



Review Article

AYURVEDIC PSYCHOLOGICAL CONSTRUCTS AND NEUROBIOLOGICAL MODELS OF DEPRESSION AND ANXIETY

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ABSTRACT

Depression and anxiety disorders are multifactorial psychiatric conditions characterized by disturbances in affect regulation, stress responsiveness, cognitive control, and autonomic balance. Contemporary neuroscience has identified several biological substrates involved in these conditions, including monoaminergic dysregulation, hyperactivity of the hypothalamic pituitary adrenal axis, impaired neuroplasticity, and altered connectivity between limbic and prefrontal brain regions. However, these models do not fully account for inter individual variability in symptom expression, illness chronicity, and differential treatment response. This narrative review examines selected constructs from Ayurvedic psychology, namely *Manas*, *Triguna*, *Vishada*, and *Udvega*, and evaluates their conceptual correspondence with established neurobiological frameworks of depression and anxiety. Classical descriptions of mental regulation, affective instability, and stress vulnerability are systematically compared with contemporary evidence related to neurotransmitter signalling, brain derived neurotrophic factor mediated plasticity, autonomic nervous system imbalance, and affective network dysfunction. Emphasis is placed on functional domains such as attentional control, emotional reactivity, stress adaptation, and behavioural regulation. Rather than asserting diagnostic or therapeutic equivalence, this review positions Ayurvedic psychological constructs as phenomenological and functional frameworks that parallel modern systems based interpretations of mental disorders. Such structured cross disciplinary mapping may contribute to hypothesis generation, refinement of biopsychosocial models, and the development of integrative research directions in mental health science.


INTRODUCTION

Ayurveda, India's traditional system of medicine, offers a broad and integrative perspective on health that extends beyond the physical body. It views well-being as a harmonious balance of physiological processes, emotional stability, and clarity of the mind. According to classical Ayurvedic thought, a person is considered healthy when internal regulatory systems function efficiently and when the mind and senses remain calm, steady, and content^[1].

This perspective places mental health at the core of overall well-being rather than treating it merely as an adjunct to physical health.

Ayurveda also provides detailed descriptions of the *Manas* (mind), its regulatory functions, and the origins and manifestations of mental disturbances. These insights reveal that psychological imbalances were recognized early and understood to interact closely with physical health. The emphasis on early identification, prevention, and lifestyle-based interventions illustrates the system's inherently holistic approach to mental wellness.

Modern global health frameworks mirror these principles. The World Health Organization defines health as a state of complete physical, mental, and social well-being^[2], highlighting mental health as a fundamental component rather than the

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absence of disease alone. Global concern about mental health disorders has increased significantly, especially in the aftermath of the COVID-19 pandemic, which exacerbated stress, anxiety, and depression across populations^[3].

In India, the National Mental Health Survey (2015–16) reported that one in every twenty adult's experiences depression, and approximately 15% require active mental-health care. Yet, many cases remain unrecognized due to stigma and limited awareness^[4]. The WHO characterizes depression as persistent sadness, loss of interest, and functional impairment lasting at least two weeks, symptoms that closely resemble descriptions found in traditional sources.

Ayurveda acknowledges conditions that resemble contemporary diagnoses, such as depression and anxiety, and outlines structured methods for prevention and management. Its emphasis on the mind–body connection, personalized care, and behavioural and lifestyle regulation offer a complementary framework that may help address the rising burden of mental-health disorders. Integrating these traditional insights with modern clinical perspectives may support the development of more comprehensive and culturally sensitive mental health strategies.

METHODS AND MATERIALS

This study is a narrative review based on a qualitative synthesis of classical Ayurvedic literature and contemporary neuroscience and psychiatry research. Classical references were drawn primarily from Charaka Samhita and Sushruta Samhita with authoritative commentaries. Contemporary literature was identified through searches of PubMed, Google Scholar, and Scopus using keywords such as depression, anxiety, neurobiology, stress physiology, Ayurveda, and mind–body interaction. Peer-reviewed articles published in English were preferentially included, with emphasis on neurobiological mechanisms, affective neuroscience, and psycho-physiology. Conceptual correlations were developed through interpretative analysis rather than empirical testing.

1) Concept of *Manas* in Ayurveda and Contemporary Interpretation

In Ayurvedic psychology, *Manas* is described as a regulatory faculty responsible for cognition, attention, emotional processing, and behavioural control. Rather than being interpreted as a discrete anatomical entity, *Manas* may be understood functionally as an interface coordinating sensory

input, internal processing, and behavioural output^[5]. Classical texts attribute to *Manas* functions such as *Indriyabhigraha* (sensory integration), *Svanigraha* (self-regulation), *Uhya* (judgment), and *Vichara* (reflective cognition)^[6].

From a contemporary perspective, these functions correspond to distributed neural processes involving the prefrontal cortex, limbic system, thalamocortical circuits, and ascending reticular activating system^[7]. Cognitive control, emotional regulation, and attentional stability are mediated through interconnected serotonergic, dopaminergic, noradrenergic, and GABAergic networks^[8]. The Ayurvedic concept of *Manovaha Srotas* may be interpreted metaphorically as these integrative neurochemical and neurovascular communication pathways that sustain mental homeostasis.

2) *Manas Vyadhi* (Mental Diseases) and Psychopathology

Ayurveda attributes *Manas Vyadhi* (mental disorders) to *Asatmendriyarthasamyoga* (maladaptive sensory engagement), *Prajnaparadha* (impaired judgment), and *Parinama* (temporal or environmental influences^[9]). These etiological factors disrupt mental and bodily regulatory processes, leading to altered cognition, affect, and behaviour. While classical descriptions do not map directly onto contemporary diagnostic categories, they provide phenomenological descriptions that overlap with modern psychiatric constructs such as depression and anxiety.

A) *Vishada* (Depression): Conceptual and Neurobiological Correlates

Vishada is described in Ayurvedic literature as a state of mental exhaustion, diminished motivation, and psychological heaviness, accompanied by impaired cognitive clarity, emotional withdrawal, and reduced functional capacity. Classical texts note increased vulnerability in individuals with *Alpa Satva* (low psychological resilience) and predominance of *Tamas*.

Contemporary psychiatry conceptualizes depression as a disorder of distributed brain network dysfunction rather than a purely affective disturbance. Core mechanisms include monoaminergic dysregulation, chronic hyperactivation of the hypothalamic pituitary adrenal axis with elevated cortisol levels, reduced brain-derived neurotrophic factor signalling, impaired hippocampal neurogenesis, mitochondrial

dysfunction, oxidative stress, and low-grade neuro-inflammation^[10,11].

These neurobiological alterations show conceptual parallels with Ayurvedic descriptions of *Vata* dysregulation, *Ojas Kshaya* (depletion of adaptive reserves), and impaired functional circulation within *Rasavaha* and *Manovaha Srotas*, resulting in compromised mental stability. Accordingly, *Vishada* may be interpreted as a functional analogue of depressive psychopathology rather than a direct diagnostic equivalent.

B) Udvega (Anxiety): Conceptual and Neurophysiological Correlates

Udvega is described as a state of mental agitation, restlessness, and anticipatory distress, traditionally attributed to *Vata* predominance and *Rajas* dysregulation. Although classical texts offer limited elaboration, *Udvega* is recognized as both an independent condition and a contributory factor in other disorders.

Modern neuroscience characterizes anxiety disorders by hyperreactivity of the amygdala-centered fear circuitry, impaired inhibitory control by the prefrontal cortex, reduced GABAergic tone, altered glutamatergic signalling, and autonomic imbalance^[12,13]. These changes manifest as hypervigilance, exaggerated threat perception, and somatic symptoms mediated through sympathetic overactivation. Such features align with Ayurvedic descriptions of *Chanchalatva* (heightened instability) and dysregulated psychophysiological responses.

Psychoregulatory Approaches in Ayurveda Contemporary Interpretation

Ayurvedic management of mental disturbances conceptualizes treatment as regulation of cognitive processes, emotional reactivity, and behavioural responses through coordinated psychoregulatory strategies. Classical literature describes three complementary approaches, namely *Daivavyapashraya* (psychosocial coping), *Yuktivyapashraya* (rational therapeutic measures), and *Sattvavajaya Chikitsa* (cognitive-emotional regulation^[14]), which may be interpreted in contemporary terms as culturally mediated coping mechanisms, biologically oriented interventions, and cognitive-emotional regulation, respectively.

Daivavyapashraya Chikitsa (psychosocial coping) primarily addresses stress perception and psychological reassurance in conditions attributed to external or situational factors. From a modern perspective, these practices function as meaning-

based and expectancy-driven coping strategies that can modulate stress appraisal, emotional security, and psychophysiological responses through belief-mediated and contextual mechanisms.

Yuktivyapashraya Chikitsa (rational therapeutic measures) represents a rational therapeutic framework integrating pharmacological, dietary, and lifestyle interventions aimed at restoring systemic and neuroendocrine balance. *Medhya Rasayana* (neurocognitive enhancers)^[15] formulations such as *Bacopa monnieri*, *Withania somnifera*, *Centella asiatica*, and *Nardostachys jatamansi* have demonstrated anxiolytic, antidepressant, and neuroprotective effects in experimental and limited clinical studies. These effects are mediated through modulation of gamma aminobutyric acid and serotonergic neurotransmission, regulation of hypothalamic pituitary adrenal axis activity, enhancement of brain derived neurotrophic factor signalling, and attenuation of oxidative and inflammatory stress pathways.

Sattvavajaya Chikitsa (cognitive-emotional regulation) emphasizes conscious regulation of thought content, attentional focus, emotional responses, and behavioural intent. The described processes of reflective thinking, analytical reasoning, sustained attention, and intentional decision making closely parallel core mechanisms of contemporary psychotherapeutic approaches, including cognitive behavioural therapy and mindfulness-based interventions. Collectively, these approaches illustrate a multi-level psychoregulatory model that aligns with modern systems-based interpretations of mental health, while warranting further empirical validation.

Lifestyle-Based Mental Health Promotion

Ayurveda emphasizes structured daily routines, dietary regulation, ethical conduct, and mind-body practices to support psychological stability. Regular sleep wake cycles, balanced nutrition, yogic practices, and behavioural discipline are recognized to influence autonomic balance, stress responsiveness, and emotional regulation mechanisms, increasingly supported by contemporary psychophysiological research.

DISCUSSION

This review explored conceptual correspondences between selected Ayurvedic psychological constructs and contemporary neurobiological models of depression and anxiety. Current psychiatric research increasingly views these conditions as disorders of integrated

regulation involving cognition, emotional processing, stress response, and autonomic function, rather than as isolated neurochemical abnormalities. Ayurvedic descriptions of mental functioning, though framed in functional terms, reflect a comparable systems-oriented perspective.

The Ayurvedic concept of *Manas* refers to coordinated regulation of thought, emotion, and behaviour. This broadly aligns with modern models describing impaired top-down control by prefrontal regions over limbic circuits in depression and anxiety, leading to altered emotional reactivity, attentional disturbances, and heightened stress sensitivity. Disturbances in *Manonigraha* (mental restraint) described in Ayurvedic texts parallel deficits in executive control and emotional regulation recognized in contemporary psychiatry.

Descriptions of *Vishada* correspond to key features of depressive disorders, including reduced motivation, affective dysregulation, and sustained activation of stress-related pathways. Similarly, *Udvega* reflects anxiety-related states characterized by increased arousal, anticipatory worry, and autonomic imbalance. These observations suggest that Ayurvedic classifications capture functional mental states that are comparable to dimensional constructs used in modern psychopathology.

Ayurvedic management approaches emphasize restoration of regulatory balance rather than symptomatic suppression. *Sattvavajaya Chikitsa* (cognitive-emotional regulation) focuses on cognitive regulation and emotional control, mechanisms that overlap with those targeted by cognitive behavioral and mindfulness-based interventions^[16]. Approaches described under *Yuktivyapashraya Chikitsa* (rational therapeutic measures) may influence mental health through modulation of stress hormone activity, inflammatory signalling, and neurotrophic processes, all of which are central to current biological models of mood and anxiety disorders.

The interpretations presented here are limited by the absence of standardized operational measures and direct empirical testing. Accordingly, these correspondences should be considered conceptual rather than definitive. Nevertheless, this synthesis supports the relevance of Ayurvedic psychology as a complementary framework that may contribute to systems-based and culturally informed mental health research.

CONCLUSION

Ayurvedic psychology offers a systems-based conceptual framework that aligns with contemporary understandings of neural regulation, stress biology, and affective network dynamics. When interpreted through a modern scientific lens, these classical constructs may serve as complementary explanatory models rather than alternative diagnostic systems. Integrative perspectives of this nature may support hypothesis generation, culturally informed research, and broader conceptualization of mental health.

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