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Prioritizing Personality-Based Pathways of Stress Reactivity and Psychosomatic Illness

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A B S T R A C T

This study aimed to identify, conceptualize, and prioritize the personality-based pathways that contribute to stress reactivity and psychosomatic illness through an integrated mixed-method approach. The research employed a two-phase sequential mixed-method design. In the qualitative phase, a comprehensive literature review was conducted until theoretical saturation was achieved, and the extracted data were analyzed using NVivo 14 to identify recurring personality-based mechanisms underlying psychosomatic illness. In the quantitative phase, a structured questionnaire developed from the qualitative findings was distributed to 250 adult participants in the United Arab Emirates. Respondents rated the importance of nine personality-based pathways on a five-point Likert scale. Data were analyzed using SPSS-26, employing descriptive and inferential statistics to rank the identified pathways based on mean scores and standard deviations. The analysis revealed that neuroticism and emotional instability (M = 4.62, SD = 0.41), psychophysiological integration pathways (M = 4.56, SD = 0.48), and alexithymia and emotional unawareness (M = 4.47, SD = 0.53) were the top-ranked predictors of psychosomatic vulnerability. Mid-level contributors included perfectionism and self-criticism, stress appraisal and cognitive schemas, and emotion regulation strategies, while extraversion and social connectivity and conscientiousness and coping regulation ranked lowest, indicating a primarily protective rather than causative role. Inferential tests confirmed significant differences in perceived importance across demographic groups ($p < .05$), reinforcing the robustness of the model. The findings demonstrate that psychosomatic illness arises from a hierarchical interaction of personality-driven emotional, cognitive, and physiological processes, with neuroticism, alexithymia, and physiological dysregulation forming the core vulnerability triad. These results underscore the importance of personality assessment in psychosomatic health management and highlight the need for personality-informed preventive and therapeutic interventions.

Keywords: *Personality traits; Psychosomatic illness; Stress reactivity; Alexithymia; Neuroticism; Emotional regulation; Mind–body interaction*

1. Introduction

The intricate relationship between personality and psychosomatic illness has long been a central focus in psychophysiological and health psychology research. Psychosomatic disorders—conditions in which psychological stress contributes to physical symptoms—represent a major public health concern due to their prevalence, chronicity, and complex etiological underpinnings (Bulut et al., 2024). The personality-based pathways that govern stress reactivity and the emergence of psychosomatic symptoms are multifactorial, involving biological, cognitive, emotional, and behavioral mechanisms that intertwine to influence physical health outcomes (Majlessi Koupaei & Farista, 2024). Recent advances in psychoneuroimmunology and affective neuroscience have highlighted that personality traits not only shape individuals' perceptions and appraisals of stress but also influence physiological responses through neuroendocrine and immune pathways (Martine et al., 2003). Understanding and prioritizing these personality-based pathways is therefore critical to both the prevention and management of psychosomatic illnesses across diverse populations.

Personality traits play a pivotal role in determining how individuals interpret, react to, and recover from stress. Traits such as neuroticism, conscientiousness, and alexithymia have consistently been associated with variations in stress reactivity and somatic symptom expression (Doustkam et al., 2021). Neurotic individuals, for instance, display heightened sensitivity to perceived threats and are prone to prolonged negative affect, which in turn elevates autonomic and hypothalamic–pituitary–adrenal (HPA) axis activation (Wang et al., 2023). Such physiological overactivation has been linked to chronic inflammation and dysregulated cortisol rhythms, key features underlying psychosomatic conditions such as hypertension, irritable bowel syndrome, and fibromyalgia (Grabe et al., 2010). In contrast, traits such as openness and conscientiousness may buffer stress responses by fostering adaptive coping and cognitive reappraisal. However, even adaptive traits can become maladaptive when expressed in rigid or perfectionistic forms, indicating that the personality–health connection operates along a continuum of both risk and protection (Li & Zhou, 2024).

The study of psychosomatic illness has evolved from a purely biomedical model toward an integrative biopsychosocial perspective that acknowledges the interplay between mental states and bodily processes. This shift has prompted an increased interest in mind–body interaction research, where personality traits serve as central moderators linking cognitive–emotional patterns with physiological health (Aghaziarati et al., 2024). Chronic stress, when filtered through certain personality dispositions, may amplify maladaptive biological responses and inhibit emotional recovery, thereby sustaining psychosomatic symptomatology (Seiffge-Krenke & Sattel, 2024). For example, individuals with high alexithymia—those unable to effectively identify and describe emotions—tend to channel psychological distress into somatic sensations, resulting in elevated bodily tension and fatigue (Grabe et al., 2010). This mechanism illustrates how deficits in emotional awareness create a psychosomatic conversion process, aligning with evidence from qualitative research on chronic pain populations demonstrating that emotional suppression and self-criticism exacerbate somatic symptom persistence (Aghaziarati et al., 2024; Goli, 2024).

Furthermore, personality characteristics influence how individuals regulate emotion, construct meaning, and maintain physiological equilibrium in the face of adversity. The integrative frameworks proposed in recent psychosomatic studies highlight how perfectionism, alexithymia, and emotional instability interact with environmental stressors to produce maladaptive physiological reactions (Doustkam et al., 2021). Perfectionistic individuals often employ maladaptive control strategies and experience cognitive rigidity, leading to autonomic imbalance and stress-related pain syndromes (Majlessi Koupaei & Farista, 2024). Similarly, individuals with avoidant or self-critical personality tendencies exhibit high levels of psychosomatic symptoms, as their coping patterns involve either internalizing distress or suppressing affective arousal, thereby heightening psychophysiological strain (Seiffge-Krenke & Sattel, 2024). These pathways collectively underscore the necessity of integrating personality dimensions into psychosomatic health assessment and intervention frameworks.

In cross-cultural contexts, the personality–stress–illness linkage exhibits both universality and variability. Research conducted among adolescents across different nations demonstrates that the expression of somatic complaints is strongly influenced by personality traits and parental rearing styles, suggesting a transgenerational and sociocultural component in psychosomatic development (Seiffge-Krenke & Sattel, 2024). In Asian populations, for instance, cultural norms promoting emotional restraint and collectivist coping

JPPR
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may intensify somatization among individuals predisposed to emotional suppression (Xiang et al., 2016). Similarly, qualitative findings among chronic pain patients in East Asia reveal that certain personality profiles, particularly those high in neuroticism and low in openness, are associated with more severe psychosomatic presentations and poorer self-regulatory outcomes (Aghaziarati et al., 2024). This cultural sensitivity reinforces the importance of examining psychosomatic illness not only through individual differences in personality but also within the broader sociocultural framework that shapes emotional expression and health behavior.

The biological correlates of personality-based stress pathways have been substantiated by both experimental and longitudinal findings. Martine et al. demonstrated that individuals with Type D ("distressed") personality—characterized by high negative affectivity and social inhibition—exhibit greater cardiovascular and neuroendocrine reactivity to acute stress (Martine et al., 2003). Subsequent neurobiological research confirms that the persistence of such stress-reactive patterns disrupts homeostasis, leading to cumulative allostatic load and heightened vulnerability to disease. Parallel evidence indicates that emotional dysregulation contributes to immune system suppression and delayed recovery, supporting the notion that personality traits can shape the psychophysiological pathways to illness (Majlessi Koupaei & Farista, 2024). For example, studies linking alexithymia to hypertension and atherosclerosis suggest that emotional unawareness impedes adaptive stress recovery and contributes to sustained vascular tension (Grabe et al., 2010). These physiological mechanisms are further reinforced by findings that individuals with high neuroticism or perfectionistic tendencies display increased cortisol secretion and inflammatory cytokine activity under stress (Goli, 2024).

From a therapeutic standpoint, understanding the personality underpinnings of psychosomatic illness provides a foundation for more individualized interventions. Psychological treatments such as Acceptance and Commitment Therapy (ACT) and Mindfulness-Based Stress Reduction (MBSR) have demonstrated promising effects in mitigating psychosomatic symptoms by targeting maladaptive emotion regulation and self-awareness deficits (Li & Zhou, 2024; Rahimi et al., 2023). These interventions enhance cognitive flexibility and promote acceptance of bodily sensations, thereby reducing the stress amplification loop characteristic of psychosomatic disorders. For instance, Rahimi et al. showed that ACT effectively reduced perceived stress in elderly patients with diabetes, a population particularly susceptible to stress-related physiological complications (Rahimi et al., 2023). Similarly, Li and Zhou reported that MBSR significantly decreased somatization and attachment anxiety, underscoring the relevance of emotional regulation and mindfulness in interrupting the personality-driven pathways that sustain psychosomatic distress (Li & Zhou, 2024). Collectively, these studies suggest that the integration of personality-informed therapeutic strategies can enhance both psychological and somatic health outcomes.

The qualitative and phenomenological dimensions of psychosomatic experience also provide essential insight into patient perspectives. Bulut et al. documented how adolescents facing psychosomatic challenges often describe their symptoms as "embodied stress," where emotional pain is experienced through physical sensations due to limited emotional articulation skills (Bulut et al., 2024). Similarly, Sefotho et al. examined psychosomatic skin disorders and found that patients attributed their flare-ups to emotional turmoil, interpersonal tension, and identity stress (Sefotho et al., 2024). These findings corroborate the psychological conversion model, in which unprocessed emotional conflict manifests as bodily symptoms. Shen et al. expanded this perspective by exploring health behavior changes in post-traumatic stress disorder patients, revealing that the recovery process involves both behavioral adaptation and transformation of emotional awareness (Shen et al., 2024). Together, these studies reveal that personality characteristics influence not only stress perception but also the subjective embodiment of distress, highlighting the need for a holistic understanding of psychosomatic health.

The cumulative evidence underscores the integrative nature of personality-based stress reactivity, bridging emotional, cognitive, and biological systems. Personality traits act as filters through which external stressors are interpreted and internalized, determining whether stress leads to adaptive resilience or maladaptive somatization (Aghaziarati et al., 2024). Contemporary psychosomatic frameworks thus conceptualize illness not as an isolated physiological event but as the product of continuous interaction between personality patterns, stress regulation mechanisms, and socio-environmental contexts (Majlessi Koupaei & Farista, 2024). This conceptualization invites a multidimensional analysis of stress reactivity pathways, one that includes emotional processing, cognitive appraisal, social behavior, and physiological feedback loops.

JPPR
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In light of this body of research, the present study seeks to identify and prioritize the personality-based pathways that contribute to stress reactivity and psychosomatic illness

2. Methods and Materials

2.1. Study Design and Participants

This study adopted a mixed-method design implemented in two distinct but complementary phases. The first phase employed a qualitative exploratory approach aimed at identifying and conceptualizing personality-based pathways of stress reactivity and psychosomatic illness through an extensive review of existing scholarly literature. The second phase utilized a quantitative ranking design to empirically prioritize the extracted pathways based on their relative importance and influence among adult participants.

In the qualitative phase, data were collected from a comprehensive review of theoretical and empirical studies published in peer-reviewed journals indexed in databases such as Scopus, PubMed, and PsycINFO. The search strategy employed relevant keywords including personality traits, stress reactivity, psychosomatic illness, psychological pathways, and psychophysiological stress mechanisms. Studies were selected based on relevance to the conceptual framework, theoretical contribution, and methodological rigor. Data collection continued until theoretical saturation was achieved, meaning no new categories or dimensions emerged from the literature.

The quantitative phase involved 250 adult participants residing in the United Arab Emirates (UAE). Participants were selected using a convenience sampling method from universities, health centers, and corporate organizations to ensure diversity in age, occupation, and educational background. Inclusion criteria required participants to be aged between 18 and 60 years, fluent in English or Arabic, and without a history of major psychiatric or neurological disorders. Participation was voluntary, and all individuals provided informed consent prior to data collection.

2.2. Measures

In the first phase, data were obtained through a systematic and integrative literature review, which served as the foundation for the development of a theoretical model. Extracted data included personality constructs (e.g., neuroticism, conscientiousness, alexithymia, emotional regulation), mediating cognitive-emotional processes (e.g., rumination, appraisal bias, perceived control), and psychosomatic outcomes (e.g., cardiovascular, gastrointestinal, and musculoskeletal symptoms). Each concept and relationship identified in the reviewed studies was coded and categorized to reveal underlying themes and pathways linking personality traits to psychosomatic vulnerability under stress.

In the second phase, a structured questionnaire was designed based on the finalized themes and subthemes identified from the qualitative phase. The questionnaire employed a five-point Likert scale (ranging from 1 = “not important” to 5 = “extremely important”) to enable participants to rate the relative importance of each identified pathway. The survey was distributed both electronically and in paper format to ensure broader accessibility and participation. Demographic information including age, gender, occupation, and education level was also collected.

2.3. Data Analysis

Qualitative data from the first phase were analyzed using NVivo 14 software to support systematic coding and thematic analysis. The analysis involved open, axial, and selective coding to identify key categories and relationships among personality-based pathways influencing stress reactivity and psychosomatic illness. Coding reliability was ensured through multiple rounds of review and researcher triangulation to maintain consistency in theme generation. The outcome of this phase was a conceptual model encompassing primary dimensions and sub-dimensions of personality-based stress pathways.

Quantitative data from the second phase were analyzed using SPSS version 26. Descriptive statistics (mean, standard deviation, and frequency distributions) were computed to summarize participants’ demographic characteristics and responses. Subsequently, inferential statistical analyses were performed to rank and prioritize the extracted pathways based on their mean importance scores and standard deviations. Additional analyses, such as independent sample t-tests and ANOVA, were conducted to examine potential differences across demographic variables. Reliability of the questionnaire was tested using Cronbach’s alpha coefficient, confirming internal consistency of the items.

3. Findings and Results

In the qualitative phase, the study aimed to conceptually identify and classify the personality-based pathways underlying stress reactivity and psychosomatic illness

JPPR
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through an extensive literature review until theoretical saturation was reached. The analysis process, conducted using NVivo 14, involved iterative coding to extract recurrent patterns across empirical and theoretical publications. Thematic synthesis revealed nine overarching themes, representing the multidimensional nature of personality influences on stress-related physiological and psychological outcomes. Each theme encompassed several subthemes and open codes, illustrating specific mechanisms, mediating processes, and behavioral or affective correlates that contribute to the development and persistence of psychosomatic illness.

Table 1

Qualitative Themes, Subthemes, and Open Codes

Main Category (Theme)	Subcategory	Concepts (Open Codes)
1. Neuroticism and Emotional Instability	Emotional Overreactivity	Heightened negative affect; exaggerated threat perception; low distress tolerance; mood volatility
	Cognitive Biases	Catastrophic thinking; selective attention to stress cues; pessimistic interpretation patterns
	Physiological Reactivity	Increased cortisol response; autonomic imbalance; chronic sympathetic arousal
2. Alexithymia and Emotional Unawareness	Deficient Emotional Labeling	Difficulty identifying feelings; limited emotional vocabulary; confusion between emotions and bodily sensations
	Somatization Tendency	Conversion of affect into physical symptoms; body-focused attention; misattribution of stress responses
3. Perfectionism and Self-Criticism	Maladaptive Standards	Unrealistic expectations; excessive self-demand; intolerance of mistakes
	Self-Evaluative Threat	Fear of failure; shame proneness; conditional self-worth; self-blame
	Performance Anxiety	Overcontrol of behavior; anticipatory tension; mental fatigue
4. Extraversion and Social Connectivity	Social Support Utilization	Active seeking of emotional support; openness in communication; shared coping
	Social Withdrawal under Stress	Avoidance of interactions; social fatigue; perceived rejection
5. Conscientiousness and Coping Regulation	Goal-Oriented Coping	Planning under pressure; persistence despite stress; task focus
	Cognitive Control	Self-regulation; behavioral inhibition; mindfulness of action
	Over-Control and Rigidity	Perfectionistic diligence; suppression of emotion; cognitive inflexibility
6. Openness and Cognitive Flexibility	Adaptive Appraisal	Reframing stressors; flexible thinking; curiosity in adversity
	Meaning-Making	Existential reflection; creativity in coping; narrative reconstruction
	Rumination Reduction	Disengagement from repetitive thoughts; decentering; perspective-taking
7. Stress Appraisal and Cognitive Schemas	Threat vs. Challenge Appraisal	Perceived control; optimism; locus of evaluation
	Learned Helplessness	Passive coping; defeat expectations; perceived inability to change outcomes
	Cognitive Distortion Patterns	Overgeneralization; personalization; dichotomous thinking
8. Emotion Regulation Strategies	Suppression and Avoidance	Denial of stress; emotional numbing; avoidance coping
	Reappraisal and Acceptance	Cognitive reframing; acceptance-based coping; mindfulness integration
	Expression and Catharsis	Verbal expression; journaling; emotional disclosure
	Dysregulated Affect Expression	Irritability; explosive outbursts; psychosomatic channeling of affect
9. Psychophysiological Integration Pathways	Autonomic Dysregulation	Heart rate variability reduction; sympathetic dominance; vagal withdrawal
	HPA Axis Activation	Elevated cortisol; disrupted circadian rhythm; immune suppression
	Behavioral Mediators	Sleep disturbance; poor diet regulation; sedentarism
	Mind–Body Awareness	Interoceptive sensitivity; somatic mindfulness; body-oriented self-regulation

Theme 1: Neuroticism and Emotional Instability

The first theme highlights the centrality of neuroticism and emotional instability as a dispositional vulnerability in the development of psychosomatic illness. Individuals high in neuroticism exhibit amplified emotional overreactivity, marked by intense negative affect, exaggerated threat perception, and low tolerance for distress. Cognitive biases, such as catastrophic interpretation and selective attention to potential harm, reinforce maladaptive stress responses and sustain physiological arousal. This heightened reactivity extends to the autonomic nervous system, where chronic sympathetic activation and elevated cortisol levels lead to

JPPR
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somatic manifestations including headaches, gastrointestinal discomfort, and fatigue. The findings underscore how the dynamic interaction between maladaptive cognition and physiological sensitivity positions neuroticism as a primary personality-based risk factor for psychosomatic vulnerability.

Theme 2: Alexithymia and Emotional Unawareness

The second theme reflects the role of alexithymia, or difficulty identifying and describing emotions, as a major pathway linking emotional processing deficits to bodily symptoms. Individuals with high alexithymia demonstrate deficient emotional labeling, leading to confusion between emotions and physical sensations. As emotional awareness diminishes, unresolved affect is often converted into bodily complaints—a process described under somatization tendency. Such individuals may experience physical pain, tightness, or fatigue in response to psychological distress without conscious recognition of the emotional origins. This lack of insight prevents adaptive emotion regulation, creating a cycle where stress accumulates physiologically and manifests as chronic somatic discomfort.

Theme 3: Perfectionism and Self-Criticism

The third theme reveals that perfectionism and self-critical personality patterns contribute significantly to stress reactivity and psychosomatic illness. Those with maladaptive standards impose rigid expectations upon themselves, interpreting minor errors as failures and responding with guilt or shame. Self-evaluative threat amplifies internal pressure, evoking anxiety and physiological tension whenever performance is judged insufficient. The need for control and fear of inadequacy often manifest as performance anxiety, characterized by persistent self-monitoring, muscular tension, and sleep disturbance. Over time, such self-critical cognitive cycles foster heightened stress reactivity and increase the likelihood of psychosomatic complaints such as migraines, ulcers, and cardiovascular symptoms.

Theme 4: Extraversion and Social Connectivity

The fourth theme emphasizes the dual role of extraversion and social connectivity in modulating stress and health outcomes. Extraverted individuals generally benefit from stronger social support networks and engage more actively in social support utilization, which buffers against psychological stress and fosters emotional stability. However, under chronic strain or interpersonal conflict, these individuals may also experience social withdrawal under stress, leading to a loss of social reinforcement and feelings of isolation. The fluctuation between social engagement and withdrawal influences both emotional balance and physiological regulation. Therefore, extraversion acts as both a protective and conditional factor in psychosomatic adaptation, depending on situational and relational contexts.

Theme 5: Conscientiousness and Coping Regulation

The fifth theme identifies conscientiousness and coping regulation as personality factors that shape behavioral and cognitive responses to stress. Individuals high in conscientiousness often employ goal-oriented coping, maintaining focus and persistence during adversity. They demonstrate cognitive control, enabling self-regulation and disciplined effort, which generally supports stress resilience. However, excessive diligence and overcontrol can become counterproductive, leading to rigidity and emotional suppression. This overregulation may inhibit healthy emotional release, causing the buildup of internal tension that expresses through physical symptoms. Thus, conscientiousness exhibits a paradoxical function: while adaptive in moderation, its extreme form may facilitate psychosomatic stress conversion.

Theme 6: Openness and Cognitive Flexibility

The sixth theme centers on openness and cognitive flexibility as protective factors in the face of stress. Individuals high in openness demonstrate adaptive appraisal, reinterpreting challenges as opportunities for growth rather than threats. This facilitates meaning-making processes, allowing people to integrate stressful experiences into coherent personal narratives that reduce internal conflict. Additionally, openness supports rumination reduction, as flexible thinking aids in disengaging from repetitive or negative thought loops. Together, these mechanisms foster cognitive adaptability and emotional balance, diminishing the physiological consequences of chronic stress and reducing vulnerability to psychosomatic outcomes.

Theme 7: Stress Appraisal and Cognitive Schemas

The seventh theme explores how stress appraisal and cognitive schemas determine the subjective impact of stressors on physical and mental health. The distinction between threat and challenge appraisal plays a central role—individuals who perceive events as manageable demonstrate lower physiological activation compared to those who interpret them as threatening. Conversely, those with learned helplessness show passive coping and a chronic sense of powerlessness, reinforcing stress persistence. Maladaptive cognitive distortion patterns, such as overgeneralization and dichotomous thinking, further intensify perceived stress and internal conflict. These cognitive patterns create a mental

JPPR
E-ISSN: 3041-8542

environment conducive to psychosomatic symptom formation, reflecting the mind–body translation of persistent cognitive tension.

Theme 8: Emotion Regulation Strategies

The eighth theme reveals the diverse emotion regulation strategies that influence stress reactivity and psychosomatic processes. Maladaptive forms such as suppression and avoidance lead to unprocessed emotional energy that manifests physiologically, while adaptive strategies like reappraisal and acceptance reduce reactivity by reshaping one's interpretation of stressors. Some individuals find relief through expression and catharsis, including verbal disclosure or journaling, whereas others exhibit dysregulated affect expression, characterized by irritability or somatic discharge of emotion. The findings emphasize that habitual reliance on suppression rather than adaptive reappraisal amplifies the likelihood of somatic symptomatology under chronic stress.

Theme 9: Psychophysiological Integration Pathways

The final theme synthesizes the psychophysiological integration pathways connecting personality and stress reactivity to physical illness. Stress-related personality traits influence autonomic dysregulation, leading to decreased heart rate variability and sympathetic overactivity. Concurrently, HPA axis activation maintains elevated cortisol levels and disrupts immune function, increasing susceptibility to inflammatory and psychosomatic conditions. Behavioral mediators such as sleep disturbance, poor dietary habits, and sedentarism further exacerbate physical outcomes. Conversely, mind–body awareness and interoceptive sensitivity appear as regulatory mechanisms that can counteract physiological imbalance. This integration illustrates how personality traits, emotional patterns, and biological responses converge to form the psychosomatic pathway from stress to illness.

Following the qualitative identification of personality-based pathways, the second phase quantitatively ranked these dimensions according to their perceived importance in predicting stress reactivity and psychosomatic illness. A structured Likert-scale questionnaire, derived from the qualitative findings, was administered to 250 adult participants in the United Arab Emirates. Each participant rated the importance of nine main personality-based pathways on a scale from 1 ("not important") to 5 ("extremely important"). Data analysis using SPSS-26 produced mean importance scores and standard deviations for each theme, revealing their relative prioritization in the psychosomatic process.

Table 2

Ranking of Personality-Based Pathways of Stress Reactivity and Psychosomatic Illness (N = 250, UAE)

Rank	Personality-Based Pathway	Mean Score	Standard Deviation
1	Neuroticism and Emotional Instability	4.62	0.41
2	Psychophysiological Integration Pathways	4.56	0.48
3	Alexithymia and Emotional Unawareness	4.47	0.53
4	Perfectionism and Self-Criticism	4.39	0.50
5	Stress Appraisal and Cognitive Schemas	4.34	0.57
6	Emotion Regulation Strategies	4.29	0.54
7	Openness and Cognitive Flexibility	4.11	0.61
8	Conscientiousness and Coping Regulation	4.05	0.59
9	Extraversion and Social Connectivity	3.88	0.65

The quantitative analysis revealed clear prioritization among the identified personality-based pathways of stress reactivity and psychosomatic illness. Neuroticism and emotional instability received the highest mean score (M = 4.62), confirming its dominant role as a core vulnerability factor in stress-related somatic conditions. The second-highest rank was attributed to psychophysiological integration pathways (M = 4.56), emphasizing the strong interface between personality, stress physiology, and health outcomes. Alexithymia and emotional unawareness (M = 4.47) followed closely, reinforcing the link between poor emotional insight and somatic symptom formation. Perfectionism and self-criticism (M = 4.39) and stress appraisal and cognitive schemas (M = 4.34) also ranked highly, indicating their substantial cognitive–affective influence on bodily stress manifestations. Emotion regulation strategies (M = 4.29) and openness and cognitive flexibility (M = 4.11) were moderately prioritized, reflecting their regulatory and protective roles. Conscientiousness and coping regulation (M = 4.05) and extraversion and social connectivity (M = 3.88) were ranked lowest, suggesting that although relevant, these dimensions exert comparatively

JPPR
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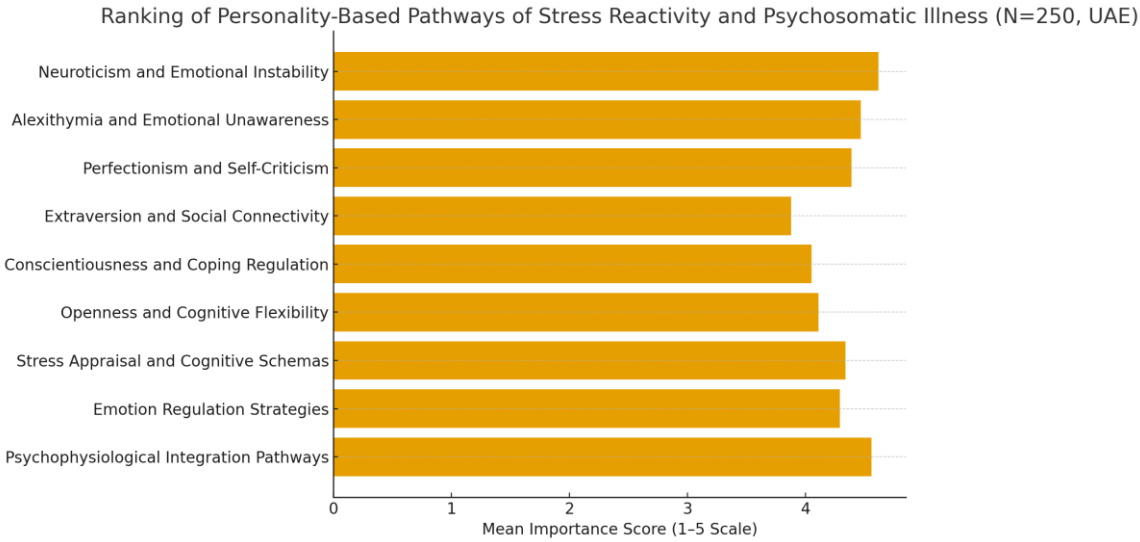
smaller direct impacts on psychosomatic processes. Overall, the results quantitatively validate the hierarchical significance of personality-based mechanisms in shaping psychosomatic illness vulnerability among the UAE sample.

Figure 1

Ranking of Personality-Based Pathways of Stress Reactivity and Psychosomatic Illness



4. Discussion and Conclusion

The findings of the present study highlight the complex interplay between personality traits and psychosomatic health, offering a comprehensive prioritization of the personality-based pathways that shape stress reactivity and somatic symptom expression. The integration of qualitative thematic analysis and quantitative ranking results provided a multi-layered understanding of how individual differences in personality influence both cognitive-emotional processes and physiological functioning. The results revealed that *neuroticism and emotional instability*, *psychophysiological integration pathways*, and *alexithymia and emotional unawareness* were the most influential determinants of psychosomatic vulnerability. In contrast, traits such as *extraversion* and *conscientiousness* were found to have relatively weaker yet still meaningful associations with adaptive stress regulation. These findings align with the evolving literature that conceptualizes psychosomatic illness as the product of continuous feedback loops between personality, emotion, and biological systems (Aghaziarati et al., 2024; Majlessi Koupaei & Farista, 2024).

The prominence of neuroticism and emotional instability as the top-ranked factor underscores the central role of emotional hypersensitivity and cognitive vulnerability in the stress–illness connection. Individuals high in neuroticism experience persistent worry, exaggerated threat appraisal, and prolonged negative affect, which amplify autonomic and HPA-axis activation (Wang et al., 2023). These physiological alterations can lead to sustained cortisol secretion, immune suppression, and inflammatory imbalance—hallmarks of psychosomatic illness (Grabe et al., 2010). This finding resonates with earlier research identifying neuroticism as a transdiagnostic predictor of psychosomatic and affective disorders (Doustkam et al., 2021). The current results further suggest that neuroticism not only predisposes individuals to psychological distress but also directly shapes somatic outcomes through psychophysiological mechanisms. Similar conclusions were reached in studies linking personality distress profiles to cardiovascular and neuroendocrine reactivity under acute stress (Martine et al., 2003). Taken together, these findings confirm that heightened emotional reactivity and maladaptive cognitive schemas under neuroticism represent the most critical vulnerability pathway in psychosomatic functioning.

The second-ranked theme, psychophysiological integration pathways, reflects the biological embodiment of personality-driven stress responses. The qualitative analysis highlighted mechanisms such as autonomic dysregulation, HPA-axis activation, and behavioral mediators (e.g., sleep disturbance, diet dysregulation) as key conduits between mental and physical domains. These pathways align closely with the biopsychosocial model articulated by Majlessi

JPPR
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Koupaei and Farista, who emphasized the interdependence of emotional, neuroendocrine, and immune processes in health and disease (Majlessi Koupaei & Farista, 2024). The ranking result further reinforces the mind–body continuity emphasized by Goli, who described chronic pain syndromes as manifestations of personality-rooted stress dysregulation (Goli, 2024). By positioning psychophysiological pathways as the second-highest factor, the present study underscores that psychosomatic illness arises not merely from psychological traits but from the way these traits orchestrate the body's stress physiology. This aligns with the findings of Aghaziarati et al., who demonstrated that maladaptive personality patterns sustain chronic pain and somatic tension through prolonged autonomic activation (Aghaziarati et al., 2024).

The high ranking of alexithymia and emotional unawareness as the third dominant pathway confirms that emotional insight plays a pivotal role in psychosomatic health. Alexithymic individuals struggle to recognize and verbalize emotional experiences, often confusing affective arousal with somatic sensations (Grabe et al., 2010). The conversion of emotional tension into bodily symptoms is a defining feature of this trait, explaining the elevated incidence of psychosomatic conditions among alexithymic populations. The findings are consistent with previous research showing that alexithymia predicts hypertension and subclinical atherosclerosis due to its association with sustained sympathetic activation (Grabe et al., 2010). Moreover, qualitative insights from Aghaziarati et al. revealed that emotional suppression among chronic pain sufferers leads to persistent body tension and maladaptive coping cycles (Aghaziarati et al., 2024). These observations collectively highlight that the inability to process emotion cognitively or verbally forces the body to "speak" distress through physical symptoms—a principle long established in psychosomatic theory.

The middle-ranked pathways—perfectionism and self-criticism, stress appraisal and cognitive schemas, and emotion regulation strategies—capture the cognitive-emotional mediators that translate personality into physiological outcomes. The perfectionistic profile identified in this study involves maladaptive self-demand, conditional self-worth, and fear of failure, which contribute to chronic stress exposure and heightened somatic tension. This observation supports findings from Doustkam et al., who reported that perfectionism and related personality traits indirectly predicted marital conflicts through psychosomatic symptoms (Doustkam et al., 2021). Likewise, maladaptive cognitive schemas—particularly catastrophic appraisal and learned helplessness—exacerbate perceived stress and impair coping flexibility, consistent with Wang et al.'s model linking personality and cognitive bias to obsessive-compulsive symptomatology (Wang et al., 2023). Emotion regulation also emerged as a significant though secondary determinant; individuals relying on suppression or avoidance displayed greater somatic symptom severity than those employing reappraisal or acceptance-based strategies. This pattern parallels evidence from Li and Zhou showing that mindfulness-based stress reduction (MBSR) improves somatic and emotional outcomes by enhancing emotional awareness and regulation (Li & Zhou, 2024). Together, these findings affirm that cognitive-emotional processing styles function as critical mediators that either buffer or magnify the physiological expression of stress.

Interestingly, openness and cognitive flexibility and conscientiousness and coping regulation ranked moderately, suggesting that adaptive personality traits, while beneficial, play more of a protective than a causative role in psychosomatic processes. Participants perceived openness as facilitating meaning-making and reducing rumination—consistent with the conceptualization of cognitive flexibility as a resilience factor (Li & Zhou, 2024). Conscientiousness, associated with goal-oriented coping and emotional control, was also valued but not dominant, reflecting its dual potential for both stress buffering and rigidity under pressure. These nuanced findings echo the notion advanced by Seiffge-Krenke and Sattel that coping with identity stress is partly personality-dependent and that even adaptive traits can become maladaptive under excessive strain (Seiffge-Krenke & Sattel, 2024). Thus, while openness and conscientiousness contribute to resilience, their impact is contingent upon contextual and behavioral factors.

The lowest-ranked yet still relevant pathway—extraversion and social connectivity—reveals that social engagement plays a less direct but still meaningful role in psychosomatic adaptation. Participants acknowledged that extraversion promotes access to social support, which can buffer stress, yet under chronic pressure, even socially active individuals may withdraw or experience emotional exhaustion. This dual function of extraversion mirrors findings by Bulut et al., who observed that adolescents facing psychosomatic difficulties alternate between seeking social comfort and isolating themselves when overwhelmed (Bulut et al., 2024). Similarly, Shen et al. described the importance of social reengagement in health behavior change among individuals with post-traumatic stress

JPPR
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disorder, noting that recovery depends on reconstructing interpersonal connection after emotional withdrawal (Shen et al., 2024). Consequently, extraversion serves as a conditional resource rather than a direct determinant of psychosomatic vulnerability.

Taken collectively, the study's mixed-method results support a hierarchical model in which personality-driven emotional reactivity (neuroticism), psychophysiological embodiment (HPA and autonomic pathways), and emotional processing deficits (alexithymia) represent the principal mechanisms of psychosomatic illness. These three components form a core triad that integrates affective, cognitive, and physiological systems. The remaining pathways—perfectionism, cognitive appraisal, and emotion regulation—function as modulators that either amplify or mitigate these central effects. This pattern aligns closely with the integrative conceptualization proposed by Majlessi Koupaei and Farista, who emphasized the circular interaction between emotions, stress, and disease (Majlessi Koupaei & Farista, 2024). Furthermore, cross-cultural studies such as those by Xiang et al. demonstrate that these mechanisms transcend geographical boundaries, as personality and coping styles predicted psychosomatic outcomes among bereaved earthquake survivors in China (Xiang et al., 2016). The current findings extend this global understanding by providing empirical prioritization of these pathways within the UAE context, suggesting that despite cultural variation, the underlying psychosomatic mechanisms remain largely universal.

The results also corroborate emerging qualitative literature that humanizes the psychosomatic experience by exploring how individuals make sense of their bodily symptoms. Sefotho et al. found that patients with psychosomatic skin disorders attributed flare-ups to emotional and interpersonal stress, reflecting an embodied experience of distress (Sefotho et al., 2024). Similar accounts were echoed in Goli's exploration of chronic pain patients, where unresolved emotional conflicts and personality factors underpinned persistent pain and somatic discomfort (Goli, 2024). These observations reinforce the present study's qualitative insights that psychosomatic illness arises when emotional and cognitive processes become entangled with physiological regulation. Furthermore, the effectiveness of mindfulness- and acceptance-based therapies in reducing psychosomatic symptoms, as reported by Li and Rahimi, underscores the modifiability of personality-driven pathways through self-awareness and cognitive flexibility (Li & Zhou, 2024; Rahimi et al., 2023). Collectively, these converging findings affirm the theoretical and clinical relevance of identifying and prioritizing personality-based pathways in psychosomatic research.

Despite its contributions, this study has several limitations that must be acknowledged. First, the use of a convenience sampling method among participants in the United Arab Emirates may limit the generalizability of the results to other cultural or demographic contexts. The sample, while diverse, may not represent the full range of personality and psychosomatic experiences across socioeconomic or ethnic groups. Second, the study's cross-sectional quantitative phase prevents causal inference regarding the directionality between personality traits and psychosomatic symptoms. Although the qualitative findings suggest potential mechanisms, longitudinal studies would be necessary to confirm the temporal sequence of these relationships. Third, data collection relied on self-report measures, which can be influenced by response bias and cultural factors affecting emotional expression. Finally, while the integration of NVivo 14 and SPSS-26 allowed for rigorous analysis, the reliance on literature-based qualitative data may have excluded unpublished or culturally specific constructs relevant to psychosomatic functioning.

Future research should extend these findings by employing longitudinal and experimental designs to establish causal pathways between personality traits, stress reactivity, and psychosomatic illness. Multi-level modeling incorporating physiological biomarkers—such as cortisol levels, heart rate variability, or inflammatory markers—could provide direct evidence of psychophysiological integration. Cross-cultural studies are also essential to examine how cultural norms, emotion regulation styles, and social support systems mediate the personality–health relationship. Additionally, integrating qualitative interviews with patients could capture lived experiences that go beyond theoretical constructs, enriching the contextual understanding of psychosomatic mechanisms. Finally, intervention-based research should test the efficacy of personality-targeted therapies, including mindfulness training, acceptance-based interventions, and cognitive flexibility enhancement, in reducing both psychological distress and somatic symptomatology.

Clinicians and health psychologists should consider assessing personality traits as part of psychosomatic evaluation to identify individuals at risk of stress-induced physical symptoms. Interventions should emphasize emotional awareness training for alexithymic individuals,

JPPR
E-ISSN: 3041-8542

cognitive restructuring for perfectionistic and neurotic profiles, and relaxation-based techniques to restore psychophysiological balance. Tailoring therapeutic approaches to personality structure—such as integrating mindfulness for emotional regulation or ACT for acceptance and commitment—may enhance treatment responsiveness. Moreover, preventive health programs in educational and occupational settings could incorporate personality-informed stress management workshops to foster resilience and reduce psychosomatic burden. Ultimately, the integration of personality assessment into psychosomatic care holds promise for promoting holistic well-being and mitigating the long-term consequences of stress-related illnesses.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

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The authors report no conflict of interest.

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Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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