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Behaviour, Performance and Psychosocial Issues in Space (1)

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STUDY OF VALUES AND INTERPERSONAL PERCEPTION IN COSMONAUTS ONBOARD OF INTERNATIONAL SPACE STATION

Abstract

The increased heterogeneity of ISS crews' composition (in terms of nationality, profession and gender) together with stressful situations, due to space flight, can have significant impact on group interaction, cohesiveness, as well as communications with MCC and mission success in general. Culturally related differences in values, goals, and behavioral norms could influence mutual perception and, thus, cohesive group formation. The purpose of onboard "Interaction-Attitudes" experiment is to study the patterns of small group (space crew) behavior in extended space flight. We test the following hypothesis: A) Formation of cohesive crew occurs on the basis of sharing of general values, elaborated within the international professional astronauts' culture. B) In the course of group formation, the images of the crew-members could become psychologically close or, contrary, distant (different) to Self-image of the subject. C) Integrity of the subjects' interpersonal perception correlates with the successful psycho-social adaptation in the multinational ISS crew. Personal Self-Perception and Attitudes (PSPA) is software for analyzing subjects' attitudes toward social environment (crew-members and MCC). It is based on the semantic differential of Ch. Osgood (1970) and the repertory grid technique of G. Kelly (1955). On the first stage the subject selects a group of 12 personages, including the other crewmembers and his Ego-image in the past, present and future. On the second stage, the subject creates 12 bipolar scales for evaluation. On the third stage, he makes evaluation of the selected personages, using proposed criteria. PSPA software processed matrix of the subject's evaluations by aid of factorial analysis (principal components method). Onboard studies were performed in the course of ISS Missions 19-29 with participation of ten Russian crew-members. Experimental studies included 3 phases: preflight training and Baseline Data Collection; inflight activities once in two weeks; post-flight measurement. The obtained data demonstrate that the system of values and personal orientations in the majority of participated cosmonauts remained mostly stable under stress-factors of extended space flight. Content-analysis of the important criteria elaborated by the subjects for evaluation of social environment, showed that the most valuable personal traits for cosmonauts are those that provide the successful fulfillment of professional activity (intellectual level, knowledge, self-discipline) and good social relationships (sociability, friendship, tolerance), as well. A set of parameters, representing the integrity level of the subject's interpersonal perception as an indicator of interpersonal stress in the crew was defined. It can be used in practice of psychological selection and inflight support.