

# USING OF DETERMINATION OF BLOOD HORMONE LEVELS AND PERSONALITY TRAITS FOR THE INVESTIGATION OF AGGRESSIVENESS DEVELOPMENT MECHANISMS IN HUMAN: OPPORTUNITIES AND RESTRICTIONS

POPOVA L., VASYLYEVA I.M., NAKONECHNA O. A.  
KHARKIV NATIONAL MEDICAL UNIVERSITY, UKRAINE;  
e-mail: popova\_ld@ukr.net

Aggression is a significant problem in contemporary society, but the mechanisms of aggression development are insufficiently studied. Most studies were carried out on animals. Research in humans is limited to conducting psychological tests, blood plasma analysis, magnetic resonance imaging of the brain. Since the personality traits of a person is a reflection of its neurohumoral status, the study of the interrelationships between hormones and personality traits in men and women of different age groups and different populations is very important for understanding the mechanisms of the development of aggression. The purpose of our work was to identify the relationship between anxiety, neuroticism, physical aggressiveness, aggressiveness index and catecholamines, sexual and thyroid hormones. The study involved 132 students of the Kharkiv National Medical University from 18 to 22 years old (113 participants were Ukrainians and 13 subjects were citizens of India). All procedures performed in the study were in accordance with the ethical standards of the Medical Ethics and Bioethics Commission of the Kharkiv National Medical University and with the 1964 Helsinki Declaration and subsequent amendments. Anxiety, physical aggressiveness, neuroticism and extraversion were assessed using the Spielberger State-Trait Anxiety Inventory, the Buss-Durkee Hostility Inventory and the Eysenck Personality Questionnaire, respectively. Blood serum levels of hormones were determined using ELISA kits (Italy) for testosterone, estradiol, T3, T4 and cortisol; ELISA kits (China) for norepinephrine and adrenaline. The analysis of the received data was carried out using non-parametric approaches with the software Statistica 6.0. Nonparametric analogues of the dispersion analysis – Kruskal–Wallis test and median tests – were used to detect the dependence of parameters on the group. To compare the groups in pairs, Mann–

Whitney's U-criterion and Spearman's correlation analysis were used. At the first stage of the study involving 113 young Ukrainian men, the personality traits of participants were assessed and analyzed. The analysis of the results showed a significant positive correlation between anxiety and neuroticism, a moderate positive correlation between neuroticism and physical aggression, and a significant negative correlation between anxiety and extraversion. By dividing participants into subgroups according to the levels of extraversion, neuroticism and anxiety, we have identified the peculiarities of these relationships within each group. In particular, men with high anxiety had a high positive significant correlation between aggressiveness index and anxiety, and in persons with low anxiety, there was a negative almost statistically significant ( $p=0.052$ ) correlation between anxiety and neuroticism, as well as a significant positive correlation between neuroticism and aggressiveness index. At the second stage of the study, involving 19 Ukrainian and 13 Indian young men, the personality traits of participants were assessed and blood hormone levels were studied. A significant negative correlation between physical aggressiveness and cortisol to testosterone ratios was found in Ukrainian men, while in the Indian ones, there was a strong negative correlation between physical aggressiveness and norepinephrine levels. In men of Indian population, in comparison with Ukrainian one, a higher level of norepinephrine was found, that may provide powerful control of the expression of physical aggressiveness. Thus, the results of the conducted research indicate the possibility of using this approach to study the mechanisms of development of aggressiveness, but it is necessary to distribute participants to the subgroups, depending on the personality traits; to conduct research in different populations and various social strata of the population.