

Diverging meaning-makers: Apophenia as a common cognitive basis for psychoticism and creativity

Joshua R. Ortega, Jacqueline E. McGuinness, Jonathan W. Schooler, and
Madeleine E. Gross

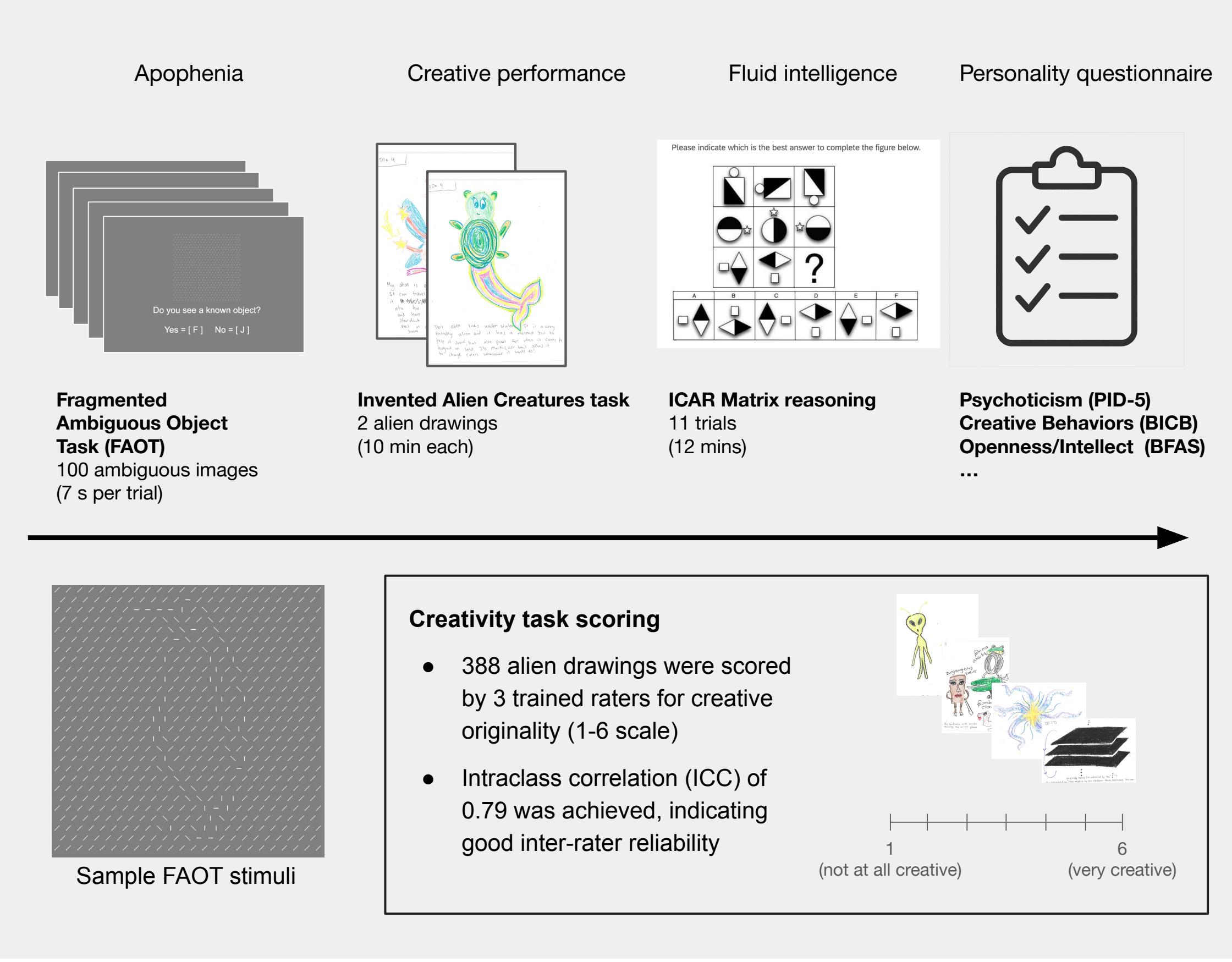
Introduction

- Psychoticism (or positive schizotypy) is a personality trait describing individual differences in magical thinking and odd perceptual experiences
- Although psychoticism predicts some forms of creativity quite reliably, such as real world creative behaviors and achievements¹, its connection with creative performance measures is mixed²⁻⁴
- The basic cognitive processes that link creativity with psychoticism remain understudied, but one promising candidate is *apophenia*, which involves detecting patterns in ambiguity (e.g., seeing a face in the clouds)
- Apophenia is a perceptual process closely tied with psychoticism⁵⁻⁷ and has been found to correlate with increased creative behaviors (e.g., viewing or making art)⁸, but hasn't been tied to performance-based creativity tests
- Therefore, we examined apophenia as a potential mechanism supporting creativity by assessing if trait differences in apophenia explain the psychoticism-creativity link using measures of both creative performance and creative behavior
- Finally, given that low intelligence tends to hinder creativity and exacerbate symptoms of psychoticism, fluid IQ was measured and included as a control variable in all analyses

Hypotheses

- Psychoticism will be positively associated with apophenia
- Apophenia will be positively associated with creative performance
- Apophenia will mediate the link between psychoticism and creative performance
- Apophenia will be positively associated with self-reported creative behaviors

Procedure and Materials



Hyperactive pattern recognition may underlie the well-known connection between pathology and creativity.

Abstract: Researchers and the general public alike are fascinated by the idea that 'madness' is often linked with creativity, but why are these traits connected? In this study, participants first completed a pattern-recognition task, searching for objects shrouded within visual noise. They then created drawings of imagined alien creatures, followed by a psychoticism questionnaire measuring unusual thoughts and perceptions. We found that people who detected more hidden objects tended to produce more creative drawings and also reported more psychoticism, yet psychoticism itself did not predict greater creativity. Overall, these findings suggest that pathology and creativity may stem from the same underlying tendency to see meaning in ambiguity.

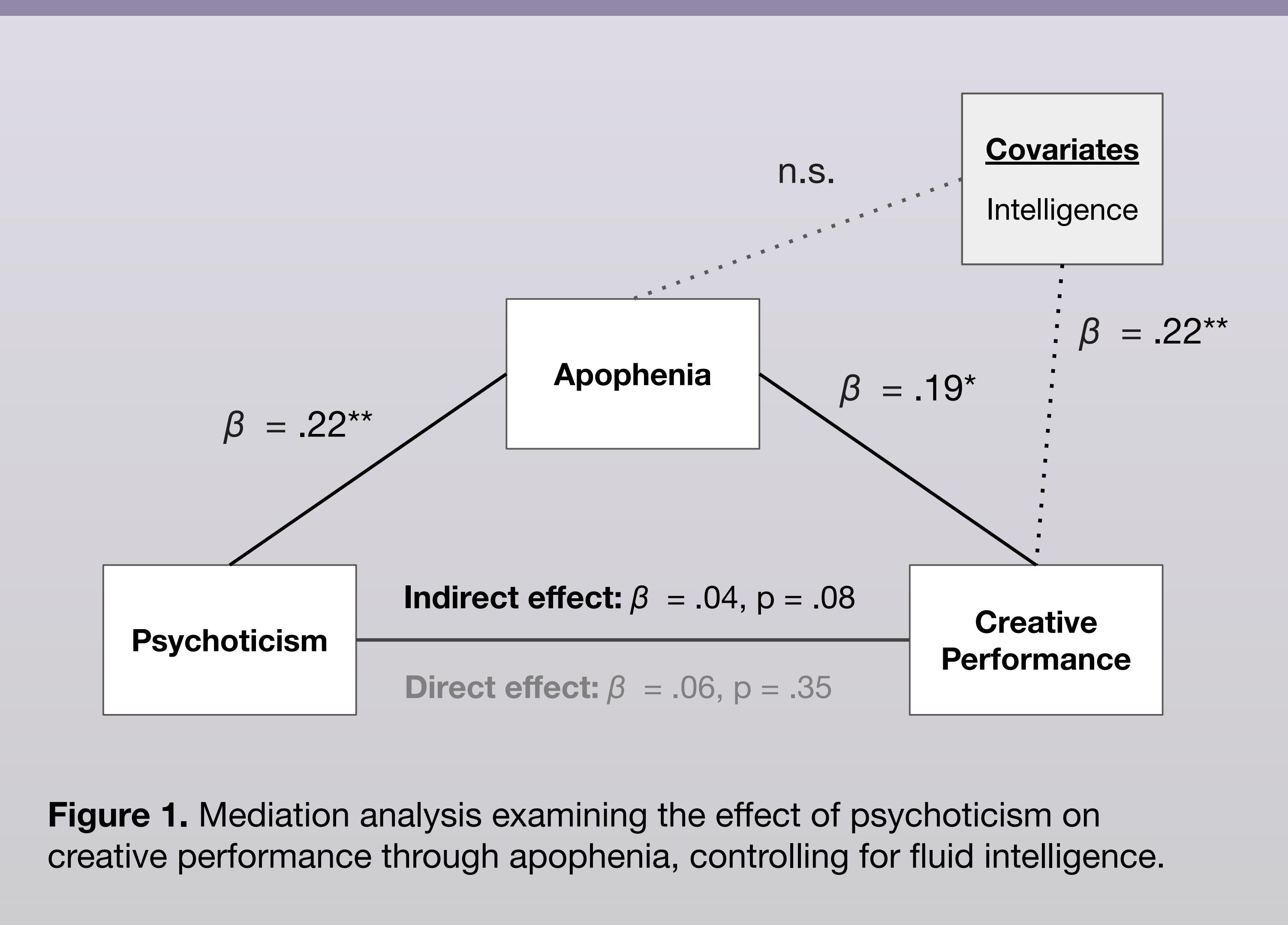


Figure 1. Mediation analysis examining the effect of psychoticism on creative performance through apophenia, controlling for fluid intelligence.

Method

- Participants.** 190 students were recruited through UCSB's SONA system and compensated with course credit or \$10
- Design and procedure.** Following a cross-sectional design, participants completed measures of apophenia, creative performance, fluid intelligence, then completed a personality questionnaire with scales for psychoticism, creative behaviors, openness to experience, and more.
- Data exclusions.** Dropped 11 participants for failing attention checks ($n = 8$) or showing extreme bias on apophenia task ($n = 3$), bringing final sample to $N = 179$ Participants (133 women) with $M_{age} = 20.18$ years
- Pre-registration.** This study's methods and hypotheses were pre-registered and can be found at: <https://osf.io/u583c/>

| Variable | n | M | SD | Descriptives and Correlations | | | | | |
|-------------------------|-----|-------|-------|-------------------------------|------|-------|--------|------|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Psychoticism | 178 | 1.90 | 0.51 | — | | | | | |
| 2. Apophenia | 179 | 49.65 | 13.52 | .22** | — | | | | |
| 3. Fluid Intelligence | 179 | 5.66 | 2.55 | -.02 | .02 | — | | | |
| 4. Creative Performance | 179 | 3.30 | 0.95 | .09 | .19* | .23** | — | | |
| 5. Creative Behavior | 179 | 8.79 | 5.62 | .15* | .10 | .03 | .12 | — | |
| 6. Openness | 156 | 3.99 | 0.51 | .28*** | .08 | .18* | .29*** | .20* | — |

Results

- Psychoticism predicted greater apophenia ($\beta = 0.22$, $p = 0.003$), in line with predictions
- Apophenia predicted better creative performance ($\beta = 0.19$, $p = 0.011$), as predicted
- The indirect effect of psychoticism on creative performance via apophenia was marginally significant ($\beta = 0.04$, $p = 0.08$)
- No significant relationship was found between apophenia and creative behaviors ($\beta = 0.09$, $p = 0.18$)

Discussion

- Results support the notion that psychoticism and creativity may jointly arise from the heightened pattern detection seen in apophenia, though causal evidence is lacking
- Future work should thus aim to manipulate apophenia, perhaps through acute aesthetic experiences, and test if this enhances creative performance
- Although the mediation (indirect effect) only reached marginal significance, this was likely because psychoticism was unrelated to creative performance outright, hence further underscoring the precedence of apophenia over psychoticism for explaining creativity
- Inconsistent with our predictions and past work³, apophenia was unrelated to creative behaviors, which could be due to differences in how apophenia was operationalized, both in terms of measurement method (behavioral task vs. self-report scale) and modality (perceptual vs. cognitive)
- Future work could use daily life methods to examine if the apophenia-creativity link replicates outside the lab, and if apophenia is relevant for positive outcomes besides creativity, such as meaning in life

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