

Project 2007/286 Emotional processing and facial emotion.

Alexithymia, originally defined as a lack of words for feelings, describes people who appear to have deficiencies in the subjective awareness of their internal feeling states. The results of previous investigations into whether the emotion deficit in alexithymia extends to the recognition of external emotion cues, specifically facial expressions of emotion, have characteristically focused on the cognitive appraisal of static facial emotion stimuli, with inconclusive results. The collective aim of this series of experiments was to examine facial emotion recognition performance in alexithymia from a broad perspective that encompassed both the typical emotion recognition paradigms and emotion recognition processes putatively involving the generation of a simulation, in line with embodied theories of cognition.

In this project, undergraduate participants who scored above the cut-off score of 61 on the 20-item Toronto alexithymia scale (TAS-20) were assigned to a high alexithymia group (high-A) or a low alexithymia group (low-A), while a further group of demographically-matched participants who scored ≤ 51 on the TAS-20 were selected as controls.

Study I (Experiment 1 & 2) examined the performance of these groups on a computerised task of emotion recognition that assessed their speed and accuracy in identifying and naming static and/or dynamic displays of facial expressions. Study II (Experiment 1) looked at the ability to discriminate among emotional expressions in a task requiring a “same” or “different” response following the simultaneous presentation of two independent facial emotion images of 100% intensity of expression. In Study II (Experiment 2) participants performed the same discrimination task with stimuli presented at 75% intensity of expression. Study III (Experiment 1) investigated whether individuals with alexithymia exhibited facial mimicry, or congruent micro-expressions that are thought to feed into facial recognition processes, in response to the passive viewing of faces. In Experiment 2 of Study III, participants underwent a mood induction procedure while their facial mimicry was recorded. Lastly, Study IV investigated whether asking participants to adopt a smile or frown would affect their subjective feelings of emotion, consistent with the notion of the facial feedback hypothesis.

The results of Study I confirmed that individuals with alexithymia are slower and less accurate at recognising facial expressions than controls and that group differences in decision times are greater under dynamic conditions compared to static conditions. Surprisingly, the low-A group demonstrated slower and less accurate facial emotion recognition than the high-A group in both experiments. Study II (Experiment 1) found the low-A, but not the High-A, group were slower to perform the discrimination task than controls, however after reducing the intensity of the expression the low-A group were slower on the task than both the high-A group and controls. Study III (Experiment 1) confirmed that the alexithymia groups produced less mimicry under passive viewing conditions than controls, with the low-A group exhibiting *less* mimicry than the high-A group. Study III (Experiment 2) found that while the mood induction procedure was successful for all groups, controls reported greater positive ratings than alexithymia groups following the happy mood induction but groups reported equivalent negative mood ratings following the anger mood induction. The happy mood condition produced a greater increase in facial mimicry for controls than alexithymia groups compared to the happy passive viewing condition. The angry mood condition compared to the angry passive viewing condition produced an increase in facial mimicry for controls and a decrease in facial mimicry for the

alexithymia groups. Lastly, Study IV failed to reveal group differences in participants' subjective mood ratings following the expression manipulation procedure. An interesting pattern in the data that was consistently observed was that the high-A group performed 'better' on tasks than the low-A group. This result may reflect a neural compensation mechanism consistent with the notion of an interoception deficit explanation of the defining features of alexithymia.