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Research in extreme unusual environments: From surgery to the South Pole

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Abstract

Research in extreme unusual environments (EUEs) provides real-world opportunities to assess human functioning across a number of psychological and behavioral factors. From clinical venues to glacier ice fields, highly dynamic and unpredictable environments share common characteristics: 1) Reliance on technology for life support and performance; 2) physical and social isolation and confinement; 3) high risk and associated cost of failure; 4) high physical/physiological, psychological, psychosocial, and cognitive demands; 5) human-human, human-technology, and human-environment interfaces; and 6) team coordination, cooperation, and communication. Of particular uniqueness to these environments is the fact that operation and successful performance requires strong team interaction, including coordination, communication, and cooperation. We are dependent upon other participants, either as team members or support members, to ensure successful functioning. Experience in spaceflight, aviation, and other domains indicate that the stressors present in extreme environments, such as fatigue, stress, automation complexity, risk, and confusion, often challenge team processes. It is therefore critical that teamwork in these conditions be examined and understood. There is growing evidence from these studies that assessments of performance and human adaptation to extreme environments must include the contribution of human-habitat, human-environment and mission factors as well. Discussion of actual research in a number of EUEs will be presented.

Biography

Sheryl L. Bishop is a Social Psychologist and Professor at the University of Texas Medical Branch, Galveston, Texas. For the last 25 years, she has investigated human performance and group dynamics in extreme environments, including disaster populations, deep cavers, mountain climbers, desert survival groups, polar expeditioners, Antarctic winter-over groups and various simulated isolated, confined environments. She is widely published and frequently sought out as a content expert by various media and has participated in several television documentaries on space and extreme environments by Discovery Channel, BBC and 60 Minutes.

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