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APPLICATION OF THE BIOPSYCHOSOCIAL APPROACH TO THE IDENTIFICATION AND
STRENGTHENING OF ADAPTATION MECHANISMS OF HUMAN AND A SMALL SOCIAL GROUP
DURING THE ISOLATION EXPERIMENT SIRIUS 2017 - 2023

Abstract

TOPIC The task of the 21st century is the implementation of manned flights in Earth's orbit with the perspective of building orbital and planetary bases. This requires addressing the impacts on people and small social groups - psychological, psychosocial, physiological and health. The author will present her own comprehensive research and intervention approach to exploring and supporting the operation of space crews within the four-month isolation of the SIRIUS 19 crew, which can be used in the future for manned flights into deep space. **AIM** The aim is to present three main areas designed, within the implementation of social research, to analyze the operation of the crew in a simulated space flight. The key outputs of the comprehensive analysis of SIRIUS 19 crew operations concerning the 1st level of satisfaction with the working environment and conditions, the 2nd structure and dynamics of relationships and 3th specific areas will be presented. The suitability of the implementation of intervention activities for isolated crews will be pointed out. The purpose is to contribute to the preparation of human crews for manned flights in deep space and to reduce the risks of damage to human biopsychosocial health. **METHODS** For a comprehensive analysis, a set of the author's own questionnaire methods, verified for 25 years in normal and extremely demanding conditions of specific professions, was used. Diagnostic and intervention method Sociomapping based on fuzzy theory and mathematical modeling of outputs was used for the analysis of the structure and dynamics of relationships as a technique suitable for the analysis of nonlinear dynamical systems. The methodology enables to obtain a comprehensive view of the experimental situation from a psychosocial and sociological point of view. **RESULTS** The model of the author's analytical approach confirmed the legitimacy of its implementation in the case of isolation experiments. A comprehensive analysis of the SIRIUS 19 crew's work environment yielded outputs from 10 main and 48 sub-areas analyzed. The analysis of a six-member gender-mixed multicultural crew in the area of structure and dynamics of relationships was focused on 35 areas, a total of 344 sociomaps were created. The files were analyzed qualitatively and quantitatively using control diagrams. Significant outputs are also the respondents' proposals for use in another isolation experiment, socio-technical measures for project organizers and verification of the need to introduce work with the crew in the form of development workshops using the Sociomapping method.