

Emotionally charged stimuli modulate interpersonal space regulation in ASD adolescents: a Virtual Reality study

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During social interactions, we adjust the interpersonal distance we set between ourselves and others depending on how close we prefer to stand relative to an unknown individual. Critically, when the physical boundaries of the personal space are violated, individuals perceive a prompt feeling of discomfort. In this respect, bodily expressions represent important cues during interpersonal exchanges. Previous studies found that the ability to regulate interpersonal space is altered in children with Autism Spectrum Disorder (ASD) who prefer larger interpersonal distances compared to typically developing (TD) children. We hypothesized that emotions play a crucial role in adjusting interpersonal distance, particularly during adolescence when emotion regulation abilities develop. Thus, we investigated whether emotional cues modulate the interpersonal distance in ASD. We recruited 46 adolescents (n=23 TD; n=23 ASD; mean age 12y) and employed a stop-distance task in a VR setting. Participants had to stop an avatar at a comfortable distance while the avatar displayed Happy, Neutral, or Angry emotions through its face and posture. ASD participants preferred a larger interpersonal distance compared to TD peers. Crucially, both groups maintained a greater distance from the Angry than the Neutral and Happy avatars. Emotionally charged stimuli lead to refined adjustments in interpersonal distance both in TD and ASD adolescents. They flexibly shortened and enlarged their preferred distance from a positive or a negative social stimulus, respectively. Thus, emotions are a potential way to regulate social behavior in clinical conditions characterized by socio-affective deficit.

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