

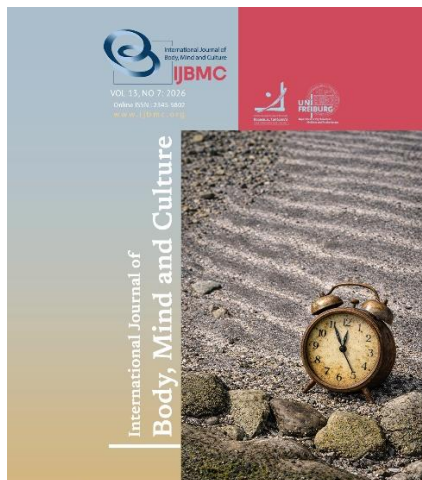
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Beyond Categorical Diagnosis and Therapies: Toward Dimensional, Process-Based, and Personalized Psychosomatic Medicine

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ABSTRACT

This editorial argues for a necessary reorientation in psychosomatic medicine: moving beyond categorical diagnosis and disorder-specific treatment toward dimensional, process-based, and personalized models of assessment and intervention. Rather than reporting new empirical findings, the article develops a conceptual and theoretical synthesis informed by dimensional approaches to psychopathology, the Hierarchical Taxonomy of Psychopathology, Research Domain Criteria, process-based therapy, homeostasis, allostasis, predictive regulation, biosemiotics, and personalized medicine. Together, these perspectives provide the basis for a regulatory model of psychosomatic care. Although categorical diagnostic systems remain valuable for clinical communication, epidemiological classification, and the organization of health-care services, they do not adequately account for the heterogeneity, comorbidity, shared mechanisms, and variability in treatment response that frequently characterize psychosomatic conditions. Dimensional and process-based approaches offer a more clinically useful framework by directing attention to regulatory processes that operate across diagnostic boundaries. Within this framework, adaptive regulation is proposed as a core clinical unit that connects biological, psychological, behavioral, interpersonal, and social domains. Biosemiotics adds further depth to this perspective by framing symptoms not merely as isolated markers of pathology, but as meaningful regulatory signs embedded within the person's broader bodily, emotional, relational, and cultural context. On this basis, the editorial supports the use of multidimensional regulatory profiling in psychosomatic medicine. Such profiling would guide treatment selection according to the specific mechanisms that are disrupted, including threat-safety regulation, interoception, emotional flexibility, executive control, attachment, motivation, social functioning, and meaning construction. Psychosomatic medicine should therefore complement categorical diagnosis with individualized regulatory profiles. This shift would allow care to become more flexible, mechanism-based, and personally responsive by asking which regulatory dimensions are impaired and which combination of interventions is most likely to restore adaptive functioning.

Keywords: Psychosomatic Medicine, Dimensional Diagnosis, Process-Based Therapy, Personalized Medicine, Biosemiotics.

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Introduction

Psychosomatic medicine has long questioned the reductionist division between mind and body, emphasizing instead that biological, psychological, and social processes are continuously intertwined in both health and illness. Despite this integrative foundation, however, psychosomatic diagnosis and treatment are still largely structured around categorical disease classifications and disorder-specific intervention protocols. Psychiatric conditions are commonly defined through DSM or ICD categories, while medical disorders are often treated as distinct biological entities to which psychological factors are added only afterward. Although this diagnostic framework has improved reliability, standardization, and clinical communication, it is increasingly difficult to align with the growing body of evidence showing substantial within-disorder heterogeneity, high levels of comorbidity, shared etiological pathways, and marked variation in treatment response (Kotov et al., 2017; Kotov et al., 2021).

These findings have contributed to one of the most significant conceptual shifts in contemporary clinical science. Instead of understanding psychopathology as a set of separate and self-contained disease categories, dimensional approaches view symptoms as continuous manifestations of interacting functional systems. From this perspective, the Hierarchical Taxonomy of Psychopathology (HiTOP) suggests that mental disorders are more accurately understood through hierarchically organized dimensions than through rigid categorical diagnoses (Kotov et al., 2021). Similarly, the Research Domain Criteria (RDoC) framework argues that research should move beyond traditional diagnostic categories and instead examine core dimensions of neurobehavioral functioning that operate across conventional disorder boundaries (Cuthbert & Insel, 2013; Insel et al., 2010). At the therapeutic level, Process-Based Therapy emphasizes that interventions should be organized around empirically supported mechanisms of change, rather than being limited to treatment protocols designed for specific syndromes (Hayes et al., 2020; Hofmann & Hayes, 2019).

Taken together, these developments point to a wider shift from fixed disease entities toward adaptive processes. Even so, a significant gap remains. Most current dimensional models focus primarily on how

psychopathology is organized, whereas psychosomatic medicine requires a similarly coherent framework for explaining the dynamic interplay among biological, psychological, behavioral, and social processes across illness and recovery. The next conceptual step, therefore, may not be merely to move from categorical diagnosis to dimensional psychopathology, but to advance from dimensional psychopathology toward dimensional regulation.

Health is fundamentally a process of adaptive regulation. From Cannon's concept of homeostasis (Cannon, 1941) through allostasis (McEwen, 1998) to contemporary predictive theories of brain function (Friston, 2010), growing evidence suggests that living systems continuously regulate physiological stability while adapting to changing environmental demands. Disease emerges not merely from structural pathology but from disturbances in these regulatory processes across multiple interacting domains.

This perspective is especially relevant to psychosomatic medicine, where bodily symptoms, emotional experiences, cognitive appraisals, behavioral adaptations, interpersonal relationships, and environmental contexts rarely operate in isolation. Rather, they continually shape one another through reciprocal feedback loops. From this standpoint, the conventional distinction between "physical" and "psychological" symptoms becomes increasingly less informative. What matters more is how these dimensions interact within broader patterns of regulation, adaptation, and dysfunction.

The emergence of HiTOP, RDoC, and process-based therapy marks an important paradigm shift in mental health. Yet these approaches still tend to develop alongside one another rather than as parts of a fully integrated framework. HiTOP offers a dimensional account of psychopathology; RDoC identifies functional domains that cut across traditional diagnostic boundaries; and process-based therapy focuses on the mechanisms through which therapeutic change occurs. Together, they challenge categorical models of mental disorder, but they do not yet define a shared clinical unit that can connect diagnosis and intervention across biological, psychological, and social levels.

From an evolutionary perspective, regulation may serve as that shared unit. Regulation refers to the dynamic processes through which living organisms

preserve adaptive functioning while responding to constantly changing internal and external conditions. Unlike diagnostic categories, regulatory processes are inherently multidimensional, developmentally and contextually sensitive, and observable across physiological, psychological, behavioral, and interpersonal domains. For this reason, regulation offers a natural bridge between dimensional diagnosis and individualized intervention.

This proposal is consistent with several influential developments across contemporary biomedical science. [Cannon \(1941\)](#) described homeostasis as the maintenance of physiological stability through coordinated regulatory mechanisms. [McEwen \(1998\)](#) subsequently expanded this concept through the concept of allostasis, emphasizing that adaptation requires continual adjustment rather than static equilibrium. More recently, Friston's Free Energy Principle conceptualizes biological systems as self-organizing organisms that continuously minimize uncertainty through predictive regulation of internal and external states ([Friston, 2010](#)). Although these frameworks emerged from different disciplines, they converge on a common principle: health is fundamentally characterized by adaptive regulation rather than the absence of disease.

Viewed from this perspective, psychopathology can be understood as one expression of broader regulatory dysfunction. Anxiety, for example, may involve persistent dysregulation in threat prediction; depression may reflect disturbances in motivational, affective, and reward-related regulation; somatic symptom disorders may be linked to altered interoceptive interpretation and bodily regulation; and chronic pain may arise from maladaptive integration of nociceptive, emotional, attentional, and contextual processes. Interpersonal difficulties, in turn, may reflect disruptions in the regulation of attachment, trust, and social communication. These patterns rarely appear in isolation. More often, they interact through reciprocal influences across biological, psychological, and social systems.

This perspective also helps explain one of the central clinical observations in psychosomatic medicine: patients with the same medical diagnosis often differ substantially in emotional adjustment, symptom

severity, disability, quality of life, and treatment outcome, while patients with different diseases may show strikingly similar psychological and behavioral patterns. Categorical diagnosis alone cannot fully account for this variability because it describes disease entities rather than the person's adaptive functioning. A regulatory perspective, by contrast, anticipates such diversity, since each individual has a distinctive configuration of regulatory strengths, vulnerabilities, and interactions.

Psychosomatic assessment may therefore move beyond the simple identification of diseases toward the construction of multidimensional regulatory profiles. The central clinical questions become: Which regulatory dimensions are functioning adaptively? Which dimensions show persistent dysregulation? How do disturbances in one domain spread into others? Which mechanisms support resilience, and which ones maintain chronic dysfunction?

These questions are not intended to replace categorical diagnosis, but to complement it. Diagnostic labels remain useful for clinical communication, epidemiology, and the organization of health systems. However, they should no longer be treated as the main framework for understanding patient complexity or for selecting interventions.

Several regulatory dimensions repeatedly emerge across affective neuroscience, developmental psychology, psychosomatic medicine, behavioral science, and dimensional psychopathology. These include threat-safety regulation, attachment and interpersonal connectedness, reward and motivation, executive control and agency, interoceptive-autonomic regulation, emotional flexibility, social functioning, and meaning construction ([Deci & Ryan, 2011](#); [Kotov et al., 2021](#); [Panksepp, 1998](#)). Rather than representing separate disorders, these dimensions interact continuously to shape both mental and physical health.

Within this framework, dimensional psychopathology primarily answers the question, "What patterns of dysfunction are present?" Dimensional regulation, however, moves the inquiry further by asking more clinically actionable questions: "How did these patterns develop? How are they being maintained? Which regulatory processes should be targeted in intervention?" This distinction creates a conceptual bridge between dimensional diagnosis and personalized psychosomatic care, while also laying the

groundwork for a more flexible, mechanism-oriented approach to assessment and treatment. What becomes central is not only the identification of dysfunction, but the understanding of how multiple regulatory dimensions interact within the individual.

Biosemiotics and the Integration of Regulatory Dimensions

Although dimensional psychopathology substantially improves the description of mental disorders, psychosomatic medicine faces an additional challenge: integrating biological, psychological, behavioral, interpersonal, and social information into a coherent clinical framework. The biopsychosocial model established this integrative vision nearly five decades ago (Engel, 1977), yet it intentionally remained a broad conceptual model rather than a theory of dynamic interaction. Consequently, clinicians still often evaluate biological, psychological, and social variables separately before attempting to integrate them retrospectively.

Biosemiotics can provide an important conceptual bridge between dimensional diagnosis and dimensional regulation. Biosemiotics proposes that living systems continuously generate, interpret, and respond to signs across multiple levels of biological organization (Hoffmeyer, 2008). Physiological responses, immune activity, autonomic changes, bodily sensations, emotions, cognitions, behaviors, interpersonal interactions, and cultural meanings can therefore be understood not as isolated events but as interconnected semiotic processes through which organisms maintain adaptive relationships with themselves and their environments. From this perspective, symptoms are not merely indicators of pathology; they are informative expressions of ongoing regulatory activity.

This view aligns closely with the core assumptions of psychosomatic medicine. Symptoms such as pain, fatigue, dyspnea, gastrointestinal discomfort, insomnia, or palpitations cannot be fully explained by tissue pathology alone, nor can they be reduced simply to psychological distress. Rather, each symptom emerges from the interaction of multiple regulatory processes operating across biological, psychological, and social domains. Its clinical meaning depends not only on its presence or intensity, but also on the broader regulatory context in which it occurs.

From this standpoint, psychosomatic assessment becomes an act of semiotic interpretation, not merely symptom classification. The clinician seeks to understand what each symptom communicates about the individual's physiological, emotional, cognitive, behavioral, and interpersonal state of adaptation. The same symptom may therefore reflect different regulatory processes in different patients, while seemingly different symptoms may arise from disturbances within a shared regulatory dimension.

This perspective also helps account for the substantial clinical variability observed in psychosomatic disorders. Similar biological diseases may lead to very different psychological trajectories, just as comparable psychosocial stressors may produce diverse bodily manifestations. Rather than indicating diagnostic inconsistency, this variability reflects differences in how individuals organize, interpret, and regulate biological and psychosocial information. Adaptive responses are continuously shaped through reciprocal interactions among physiological, emotional, cognitive, interpersonal, and environmental processes.

Crucially, biosemiotics broadens the concept of meaning beyond conscious cognition. Meaning is embedded in biological regulation itself. Cellular signaling, autonomic activity, immune communication, affective responses, interpersonal exchanges, and symbolic cognition all contribute to multilevel processes through which living systems preserve coherence. For psychosomatic medicine, this means that biological markers, subjective experiences, behavioral adaptations, and social functioning should be understood as complementary expressions of a shared adaptive regulatory network, rather than as separate explanatory domains.

This interpretation is consistent with previous proposals describing medical practice as a semiotic process occurring within the "semiosphere" of human health and illness (Goli, 2016). Likewise, the concept of anticipation emphasizes that organisms regulate present functioning through continuous interpretation of possible future states rather than simple reactions to current stimuli (Goli, 2022). These perspectives converge with contemporary predictive neuroscience by emphasizing that regulation depends upon continuous

interpretation, prediction, and adaptive revision rather than passive response.

From a clinical perspective, this conceptual integration calls for a meaningful shift in therapeutic reasoning. Rather than asking which treatment corresponds to a given diagnostic category, clinicians are increasingly encouraged to ask which intervention is most likely to modify the regulatory processes reflected in the individual's multidimensional semiotic profile. Pharmacotherapy, psychotherapy, behavioral interventions, rehabilitation, lifestyle modification, family-based approaches, and environmental changes can therefore be understood not as competing therapeutic paradigms, but as complementary ways of influencing interacting regulatory dimensions.

This approach is also consistent with the growing emphasis on precision psychiatry and personalized medicine. Individualized care does not require an ever-expanding list of diagnostic categories; it requires a more accurate understanding of how biological, psychological, and social regulatory processes interact within each person. A multidimensional regulatory profile offers such a framework, allowing clinical decisions to be guided by mechanisms of adaptation rather than by diagnostic labels alone.

Ultimately, the main goal of psychosomatic intervention shifts from symptom suppression to the restoration of adaptive regulation. Successful treatment is reflected not only in reduced symptom severity, but also in greater physiological flexibility, emotional resilience, cognitive adaptability, interpersonal functioning, and social participation. In this sense, psychosomatic medicine becomes less focused on eliminating isolated symptoms and more concerned with strengthening the organism's capacity to maintain coherent regulation across multiple interacting dimensions of human functioning.

Toward a Regulatory Framework for Personalized Psychosomatic Medicine

If psychosomatic medicine is fundamentally concerned with understanding and improving adaptive regulation, then both diagnosis and intervention require a corresponding shift in clinical reasoning. Diagnostic categories remain important for communication, epidemiology, prognosis, and health-care administration, but they are insufficient as the primary basis for treatment selection. Similarly, symptom

severity alone offers only a partial picture of the patient's adaptive state. The task ahead, therefore, is not to abandon diagnosis, but to complement it with a multidimensional account of regulatory functioning.

Within this framework, the clinician constructs a regulatory profile rather than relying solely on a diagnostic profile. Such a profile brings together information from multiple sources, including physiological biomarkers, autonomic regulation, interoceptive experience, emotional functioning, cognitive flexibility, behavioral adaptation, interpersonal relationships, environmental stressors, and personal meaning. These domains are not treated as separate variables, but as interacting regulatory dimensions that continuously shape one another.

Therapeutic planning changes accordingly. Instead of matching interventions to diagnostic categories, treatment selection becomes an iterative process of identifying which interventions are most likely to restore regulation in the domains that are most disrupted. Different therapeutic modalities may converge on similar regulatory targets, even when they originate from different theoretical traditions. Pharmacological treatment may reduce excessive threat reactivity; psychotherapy may strengthen emotional flexibility and cognitive reappraisal; behavioral interventions may support self-regulation and adaptive habits; family and interpersonal approaches may restore attachment security and social regulation; and rehabilitation, physical activity, sleep optimization, and lifestyle interventions may improve autonomic and metabolic regulation. The clinical value of these interventions lies less in their disciplinary identity than in their capacity to restore coordinated adaptive functioning.

This perspective also helps explain why patients with the same diagnosis may benefit from different interventions, while individuals with different diagnoses may improve through similar therapeutic mechanisms. Personalized psychosomatic medicine therefore requires the personalization of regulatory targets, not merely the personalization of diagnostic labels.

Such an approach is particularly well suited to multimorbidity, one of the major challenges of contemporary medicine. Patients with chronic pain, cardiovascular disease, diabetes, inflammatory disorders, functional gastrointestinal disorders, anxiety,

depression, and trauma often present with overlapping biological and psychological mechanisms that extend beyond categorical boundaries. A regulatory framework allows these conditions to be understood within a shared adaptive architecture while still preserving their clinical specificity.

Artificial intelligence and digital health technologies further reinforce the relevance of this perspective. Contemporary computational methods increasingly make it possible to integrate longitudinal physiological, behavioral, psychological, and environmental data into dynamic models of individual functioning. Rather than replacing clinical judgment, these technologies may help clinicians identify evolving regulatory patterns, monitor treatment response, and support individualized therapeutic decisions. In this context, dimensional regulation provides an interpretable conceptual framework through which computational approaches can become clinically meaningful, rather than merely statistically predictive.

Conclusion

Psychosomatic medicine has historically played a pioneering role in challenging the artificial separation of mind and body. The emergence of dimensional psychopathology, process-based intervention, predictive neuroscience, and precision medicine now gives the field an opportunity for a second major conceptual transformation. The next frontier may not be simply to replace categorical diagnosis with dimensional psychopathology, but to organize psychosomatic assessment and intervention around dimensions of regulation.

From this perspective, biological, psychological, behavioral, interpersonal, and social phenomena are understood as complementary expressions of an integrated adaptive system. Diagnosis becomes a characterization of multidimensional regulatory functioning rather than the assignment of categorical labels, while intervention becomes the strategic restoration of adaptive regulation rather than the application of disorder-specific protocols.

Biosemiotics offers a conceptual language for integrating these developments by interpreting symptoms as meaningful regulatory signs generated within a continuously self-organizing organism. This perspective does not replace the biopsychosocial model,

dimensional psychopathology, or process-based therapy. Rather, it extends them by providing a common framework through which diverse sources of clinical information can be understood and translated into individualized therapeutic decisions.

Ultimately, the central clinical question may no longer be, "Which treatment fits this diagnosis?" but rather: "Which regulatory dimensions are disrupted in this individual, how do they interact across biological, psychological, and social domains, and which combination of interventions is most likely to restore adaptive homeostasis?" Answering this question may represent the next major step toward a more intelligent, flexible, mechanism-based, and personalized psychosomatic medicine.

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