Effect of Age on Perceiving Tonal Modulations in South Indian Classical (Carnātic) Music

Previous investigations (*Music Perception*, 2017) showed that age did not influence the perception of tonal modulations in Carnātic music for both Carnātic and Western music teachers and students. One plausible reason is that the effects of age could have been mitigated by music training wherein all participants received at least 4 years or more of formal music lessons. In this study, we focused on the effect of age by including Carnātic rasikās—untrained but avid listeners. Carnātic music has two kinds of tonality shifts: the popular rāgamālikā (shifts of rāgam, retaining tonal center; e.g., C to C minor), and the controversial grahabēdham (shifts of rāgam and tonal center but retaining pitch set; e.g., C to A minor). Stimuli consisted of songs containing 45 rāgamālikā and 46 grahabēdham shifts. Carnātic teachers, students, and rasikās were further divided by age (older or younger than 60 years), and served in either the rāgamālikā or the grahabēdham condition. All participants were highly familiar with most of the rāgamālikā songs, whereas they were much less familiar with the grahabēdham stimuli. Participants indicated the point at which a modulation occurred which we measured in terms of accuracy and latency. The results showed that with response time, age interacted with type of modulation. Older participants were slower than younger participants in identifying the rāgamālikā shifts, but there was no age difference with grahabēdham shifts. With rāgamālikās all participants were much faster, but age-related cognitive and motor effects probably slowed the older participants slightly (by about 1 s). On the other hand, all participants were nearly four times slower with identifying shifts in grahabēdham. Increased caution toward the less familiar grahabēdhams for all participants could explain their slower response times compared to rāgamālikās. There were no age differences in accuracy with the two types of modulation.