

Abstract: Musical rhythm induces people to entrain, resulting in synchronized motor movements. During dyadic interactions, unconscious nonverbal synchrony between interactants predicted more positive affect in participants. However, the question whether musical rhythm could facilitate nonverbal synchrony in dyadic interactions has remained unanswered. Using a within-subject design, the current study separated metricality (featured by an integer ratio between intervals and an identifiable beat) and regularity (the constant order of the repetition of various intervals) within rhythmic sound sequences to investigate the effects of rhythm on nonverbal synchrony and affect. Each dyad underwent five conversations with various background rhythms (high/low metricality \times regularity and a silence condition). MEA (Motion Energy Analysis) was used to automatically and objectively quantify the nonverbal synchrony during participants' interactions. Two-way ANOVA with metricality and regularity as repeated measures has been performed to examine how rhythm would affect nonverbal synchrony and the emotion outcome of interactions. We found a marginally significant positive effect of metricality on nonverbal synchrony. We also observed that higher regularity in background music is associated with lower pleasantness after interactions. No correlation between nonverbal synchrony and affect was observed.

Key words: Rhythm, metricality, regularity, nonverbal synchrony, affect