



EXPLORATORY STUDY OF THE LINK BETWEEN APHANTASIA AND INTEROCEPTIVE SKILLS

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INTRODUCTION

Aphantasia, the absence or marked reduction of mental imagery (Zeman et al., 2015), provides an opportunity to investigate how mental imagery contributes to bodily self-representation and interoception, defined as the perception and regulation of internal bodily signals (Craig, 2009). Preliminary findings indicate reduced physiological reactivity, reduced emotional response and reduced attention to bodily cues in aphantasia (Wicken et al., 2021; Monzel et al., 2024). However, the different dimensions of interoception (see Figure 1) have not yet been systematically investigated in aphantasia.

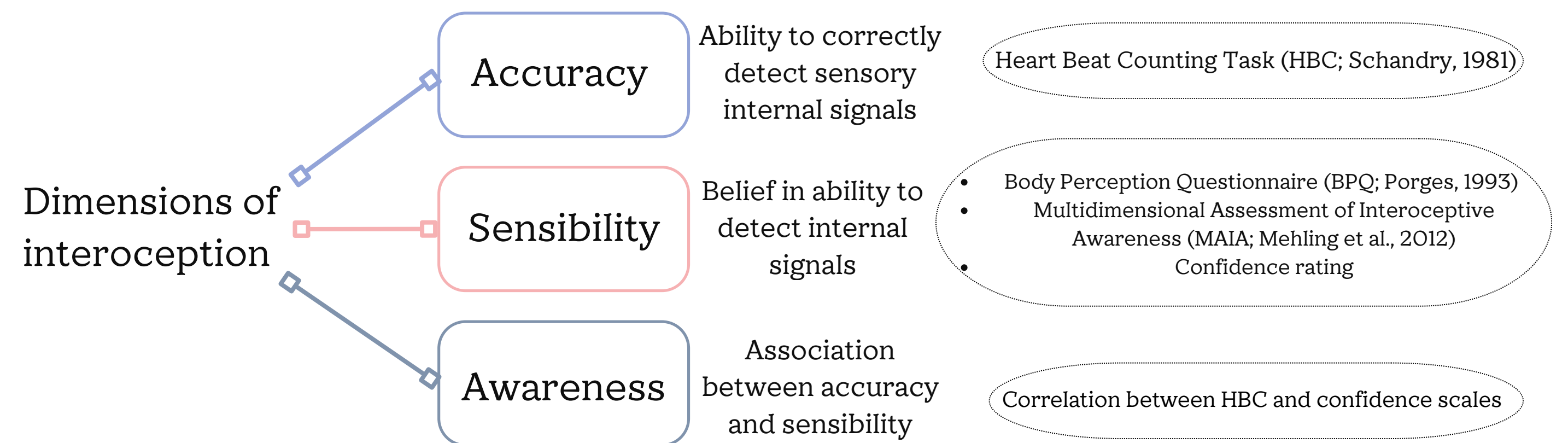


Figure 1. Tridimensional interoceptive model of Garfinkel et al., 2015

OBJECTIFS

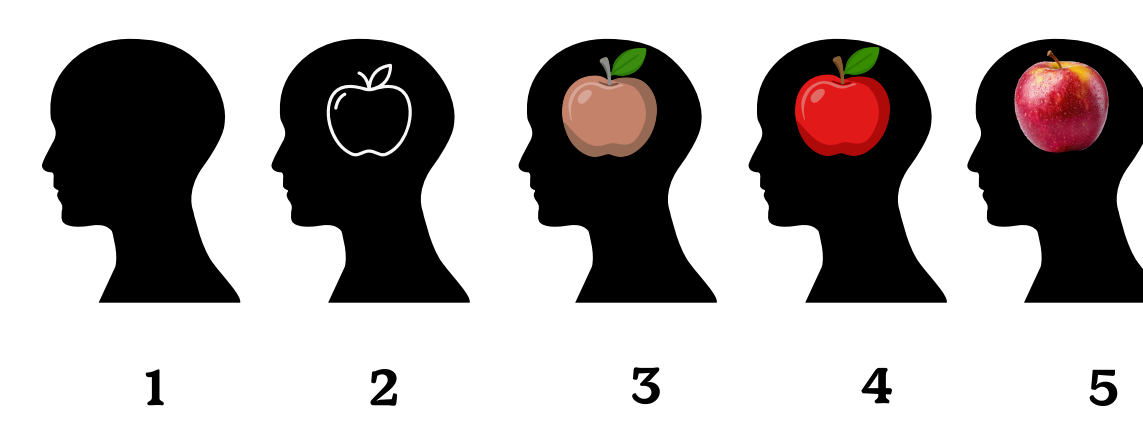
Is Aphantasia associated with specific characteristics in three dimensions of interoception (accuracy, sensibility, awareness)?



METHODOLOGY

Participants

For each of the following situations, please try to form a mental picture as clearly and vividly as possible. Once you have the image in mind, rate how vivid it is using the scale provided.



There were 16 items in closed eyes condition and 16 items in open eyes condition → Total = 160

9 individuals with **aphantasia** (APH; 4 women; $M_{VVIQ} = 32$; $SD_{VVIQ} = 0$)



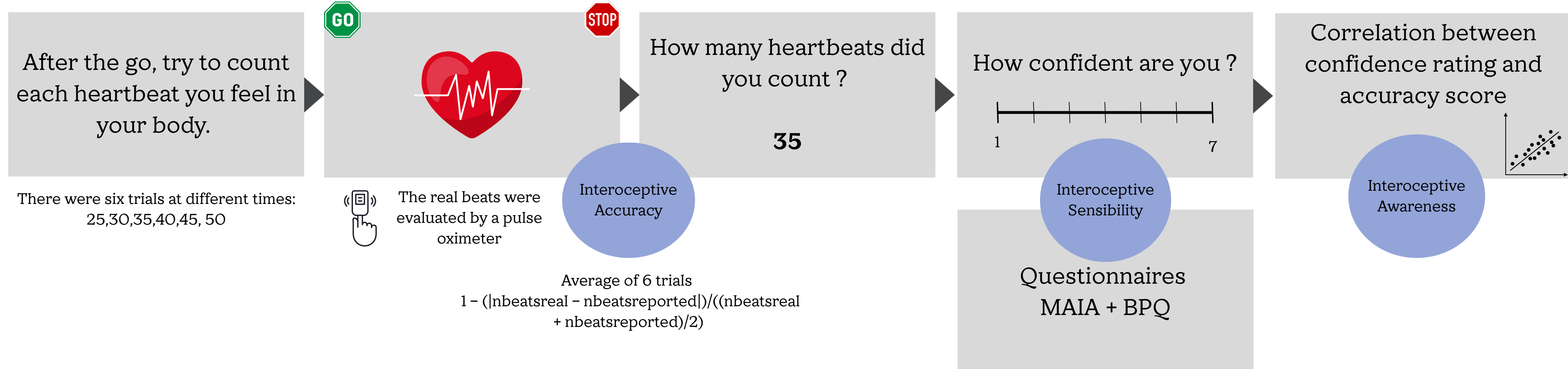
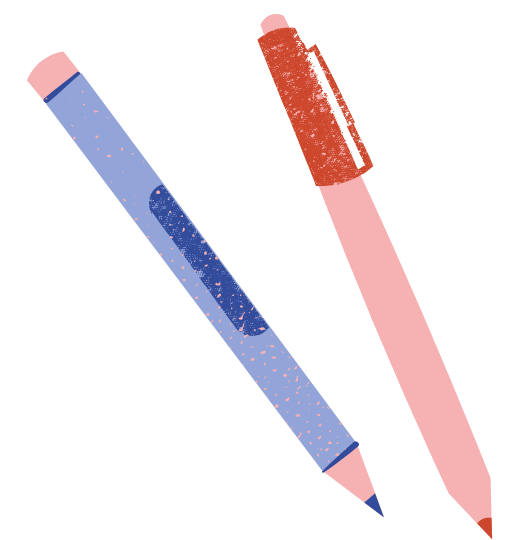
Groups matched for age ($U = 107.5$, $p = 1.000$; $M_{APH} = 34.22$, $M_{CTRL} = 35$) and education ($U = 107.5$, $p = 1.000$; $M_{APH} = 14$, $M_{CTRL} = 14.33$)

24 controls with typical imagery (CTRL; 20 women; $M_{VVIQ} = 127.71$; $SD_{VVIQ} = 11.89$)

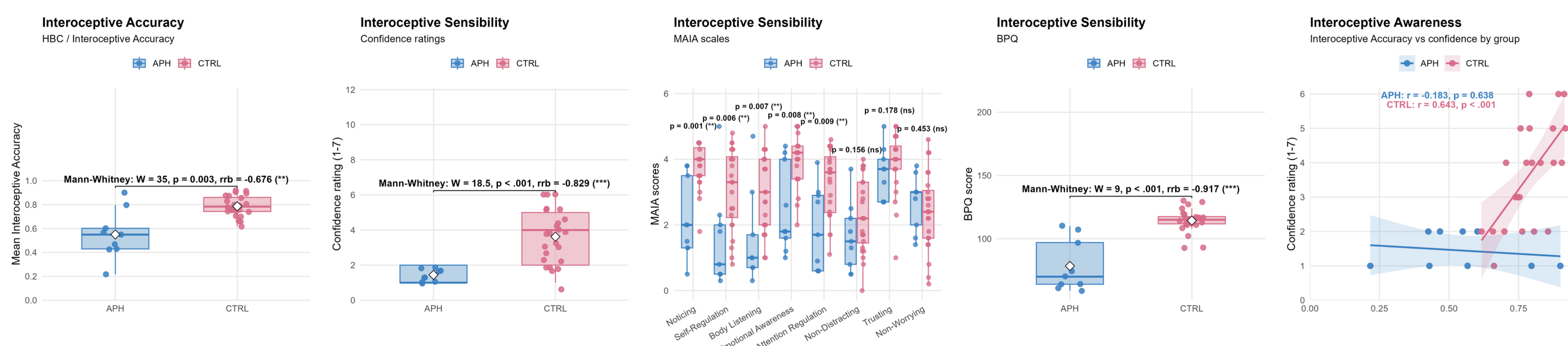


WAIS-IV, STAI-Y (exclusion: WAIS-IV : subtest Matrix Reasoning, Arithmetic, Coding, Information < 7; STAI ≥ 40). No group differences.

Material and procedure



RESULTS



VVIQ scores correlated with accuracy ($r = .595$, $p < .001$), confidence ($r = .544$, $p = .001$), BPQ ($r = .791$, $p < .001$), and in five MAIA subscales ($r = .502-.689$, all $p < .01$). Imagery vividness significantly predicted accuracy ($R^2 = .299$), sensibility (BPQ: $R^2 = .626$; confidence: $R^2 = .296$; and MAIA subscales: $R^2 = .252-.474$, all $p < .01$).

DISCUSSION

The findings demonstrate that reduced imagery vividness in aphantasia is associated with diminished interoceptive accuracy and sensibility (evaluated by auto-reported questionnaire and confidence score at the HBC), supporting the hypothesis of a functional link between visual mental imagery and internal bodily perception. Moreover, interoceptive awareness (i.e. reflecting the congruence between confidence and performance) appears also affected by imagery deficits, suggesting an underestimation of accuracy skills by aphantasics. These results are aligned with recent models proposing shared neural bases between imagery, interoception, and self-monitoring (Silvanto & Nagai, 2025). Together, these results suggest that visual imagery contributes not only to sensory representation but also to metacognitive awareness of bodily states.

The small sample size and gender imbalance limit generalization, warranting replication with larger and more diverse cohorts. Future research should adopt longitudinal and neuroimaging approaches to clarify causal pathways and explore whether interventions such as mindfulness training or biofeedback can improve interoceptive competence in aphantasia.

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