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GENDER- AND VALUES-BASED FAULTLINES AS A PREDICTOR OF CREW RELATIONS

Abstract

Future long-distance space exploration (LDSE) crews will likely be diverse in a number of ways including gender. Analog research has linked gender diversity to positive outcomes such as the inclusion of women leading to decreased crew tensions, and to negative outcomes such as gender-diverse crews leading to ineffective crew-level social integration (e.g., subgrouping, alienation). Much of the previous analog research on gender composition, however, has included only one crew and has not examined gender composition across multiple crews. A better understanding of how gender diversity affects crew dynamics and performance, the identification of key moderators of the relationships, and approaches to effectively managing gender diversity is important for future LDSE.

We examined the extent to which gender composition relates to crew dynamics over time with a special interest in faultlines. Faultlines are hypothetical divides between crew members that result in one or more subgroups. Stronger faultlines occur when multiple attributes are aligned. As an example, in a crew of 2 women and 2 men, a stronger faultline occurs when shared values (e.g., traditionalism, hedonism, benevolence) between crew members are also aligned with gender.

Eight 4-person crews, which varied on gender and value composition, were confined to the Human Exploration Research Analog (HERA) at Johnson Space Center for up to 45 days. Data were collected on biodemographics and other individual differences during a pre-mission questionnaire. During the mission, crew relations were collected up to 11 times in mission, and once post-mission. Hindrance ties were operationalized as "Who makes tasks difficult to complete?". Affective ties were operationalized as "Who do you enjoy working with?", and Information ties were operationalized as "Who is a valuable source of information?". Network density was calculated for each outcome.

Preliminary analyses indicated that the presence of two strong value- and gender-value based subgroups were related to fewer positive affect ties. Gender and values-based faultlines were not predictive of hindrance or informational ties. Instead, results suggested that crews with a higher percentage of women reported more hindrance ties. Additional analyses (e.g., team performance as an outcome) will be conducted prior to IAC. Results will be discussed in relation to effective crew management.