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Electrodermal reactivity and emotional assessment in adults with autistic spectrum disorders

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1. Introduction

From the emotional awareness theory of Lane (2000), the physiological arousal triggered by emotional stimulus is known to play a key role in the subjective emotional response.

Disturbances in physiological arousal in response to emotional stimuli are observed in a variety of psychopathological disorders, including Autism Spectrum Disorder (ASD) (Lydon et al, 2016).

ASD has been associated with an autonomic dysregulation characterized by an atypical electrodermal activity (EDA) in response to emotional stimuli. However, very few studies have been conducted to explore the role of sympathetic activity in emotional disturbances reported in ASD.

2. Aim

Study the relationship between EDA and emotional assessment of visual emotional stimuli in ASD adults compared to healthy controls.

3. Participants

- 10 men (mean age = 29.72; SD = 3.77) with ASD (middle to moderate according to the Childhood Autism Rating Scale) and without intellectual disability (IQ scores from 70 to 130 on the Wechsler Adult Intelligence Scale IV)
- 10 healthy controls (8 males, mean age = 30.43; SD = 10.97) paired for age and education with ASD group.

Exclusion criteria:

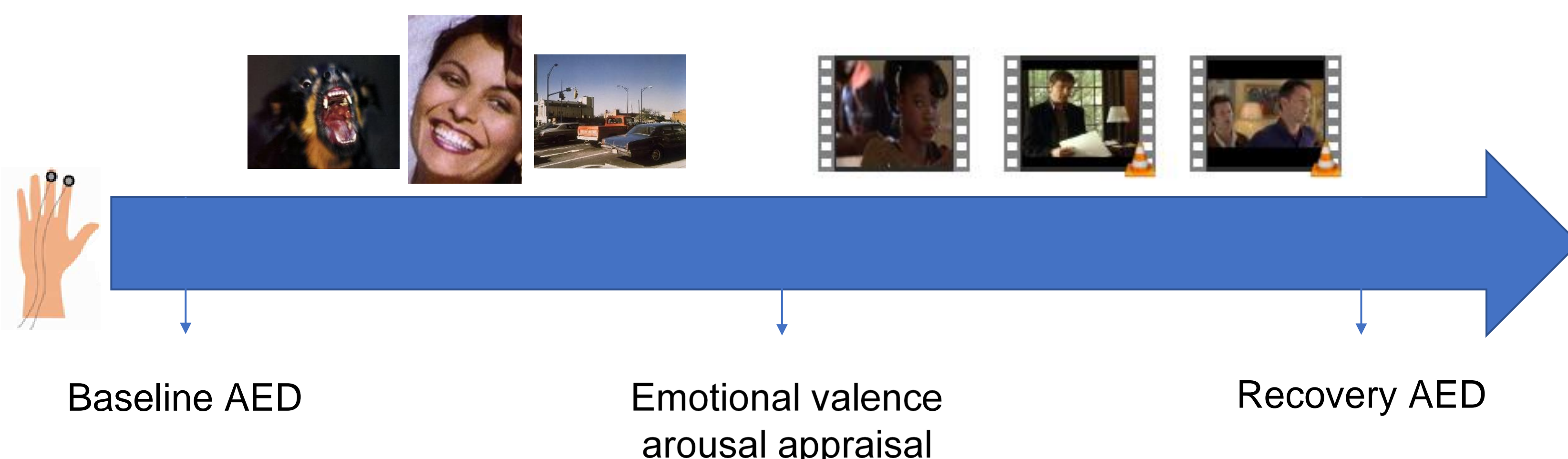
- Depressive disorder (score ≤ 4 at the Beck Depression Inventory - 13 items)
- High intellectual potential

4. Hypotheses

- Higher electrodermal response in ASD for emotional stimuli;
- No difference between subjective appraisal in ASD and controls.

5. Experimental Paradigm : Participants were asked to assess 24 positive, negative and neutral social and non-social pictures from the International Affective Picture System and 3 positive, negative and neutral movies. EDA was recorded.

Procedure



Example of images

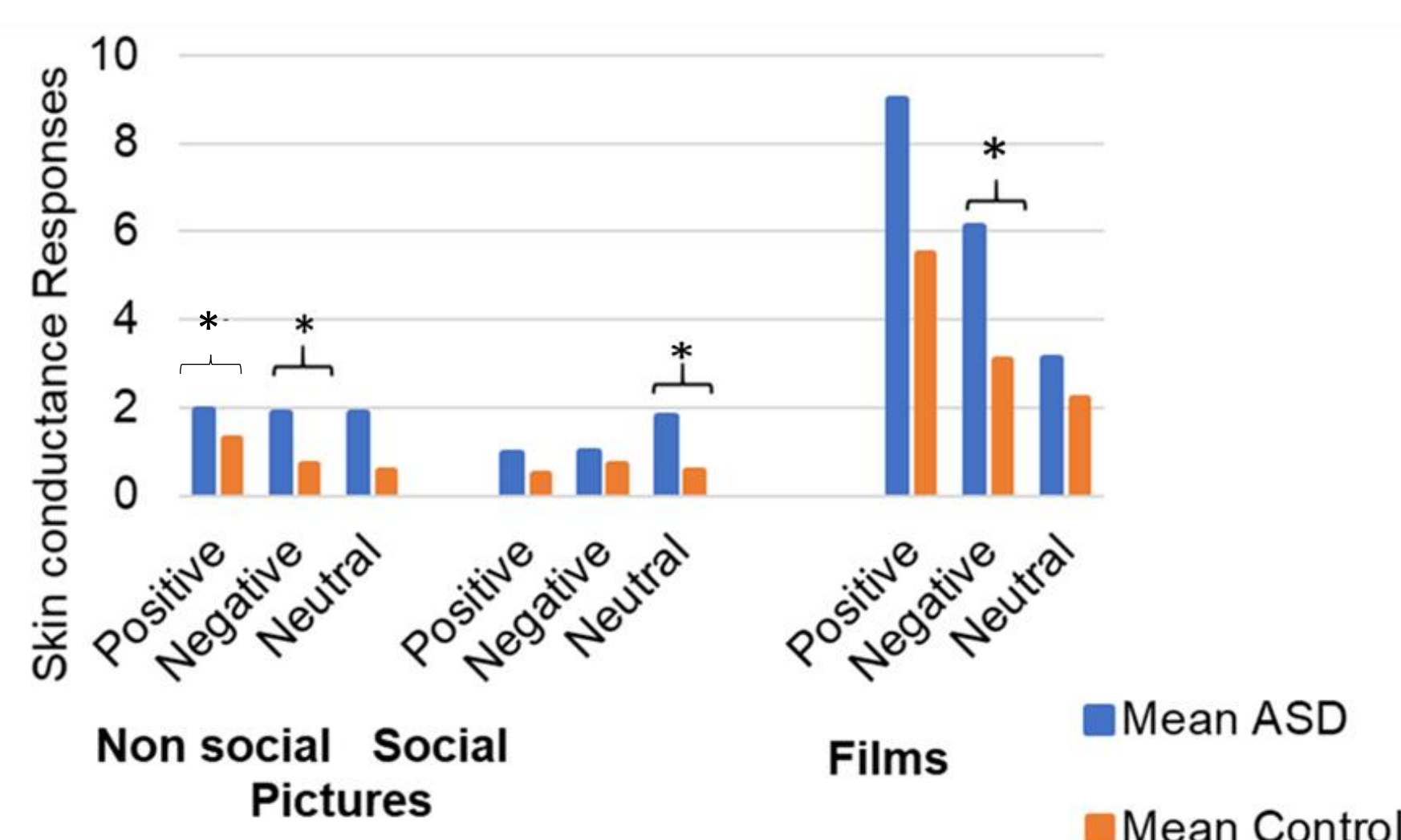
	Positive	Neutral	Negative
Social			
Non social			

6. Results

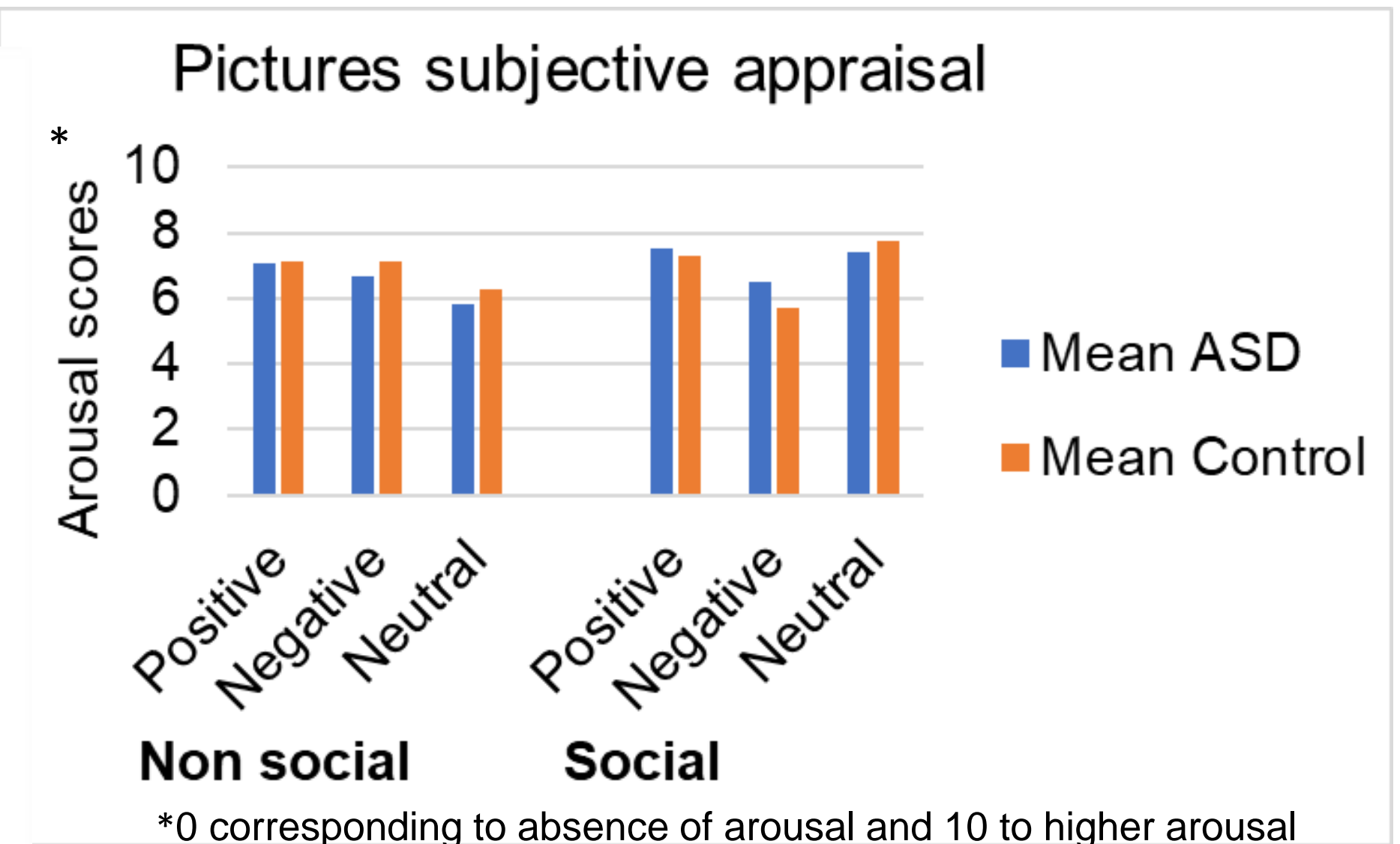
Dissociation between subjective and physiological measures :

Group effect on AED

- ASD exhibited higher skin conductance responses than controls for pictures and films
- EDA were significantly higher in ASD group for:
 - Non-social negative ($p=0,003$) and positive ($p=0,001$) pictures
 - Social neutral pictures ($p=0,001$)
 - Negative ($p=0,038$) and positive ($p=0,008$) films



No group effect on subjective assessment



7. Discussion

Physiological reactivity to emotional stimuli was increased in ASD, but this autonomic overactivation does not seem to be associated with an enhancement of subjective assessment.

Accordingly, **physiological responses and cognitive evaluation of emotional stimuli appeared as dissociated in ASD adults.**

This dissociation between bodily reaction and cognitive appraisal could contribute to emotional disturbances in ASD.

References:

Lane, R. D. (2000). Levels of emotional awareness : Neurological, psychological, and social perspectives. In *The handbook of emotional intelligence : Theory, development, assessment, and application at home, school, and in the workplace* (p. 171-191). Jossey-Bass.
Lydon, S., Healy, O., Reed, P., Mulhern, T., Hughes, B. M., & Goodwin, M. S. (2016). A systematic review of physiological reactivity to stimuli in autism. *Developmental neurorehabilitation*, 19(6), 335-355