VALIDITY OF THE NEO-TRIARCHIC SCALES: DIFFERENTIAL ASSOCIATIONS WITH PERSONALITY SELF-REPORT AND ERP MEASURES

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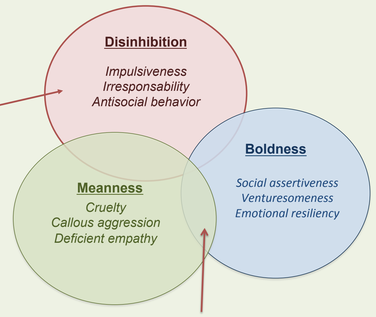
BACKGROUND

The triarchic model of psychopathy (Patrick, Fowles, & Krueger, 2009)



Reduced P3

Externalizing proneness/vulnerability

Theorized to reflect impairments in frontocortical systems that mediate anticipation, planfulness, and affective/behavioral control.

The dual process model of psychopathy
(Patrick & Bernat, 2009)

Low Fear disposition genotype

Theorized to reflect under-reactivity of the brain's defensive motivational system.

Diminished fear-startle potentiation

Aim

To demonstrate the validity of the NEO-Triarchic scales in relation to:

1) Normal range and pathological personality measures
2) Brain-response indicators of externalizing proneness

Hypotheses

- **Boldness:** r_{xy} (-) fear and behavioral inhibition system measures
- **Meanness**: r_{xy} (+) affective features of psychopathy measures (callousness; primary psychopathy)
- **Disinhibition**: r_{xy} (+) impulsivity, secondary psychopathy, behavioral activation, externalizing measures

→ **Disinhibition:** r_{xy} (-) P300 brain response

METHOD

Participants

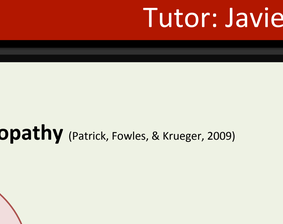
- 58 (26 males) undergraduates assessed for psychopathy phenotypes via **NEO**-based Triarchic scales (Drislane et al., 2017).

Self report measures

- ✓ Psychopathy Resemblance Index (PRI; Miller y cols., 2001)
- ✓ Levenson Self-Report Psychopathy Scale (LSRP; Levenson, Kiehl y Fitzpatrick, 1995)
- ✓ Barrat Impulsiveness Scale (BIS-11; E. S. Barrat, 1995)
- ✓ Externalizing Vulnerability (EXT-100; Patrick, 2009, personal communication)
- ✓ Behavioral Inhibition and Behavioral Activation Scales (BIS/BAS; Carver y White, 1994)
- ✓ Trait Fear (TF-55; Patrick, 2009, personal communication)

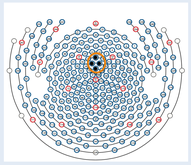
Modified Flanker NoGo task (Eriksen & Eriksen, 1974)

- 6 blocks of 104 trials
- Target buttons for "S" & "H" letters changed between blocks
- Duration: 40 minutes



Data acquisition and analyses

- **Analog filters:** 0.1 - 100 Hz bandpass; digitized at 250 Hz with a 24-bits A/D converter
- **Stimulus epoch:** -200 to 800 ms
- **Response epoch:** -400 to 800 ms
- **Baseline correction**
  - Response-locked ERPs: -400 to -200 ms pre-response
  - Stimulus-locked ERPs: -200 to 0 ms pre-stimulus onset



256–Channel HCGSN

Dependent variables (DVs)

Stimulus—locked ERPs (N = 53)	Response—locked ERPs (N = 51)
NoGo-P3: Mean amplitudes on correctly rejected NoGo trials (time-window: 416-616 ms)	**Pe:** Mean amplitudes on Error (Pe) trials (time-window: 150-400 ms)

Statistical analyses

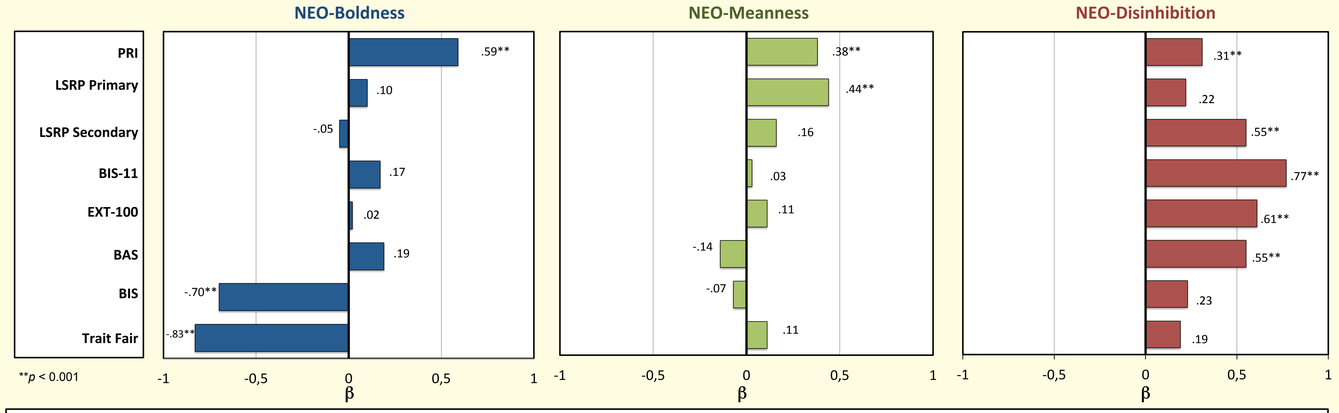
- Zero-order correlations between NEO-Triarchic scores and each DV
- Multiple regression analyses to test for the unique contribution of each NEO-Triarchic scores on each DV

CONCLUSIONS

- ➢ Our findings demonstrated good convergent and discriminant validity of NEO-Triarchic scales in relation to self-reports of normal and pathological personality measures.
- ➢ Importantly, a reduced P3 amplitude was only related to NEO-Disinhibition, which is in agreement with previous results showing a diminished P3 specifically associated with externalizing proneness (e. g., Nelson, Patrick & Bernat, 2011).
- ➢ Collectively, our results suggest that the NEO-Triarchic scales provide an effective way to operationalize the triarchic model constructs that can be used to confirm —and potentially extend— the predictive network for psychopathy in multiple measurement domains (e.g., self-report, neurophysiology).

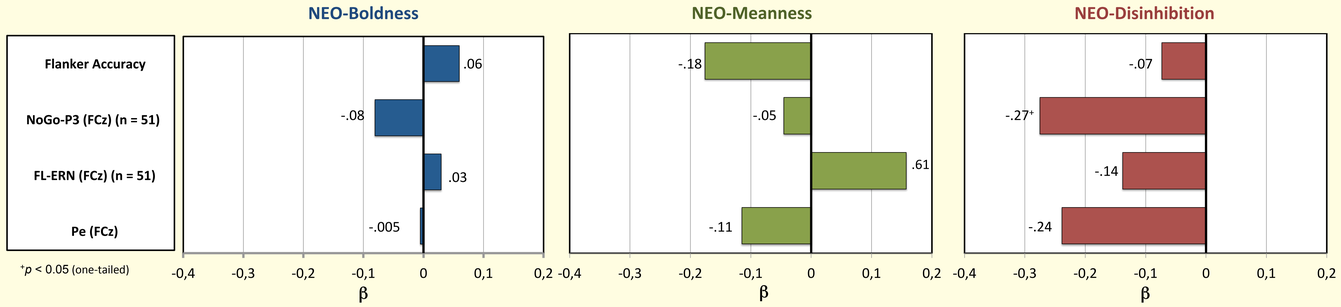
RESULTS

NEO-Triarchic scales and self-report personality measures



Multiple regression analyses revealed that all NEO-Triarchic scales contributed to a global score of psychopathy (PRI). **NEO-Boldness** scores were related to low fear and low anxiety. **NEO-Meanness** scores were associated with primary psychopathy features. **NEO-Disinhibition** scores were correlated with all externalizing scales.

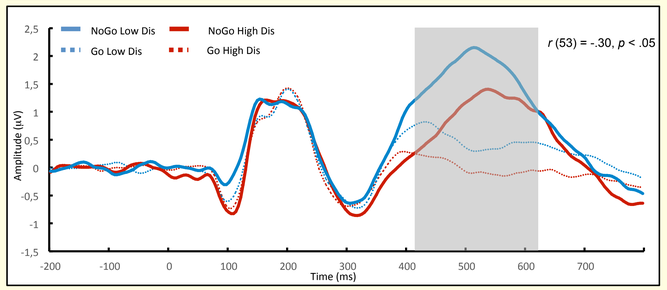
NEO-Triarchic scales and ERP measures (Flanker task)



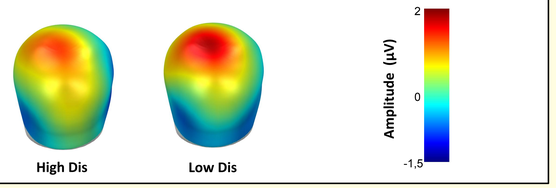
Multiple regression analyses revealed that **NEO-Disinhibition** scores significantly predicted reduced **NoGo-P3** amplitudes at FCz.

Stimulus—locked ERPs (n = 53)

Grand averages for **NoGo** trials in participants scoring high (n = 27) and low (n = 26) in NEO-Disinhibition scale (median split).

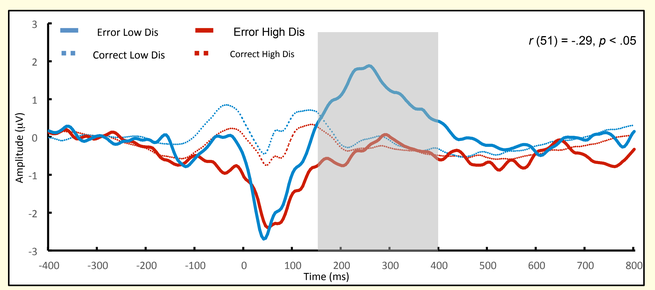


Scalp distribution for the difference NoGo-Go P3

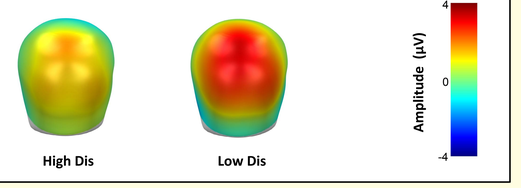


Response—locked ERPs (n = 51)

Grand average for **Error** trials in participants scoring high (n = 26) and low (n = 25) in NEO-Disinhibition scale (median split).



Scalp distribution for the difference Error-Correct (Pe)



REFERENCES

Drislane, L. E., Brislin, S. J., Jones, S., & Patrick, C. J. (2018). Interfacing Five-Factor Model and Triarchic Conceptualizations of Psychopathy. *Psychological Assesment, 30,* 834-840.
Eriksen, B. A., & Eriksen, C. W. (1974). Effects of noise letters upon the identification of a target letter in a nonsearch task. *Perception & Psychophysics*, *16*, 143-149.
Nelson, L. D., Patrick, C. J., & Bernat, E. M. (2011). Operationalizing proneness to externalizing psychopathology as a multivariate psychophysiological phenotype. *Psychophysiology*, *48*, 64-72.
Patrick, C. J., & Bernat, E. M. (2009). Neurobiology of psychopathy: A two-process theory. In G. G. Berntson and J. T. Cacioppo (Eds.), *Handbook of Neuroscience for the Behavioral Sciences,* (pp. 1110-1131). New York: John Wiley & Sons.
Patrick, C. J., & Drislane, L. E. (2015). Triarchic model of psychopathy: Origins, operationalizations, and observed linkages with personality and general psychopathology. *Journal of Personality, 83,* 627-643.