



A PILOT: THE USE OF MUSIC FOR REPORTING MOOD IN PEOPLE WITH AUTISM SPECTRUM DISORDERS (ASD)

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Introduction

Individuals with ASD frequently experience difficulties recognising and verbally communicating emotions. However, previous research demonstrates that people with high functioning ASD can attend to musical cues and identify emotions conveyed through music similarly to neurotypical peers¹⁻⁴. The present study explores emotion identification in music among individuals with high functioning ASD and investigate music's potential as an emotional expression tool for this population.

Method

Participants

Seven individuals diagnosed with high-functioning ASD (aged 16–22 years) were recruited from the Psychological Medicine Centre at Changi General Hospital.

Measures and Procedure

Twelve music pieces were composed using musical modes (e.g., Lydian, Phrygian, Locrian) to represent a possible range of emotions across a spectrum of valence and energy levels. In an initial calibration session, participants listened to all 12 pieces and rated each on two Likert scales for Valence (-5 to +5; less pleasant to more pleasant) and Energy level (-5 to +5; low energy to high energy), establishing a personalised emotional mapping of the music.

Across 2–3 subsequent sessions, participants indicated their current mood by selecting from the music pieces. Concurrent mood ratings from parents and clinicians were obtained to provide convergent ratings of valence and energy levels. Video recordings were taken during music listening and analysed using the Python Facial Expression Recogniser (FER) as another measure of emotional state.

Results

A significant positive correlation was found between Energy ratings of participants' selected music and their Energy ratings of present mood ($r = .445$, $p = 0.025$). A weak positive correlation existed between Valence ratings of selected music and Valence ratings of present mood ($r = 0.174$, $p = 0.392$). Consistent with existing literature⁵, facial recognition software (Python FER) data in the current study yielded little variance for interpretation. Given that participants had related to the music pieces differently, it might be more informative to look into the individual participant's profiles.

Single Case Study:

Participant K is a 22-year-old female, a fan of Japanese pop and Gothic music, who presented to the CGH Psychological Medicine Centre with symptoms of depression.

At baseline, she provided a wide range of ratings across the 12 music pieces, suggesting an ability to discriminate between the distinct energy levels and valence qualities of each piece (Fig.1). During her first follow-up visit, her song selection did not align with her rated mood on the energy dimension; however, the valence of her chosen piece closely matched her self-rated mood, with both indicating a mildly pleasant state. In the two subsequent visits, her song choices showed closer correspondence with her mood composite ratings on the energy dimension as well. Energy levels of her mood rating were positive (+2) on both occasions, closely matching positive energy levels of her selected music pieces (Ionian [+1] and The Claw [+2]), suggesting an emerging ability to use the music pieces as a reliable mood self-report tool over time (Fig.2).

Figure 1. Participant K Rating of music pieces at

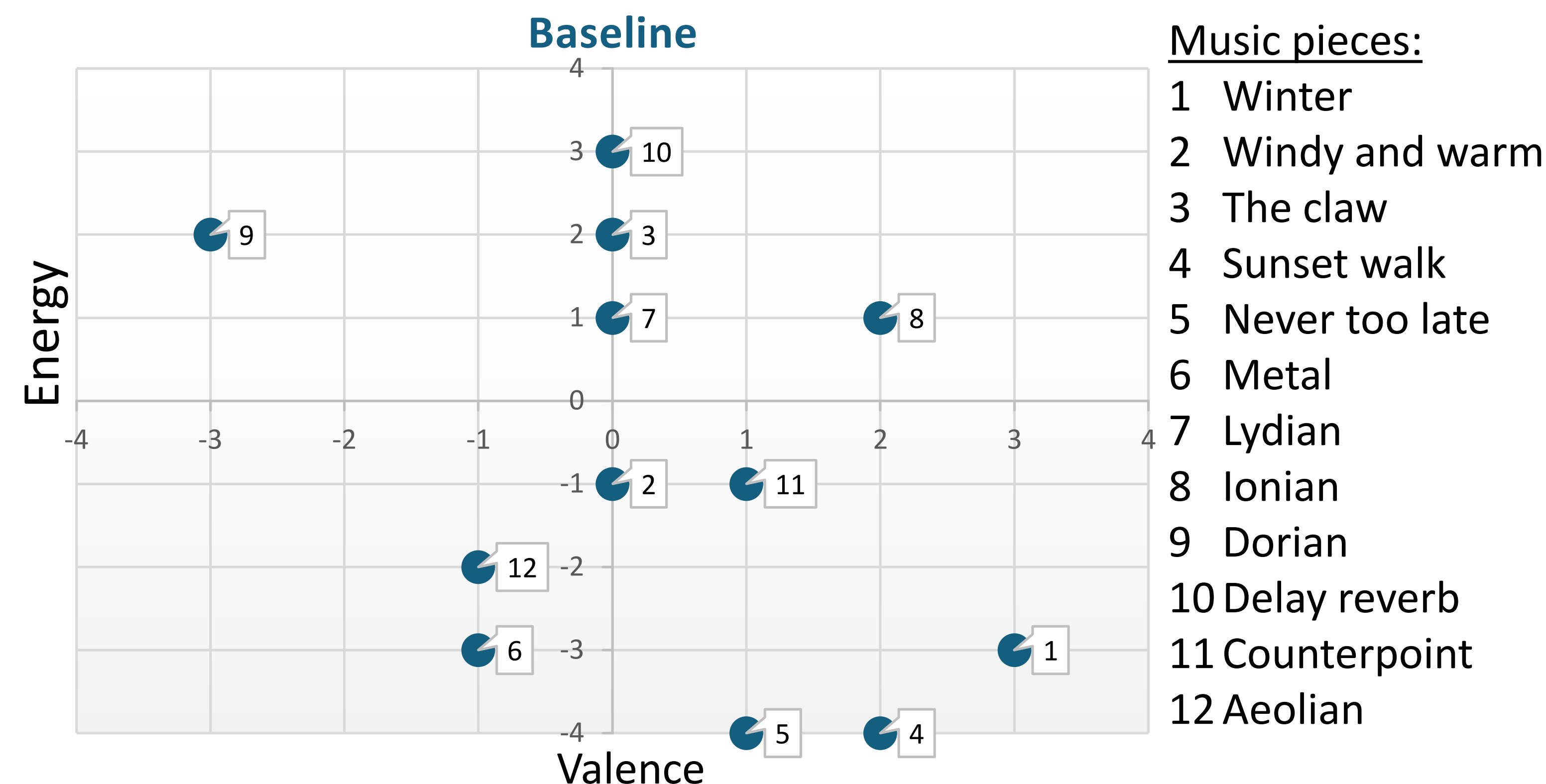
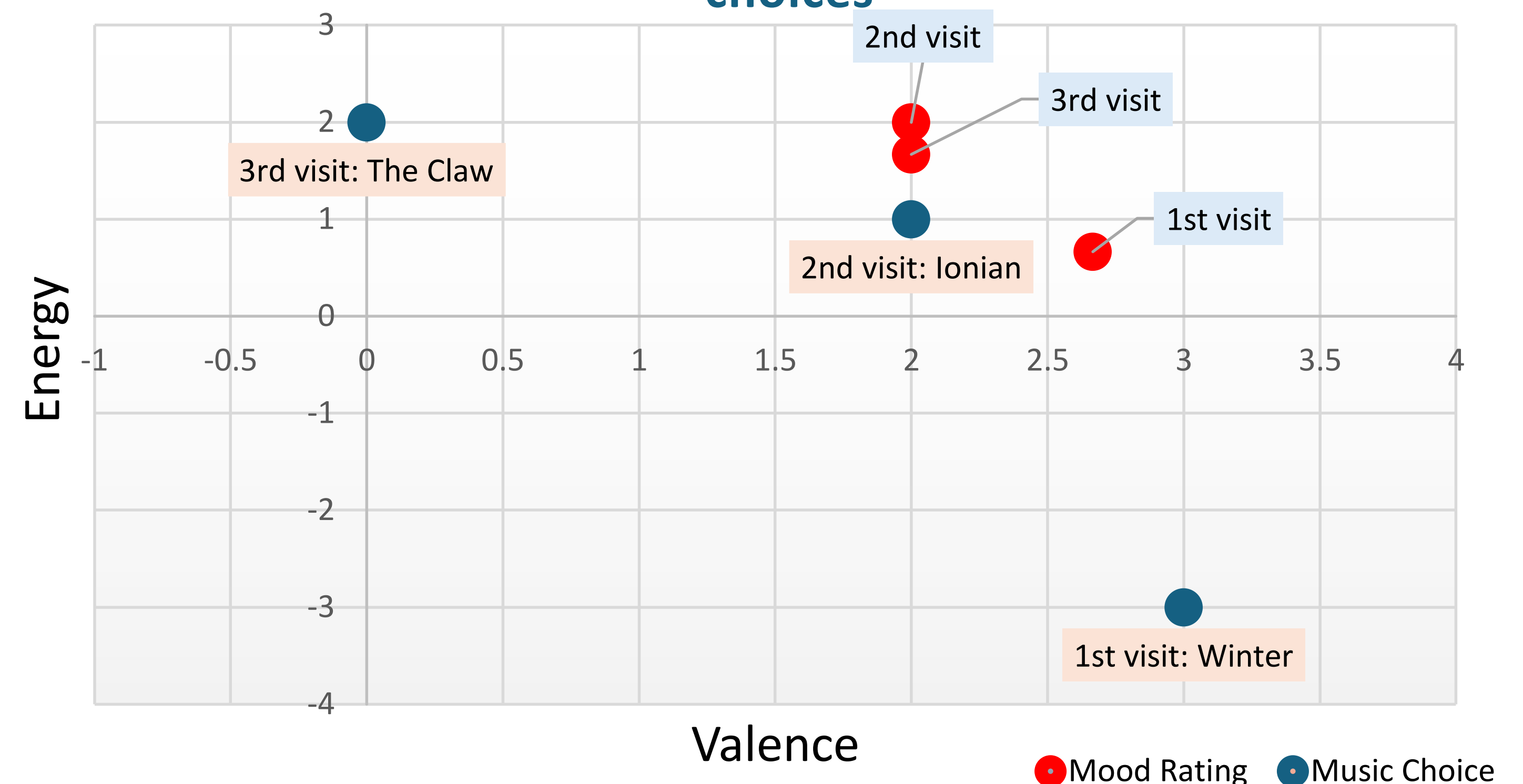


Figure 2. Participant K Mood ratings & music choices



Limitations and Learning Points

The main limitation of this pilot was the small sample size. This allowed us to manage exploring the set up, multiple novel processes, and the unfamiliar study population of young neurodivergent people and their parents; but which invariably produced a wide range of findings which had less statistical significance.

It also allowed exploration of using Python FER for capturing facial expression in a population which frequently has poor eye contact and expressivity. It also allowed us to explore different methods of measuring mood in a population which often has language deficits, and for eliciting engagement in this population who are seldom involved in research but would benefit from more research-driven care.

Conclusion

This study demonstrates that individuals with ASD can effectively connect with music matching their emotional energy levels, highlighting music's potential as an alternative communication medium.

References

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