

Neutrosophic Temperaments and Personality Evolution: A Conceptual Framework of Evolution, Indeterminacy and Involution

Akbar Jadidi Mohammadabadi¹, Akbar Rezaei^{2,*} and Florentin Smarandache³

¹ Department of Educational Sciences, Payame Noor University, P.O.Box 19395-3697, Tehran, Iran; a.jadidi@pnu.ac.ir

² Department of Mathematics, Payame Noor University, P.O.Box 19395-4697, Tehran, Iran; rezaei@pnu.ac.ir

³ University of New Mexico, Mathematics, Physics, and Natural Science Division, 705 Gurley Ave., Gallup, NM 87301, USA. smarand@unm.edu

* Correspondence: rezaei@pnu.ac.ir; Tel.: +989131405381

Abstract:

Temperament has long been regarded as a foundational construct in personality psychology, linking biologically rooted dispositions to enduring patterns of emotion, cognition, and behavior. Despite substantial theoretical and empirical development, dominant temperament and trait models continue to rely on deterministic and stability-oriented assumptions, limiting their capacity to account for psychological ambiguity, neutrality, and context-dependent variability.

To address these conceptual limitations, the present paper proposes a Neutropsychic framework for rethinking temperament and personality evolution. Drawing on Neutropsychic logic, temperament is conceptualized as a dynamic psychological configuration composed of three coexisting components: evolutionary tendencies, indeterminate (neutral) states, and involutionary regressions. This triadic structure allows for partial and simultaneous expression of multiple temperamental tendencies without reducing personality to fixed types or linear dimensions.

By introducing psychological indeterminacy as a core theoretical construct, the model offers a formal account of ambiguous, transitional, and contradictory behavioral expressions that remain underdeveloped in classical and contemporary personality theories. The paper discusses the theoretical implications of the Neutropsychic temperament framework for personality theory, conceptual modeling, and future research, arguing that embracing indeterminacy provides a more flexible and realistic foundation for understanding personality dynamics in complex psychological environments.

Keywords: Neutropsychic psychology; Temperament theory; Personality evolution; Psychological indeterminacy; Conceptual modeling.

1. Introduction

Temperament has historically been a cornerstone of personality psychology, providing a theoretical link between biologically rooted dispositions and enduring patterns of emotion, cognition, and behavior (Allport, 1961; Rothbart & Bates, 2006). Classical typologies, originating from Hippocratic and Galenic traditions, and contemporary trait models, such as Eysenck's biologically oriented model and the Five-Factor Model, have significantly advanced our understanding of personality (Eysenck, 1991; McCrae & Costa, 2008; Kagan, 1994). However, these approaches often rest on deterministic assumptions and prioritize stability over flexibility. As a result, they struggle to account for psychological indeterminacy, ambiguous behavioral expressions, and context-dependent variability—phenomena increasingly recognized as central to human personality dynamics (Mischel & Shoda, 1995; Cervone & Pervin, 2016).

Despite decades of research, the conceptual space for understanding neutral, transitional, and contradictory psychological states remains underdeveloped. Most temperament and trait theories implicitly assume that individuals belong to well-defined types or continuous dimensions, leaving little room for the coexistence of multiple temperamental tendencies and their dynamic interplay across situations and developmental stages (Strelau, 2008). Classical temperament models categorize individuals into dominant types, while dimensional models, though empirically robust, emphasize consistency and stability at the expense of ambiguity and fluctuation (McCrae & Costa, 2008; Eysenck, 1991). Consequently, these frameworks provide limited explanatory power for transitional states, psychological neutrality, and regressive behaviors, which are frequently observed in complex social and developmental contexts.

To address these conceptual limitations, the present paper proposes a Neutropsychic framework for temperament and personality evolution, conceptualizing temperament as a dynamic psychological system composed of three interrelated components—evolutionary tendencies, indeterminate states, and involutionary regressions. By integrating psychological indeterminacy as a core theoretical construct, this framework allows individuals to partially and simultaneously belong to multiple temperamental states with varying degrees. Unlike classical and trait-based models, this approach emphasizes dynamic coexistence, context sensitivity, and non-linear personality evolution, offering a more flexible and realistic conceptual foundation (Smarandache, 1998, 2015, 2016).

This conceptual framework provides a platform for advancing theoretical understanding, informing empirical research, and fostering interdisciplinary dialogue at the intersection of psychology, philosophy, and formal modeling. By explicitly incorporating indeterminacy, the Neutropsychic temperament model addresses a longstanding gap in personality theory, paving the way for future operationalization, measurement, and empirical validation in developmental, clinical, and organizational settings (Salama & Florentin Smarandache, 2015).

1.1. Classical Temperament Theories

The earliest systematic accounts of temperament originated in ancient medical philosophy, where personality differences were attributed to the balance of bodily humors. The four classical temperaments—sanguine, choleric, melancholic, and phlegmatic—provided an enduring typology that shaped later psychological thinking (Kagan, 1994). While intuitively appealing, these models lacked empirical grounding and failed to account for intra-individual variability and contextual influences.

Subsequent psychological theories retained the notion of biologically rooted dispositions but shifted toward more systematic frameworks. Pavlov's typology of nervous system properties and later constitutional theories emphasized physiological correlates of temperament (Strelau, 2008). Nonetheless, these approaches continued to conceptualize temperament as relatively fixed and unidimensional.

1.2. Trait-Based and Dimensional Approaches

Trait theories marked a significant advancement by conceptualizing temperament and personality as continuous dimensions rather than discrete types. Eysenck's model emphasized biologically based dimensions such as extraversion and neuroticism (Eysenck, 1991), while the Five-Factor Model offered a comprehensive taxonomy of personality traits with strong cross-cultural support (McCrae & Costa, 2008). Despite their empirical robustness, these models prioritize consistency and predictive stability, often underrepresenting ambiguity, neutrality, and situational variability.

Critics have noted that trait-based models struggle to explain contradictory behaviors and transitional psychological states, particularly in complex social environments (Cervone & Pervin, 2016). As a result, researchers have increasingly emphasized dynamic and interactionist perspectives.

1.3. Dynamic and Contextual Perspectives

Interactionist and social-cognitive models conceptualize personality as a dynamic system shaped by interactions between internal dispositions and situational contexts (Mischel & Shoda, 1995). These approaches acknowledge variability and conditional patterns of behavior but often rely on descriptive rather than formalized representations of indeterminacy. Psychological neutrality, ambivalence, and partial trait expression remain theoretically underdeveloped (Smarandache, 2018).

1.4. Neutropsychic Psychology and Conceptual Gaps

Neutropsychic psychology introduces a formal mechanism for modeling indeterminacy as an essential component of psychological systems. Prior studies have applied Neutropsychic concepts to personality structure, refined memory systems, and trait-anti-trait relationships, demonstrating the capacity of this framework to capture psychological complexity (Smarandache, 2013, Jadidi Mohammadabadi, Ahmadi Deh Ghotbaddini, 2023). However, the application of Neutropsychic principles to temperament theory remains limited, creating a clear conceptual gap addressed by the present study.

2. Theoretical Foundations

2.1. Temperament as a Dynamic Psychological System

Contemporary psychological evidence suggests that temperament, while biologically influenced, exhibits flexibility across developmental stages and situational contexts (Rothbart & Bates, 2006). This perspective challenges static models and supports the conceptualization of temperament as an open system capable of adaptation and transformation.

2.2. Neutropsychic Logic as a Modeling Framework

Neutropsychic logic extends classical and fuzzy logic by introducing indeterminacy as an independent dimension (Smarandache, 1998). In psychological modeling, this allows for the representation of states that are partially expressed, ambiguous, or transitional. Rather than forcing psychological phenomena into binary or linear structures, neutrosophy accommodates complexity and contradiction.

2.3. Neutropsychic Temperaments: Evolution, Indeterminacy, and Involution

In the proposed framework, temperament is conceptualized as a triadic structure consisting of:

- Evolution, reflecting adaptive development and constructive expression of temperamental tendencies;
- Indeterminacy, representing neutral, ambiguous, or transitional states resistant to clear classification;
- Involution, indicating regression, inhibition, or maladaptive expression.

These components coexist dynamically within individuals and vary across time and context. By integrating these dimensions, the Neutropsychic temperament model transcends rigid typologies and provides a comprehensive conceptual foundation for understanding personality evolution.

3. Neutropsychic Temperament Model

3.1. Conceptualizing Temperament within a Neutropsychic Framework

In traditional temperament theories, individuals are typically classified into discrete types or positioned along linear dimensions, implicitly assuming determinacy and structural stability. However, empirical evidence and theoretical developments increasingly indicate that temperamental expressions are context-dependent, fluctuating, and sometimes contradictory (Mischel & Shoda, 1995; Cervone & Pervin, 2016). These characteristics necessitate a modeling framework capable of accommodating partial membership, psychological neutrality, and dynamic change.

The Neutropsychic framework provides such a structure by extending beyond binary and fuzzy representations to explicitly incorporate indeterminacy as a fundamental component (Smarandache, 1998). When applied to temperament, neutrosophy allows temperamental tendencies to be expressed

simultaneously in degrees of affirmation, negation, and neutrality. Consequently, temperament is reconceptualized not as a fixed disposition but as a dynamic psychological configuration evolving over time and situations.

Within this framework, each individual's temperament is represented as a Neutropsychic entity characterized by three coexisting components: evolution, indeterminacy and involution.

3.2. Core Components of the Neutropsychic Temperament Model

3.2.1. Evolutionary Component

The evolutionary component of temperament refers to adaptive growth, constructive expression, and positive developmental trajectories of temperamental tendencies. This dimension captures the extent to which an individual's temperament facilitates psychological resilience, effective emotional regulation, and adaptive behavioral responses. Evolution is not assumed to be linear or permanent; rather, it represents a degree of constructive functioning at a given time and context.

From a Neutropsychic perspective, evolutionary tendencies coexist with other components and may vary in intensity depending on situational demands and internal psychological states (Rothbart & Bates, 2006).

3.2.2. Indeterminacy Component

The indeterminacy component constitutes the conceptual core of the Neutropsychic temperament model. It represents neutral, ambiguous, or transitional temperamental states that cannot be clearly classified as adaptive or maladaptive. Psychological phenomena such as emotional ambivalence, hesitation, neutrality, and partial engagement are examples of indeterminate temperamental expressions.

Classical and trait-based models often overlook or marginalize these states due to their reliance on categorical or linear dimensions. Neutropsychic psychology, by contrast, treats indeterminacy as an independent and essential dimension of temperament (Smarandache, 2016). This allows for a more realistic representation of psychological functioning, particularly in complex or uncertain environments.

3.2.3. Involutionary Component

The involutionary component reflects regressive, inhibited, or maladaptive expressions of temperament. This dimension includes tendencies toward withdrawal, emotional dysregulation, rigidity, or ineffective coping. Importantly, involution is not interpreted as a permanent trait but as a context-sensitive degree that may fluctuate over time.

In the Neutropsychic model, involutory tendencies do not negate evolutionary tendencies; instead, both may coexist within the same individual at varying degrees. This coexistence reflects the complex and sometimes contradictory nature of human temperament.

3.3. Formal Neutropsychic Representation of Temperament

Formally, an individual's temperament T can be represented as a Neutropsychic triplet:

$$T = (E, I, V)$$

where:

- E denotes the degree of evolution,
- I denotes the degree of indeterminacy,
- V denotes the degree of involution,

with each component taking values in the interval $[0, 1]$, without the constraint that their sum equals 1. This lack of normalization reflects the openness and non-reductive nature of psychological systems (Smarandache, 1998).

This representation allows individuals to simultaneously exhibit high levels of evolution and involution, moderated by varying degrees of indeterminacy, thereby modeling psychological ambivalence and contextual variability more accurately than traditional approaches.

3.4. Conceptual Diagram of Neutropsychic Temperaments

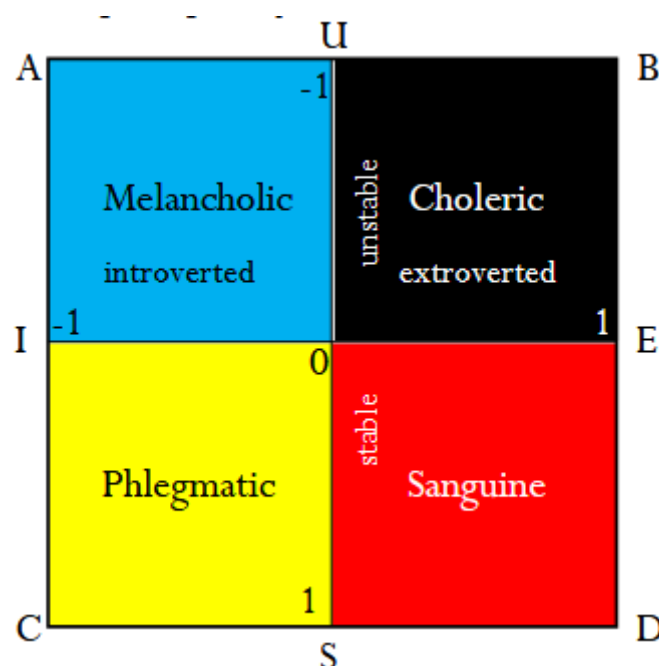


Figure 1. Conceptual Diagram of Neutropsychic Temperaments (Smarandache, 2018).

This is a 2×2 square. “O” is the origin (and center of the square)

The Neutropsychic temperament diagram is represented as a triangular or three-axis conceptual space, where each vertex corresponds to one of the three core components:

- Evolution (E)
- Indeterminacy (I)
- Involution (V)

Each individual's temperament is represented as a point or region within this space, indicating their relative degrees of evolution, indeterminacy, and involution at a given time or context. Unlike classical temperament diagrams, this model allows for:

1. Partial and simultaneous membership in multiple temperamental states;
2. Dynamic movement within the diagram over time;
3. Representation of neutral or ambiguous psychological states.

This diagrammatic representation visually captures the dynamic and non-deterministic nature of temperament, emphasizing that personality evolution is not a unidirectional process but a fluid interplay among development, neutrality, and regression.

3.5. Advantages of the Neutropsychic Temperament Model

The proposed model offers several conceptual advantages over traditional temperament frameworks:

1. Integration of Indeterminacy: It formally incorporates psychological neutrality and ambiguity as core theoretical elements.
2. Dynamic Representation: It models temperament as an evolving system rather than a static structure.
3. Context Sensitivity: It accommodates situational variability and contradictory behavioral tendencies.
4. Theoretical Flexibility: It is compatible with classical, trait-based, and dynamic personality theories while extending their explanatory scope.

By framing temperament within a Neutropsychic structure, the model provides a comprehensive and realistic conceptual foundation for understanding personality evolution in complex psychological environments (Jadidi Mohammadabadi, 2025).

4. Main Results

4.1. Comparison with Classical Temperament Theories

Classical temperament theories, rooted in Hippocratic and Galenic traditions, conceptualize temperament as a stable and qualitatively distinct configuration of behavioral and emotional tendencies. While these models offer intuitive classifications, they rely heavily on rigid typologies that inadequately represent intra-individual variability and contextual influence (Kagan, 1994; Strelau, 2008). Individuals are typically assigned to a dominant temperament type, implicitly assuming consistency across situations and developmental stages.

In contrast, the Neutropsychic temperament model fundamentally departs from categorical determinism by allowing simultaneous and partial membership in multiple temperamental states. Rather than assigning individuals to fixed types such as sanguine or melancholic, the Neutropsychic framework represents temperament as a dynamic configuration of evolutionary, indeterminate, and involutionary tendencies. This approach captures the empirical reality that individuals may display adaptive, neutral, and regressive behaviors concurrently or alternately depending on situational demands.

Furthermore, classical temperament models lack a formal mechanism for representing psychological neutrality or transitional states. Neutropsychic indeterminacy explicitly addresses this limitation by introducing a conceptual space for ambiguous, undecided, or emotionally neutral states. As a result, the Neutropsychic model provides a more comprehensive and flexible interpretation of temperament dynamics, extending the explanatory scope of classical theories without negating their historical significance.

4.2. Comparison with the Five-Factor Model (Big Five)

The Five-Factor Model (FFM) represents one of the most empirically supported frameworks in personality psychology, offering a dimensional structure that captures broad patterns of personality traits across cultures (McCrae & Costa, 2008). By conceptualizing personality traits along continuous dimensions—extraversion, agreeableness, conscientiousness, neuroticism, and openness—the FFM improves upon categorical models by allowing graded individual differences.

Despite its strengths, the Big Five model remains constrained by its linear dimensionality and deterministic assumptions. Trait scores typically reflect averaged behavioral tendencies, which may obscure situational variability, internal conflict, and psychological ambivalence. For instance, an individual may score moderately on extraversion while exhibiting highly context-dependent fluctuations between social engagement and withdrawal—patterns that are not readily captured by static trait scores (Cervone & Pervin, 2016).

The Neutropsychic temperament model complements the FFM by introducing an additional conceptual layer that accounts for indeterminacy. Within the Neutropsychic framework, trait expressions are not limited to degrees of presence or absence but may also occupy neutral or ambiguous states. This enables a more nuanced interpretation of personality functioning, particularly in contexts characterized by uncertainty or conflicting demands.

Moreover, while the Big Five primarily focuses on trait structure, the Neutropsychic model emphasizes process and change, explicitly modeling evolution and involution alongside indeterminacy. This dynamic orientation aligns with contemporary views of personality as an adaptive system rather than a static trait configuration.

4.3. Theoretical Contributions of the Neutropsychic Temperament Model

The Neutropsychic temperament model makes several important theoretical contributions to personality psychology. First, it provides a formal conceptualization of psychological indeterminacy, addressing a longstanding gap in temperament and trait theories. Second, it integrates stability and variability within a single framework, allowing temperament to be understood as both biologically grounded and contextually modulated.

Third, the model bridges classical typological approaches and modern dimensional frameworks by offering a flexible structure that accommodates both qualitative and quantitative interpretations. This integrative capacity enhances theoretical coherence and opens new avenues for interdisciplinary research, particularly at the intersection of psychology, philosophy, and mathematical modeling.

4.4. Implications for Conceptual and Empirical Research

From a research perspective, the Neutropsychic temperament model encourages a shift from static classification toward dynamic assessment. Future empirical studies may operationalize the components of evolution, indeterminacy, and involution using longitudinal designs or situational sampling methods. Such approaches could provide deeper insight into how temperament fluctuates across contexts and developmental stages.

Additionally, the model offers a conceptual foundation for refining psychological assessment tools. By incorporating Neutropsychic dimensions, existing temperament and personality measures may be extended to capture neutral and transitional states that are currently underrepresented in standard instruments.

4.5. Limitations and Future Directions

As a conceptual model, the Neutropsychic temperament framework requires empirical validation. Operational definitions of evolution, indeterminacy, and involution must be developed and tested across diverse populations. Furthermore, while the model offers theoretical flexibility, its practical application depends on the development of reliable measurement strategies.

Despite these limitations, the model provides a robust conceptual foundation for advancing temperament theory and invites further interdisciplinary collaboration.

5. Implications for Personality Psychology and Assessment

5.1. Implications for Personality Theory

The Neutropsychic temperament model has important implications for contemporary personality theory by challenging deterministic and static assumptions that dominate classical and trait-based frameworks. Traditional models tend to conceptualize temperament as a stable configuration of traits or types, implicitly minimizing the role of uncertainty and psychological neutrality. By contrast, the Neutropsychic framework reconceptualizes temperament as an open, dynamic system in which evolutionary, indeterminate, and involutory tendencies coexist and interact.

This theoretical shift aligns with emerging perspectives that emphasize personality as a complex adaptive system rather than a fixed structure (Cervone & Pervin, 2016). By formally integrating indeterminacy into temperament theory, the Neutropsychic model provides a conceptual mechanism for explaining psychological phenomena such as ambivalence, hesitation, and context-sensitive behavior that are insufficiently addressed in existing theories. As a result, personality psychology can move beyond linear trait descriptions toward more comprehensive models of human behavior.

5.2. Implications for Psychological Assessment

One of the most significant contributions of the Neutropsychic temperament model lies in its implications for psychological assessment. Standard temperament and personality instruments are typically designed to measure stable traits along predefined dimensions, often forcing respondents to choose between polarized alternatives. Such approaches may fail to capture neutral or ambiguous psychological states, leading to oversimplified interpretations of individual differences (McCrae & Costa, 2008).

The Neutropsychic framework suggests the development of multi-dimensional assessment tools capable of measuring degrees of evolution, indeterminacy, and involution simultaneously. Rather than assigning individuals to fixed categories or relying solely on averaged trait scores, assessment instruments informed by Neutropsychic principles could represent temperament profiles as dynamic configurations that vary across contexts and time.

Furthermore, Neutropsychic assessment models may enhance the interpretive validity of psychological measurements by explicitly acknowledging uncertainty. This is particularly relevant in clinical, educational, and organizational settings, where individuals often exhibit fluctuating or contradictory behavioral patterns (Jadidi Mohammadabadi et al, 2019, Jadidi Mohammadabadi, Ahmadi Deh Ghotbaddini, 2023).

5.3. Implications for Developmental and Clinical Psychology

From a developmental perspective, the Neutropsychic temperament model offers a flexible framework for understanding personality change across the lifespan. Developmental transitions are frequently characterized by periods of instability, exploration, and psychological neutrality. By incorporating indeterminacy as a core component, the model provides a theoretical basis for understanding these transitional phases without pathologizing them (Rothbart & Bates, 2006).

In clinical psychology, the model has implications for conceptualizing maladaptive behavior and psychological distress. Involutionary tendencies may reflect temporary regressions rather than fixed dysfunctions, while indeterminate states may signal adaptive pauses or psychological reorganization. This perspective encourages a more nuanced understanding of psychological functioning and may inform intervention strategies that focus on facilitating evolutionary change rather than eliminating variability.

5.4. Implications for Research Methodology

The Neutropsychic temperament framework also invites methodological innovation in personality research. Longitudinal and experience-sampling designs are particularly well suited to capturing the dynamic interplay of evolution, indeterminacy, and involution. By moving beyond cross-sectional trait assessments, researchers can explore how temperament configurations shift in response to situational demands and developmental processes (Mischel & Shoda, 1995).

Moreover, Neutropsychic modeling encourages the use of mixed-method approaches that combine quantitative measurement with qualitative insights. Such integration may provide a richer understanding of temperament dynamics and support the empirical validation of conceptual models.

5.5. Interdisciplinary Implications

Finally, the Neutropsychic temperament model has interdisciplinary implications extending beyond psychology. Its conceptual foundations intersect with philosophy of mind, systems theory, and computational modeling. By offering a formal structure for representing indeterminacy, the model facilitates dialogue between psychological theory and mathematical approaches to uncertainty, potentially enriching both domains.

6. Conclusion and Future Research

The present study proposed a conceptual Neutropsychic model of temperaments grounded in the triadic structure of evolution, indeterminacy and involution, aiming to address fundamental limitations of classical and contemporary temperament theories. Traditional models, whether typological or trait-based, often rely on deterministic assumptions that inadequately capture psychological ambiguity, contextual variability, and contradictory behavioral expressions. By contrast, the Neutropsychic framework explicitly incorporates indeterminacy as a core theoretical component, offering a more comprehensive and realistic representation of temperament dynamics.

By conceptualizing temperament as a dynamic and open psychological system, the proposed model extends existing theories without dismissing their contributions. It provides a formal structure capable of integrating stability and change, adaptive growth and regression, and clarity and ambiguity within a single conceptual framework. The inclusion of indeterminacy allows for the systematic representation of neutral and transitional psychological states, which are frequently observed yet theoretically underrepresented in personality psychology.

From a theoretical standpoint, the Neutropsychic temperament model contributes to the ongoing shift toward dynamic and process-oriented perspectives in personality research. It bridges classical temperament typologies and modern dimensional models by introducing a flexible structure that accommodates both qualitative and quantitative interpretations. This integrative capacity enhances the explanatory power of temperament theory and supports interdisciplinary dialogue between psychology, philosophy, and formal systems theory.

Despite its conceptual strengths, the present model remains theoretical and calls for empirical validation. Future research should focus on the operationalization of evolution, indeterminacy, and involution through psychometrically sound instruments. Longitudinal and experience-sampling methodologies may be particularly effective in capturing the dynamic fluctuations of Neutropsychic temperament components across time and contexts. Additionally, cross-cultural studies could examine the universality and cultural sensitivity of the proposed framework.

Further research may also explore the application of Neutropsychic temperaments in clinical, educational, and organizational settings. Investigating how indeterminacy functions in developmental transitions, psychological resilience, and adaptive decision-making may yield valuable insights into personality functioning. Moreover, integrating computational and mathematical modeling techniques with Neutropsychic psychology could facilitate the development of predictive and simulation-based approaches to temperament research.

In conclusion, the Neutropsychic temperament model provides a robust conceptual foundation for advancing the study of personality evolution in complex psychological environments. By embracing uncertainty and neutrality as integral aspects of human temperament, this framework opens new avenues for theoretical refinement and empirical exploration in personality psychology.

Funding: This study did not receive any financial support.

Conflicts of Interest: The authors of this article declare that there was no conflict of interest in this article.

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Received: Jan 27, 2026. Accepted: July 2, 2026