

## **Explaining autonomous sensory meridian response**

### **ABSTRACT:**

#### **Background**

Autonomic sensory meridian response (ASMR) is an atypical experience characterised by tingling sensations in response to social visual and auditory stimuli. Over the last decade, awareness of ASMR has proliferated. In contrast, ASMR is not widely understood within the scientific community, resulting in ASMR being an understudied phenomenon.

#### **Aims**

- 1) To use a variety of behavioural and psychophysical tests to determine a valid testing battery that could be used to verify ASMR
- 2) Understanding psychological and neurological factors associated with ASMR experience.

#### **Method**

Several experiments examined different aspects of ASMR experiences. We used k-means cluster analyses across multiple studies to develop a new self-report psychometric capable of identifying sub-groups of ASMR responders. EEG and eye-tracking were used to measure physiological correlates of ASMR. Behavioural measures of social cognition were used to determine relationships between ASMR, emotion identification and affect sharing.

#### **Results**

A new tool to classify ASMR-responders was developed: the first to use an unsupervised learning algorithm to support clustering people from the core features of ASMR experience. ASMR modulated oscillatory power, with evidence that the cortical sources of ASMR tingling sensations may arise from decreases in higher frequency oscillations and induce a sustained relaxation state. ASMR-Responders exhibit greater emotion identification capabilities.

#### **Conclusions**

ASMR-responders can be categorised using a data-driven psychometric measure. ASMR is associated with a distinct neurophysiological response associated with relaxation. ASMR is linked to better emotion identification: it can shed light on neurocognitive models of empathy.

#### **Keywords**

Autonomous sensory meridian response (ASMR), EEG, Clustering, Empathy

### **Published Work:**

Swart, T. R., Banissy, M. J., Hein, T., Bruña, R., Pereda, E., & Bhattacharya, J. (2022) ASMR amplifies low frequency and reduces high frequency oscillations. *Cortex*, 148, 85-100. doi: 10.1016/j.cortex.2022.01.004

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Swart, T. R., Bowling, N. C., & Banissy, M. J. (2022). ASMR-Experience Questionnaire (AEQ): A data-driven step towards accurately classifying ASMR responders. *British Journal of Psychology*, 113(1), 68-83. doi: 10.1111/bjop.12516

**Researcher's Contacts:**

Michael Banissy  
School of Experimental Psychology  
University of Bristol  
12a Priory Road  
Bristol, BS8 1TU  
United Kingdom  
Phone: +44 (0)20 7078 5140  
Email: [m.banissy@bristol.ac.uk](mailto:m.banissy@bristol.ac.uk)