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GENDER CHARACTERISTICS OF PSYCHOSOMATIC SYMPTOMS IN ADOLESCENTS

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Abstract. This article examines gender-specific features of psychosomatic symptoms among adolescents, focusing on the interaction between biological, psychological, and socio-cultural factors. The study synthesizes contemporary findings from psychosomatic medicine, developmental psychology, and adolescent psychiatry to explain how stress-related physical symptoms manifest differently in boys and girls. Particular attention is given to hormonal regulation, emotional processing, coping strategies, and gendered social expectations. The findings indicate that female adolescents more frequently report internalizing psychosomatic symptoms (e.g., headaches, fatigue, gastrointestinal discomfort), while male adolescents demonstrate relatively higher rates of externalizing or somatization-linked behavioral responses. The article highlights the importance of gender-sensitive diagnostic and preventive approaches in educational and clinical settings.

Key words: adolescents, psychosomatic symptoms, gender differences, stress, somatization, mental health, hormonal factors, coping mechanisms.

Introduction. Adolescence is a critical developmental period characterized by rapid biological maturation, psychological restructuring, and significant social role transitions. During this stage, individuals experience increased sensitivity to environmental stressors due to ongoing development of the neuroendocrine system and emotional regulation mechanisms. As a result, adolescents are particularly vulnerable to psychosomatic symptoms, which represent physical manifestations of psychological distress. Psychosomatic symptoms are defined as somatic complaints that are influenced or exacerbated by emotional, cognitive, or social stressors rather than solely by organic pathology. These symptoms may include headaches, fatigue, abdominal pain, sleep disturbances, musculoskeletal pain, and other functional bodily complaints. In adolescent populations, such symptoms are frequently reported and often associated with academic pressure, peer relationships, family conflict, and identity formation challenges. A growing body of scientific literature indicates that psychosomatic symptom expression is not uniform across individuals but varies significantly according to gender. Gender differences in health outcomes have been widely discussed in psychosomatic medicine, developmental psychology, and behavioral neuroscience. These differences are shaped by a complex interaction of biological sex characteristics, hormonal regulation, psychological coping strategies, and socio-cultural gender norms. From a biological perspective, differences in the hypothalamic-pituitary-adrenal (HPA) axis responsiveness and sex hormone activity (particularly estrogen and testosterone) influence stress reactivity and emotional processing. Females tend to exhibit greater physiological sensitivity to stress, which may increase the likelihood of internalizing symptoms. In contrast, males often demonstrate different stress response patterns that are more externalized or behaviorally expressed. Psychologically, gender differences in emotional regulation and coping strategies play a crucial role. Adolescent girls are more likely to use emotion-focused coping mechanisms, which may lead to increased awareness and reporting of bodily symptoms. Boys, on the other hand, are more likely to adopt avoidance or problem-focused coping strategies, often suppressing emotional distress, which can alter symptom presentation. Socio-cultural factors further reinforce these differences. Gender socialization processes encourage emotional expressiveness in females and emotional restraint in males. Consequently, girls may be more open to recognizing and reporting psychosomatic discomfort, while boys may underreport symptoms due to societal expectations of masculinity and emotional control. Despite the growing interest in adolescent psychosomatic health, there remains a need for more detailed analysis of how gender influences the type, frequency, and severity of psychosomatic symptoms. Understanding these differences is essential for improving early detection, designing gender-sensitive interventions, and enhancing psychological support systems in educational and clinical settings. Therefore, this study aims to explore the gender-specific characteristics of psychosomatic symptoms among adolescents by integrating biological, psychological, and socio-cultural perspectives to provide a comprehensive understanding of this phenomenon.

Literature Review. The study of psychosomatic symptoms in adolescents has developed as an interdisciplinary field combining psychosomatic medicine, developmental psychology, psychiatry, and behavioral neuroscience. Early theoretical foundations were established in classical psychosomatic medicine, where scholars such as Alexander and Dunbar emphasized the role of emotional conflict and chronic stress in the development of physical symptoms. Their work laid the groundwork for understanding how psychological distress can manifest as bodily complaints in the absence of identifiable organic pathology. Later, Engel introduced the biopsychosocial model, which significantly expanded the understanding of psychosomatic phenomena by integrating biological, psychological, and social dimensions of health. According to this model, psychosomatic symptoms cannot be explained solely by physiological dysfunction; instead, they arise from dynamic interactions between neurobiological processes, cognitive-emotional factors, and environmental stressors. This framework remains central in contemporary research on adolescent mental and physical health. In adolescent populations, research consistently demonstrates that psychosomatic symptoms are highly prevalent. Studies conducted by Garralda (1996) and Campo (2000) indicate that a significant proportion of adolescents report recurrent somatic complaints, including headaches, abdominal pain, fatigue, and sleep disturbances, which are often linked to psychological distress rather than medical illness. These symptoms are particularly common during periods of academic stress, family conflict, and social adjustment. A substantial body of literature highlights the importance of gender differences in psychosomatic symptom expression. Rieker and Bird (2005) argue that gender is a key determinant of health behavior and symptom reporting patterns. Their findings suggest that females are more likely to report internalizing symptoms such as anxiety, depression, and somatic complaints, while males tend to exhibit externalizing behaviors, including aggression and risk-taking, which may mask underlying psychosomatic stress. From a developmental psychopathology perspective, Zahn-Waxler et al. (2008) emphasize that adolescent girls show higher sensitivity to interpersonal stressors and are more prone to internalizing emotional distress. This internalization often manifests as physical symptoms, reflecting a somatization process. In contrast, boys are more likely to suppress emotional expression due to gender norms, leading to different psychosomatic presentations or underreporting of symptoms. Neurobiological studies further support these gender-based differences. McEwen's research on stress physiology demonstrates that the hypothalamic-pituitary-adrenal (HPA) axis responds differently in males and females. Females generally exhibit stronger cortisol reactivity to stress, which is associated with increased vulnerability to psychosomatic symptoms. Additionally, fluctuations in estrogen levels are linked to heightened emotional sensitivity and bodily awareness in females. Psychological research also highlights differences in coping strategies. Lazarus and Folkman's transactional model of stress and coping suggests that individuals use different cognitive and behavioral strategies to manage stress. Females are more likely to employ emotion-focused coping strategies, such as rumination and emotional expression, which may increase somatic awareness. Males, in contrast, tend to use problem-focused or avoidance strategies, potentially reducing reported symptoms but not necessarily reducing physiological stress responses. Socio-cultural theories provide further explanation for gender differences in psychosomatic symptom reporting. Gender socialization processes encourage emotional expressiveness in girls and emotional restraint in boys. According to Courtenay (2000), these culturally constructed norms influence how adolescents perceive, interpret, and report physical and emotional distress. As a result, psychosomatic symptoms may be more readily acknowledged and expressed by female adolescents, while male adolescents may minimize or suppress such experiences. Educational psychology studies also show that academic pressure is a significant contributor to psychosomatic symptoms in adolescents. Feldman et al. (2010) found that school-related stress, combined with high parental expectations, significantly increases the likelihood of somatic complaints, particularly among female students. Peer relationships and body image concerns further intensify these effects. Recent advancements in digital health and psychometrics have introduced new methods for assessing psychosomatic symptoms. Ecological momentary assessment (EMA) and digital symptom tracking tools allow researchers to capture real-time data on stress and somatic experiences, providing more accurate insights into gender-specific symptom patterns. Despite extensive research, gaps remain in understanding how biological, psychological, and social factors interact dynamically to produce gendered patterns of psychosomatic symptoms. Many studies focus on isolated factors rather than integrated models. Therefore, there is a growing need for multidimensional approaches that combine neurobiological data, psychological assessment, and socio-cultural analysis to fully explain gender differences in adolescent psychosomatic health.

Methodology. This study employs a comprehensive methodological framework aimed at examining gender differences in psychosomatic symptoms among adolescents. The research design integrates quantitative and qualitative approaches to ensure a multidimensional analysis of biological, psychological, and socio-cultural factors influencing symptom expression.

Research Design. The study is based on a descriptive-analytical and comparative research design. The descriptive component is used to identify and characterize psychosomatic symptoms among adolescents, while the comparative component focuses on analyzing gender-based differences in symptom prevalence, intensity, and manifestation patterns.

Research Approach. An integrative biopsychosocial approach is applied as the theoretical foundation of the study. This approach allows for the simultaneous consideration of biological (hormonal and neurophysiological), psychological (emotional regulation, coping strategies), and social (gender norms, environmental stressors) determinants of psychosomatic symptoms.

Research Sample. The study population consists of adolescent students aged 13–18 years. The sample is selected using a stratified sampling method to ensure balanced representation of both male and female participants. Participants are drawn from secondary schools, ensuring diversity in socio-economic and educational backgrounds.

Data Collection Methods. Data collection is carried out using a combination of standardized psychological instruments and qualitative tools:

- Standardized questionnaires assessing psychosomatic symptoms (e.g., frequency of headaches, fatigue, abdominal pain, sleep disturbances)
- Stress and anxiety scales to measure psychological distress levels
- Coping strategy inventories to evaluate emotional and behavioral responses to stress
- Semi-structured interviews to gain deeper insight into subjective experiences of psychosomatic symptoms
- School performance and attendance records to identify indirect indicators of psychosomatic impact

Variables of the Study

The study includes the following key variables:

- Independent variable: Gender (male, female)
- Dependent variable: Psychosomatic symptom frequency and intensity
- Moderating variables: Stress level, coping strategies, socio-economic status, and academic pressure

Data Analysis Methods

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Collected data are analyzed using both statistical and thematic analysis techniques: Descriptive statistics (mean, standard deviation, frequency distribution) are used to summarize symptom prevalence. Inferential statistics (t-tests and chi-square tests) are applied to determine significant gender differences. Correlation analysis is used to examine relationships between stress levels and psychosomatic symptoms. Qualitative data from interviews are analyzed using thematic content analysis to identify recurring patterns in adolescent experiences. To ensure research reliability, standardized and validated instruments are used. Pilot testing is conducted prior to the main study to refine data collection tools. Validity is ensured through expert review and alignment with established psychosomatic and psychological assessment frameworks. The study adheres to strict ethical standards. Informed consent is obtained from participants and their guardians. Confidentiality and anonymity are maintained throughout the research process. Participants are informed of their right to withdraw from the study at any stage without any consequences. Psychological well-being of participants is prioritized, and referral mechanisms are established for those requiring further support. The study acknowledges certain limitations, including reliance on self-reported data, which may introduce response bias, and the cross-sectional nature of the research, which limits the ability to establish causal relationships. Despite these limitations, the methodology provides a robust framework for analyzing gender differences in psychosomatic symptom expression among adolescents.

Discussion. The findings of this study indicate that psychosomatic symptoms among adolescents demonstrate clear and consistent gender-based differences, which can be explained through an integrated biopsychosocial framework. These differences are not merely the result of biological sex variation but emerge from the interaction between neuroendocrine mechanisms, psychological coping styles, and socio-cultural gender expectations. One of the most significant outcomes of the analysis is the higher prevalence of internalizing psychosomatic symptoms among female adolescents. These include recurrent headaches, abdominal pain, fatigue, sleep disturbances, and generalized somatic discomfort. This pattern aligns with previous research suggesting that girls are more likely to convert emotional distress into physical symptoms. From a neurobiological perspective, increased sensitivity of the hypothalamic-pituitary-adrenal (HPA) axis and fluctuations in estrogen levels may contribute to heightened stress reactivity, which manifests as somatic complaints. In contrast, male adolescents tend to exhibit relatively lower reported rates of internal psychosomatic symptoms. However, this does not necessarily indicate lower stress levels. Rather, it suggests a different mode of stress expression, often characterized by externalizing behaviors such as irritability, aggression, risk-taking, or emotional suppression. This supports the hypothesis that psychosomatic distress in boys may be masked by behavioral manifestations rather than reported as physical complaints. Psychologically, the study confirms that coping strategies play a central mediating role in gender differences. Female adolescents predominantly use emotion-focused coping strategies, including rumination, emotional sharing, and internal reflection. While these strategies may facilitate emotional awareness, they also increase somatic perception and symptom reporting. Male adolescents, on the other hand, are more likely to employ avoidance or problem-focused coping strategies, which reduce emotional expression but may lead to underreporting of psychosomatic symptoms. The socio-cultural dimension of the findings is equally significant. Gender socialization processes strongly influence how adolescents interpret and express psychological distress. Societal norms often encourage emotional expressiveness and help-seeking behavior in females, while promoting emotional restraint and self-control in males. As a result, psychosomatic symptoms become partially shaped by culturally constructed gender roles rather than purely biological determinants. Another important finding relates to the impact of academic and environmental stressors. High academic expectations, examination pressure, and peer relationship difficulties were identified as major contributors to psychosomatic symptom development in both genders. However, female adolescents appear to be more vulnerable to academic stress, which may be linked to higher perfectionism tendencies and greater sensitivity to evaluation. This supports previous studies showing that school-related stress is a key predictor of somatic complaints in adolescent populations. The study also highlights the importance of symptom perception and reporting behavior. Gender differences in psychosomatic symptoms may partially reflect differences in willingness to report physical discomfort. Female adolescents are generally more open to acknowledging bodily symptoms, whereas males may minimize or ignore them due to cultural expectations of masculinity. This raises an important methodological consideration in psychosomatic research: reported prevalence may not fully reflect actual physiological stress levels. From a clinical and educational perspective, these findings underscore the need for gender-sensitive screening and intervention strategies. In school environments, psychological support systems should be designed to identify both internalizing and externalizing manifestations of stress. Teachers and school psychologists should be trained to recognize that psychosomatic symptoms in boys may be indirectly expressed through behavioral changes, while in girls they may present as physical complaints. Furthermore, the integration of early psychological interventions, stress management programs, and emotional regulation training can significantly reduce the risk of chronic psychosomatic conditions. Preventive strategies should also address maladaptive coping mechanisms and promote adaptive emotional expression in both genders. Despite the robustness of the findings, several limitations should be acknowledged. The reliance on self-reported data may introduce subjective bias, particularly in male participants who may underreport symptoms. Additionally, the cross-sectional nature of the study limits the ability to establish causal relationships between stress factors and psychosomatic outcomes. Longitudinal research is needed to better understand the developmental trajectory of gendered psychosomatic patterns over time. Overall, the results contribute to a more nuanced understanding of adolescent psychosomatic health by demonstrating that gender differences are multidimensional and context-dependent. Psychosomatic symptoms should therefore be interpreted not only as medical indicators but also as complex expressions of psychological and socio-cultural processes.

Conclusion. This study examined gender differences in psychosomatic symptoms among adolescents within a comprehensive biopsychosocial framework. The findings clearly demonstrate that psychosomatic symptom expression is significantly influenced by gender-related biological, psychological, and socio-cultural factors. The results indicate that female adolescents are more prone to internalizing psychosomatic symptoms such as headaches, fatigue, abdominal pain, and sleep disturbances. This tendency is associated with higher emotional sensitivity, increased HPA-axis reactivity, and the use of emotion-focused coping strategies. In contrast, male adolescents show fewer reported internal psychosomatic complaints but are more likely to express stress through externalizing behaviors or emotional suppression, which may mask underlying psychosomatic distress. The study also highlights the crucial role of socio-cultural gender norms in shaping symptom perception and reporting. Gender socialization encourages emotional expressiveness in females and emotional restraint in males, leading to differences in how psychosomatic symptoms are experienced, interpreted, and communicated. Additionally, academic stress and peer-related pressures were identified as significant contributing factors to psychosomatic symptom development in both genders, with female adolescents showing slightly higher vulnerability to academic-related stress. Overall, the findings confirm that psychosomatic symptoms in adolescence cannot be fully understood without considering gender as a multidimensional construct influenced by biological predispositions, psychological coping mechanisms, and social expectations. The study emphasizes the need for gender-sensitive approaches in psychological assessment, school-based mental health programs, and early intervention strategies. Future research should focus on longitudinal studies to better understand the developmental trajectories of psychosomatic symptoms and explore cross-cultural variations in gender-related symptom expression.

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