Self

There is growing evidence showing that the representation of the human “self” recruits special systems across different functions and modalities. Compared to self-face and self-body representations, few studies have investigated neural underpinnings specific to self-voice. Moreover, self-voice stimuli in those studies were consistently presented through air and lacking bone conduction, rendering the sound of self-voice stimuli different to the self-voice heard during natural speech. Iannotti et al. combined psychophysics, voice-morphing technology, and high-density EEG in order to identify the spatiotemporal patterns underlying self-other voice discrimination (SOVD) in a population of 26 healthy participants, both with air- and bone-conducted stimuli. They identified a self-voice-specific EEG topographic map occurring around 345 ms post-stimulus and activating a network involving insula, cingulate cortex, and medial temporal lobe structures. Occurrence of this map was modulated both with SOVD task performance and bone conduction. Specifically, the better participants performed at SOVD task, the less frequently they activated this network. In addition, the same network was recruited less frequently with bone conduction, which, accordingly, increased the SOVD task performance. This work could have an important clinical impact. Indeed, it reveals neural correlates of SOVD impairments, believed to account for auditory-verbal hallucinations, a common and highly distressing psychiatric symptom [1)].

1)
Iannotti GR, Orepic P, Brunet D, Koenig T, Alcoba-Banqueri S, Garin DFA, Schaller K, Blanke O, Michel CM. EEG Spatiotemporal Patterns Underlying Self-other Voice Discrimination. Cereb Cortex. 2021 Oct 15:bhab329. doi: 10.1093/cercor/bhab329. Epub ahead of print. PMID: 34649280.