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Coping in the final frontier: An intervention to reduce spaceflight-induced stress¹

Lucas Monzani², Malgorzata Kozusznik³, Pilar Ripoll⁴, Rolf Van Dick⁵
& José M. Peiró⁶

Abstract

Research in human spaceflight has extensively documented how microgravity environments, such as spaceflight across Low Earth Orbit (LEO), affects astronauts' and Spaceflight Participants' emotions. However, a more refined understanding of this topic will become especially relevant as national and international space agencies increase the duration of manned space missions, and as the private sector fully enters the aerospace arena. In this paper, we analyze the strengths and weaknesses of the four main types of interventions for dealing with the stressors associated with human spaceflight (i.e., ergonomic, physiological, psychological, and psychosocial), and then elaborate on a psychosocial intervention

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2 Ivey Business School at Western University, Canada. Research Institute of Personnel Psychology, Organizational Development and Quality of Working Life - IDOCAL, University of Valencia - Spain. Department of Psychology and Sports Sciences and Center for Leadership and Behavior in Organizations, Goethe University Frankfurt, Germany. Email: lmonzani@ivey.ca - ORCID: <https://orcid.org/0000-0002-3375-068X>

3 Work, Organisational and Personnel Psychology Group, Katholieke Universiteit Leuven, Leuven - Belgium. Email: gosia.kozusznik@kuleuven.be - ORCID: <https://orcid.org/0000-0001-7961-8345>

4 Research Institute of Personnel Psychology, Organizational Development and Quality of Working Life - IDOCAL, University of Valencia - Spain. Email: pilar.ripoll@uv.es - ORCID: <https://orcid.org/0000-0003-3786-4024>

5 Department of Psychology and Sports Sciences and Center for Leadership and Behavior in Organizations, Goethe University Frankfurt, Germany. Email: van.dick@psych.uni-frankfurt.de - ORCID: <https://orcid.org/0000-0002-6308-9466>

6 Research Institute of Personnel Psychology, Organizational Development and Quality of Working Life - IDOCAL, University of Valencia - Spain. IVIE. Valencia Institute of Economic Research. Email: jose.m.peiro@uv.es - ORCID: <https://orcid.org/0000-0001-5293-0355>

grounded on evidence-based interventions across several fields of psychological research. Among the components of such interventions, we recommend adopting advanced stress coping strategies, developing emotional and intercultural competencies and crafting a shared social identity among crew members. Our proposed intervention aims to enhance the efficacy of social support as a key coping mechanism and applies to crewmembers and spaceflight participants of diverse cultural backgrounds who, most likely, will work using computer-mediated communication (CMC).

Keywords: spaceflight induced stress; proactive stress coping; Emotional competencies; positive emotional contagion; Social identity; Social support

Lidando com o stresse na fronteira final: uma intervenção para reduzir o stresse induzido por voos espaciais

Resumo

Investigações em voos espaciais tripulados documentaram extensivamente como os ambientes de microgravidade, como voos espaciais pela órbita baixa da Terra (OBT), afetam as emoções dos astronautas e dos participantes do Voo Espacial. No entanto, um entendimento mais refinado deste tópico tornar-se-á especialmente relevante, à medida que as agências espaciais nacionais e internacionais aumentem a duração das missões espaciais tripuladas e que o setor privado entre totalmente na arena aeroespacial. Neste artigo, analisamos os pontos fortes e fracos dos quatro principais tipos de intervenções para lidar com os stressores associados ao voo espacial humano (ergonómico, fisiológico, psicológico e psicossocial) e depois desenhamos uma intervenção psicossocial sustentada em intervenções baseadas em evidências realizadas em vários campos da investigação psicológica. Entre os componentes de tais intervenções, recomendamos a adoção de estratégias avançadas para lidar com o stresse, o desenvolvimento de competências emocionais e interculturais e a criação de uma identidade social partilhada entre os membros da tripulação. A nossa proposta de intervenção visa aumentar a eficácia do apoio social como um mecanismo chave para lidar com o stresse e aplica-se a tripulantes e participantes de voos espaciais de diversas origens culturais que, muito provavelmente, irão trabalhar usando comunicação mediada por computador (CMC).

Palavras-chave: Estresse induzido por vôos espaciais; enfrentamento pró-ativo do estresse; competências emocionais; contágio emocional positivo; identidade social; apoio social