

THE RELATIONSHIP BETWEEN PERCEIVED PSYCHOLOGICAL STRESS AND IMMUNE SYSTEM FUNCTIONING IN MEDICAL STUDENTS

Abdumannopova Nigora Sobirjon qizi

Toshkent davlat tibbiyot universiteti

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Annotation. Chronic psychological stress has become a widespread condition in modern populations and is increasingly recognized as a significant modifier of immune function. Evidence from psychoneuroimmunology demonstrates that prolonged stress exposure dysregulates neuroendocrine pathways, particularly the hypothalamic–pituitary–adrenal axis, leading to immunosuppression and increased susceptibility to infections. Given the rising burden of stress-related disorders, understanding its impact on immune competence is essential for both preventive medicine and clinical practice.

Purpose. The aim of this study is to investigate the relationship between perceived stress levels and immune system functioning by comparing the frequency of infectious illnesses among individuals with different stress profiles.

Methods and Materials. This study was conducted as a single timepoint descriptive study aimed at exploring the relationship between perceived psychological stress and immune system functioning. The participants were 30 medical university students who voluntarily agreed to take part in the study and provided informed consent. Individuals with known chronic autoimmune disorders, acute infections at the time of assessment, or use of immunosuppressive medication were not included in order to minimize confounding factors affecting immune response.

Perceived stress levels were evaluated using the Perceived Stress Scale (PSS), a standardized and widely validated instrument in psychoneuroimmunology research. Based on the obtained scores, participants were categorized into high-stress and low-stress groups. This classification allowed for a comparative analysis of stress intensity and its potential physiological impact. Since direct laboratory immunological markers were not available in this setting, immune system functioning was assessed indirectly through clinical and self-reported health indicators. Participants provided information regarding the frequency of upper respiratory tract infections over the previous three months, including episodes of Common cold and Influenza, as well as the general duration and perceived severity of these illnesses. Data were collected through structured questionnaires and guided interviews to ensure consistency and reduce recall bias.

All collected information was anonymized and organized for comparative analysis between the two stress groups, focusing on differences in infection frequency and overall susceptibility to illness in relation to stress levels.

Results. The analysis of collected data demonstrated a clear difference in immune-related health outcomes between participants with high and low perceived stress levels. Individuals classified in the high-stress group reported a higher frequency of upper respiratory tract infections over the previous three months compared to those in the low-stress group. In particular, episodes consistent with Common cold were more frequently observed among participants with elevated stress scores.

Similarly, cases of Influenza were reported more often in the high-stress group, and these episodes tended to be described as longer in duration and more severe in symptom

presentation. In contrast, participants in the low-stress group generally reported fewer infectious episodes and a shorter duration of illness when infections did occur.

Overall, the comparison between the two groups indicated a consistent pattern: increased perceived stress was associated with a higher susceptibility to infectious diseases and a greater burden of illness symptoms. These findings suggest a negative correlation between stress levels and immune system efficiency within the studied population.

Conclusion. The findings of this study indicate that higher levels of perceived psychological stress are associated with increased susceptibility to infectious diseases and a greater burden of illness symptoms. Participants with elevated stress scores demonstrated more frequent episodes of upper respiratory tract infections, including Common cold and Influenza, compared to individuals with lower stress levels. This supports the concept that stress negatively influences immune system efficiency through neuroendocrine-immune interactions, particularly via stress-mediated hormonal pathways.

Overall, the results are consistent with existing evidence in psychoneuroimmunology, suggesting that chronic psychological stress contributes to immune dysregulation and increased vulnerability to infections. These findings highlight the importance of stress management as a preventive strategy in maintaining immune health and reducing disease risk in young adult populations.

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