

Introduction

Neuroticism (N) is a major personality dimension that describes the tendency to experience negative emotions and to be less emotional stable. The classical theory on N (Eysenck, 1967; Eysenck & Eysenck, 1985; Gray, 1981) admits that the highlighted feature of highly neurotic individuals consists in focus mainly on the negative aspects of stimuli. Moreover, N is strongly linked to psychopathology, being seen as a major risk factor involved in psychopathology development (Kotov et al., 2010). However, much less is known about to what extent people high in N are more sensitive to negative aspects. Evaluative conditioning (EC) is a prominent experimental paradigm that could help in addressing this question. EC is used in learning and social psychology, being defined as an effect which consists in changing of liking of an initially neutral stimulus (i.e., conditioned stimulus; CS) due to its repeatedly paired presentation with another positive or negative stimulus (i.e., unconditioned stimulus; US) (De Houwer et al., 2001; De Houwer, 2007). Vogel et al. (2019) identified for the first time a moderating effect of N on EC. The findings indicated that people who score high on N present an increased focus on valent stimuli independently of their positive or negative valence. The result is contrary to the classical perspective on N with regard to the highly receptivity to negative stimuli. The present study introduced an ambivalence EC approach (ambivalent USs which involve both positive and negative valence features; Glaser et al., 2018) in order to examine empirically what kind of valence (positive or negative) is mostly transferred by people with high levels of N.

Design and Participants

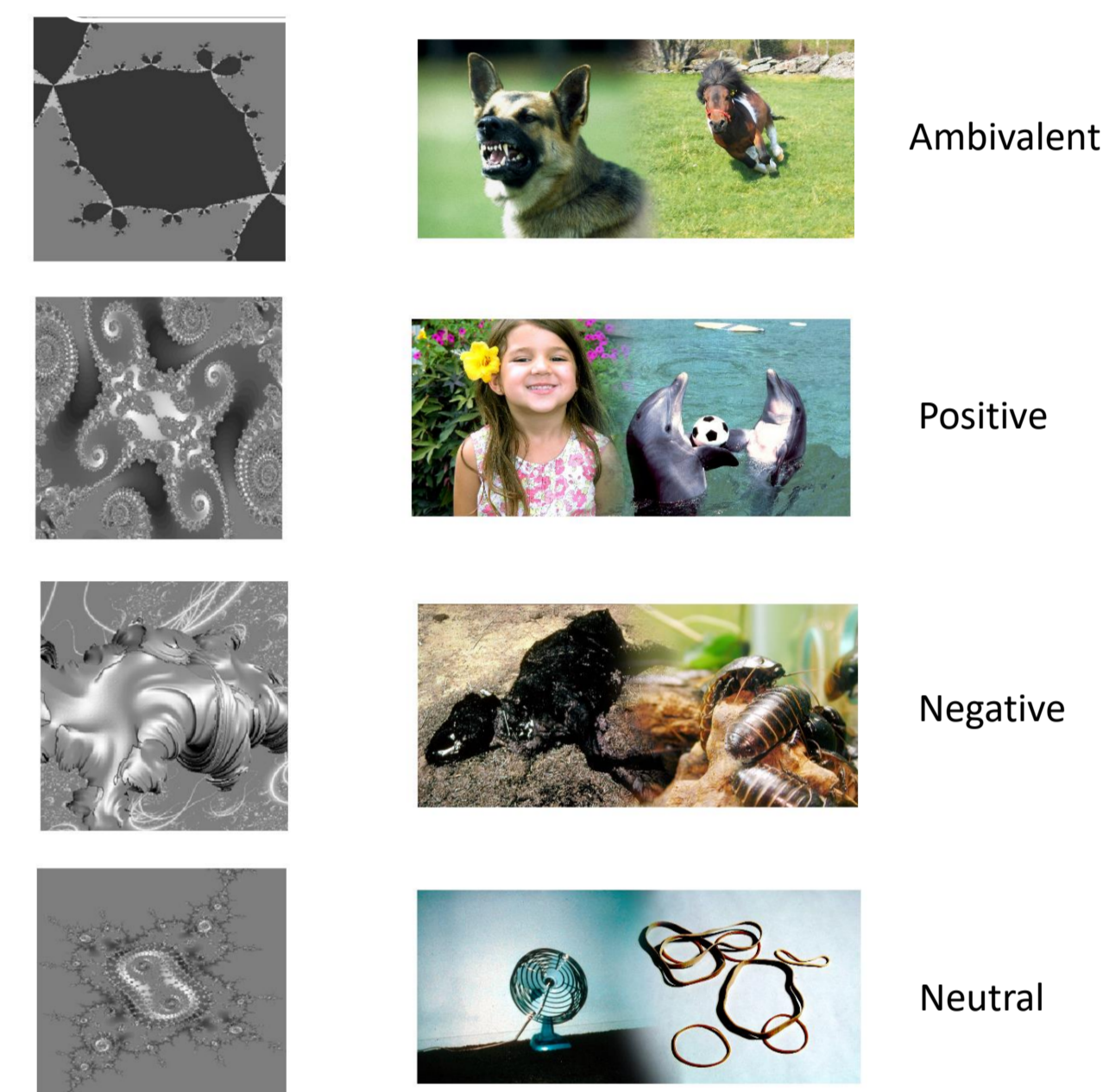
- **Experimental design:** 4 (US valence: positive vs. negative vs. neutral vs. ambivalent) within-subjects design
- **Sample:** 556 participants (192 male, M age = 24.58, SD age = 7.07)

Procedure

*laboratory setting; materials provided computerized via Inquisit 5 Lab program

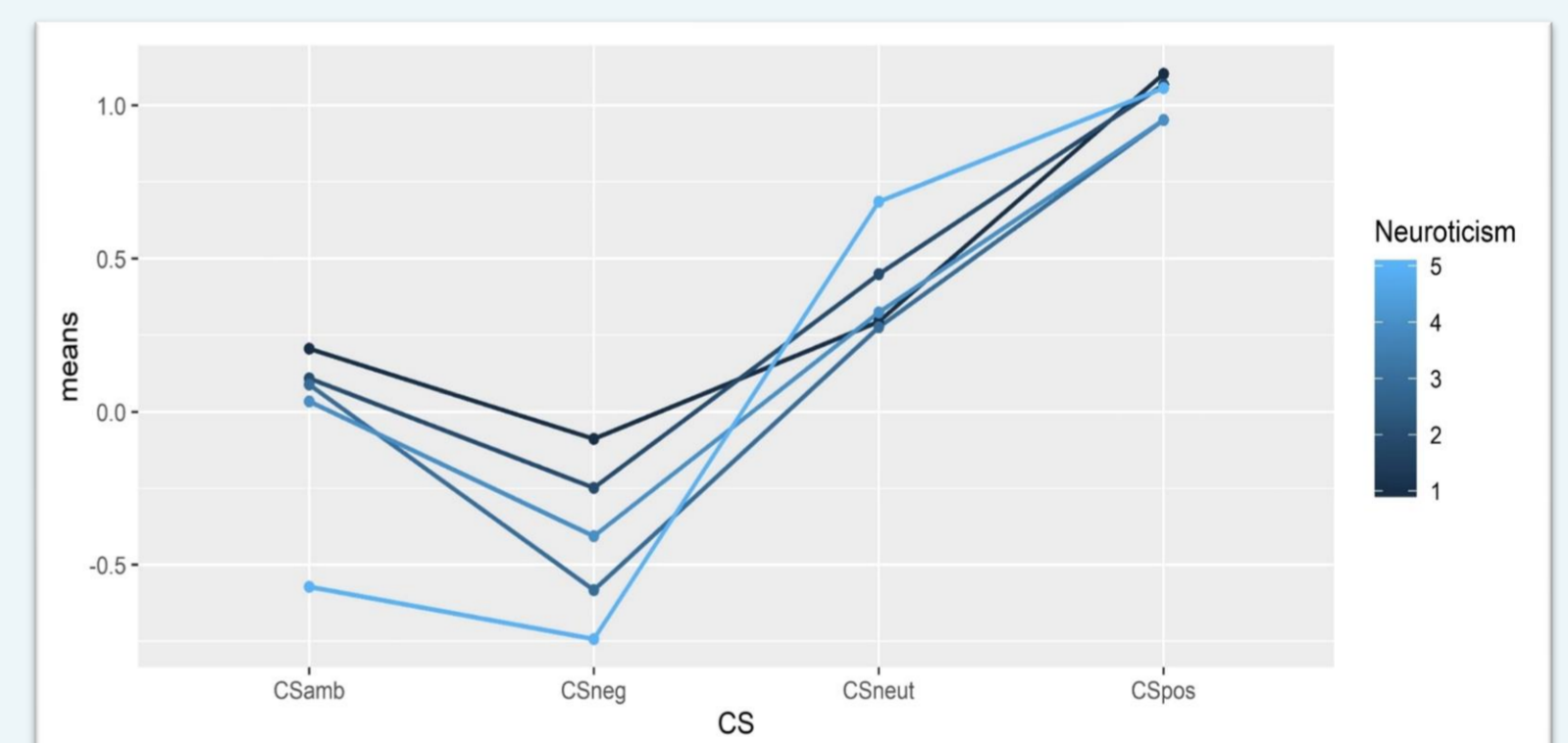
- Step 1:** The Neuroticism Scale from NEO-PI R (Costa & McCrae, 1992)
- Step 2:** EC procedure
- 8 USs (2 USs per valence; ambivalent USs were taken from Glaser et al., 2018)
 - 8 CSs (fractals; each CS was paired with the same US during an exposure procedure; the pairings were randomly formed from a participate to other)
 - One to one pairing strategy (see the CS-US Pairing section as example)
 - Each pair was exposed by 8 times, resulting 64 trials (8 pairs by 8 randomly exposure times)
- Step 3:** CSs evaluation on a scale ranged from -3 (very unpleasant) to +3 (very pleasant)
- Step 4:** Evaluation the USs valences (positive, negative, ambivalent or neutral) as a control measurement

CS – US Pairings



Results

- One exclusion criterion: recognize correctly the valence of at least 3 USs (i.e., the two positive USs and the two negative USs)
- Computed analysis on 517 participants
- The new sample was divided into 5 groups/ levels of N based on percentiles
 - 7% very low (n=36), 23% low (n=117), 40% average (n=212), 23% high (n=117), and 7% very high (n=35)
- MANOVA analysis showed a significant difference on the overall EC effect based on levels on N
 - $F(16, 1555.65) = 1.80, p = .026; \text{Wilk's } \Lambda = 0.95, \eta p^2 = .014$
- To test the hypothesis, a polynomial contrast was performed supporting the assumption that the CSs paired with ambivalent USs received more negative evaluations as the level of neuroticism became more prominent in the study population
 - $F(1, 1539) = 7.09, p = .008, r^2 = .013, 95\% \text{ CI } [-0.87, -0.13]$



Conclusion

- The present study represents a confirmatory research on the moderating role of N on EC effect;
- Introducing ambivalent USs to the classical EC procedure, the results showed that individuals high on N attach more negative valence to CSs when both positive and negative features are presented simultaneously within a stimulus;
- The findings converge with the classical perspective on N, indicating that high levels of N are generally characterized by focus on negative features;
- The effect size of the revealed results is small and could suggest to replicate the findings;
- Even if the results indicate that the negative valence is more transferred at high levels of N, the mechanisms which explain this phenomena are not revealed; a future direction on the study of N and EC could capture mechanisms such as attentional bias, memory bias etc.; these biases characterize people with high levels of N and could represent explanatory factors in learning process of negative features.

References

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