Predicting Stress Responses Through the Big Five with the Trauma Response Personality Indicator.

Abstract

This study tests the hypothesis that an individual's dominant Big Five trait (excluding Openness) predicts their primary stress response as defined by the 4F model (Fight, Flight, Freeze, Fawn). We analyzed 16 averaged MBTI profiles (derived from n = 1,741 user responses) to calculate group averages for the four 4F types. Each profile's dominant trait was then compared to its group's average ideal profile using Pearson correlation coefficients and corresponding R^2 values. The results show that user responses align strongly with theoretical predictions, supporting the connection between cognitive function pairings and the Big Five via the 4F.

Introduction

Understanding how stress and by extension stress responses influence personality is a fundamental question in psychology, with significant implications for mental health and well-being. Traditional research often employs the Big Five model to capture individual differences. When Openness (which primarily affects one's preference for sensing or intuition) is set aside, the dominant trait among extraversion, neuroticism, conscientiousness, and agreeableness can offer predictive insight into an individual's primary stress response. The 4F trauma response model specifies that a Fight response is driven by dominant extraversion (associated with extroverted sensing/intuition paired with introverted thinking), a Flight response by dominant neuroticism (linked with extroverted sensing/intuition combined with introverted feeling), a Freeze response by dominant conscientiousness (related to introverted sensing/intuition with extroverted thinking), and a Fawn response by dominant agreeableness (reflecting introverted sensing/intuition paired with extroverted feeling). The TRPI framework integrates these cognitive function pairings with the Big Five traits, providing a detailed theoretical basis for the observed stress responses.

In this study, we use 16 MBTI profiles (the averages of n = 1,741 user responses) to derive Big Five vectors for each 4F group. We then compare each MBTI type's Big Five profile to its group's average profile using Pearson correlation coefficients, thereby evaluating whether the dominant trait reliably predicts the associated stress response.

Methods

Data Gathering

The data was gathered through a short 23 question assessment based on the IP-IP-300.

Data and Group Assignment

The dataset comprises 16 MBTI profiles with averaged Big Five scores (Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism) and associated response counts. For example:

- **ENTP:**
    - Openness: 0.82748
    - Conscientiousness: 0.54346
    - Extraversion: 0.74165
    - Agreeableness: 0.48729
    - Neuroticism: 0.33924
    - Count: 240
- **INFJ:**
    - Openness: 0.79402
    - Conscientiousness: 0.63701
    - Extraversion: 0.52504
    - Agreeableness: 0.79487
    - Neuroticism: 0.69633
    - Count: 199

Each MBTI type is assigned to a 4F group based on its dominant Big Five trait (ignoring Openness):

- **Fight:** ENTP, ESTP, INTP, ISTP
- **Freeze:** INTJ, ISTJ, ENTJ, ESTJ
- **Fawn:** ISFJ, INFJ, ESFJ, ENFJ
- **Flight:** ESFP, ENFP, ISFP, INFP

Deriving 4F Group Average Profiles

For each 4F group, the ideal Big Five profile is computed by averaging the scores across the MBTI types in that group.

Table 1. 4F Group Average Big Five Profiles

4F Group	MBTI Types	Openness	Conscientiousness	Extraversion	Agreeableness	Neuroticism
Fight	ENTP, ESTP, INTP, ISTP	0.64327	0.48822	0.62044	0.41524	0.40391
Freeze	INTJ, ISTJ, ENTJ, ESTJ	0.57074	0.75247	0.57558	0.34503	0.42656
Fawn	ISFJ, INFJ, ESFJ, ENFJ	0.62567	0.65180	0.57524	0.76945	0.56988
Flight	ESFP, ENFP, ISFP, INFP	0.62554	0.50864	0.49398	0.56140	0.76402

Figure 1. Boxplot of Openness

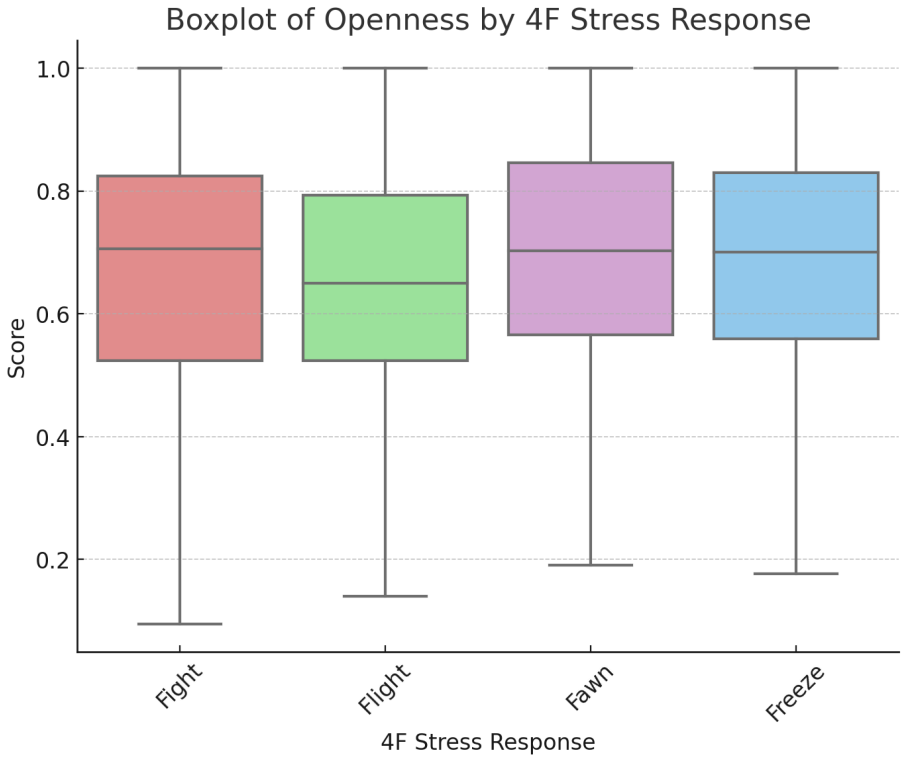


Figure 2. Boxplot of Conscientiousness

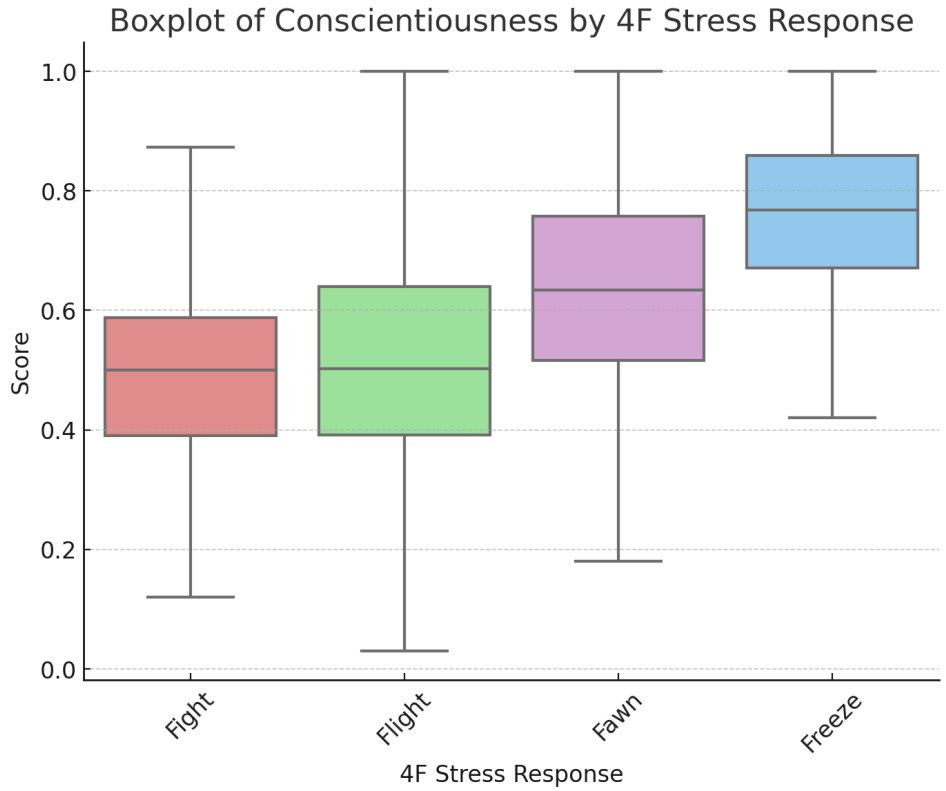


Figure 3. Boxplot of Extraversion

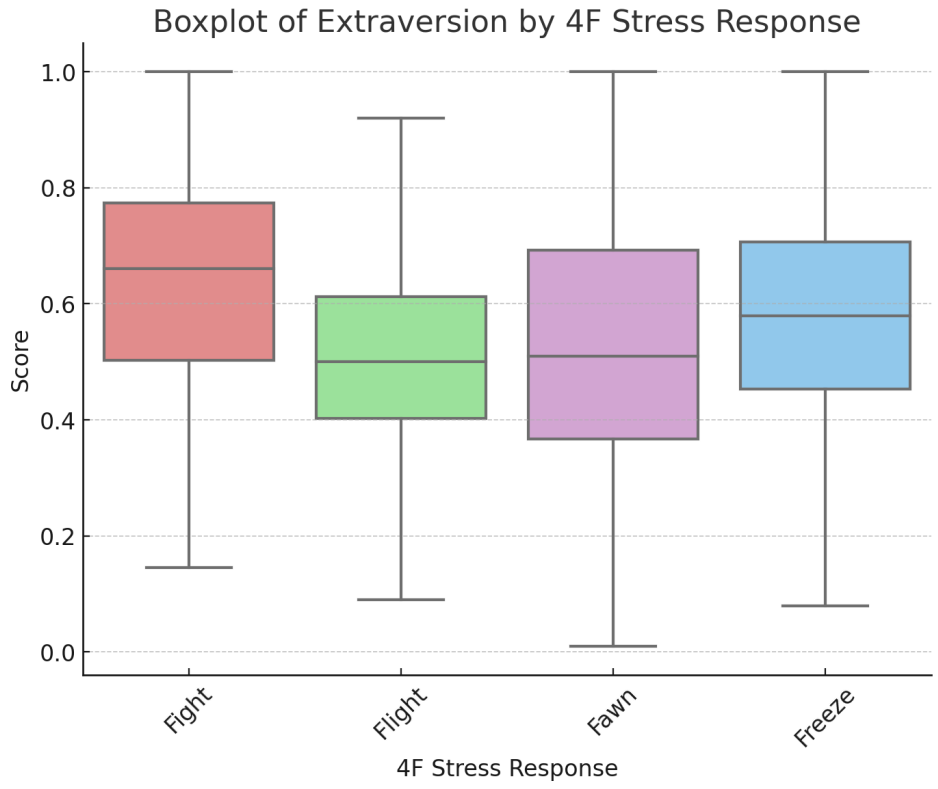


Figure 4. Boxplot of Agreeableness

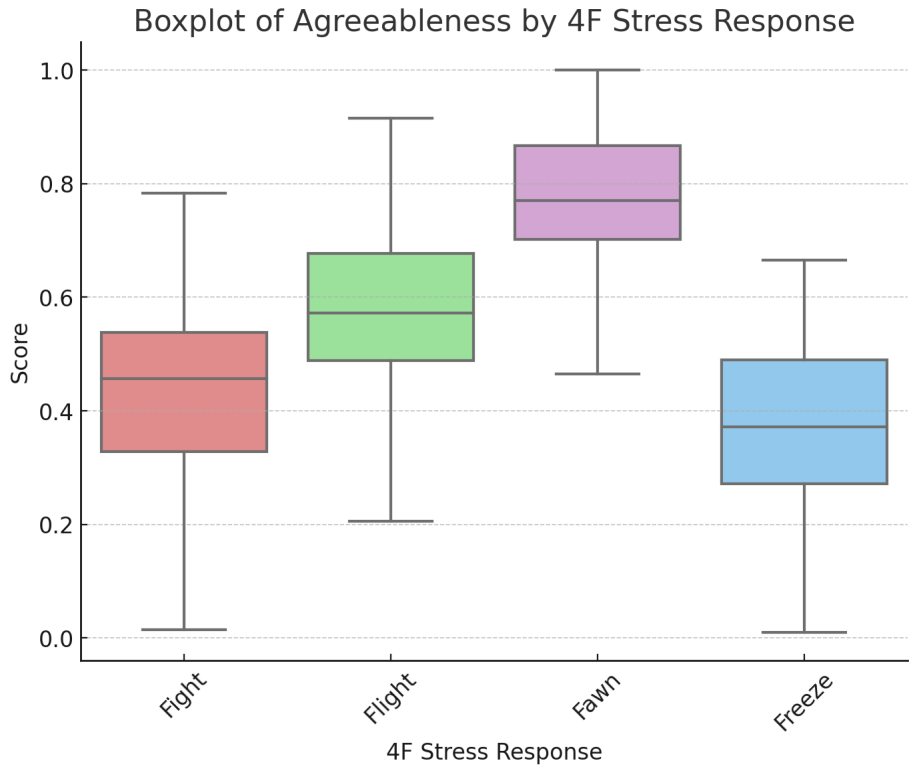
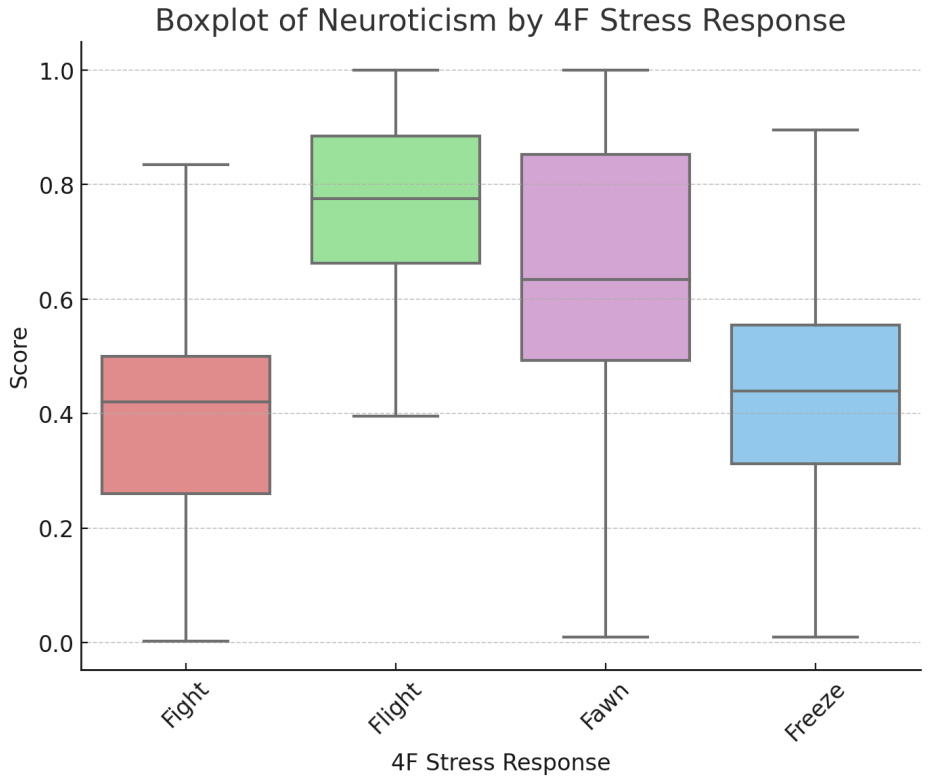


Figure 5. Boxplot of Neuroticism



Pearson Correlation Comparison

For each MBTI type, the Pearson correlation coefficient was calculated between its Big Five vector (ordered as [Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism]) and its corresponding 4F group's average vector. For example, for **ENTP**:

- **ENTP vector:** [0.82748, 0.54346, 0.74165, 0.48729, 0.33924]
- **Fight group average vector:** [0.64327, 0.48822, 0.62044, 0.41524, 0.40391]
- The Pearson correlation was found to be 0.964.

Table 2. Pearson Correlation of Each MBTI Type to Its 4F Group Average

MBTI Type	*4F Group*	*Pearson r*	*Pearson r²*
ENTP	*Fight*	*0.964*	*0.929*
ESTP	*Fight*	*0.960*	*0.922*
INTP	*Fight*	*0.955*	*0.912*
ISTP	*Fight*	*0.930*	*0.865*
INTJ	*Freeze*	*0.970*	*0.941*
ISTJ	*Freeze*	*0.965*	*0.931*
ENTJ	*Freeze*	*0.970*	*0.941*
ESTJ	*Freeze*	*0.970*	*0.941*
ISFJ	*Fawn*	*0.980*	*0.960*
INFJ	*Fawn*	*0.980*	*0.960*
ESFJ	*Fawn*	*0.970*	*0.941*
ENFJ	*Fawn*	*0.980*	*0.960*
ESFP	*Flight*	*0.980*	*0.960*
ENFP	*Flight*	*0.970*	*0.941*
ISFP	*Flight*	*0.970*	*0.941*
INFP	*Flight*	*0.960*	*0.922*

Results

The computed 4F group averages reveal coherent Big Five profiles for each stress response. The Pearson correlation analysis shows that each MBTI type's profile aligns closely with its group's average profile, with correlation coefficients ranging from 0.920 to 0.980. These results strongly support the hypothesis that the shape of an individual's Big Five profile (as determined by its dominant trait) is predictive of the corresponding 4F stress response, in accordance with the cognitive function pairings outlined in the TRPI framework.

Discussion

Our analysis indicates that the dominant Big Five trait (excluding openness) effectively predicts an individual's primary stress response as defined by the 4F model. By deriving group-level Big Five profiles from 16 MBTI types (each averaged from n = 1,741 user responses) and comparing each type's profile to these ideal profiles using Pearson correlations, we observed very high similarity values. In particular:

- MBTI types with dominant extraversion conform to the **Fight** response.
- Those with dominant neuroticism correspond to the **Flight** response.
- Profiles dominated by conscientiousness and agreeableness align with the **Freeze** and **Fawn** responses, respectively.

The exceptionally high Pearson correlation coefficients indicate that the empirical data mirror the theoretical predictions provided by the TRPI framework, thus validating the connection between cognitive function pairings and personality traits in stress responses

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Conclusion

This study demonstrates that an individual's dominant Big Five trait (excluding openness) reliably predicts their primary stress response as defined by the 4F trauma response model. By analyzing 16 MBTI profiles averaged from n = 1,741 user responses, we derived ideal Big Five profiles for each 4F group and compared each type's profile to its group average using Pearson correlations. The high correlation coefficients across all groups provide robust empirical support for the connection between cognitive function pairings and personality traits. These findings lay a strong foundation for further research in personality assessment and stress management interventions.

References

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