Faultlines, as constructs, split teams into two or more subgroups consisting of similar members and may produce isolates: members who are separated into their own individual subgroup. Different categories of faultlines may be conceptualized: demographic based faultlines, or the underlying values based faultlines that result from conflicting values in teams.

Research comparing different faultline measurements within the context of small teams (four members) and the specific team composition attributes relevant for long-duration space exploration (LDSE) is needed.

Demographic attributes, due to covariance between different attributes, are fit to an empirical distribution drawn from the attributes of all past and scheduled ISS missions. Values attribute distributions are fitted based on data collected from the HERA analog environment.

We observe that there tend to be stronger effect sizes between faultline attributes. It is established how frequently we can expect different measures of faultlines strength to produce the same results given the list and distributions of variables theorized to matter in LDSE analogs.

This research advances discussion of the role faultlines play in long-duration space analogs in two regards:

1. To test how robust findings are across different attribute weights. All variables were standardized by dividing by their standard deviation before weighting was applied.

2. To compare how similar two given faultline configurations are, rather than categorizing faultline configurations as either identical or non-identical, we compare for each dyad whether both configurations have spanning ties or internal ties. This approach allows us to compare similarities in the organization of team members into groups in addition to overall faultline strength. Understanding these groupings is important for faultline research examining their effects at an individual level or using a network perspective.

We compare the similarity of the faultline configurations determined by each measurement technique. To demonstrate the effects that attribute weighting may have upon results, we compare the outcomes of three different weightings for each.
References


Monge, P. R., & Contractor, N. S. (2003). *Theories of communication networks*. Oxford University Press, USA.