

Impaired phonological processing of lexical tones in Cantonese speakers with congenital amusia

Jing Shao

The Hong Kong Polytechnic University

Xunan Huang

The Hong Kong Polytechnic University

Caicai Zhang

The Hong Kong Polytechnic University

Abstract: Congenital amusia is a lifelong musical disorder. It has been found that tonal-language speakers with amusia are impaired in lexical tone perception. But it has also been found that tonal-language experience compensates the deficit in certain scenario, reducing prevalence rate of amusia in speakers of a highly complex tonal-language – Cantonese. Thus it remains unclear whether lexical tone perception, especially its phonological processing, is impaired in Cantonese-speaking amusics. This study investigated the categorical perception of a continuum of lexical tone stimuli and pure tone analogues in Cantonese-speaking amusics and controls. The amusics showed reduced discrimination peak across the categorical boundary compared to controls in lexical tone condition, suggesting impaired categorical perception; in pure tone condition, the amusics showed inferior performance on both between- and within-category discriminations, suggesting a deficit in auditory pitch processing. These findings indicate that phonological processing of tone is impaired in Cantonese-speaking amusics, despite possible compensation effect.