

Psychological Stress Mediates the Relationship Between Personality Characteristics and Eye-Blink Rate

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INTRODUCTION & AIM

- Personality traits influence **stress reactivity**
- Focus on **Big Five traits**:
 - Neuroticism** – linked to higher stress sensitivity
 - Conscientiousness** – linked to regulation and control
- Spontaneous Blink Rate (SBR)**:
 - Noninvasive physiological marker
 - Reflects dopaminergic activity
 - Associated with attention and arousal

Research Aim:

To examine whether **perceived psychological stress mediates** the relationship between personality traits and **spontaneous eye-blinking behavior**.

METHOD

N = 86 Participants
74 females
Mean age = 22±3 (range: 18–31)

Procedure

- *Personality (BFI-2)
- *Perceived Stress (PSS-14)
- *Silent reading of a **standardized Hebrew text**
- ***Spontaneous blinks** recorded via webcam
- ***Blink detection** using custom Python software

Measures

- *Personality- Big Five traits (BFI-2) Focus on neuroticism & conscientiousness
- *Perceived Stress-PSS-14
- *Physiological Marker-Spontaneous Blink Rate
- *Subjective Perceived Blink Rate

Data Analysis

- *Correlational analyses
- *Path analysis to test:
Direct effects: Personality → SBR
Indirect effects: via perceived stress

RESULTS & DISCUSSION

Figure 1. Path model illustrating the direct and indirect effects of Neuroticism on blink rate through perceived psychological stress.

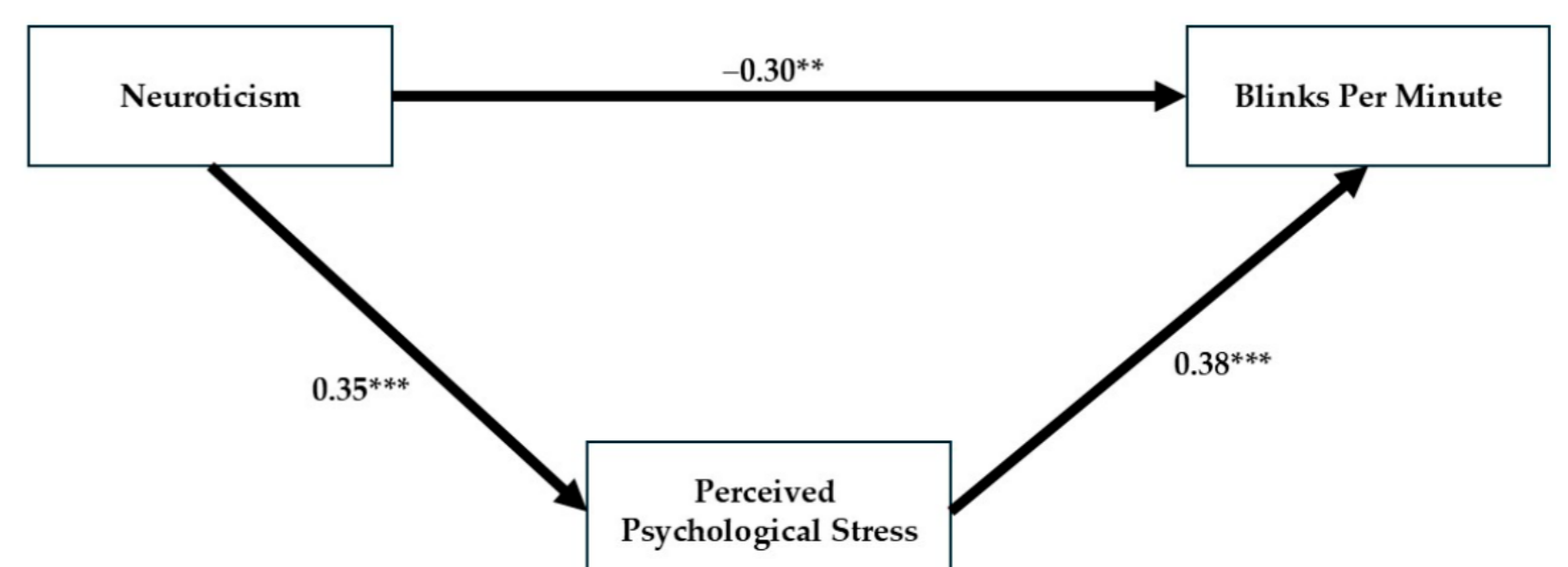
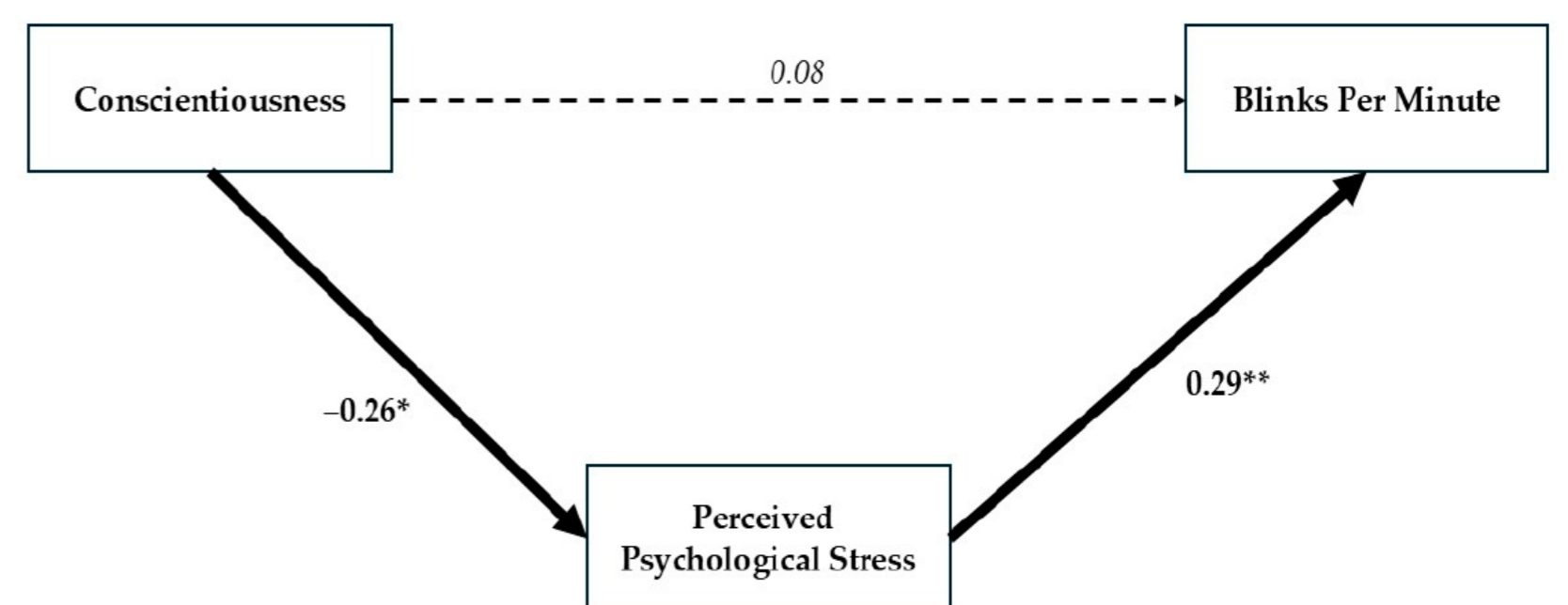


Figure 2. Path model showing the mediating role of perceived psychological stress in the relationship between Conscientiousness and blink rate.



Personality–Stress–Physiology Link: Blinking may serve as a subtle, non-invasive physiological marker of stress reactivity shaped by personality.

Role of Subjective Stress: Perceived stress, rather than objective stress exposure, plays a central role in physiological responses. Personality influences how stress is appraised, not only how the body reacts.

Complex Role of Neuroticism: Neuroticism may involve **both emotional reactivity and attentional control**, reflected in the suppression effect highlighting the importance of examining multiple pathways in personality research.

Objective vs. Subjective Measures: Differences between subjective and objective blinking suggest variability in interoceptive awareness. Objective physiological markers may be more sensitive than self-report.

CONCLUSIONS

- Personality** shapes stress reactivity and physiological responses.
- Neuroticism** was linked to higher perceived stress and increased blink rate, whereas conscientiousness was associated with lower stress.
- Perceived stress** mediated the relationship between **personality** and **blinking**, suggesting that spontaneous blink rate may serve as a non-invasive marker of stress reactivity.

FUTURE WORK

- Longitudinal and gender-equal samples.
- Incorporate physiological stress markers (e.g., cortisol, heart rate variability).
- Advanced physiological blink measures such as electrooculography.
- Exploration of moderation effects and real-world stress contexts.

