

A SINGLE ADMINISTRATION OF CITALOPRAM INCREASES INTEROCEPTIVE INSIGHT IN HEALTHY VOLUNTEERS

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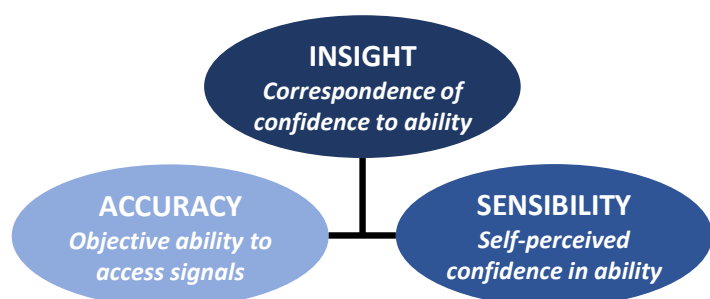
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▶ INTEROCEPTION, SEROTONIN AND PSYCHOPATHOLOGY

Interoception:

- Sense of **internal bodily states** (awareness of heart, hunger/thirst, sensations from stomach & viscera etc.)
- Integral to **homeostatic regulation** of body
- **3 dissociable levels** [1]:



- **Altered interoception** in mental disorders including **depression, anxiety, eating disorders** [2,3] frequently treated with **serotonin reuptake inhibitors**
- Serotonergic links to **homeostatic regulatory processes** including cardiovascular system [4]
- **Confidence** may reflect assigned **gain of interoceptive prediction errors** in predictive processing framework [5]

- ▶ Are interoceptive neural systems reliant on serotonergic signalling?
- ▶ Can acute changes in serotonin levels influence interoceptive ability?

▶ STUDY DESIGN

- **Healthy subjects** 18-35 years old, **N = 47**
- **Within-subject, double-blind placebo-controlled design**
- **2 test sessions**, >1 week apart
 - **Each session: heartbeat discrimination task**, **VAS** for drug subjective effects inc nausea
- **Oral dose citalopram 20mg** - highly selective serotonin reuptake inhibitor (SERT)

▶ HEARTBEAT DISCRIMINATION TASK [1,6]

"Direct your attention inward at the sensations coming from your heart"

10 tones



"Were the tones in sync or out of sync?"

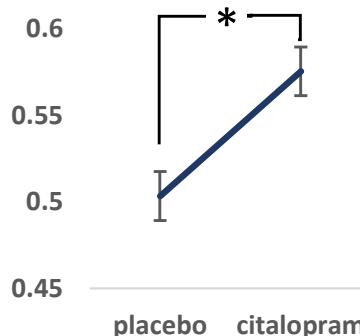
20 trials
(10 in sync)

Total guess
Complete confidence
Visual analogue scale

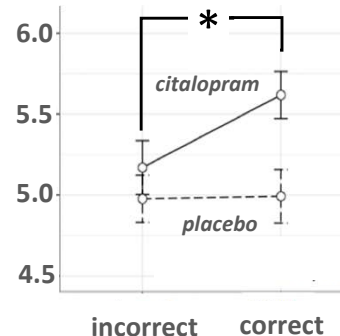
"How confident are you in this response?"

▶ RESULTS

Interoceptive insight
(ROC curve analysis [7])



Confidence
(raw score)



- **Interoceptive insight** increased under citalopram compared with placebo ($F(1,46) = 6.51, p = .012$)
- Confidence for **correct judgements** increased under citalopram ($F(1,46) = 6.75, p = .013$)
- **No other sig changes** (accuracy, overall sensibility, subjective effects)
- **No correspondence** between heart rate changes under drug and changes in interoceptive insight

▶ DISCUSSION

- ▶ **Acute changes in serotonin levels can enhance interoceptive insight**
- ▶ **More accurate confidence → more accurate readout of interoceptive precision → flow of interoceptive information up cognitive hierarchy?**
- ▶ **Potential clinical SSRI mechanism from ameliorating interoceptive biases – further research needed on clinical populations**