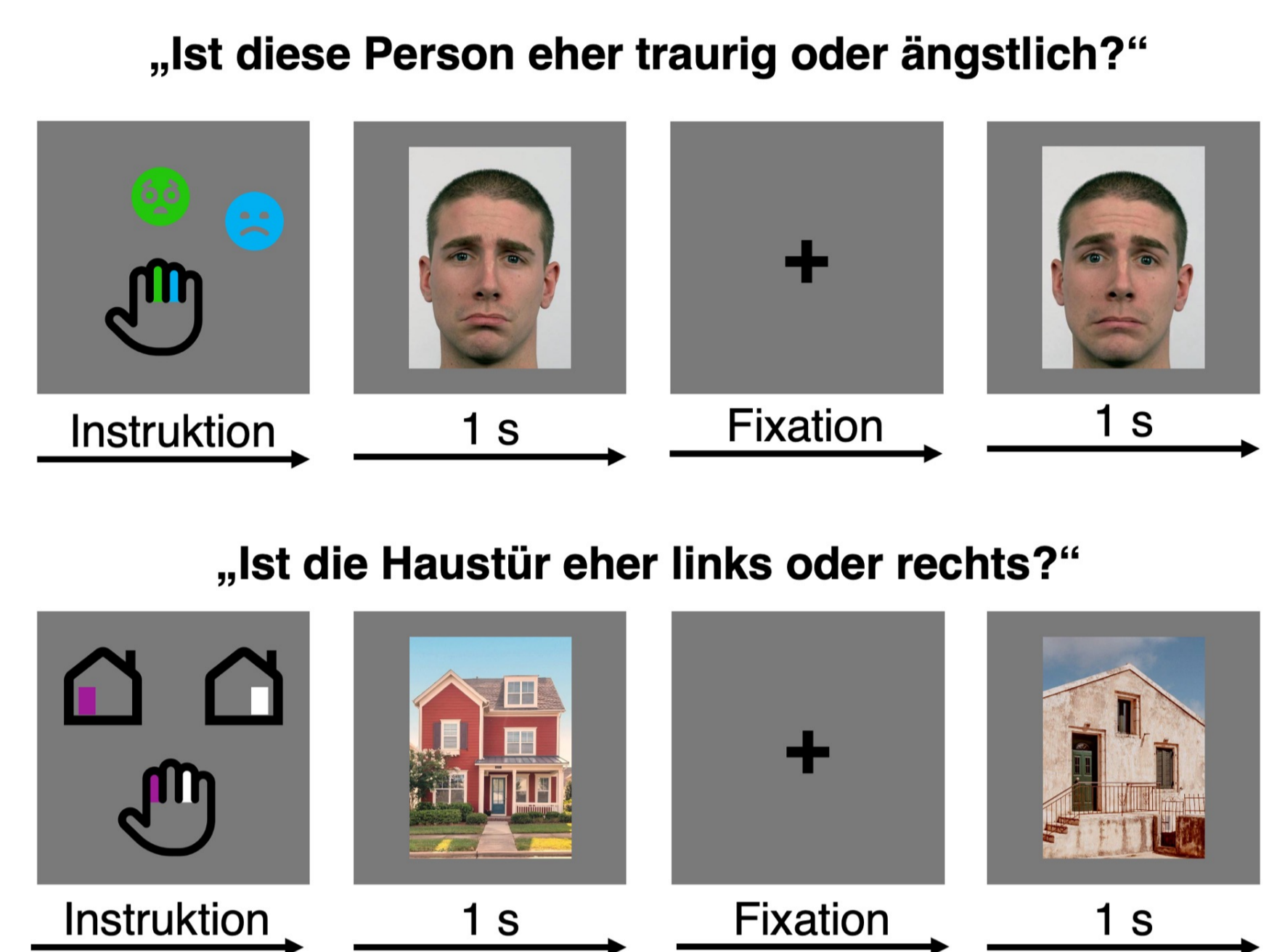
**Figure 1.**  
Procedure of  
B01 project

- two-week intense EMA sampling: ER variability & flexibility
- fMRI: emotion perception & regulation/choice
- Eyetracking

## METHODS

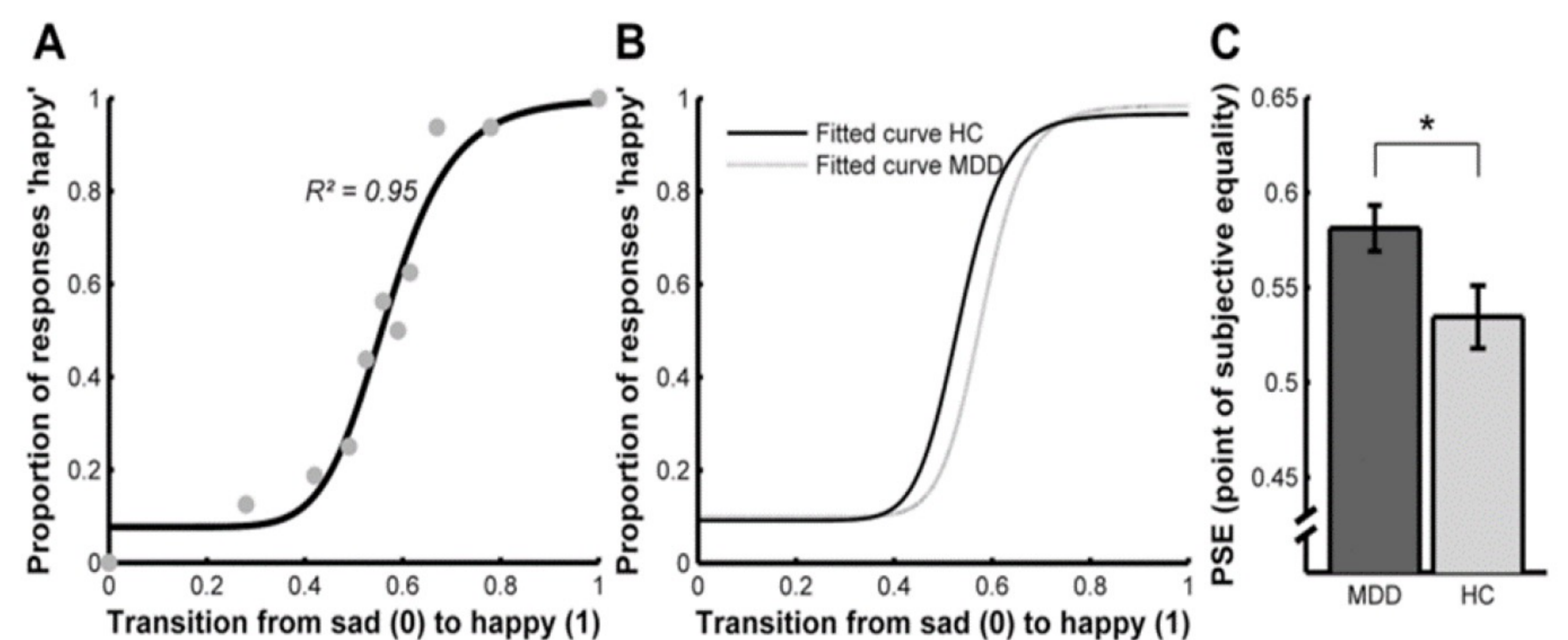
Participants are assessed at least at two different time points using a variety questionnaires and two fMRI paradigms. This poster focuses on the emotion perception paradigm. The paradigm consists of various morphed levels of three different emotions. Participants are asked to identify which emotion predominates.

**Figure 2.** Emotion perception paradigm

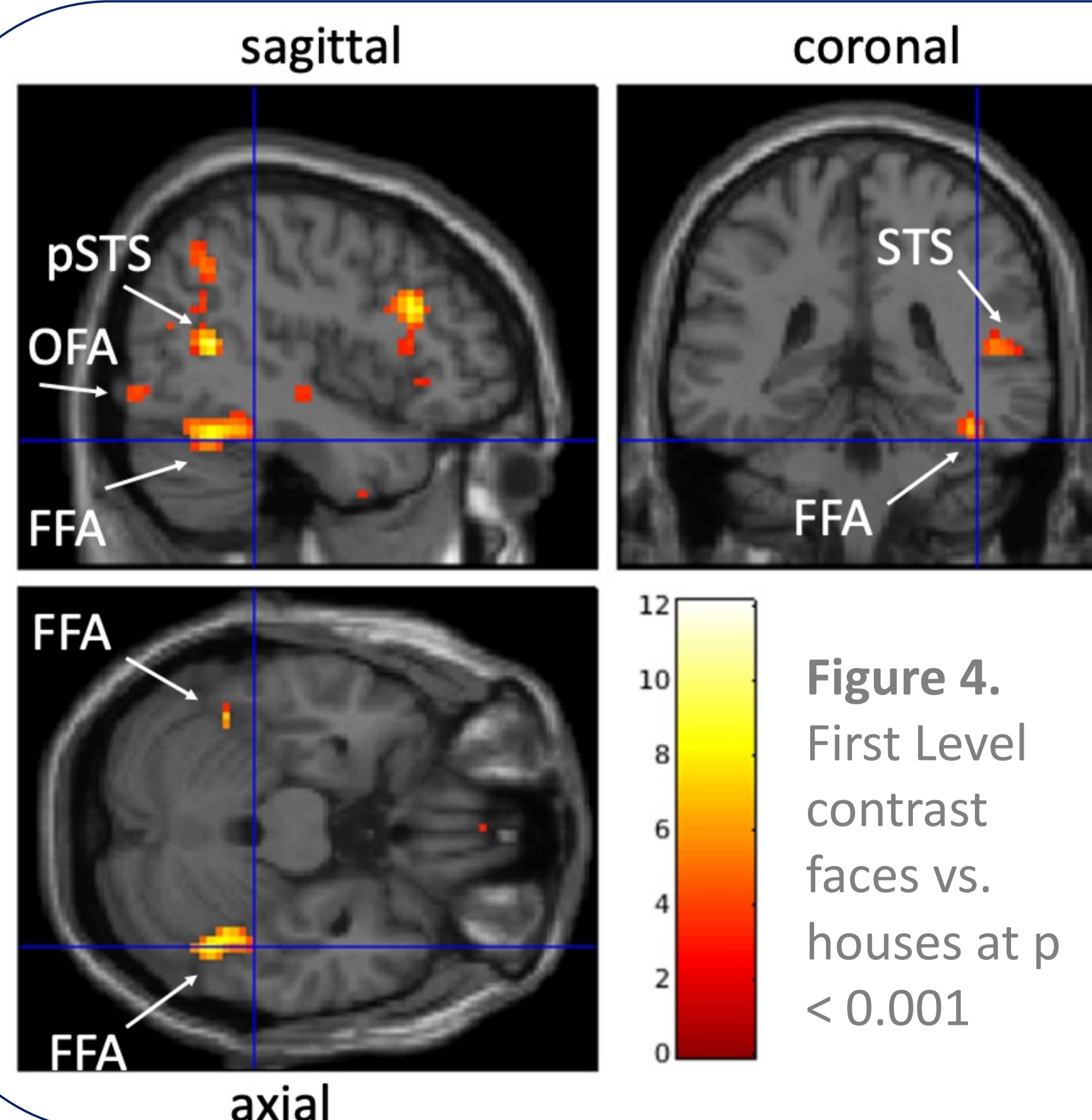


## HYPOTHESES

We expect activation in different brain regions associated with face and emotion perception, such as the **inferior frontal gyrus** and the **prefrontal cortex**. Activation related to emotion perception is expected to be different in patients compared to healthy controls<sup>1</sup>. Additionally, **increasing ambiguity should be reflected in heightened activation of the dorsal prefrontal cortex** due to increased top-down processing. Regarding behavioral data, we anticipate that participants will exhibit a **negativity bias**, evident in a **shift of the perception curve when identifying different emotions**. This negativity bias is expected to be even more pronounced in patients compared to healthy controls. Previous research revealed significantly greater neural activation in the **left frontal gyrus** and the **inferior frontal gyrus**<sup>2</sup> concerning negativity bias.



**Figure 3.** Presentation of the negativity bias in patients with Major Depression Disorder (MDD) in comparison to healthy controls (HC). Taken from Münkler et al. 2015<sup>3</sup>



**Figure 4.**  
First Level  
contrast  
faces vs.  
houses at p  
< 0.001

## OUTLOOK

Pilot data showed, that the paradigm can robustly activate the core system of face perception (contrast faces vs. houses) and can be utilized to localize individual face perception areas. Main areas are **Fusiform Face Area (FFA)**, **Occipital face area (OFA)** and **(posterior) superior temporal sulcus ((p)STS)**<sup>4</sup>. As houses were included for contrast, the paradigm can be used as a relatively stable localizer for face areas. Left picture shows a first level analysis. In the future we aim to investigate also patients who suffer from an affective disorder. Activation patterns for the contrast faces and houses are not meant to differ but rather the activation for rising ambiguity. Overall **rising ambiguity should be visible within a greater activation in the dorsal regions of the prefrontal cortex** as those regions are responsible for appraisal/evaluation or regulation for negative emotions<sup>5</sup>.

## References

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