



Aberrant Salience in Auditory Process in Schizophrenia: Evidence for Abnormalities in both Sensory Processing and Emotional Reactivity

Jared Hunt*, Emily Daniels, Samantha Trikeriotis, Deanna L. Kelly, James Waltz

¹Maryland Psychiatric Research Center, University of Maryland School of Medicine

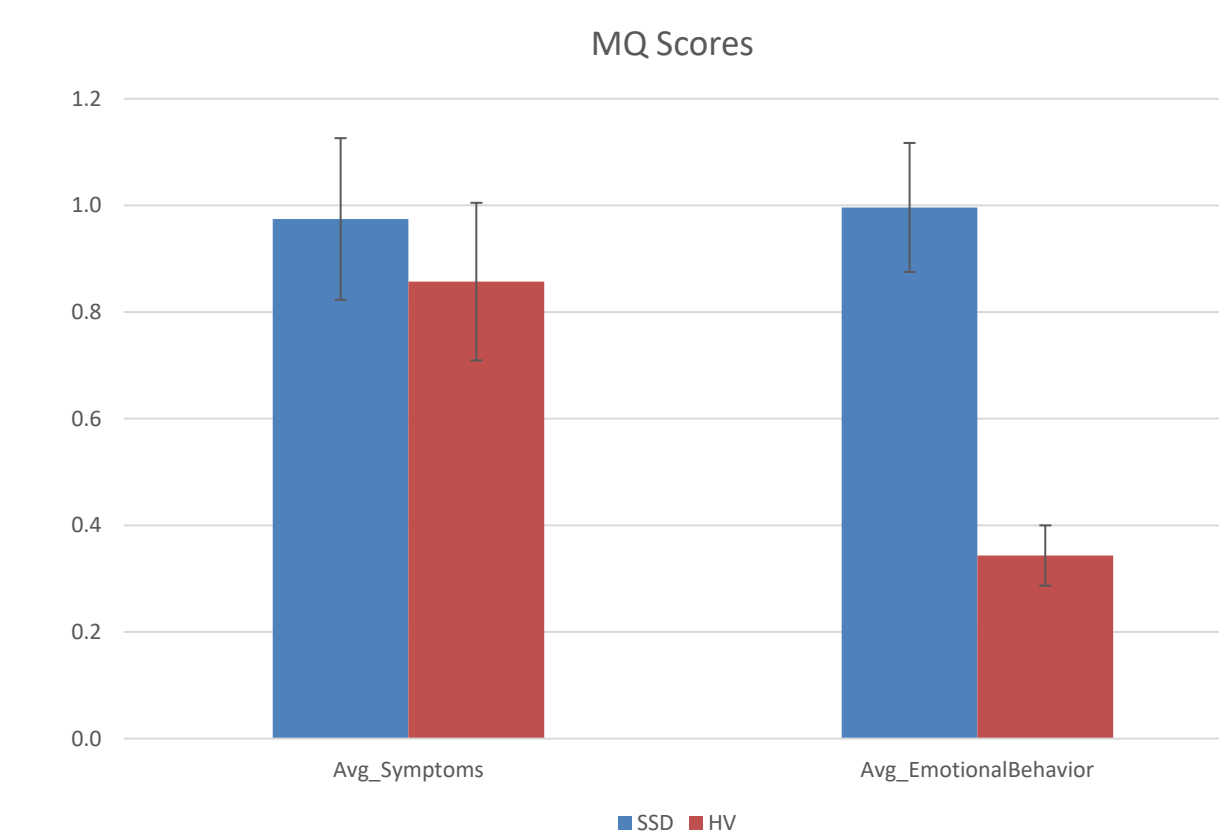
Background

- Misophonia is an unclassified disorder characterized by heightened sensitivity to repetitive, mostly human produced sounds (throat-clearing, pen-tapping, etc.) that results in an emotional response and avoidance behaviors.
- Behavioral, electrophysiological, and fMRI measures implicate abnormalities in salience processing in the heightened emotional responses characteristic of misophonia.
- Like misophonia, psychosis is associated with the abnormal attribution of salience to stimuli.
- Researchers have proposed that delusions are a mechanism by which people with psychosis make sense of odd experiences of salience.
- There is also evidence that the auditory hallucinations in schizophrenia stem from an overinterpretation of background noise or as manifestations of increased salience attribution to mundane stimuli.
- Based on evidence that elevated salience signaling is characteristic of both psychosis and misophonia, investigating relations among misophonia measures, self-reports of domain-general salient experiences, and other clinical and behavioral variables is of interest in patients with psychosis.

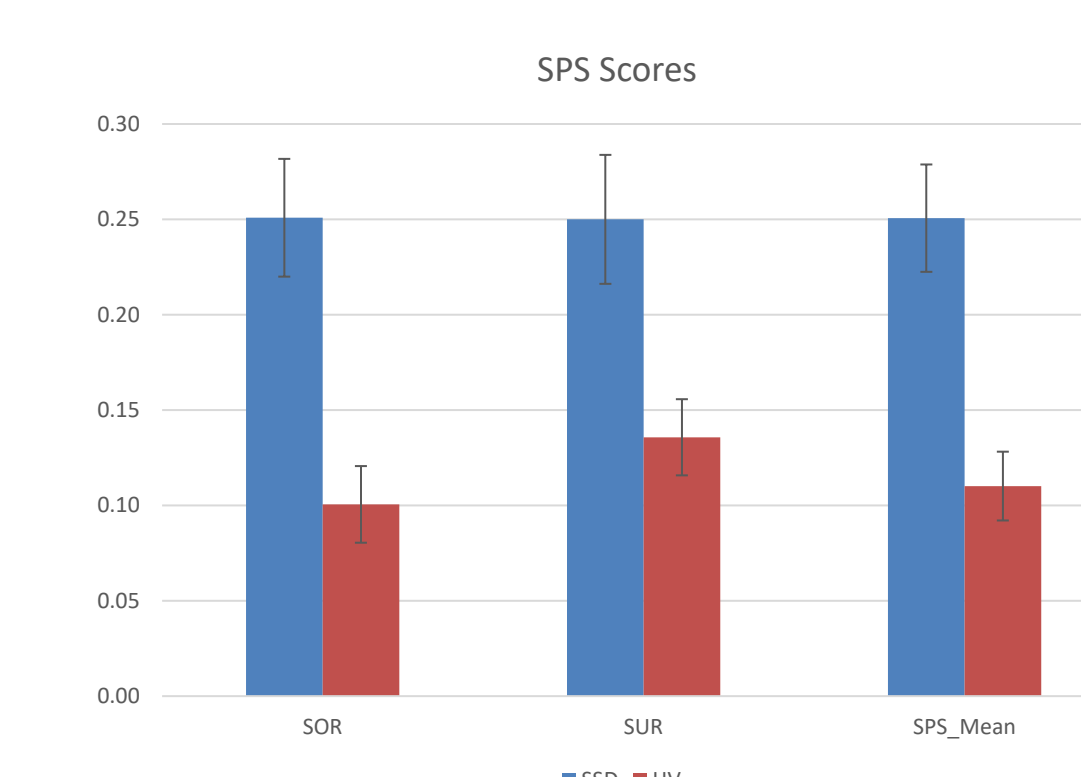
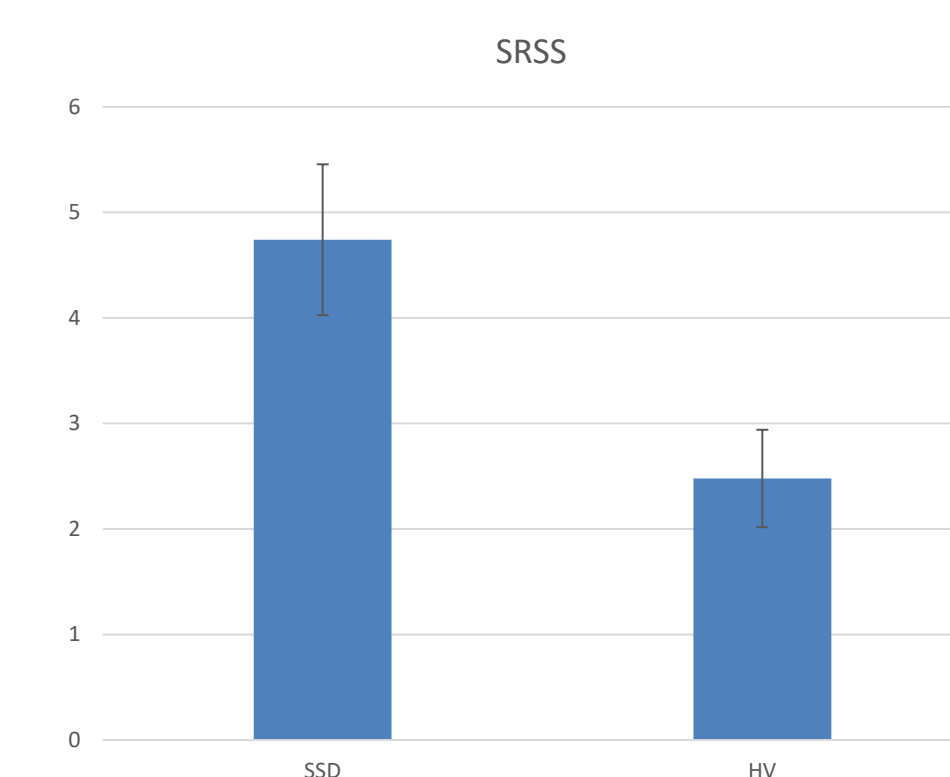
Methods

- Participants included 30 patients with schizophrenia or schizoaffective disorder (SZ) and 28 healthy controls (HC) between the ages of 18-64.
- Misophonia symptoms and emotional reactivity were measured using the Misophonia Questionnaire (MQ).
e.g.- In comparison to other people, I am sensitive to the sound of: People eating (e.g. chewing, swallowing, lips smacking, slurping, etc.)
- The Sensory Processing Scale (SPS) was used to assess sensory over-responsivity/under-responsivity.
e.g.- These sounds bother me: Clothing that makes noise (swishing cloth, accessories)
- Other Assessments included
- Brief Psychiatric Rating Scale (psychopathology)
e.g.- Have you had any difficulty with your thinking? Is there anything the matter with your brain?
- Aberrant Salience Inventory (experience of odd perceptions and cognitions)
e.g.- Do certain unimportant things ever suddenly seem especially important or significant to you?
- Childhood Trauma Questionnaire (frequency and severity of adverse childhood experiences)
e.g.- When I was growing up: I knew that there was someone to take care of and protect me

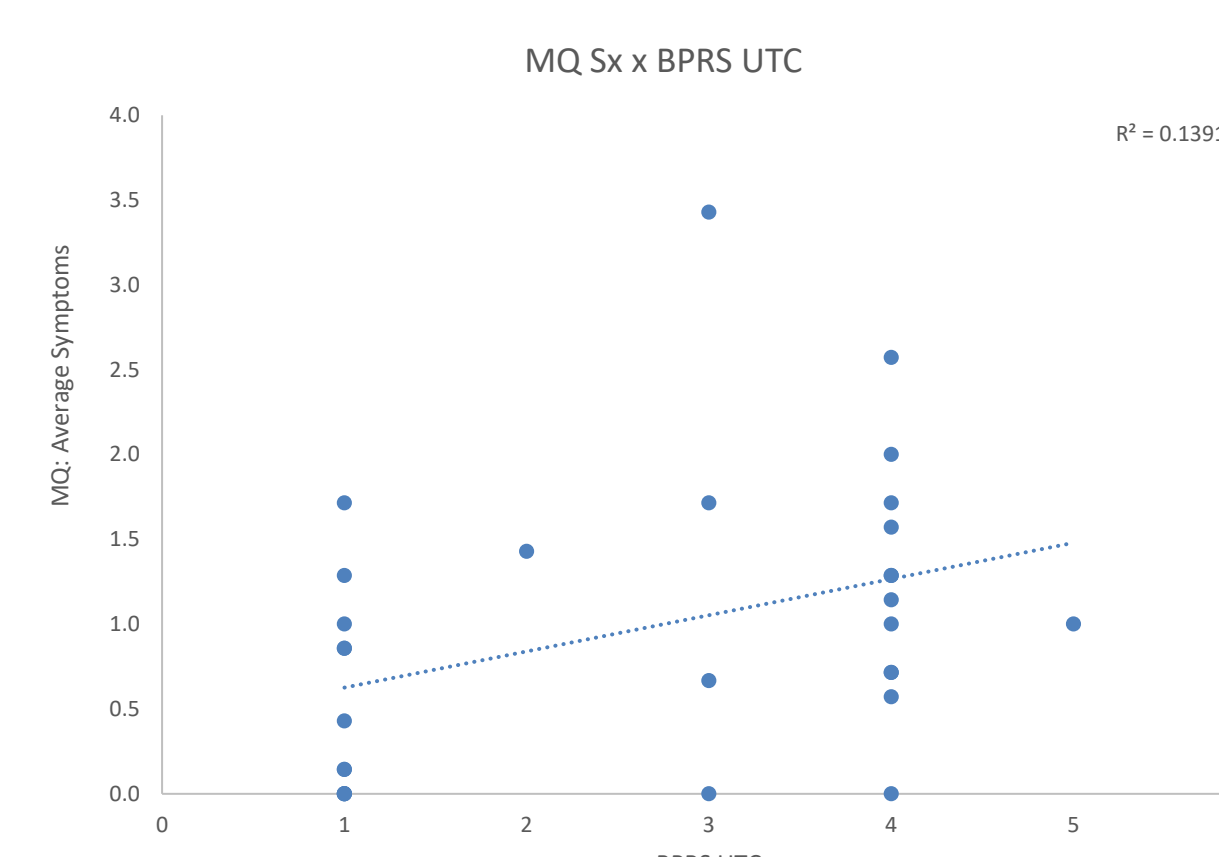
Results



- Misophonia symptoms did not significantly differ between SZ (M = 0.975, SD = 0.829) and HCs (M = 0.857, SD = 0.782; t = 0.554, p = 0.582)
- SZ patients (M = 0.996, SD = 0.617) exhibited greater misophonia emotional behavior than HC (M = 0.343, SD = 0.271; t = 4.889, p < 0.001).

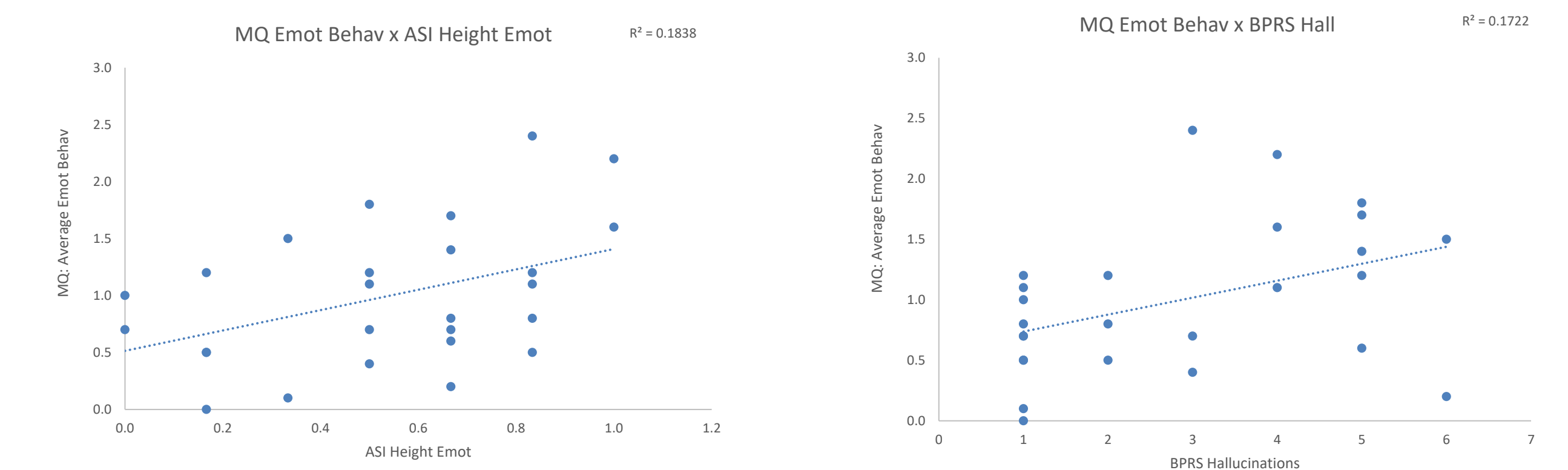


- SZ participants also reported greater sound sensitivity on the MQ (M = 4.741, SD = 3.717), when compared with HC (M = 2.478, SD = 2.213; t = 2.658, p = 0.011) and scored higher (M = 0.251, SD = 0.169) than HCs (M = 0.101, SD = 0.106) on both sensory over-responsivity (t = 4.082, p < 0.001) and sensory under-responsivity (M = 0.250, SD = 0.185 for SZs; M = 0.136, SD = 0.106 for controls; t = 2.912, p = 0.005) on the SPS.

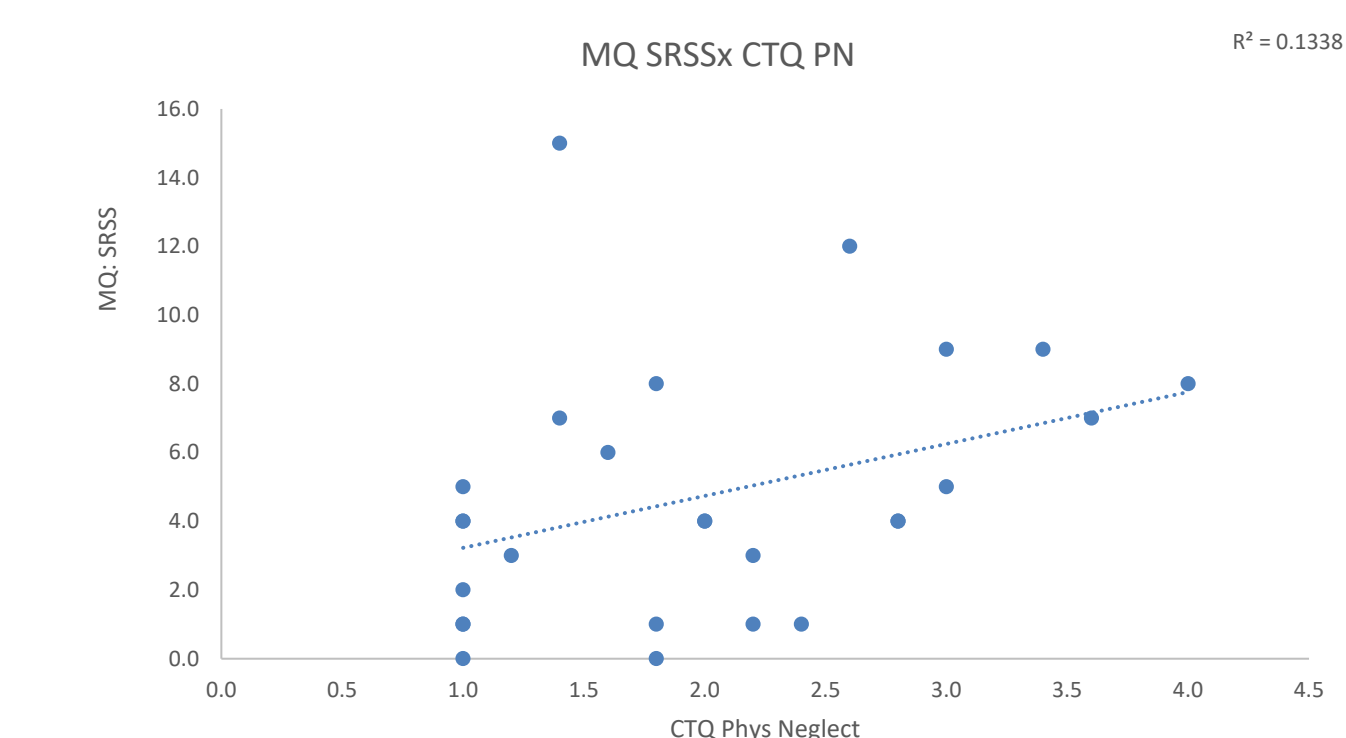


- Additionally, misophonia symptoms from the MQ correlated with BPRS unusual thought content (r = 0.373, p < 0.05).

Results



- Misophonia emotional behavior from the MQ correlated with heightened emotion from the ASI (r = 0.429, p < 0.05) and with hallucination severity ratings from the BPRS (r = 0.415, p < 0.05).



- Finally, self reported sound sensitivity from the MQ correlated with physical neglect scores from the CTQ (p = 0.426, p < 0.05).

Conclusions

- Although SZ patients reported similar misophonia symptom ratings compared to HC, they reported significantly higher misophonia emotional behavior.
- The presence of greater misophonia emotional behavior in SZ patients might point to a higher prevalence of misophonia than in the general population.
- Alternatively, it may suggest that the heightened emotional reactivity to sounds does not reflect "true" misophonia.
- Future studies, using neuroimaging techniques, could help elucidate similarities and differences among mechanisms of aberrant salience in misophonia and psychosis. In any case, these results recapitulate the centrality of emotional reactivity to schizophrenia psychopathology – modulated by factors such as the experience of childhood trauma – and highlight the importance of emotional reactivity to symptoms as a treatment target.

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jwaltz@som.umaryland.edu

This study was partially funded by MPower funds from the University of Maryland.