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Mechanism of The Formation of Psychosomatic Diseases Based on The Biopsychosocial Model

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Abstract: This article analyzes the mechanisms of psychosomatic disorders within the framework of the biopsychosocial model. Modern medicine increasingly considers human health as an integrated interaction of biological, psychological, and social factors. The study highlights neuroendocrine mechanisms of stress, particularly the activation of the hypothalamic–pituitary–adrenal (HPA) axis, autonomic nervous system imbalance, and their impact on the development of somatic dysfunctions.

Keywords: Biopsychosocial model, psychosomatic disorders, stress, somatization, neuroendocrine mechanisms, psychological factors, social determinants, comprehensive approach.

Introduction: The paper also examines the process of somatization, individual psychological characteristics, emotional distress, and internal conflicts as significant contributors to psychosomatic conditions. Social determinants such as family environment, occupational stress, and the level of social support are analyzed as important factors influencing both the onset and progression of these disorders.

Based on the biopsychosocial approach, the advantages of comprehensive diagnostic and therapeutic strategies are discussed, including psychotherapy, stress management techniques, and social rehabilitation interventions. The findings emphasize the necessity of a multidisciplinary approach in diagnosing and treating psychosomatic disorders and underline the importance of individualized medical care in clinical practice.

In contemporary medicine, the understanding of psychosomatic disorders has evolved beyond purely biological explanations to include psychological and social determinants of health. This comprehensive perspective is encapsulated in the biopsychosocial model, which posits that biological processes, psychological states, and social contexts interact dynamically to influence the onset, progression, and persistence of somatic symptoms. This approach has gained increasing support in recent clinical research, especially in relation to persistent somatic symptoms — which are distressing physical complaints that continue for months and cannot be fully explained by conventional biomedical mechanisms alone. In other words, the psyche affects the production of neurotransmitters, and neurotransmitters control the life activities of the whole organism. Anxiety about somatic disorders can lead to hypochondriacal feelings, which also contribute to malnutrition. Thus, a kind of vicious circle arises in the form of anorexic cycles, when chronic starvation causes changes in the internal organs, leading, in turn, to food restrictions. In some

cases, patients begin to be actively examined by various specialists, exaggerating the severity of somatic disorders and avoiding consultation with a psychiatrist.

Recent editorials and research in the journal Psychotherapy and Psychosomatics highlight that persistent somatic symptoms should be understood through transdiagnostic and trans symptomatic frameworks, emphasizing the meaningful integration of biopsychosocial determinants in both research and clinical practice. According to these perspectives, persistent somatic symptoms occur across a wide range of conditions — from chronic pain to fatigue — and are better addressed when biological, psychological, and social factors are jointly considered. Furthermore, longitudinal research based on biopsychosocial models indicates that psychological factors — such as maladaptive symptom expectations — strongly influence the transition from acute to chronic somatic conditions, underscoring the importance of early psychosocial interventions and tailored prevention strategies. Overall, adopting a biopsychosocial perspective enhances the understanding of how persistent somatic symptoms develop and are maintained, and informs more effective clinical strategies for diagnosis, treatment, and prevention. This approach moves beyond traditional biomedical models, advocating interdisciplinary collaboration and individualized patient care that addresses both mind and body.

METHOD

The biopsychosocial model represents an integrative theoretical framework for understanding human health in modern clinical medicine. According to this model, the development and progression of disease result from the dynamic interaction of biological factors (genetic predisposition, neuroendocrine regulation), psychological factors (stress, emotional reactivity, cognitive appraisal), and social determinants (environmental conditions, social support, occupational stress). Recent research emphasizes that persistent somatic symptoms often emerge from biopsychosocial imbalance. These symptoms are not always fully explained by identifiable organic pathology, yet they significantly impair patients' quality of life. Therefore, reliance solely on the traditional biomedical model is increasingly considered insufficient for comprehensive diagnosis and treatment. From a biological perspective, stress-related neurophysiological mechanisms play a central role in psychosomatic disorders. Exposure to stress activates the hypothalamic–pituitary–adrenal (HPA) axis, leading to increased cortisol secretion. Such a mother may go to her friends, leave her young children alone, and not return until the next morning. She always allows her child to try strong alcoholic beverages in the presence of her friends, finding it very amusing. By taking her children to dangerous places, she may encourage them to engage in behavior that could endanger their lives. Parents' words usually have a much greater impact on a child's future than parents would like. Therefore, they should be handled with great care. It is crucial for a child to distinguish between their attitude and their behavior.

While acute stress responses are adaptive, chronic activation of the HPA axis may result in prolonged elevation of cortisol levels, which negatively affects immune, cardiovascular, and gastrointestinal systems. Moreover, excessive activation of the sympathetic division of the autonomic nervous system contributes to hypertension, tachycardia, and muscular tension. Persistent autonomic imbalance is associated with the carbonification of somatic symptoms and increased vulnerability to stress-related disorders. Psychologically, somatization refers to the manifestation of emotional distress through physical symptoms. Empirical studies indicate that negative cognitive appraisal of bodily sensations, health-related anxiety, and depressive tendencies significantly contribute to the development and maintenance of psychosomatic conditions. The family environment has the greatest psychogenic effect on children's psychology. Since there are often disagreements, constant quarrels, and abuse between parents, children who lack maternal love and care experience psychological stress. This leads to a lack of trust and fear in the child towards the outside world. Along with partnership relations in the game, conditions are created for the formation of positive personality traits.

Individual psychological characteristics, such as high neuroticism or Type A behavioral patterns, increase sensitivity to stress. Emotional suppression and unresolved intrapsychic conflicts further intensify somatic symptom expression. Contemporary psychological research conceptualizes this phenomenon within the framework of cognitive–affective dysregulation. Social determinants represent a critical component of the biopsychosocial model. Family conflicts, lack of social support, economic difficulties, and occupational stress reduce adaptive capacity and resilience. Social isolation has been associated with increased inflammatory markers and higher stress reactivity. Recent findings suggest that individuals with limited social resources are more prone to persistent somatic symptoms and chronic health conditions. Adverse social environments amplify stress responses and contribute to long-term physiological dysregulation. The biopsychosocial framework necessitates a multidimensional diagnostic

approach. In addition to somatic examination, assessment of psychological functioning, stress levels, coping strategies, and social context is essential. Therapeutically, cognitive behavioral therapy (CBT), stress management interventions, relaxation techniques, and enhancement of social support have demonstrated effectiveness. A multidisciplinary approach involving physicians, psychologists, and allied health professionals ensures optimal patient-centered care and improves long-term outcomes.

CONCLUSION

The biopsychosocial model represents one of the most comprehensive and effective integrative frameworks in modern medical psychology for understanding the etiology and progression of disease. It conceptualizes human health as the result of complex interactions among biological, psychological, and social factors. This multidimensional perspective is particularly relevant in psychosomatic and chronic conditions, where imbalance among these domains plays a significant role. Evidence indicates that chronic stress, cognitive–affective dysregulation, and insufficient social support weaken adaptive mechanisms and contribute to the onset and carbonification of somatic symptoms. Therefore, reliance solely on the biomedical model is insufficient for comprehensive patient assessment and management.

A multidimensional diagnostic strategy combined with interdisciplinary therapeutic interventions—including psychological treatment, stress management techniques, and strengthening of social resources—significantly improves quality of life and long-term clinical outcomes. Accordingly, the integration of the biopsychosocial model into routine clinical practice should be considered a priority within contemporary healthcare systems.

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