

Emotion Perception of Dyads and Triads in Congenital Amusia

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ABSTRACT

Background

Congenital amusia is a neurodevelopmental disorder characterized by deficits in pitch processing (Ayotte, Peretz, & Hyde, 2002; Hyde, Zatorre, & Peretz, 2011). Emotional responses to musical stimuli have rarely been studied in this clinical group. Ayotte et al. (2002) found that amusics judged consonant and dissonant melodies as similar in perceived pleasantness, whereas happiness/sadness ratings suggested that amusics are capable of inferring the emotional valence of those stimuli. However, effects of mode and tempo on happiness/sadness judgements could not be disentangled in this study.

Aims

We asked whether amusics differ from controls in pleasantness judgements of isolated dyads and in happiness/sadness judgements of isolated major/minor chords. We also probed whether the spectrum of sounds in a dyad or triad (sine-tone vs. complex-tone) affects emotional sensitivity to consonance/dissonance and mode.

Method

Thirteen amusics and 13 non-amic controls were matched on a range of variables. Dyads or triads were sine-tones or complex sounds (piano timbre), 1.5 s length, and equated for loudness. Dyads comprised intervals from one to 12 semitones. Major and minor triads were played in root position. Participants rated the pleasantness of dyads and the happiness/sadness of triads on a 7-point scale.

Results

Pleasantness ratings were higher for consonant than dissonant dyads. However, the profile of pleasantness ratings for sine-tone dyads was less differentiated in amusics. Compared to controls, amusics also assigned lower pleasantness ratings to consonant sine-tone and complex-tone dyads. Amusics did not differ from controls for ratings of dissonant sine-tone dyads, but assigned marginally significantly higher pleasantness ratings for dissonant complex-tone dyads. Happiness/sadness judgements by controls differed for major and minor triads, whereas amusics only differentiated between major and minor complex-tone chords. Major sine-tone and complex triads were rated as less happy by amusics compared to controls, but minor triads were rated similarly in both groups.

Conclusions

Amusics differ from controls in their perception of the pleasantness of dyads and in the perception of happiness/sadness for major/minor triads. The implications of these data for models of congenital amusia are discussed.

Keywords

congenital amusia, emotion perception, consonance, mode

REFERENCES

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