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ASTRO-PSYCHIATRY: A NOVEL SOLUTION FOR MENTAL HEALTH IN SPACE EXPLORATION

Abstract

To date, problems related to major psychiatric issues (e.g., bipolar disorder, psychotic episodes) have not been reported during space missions. However, these syndromes have been reported in up to 5 percent of less well-screened people working in space analog environments, such as submarines and Antarcticbases. With the increasing presence of humanity in space, the risk and occurrence of mental health issues will become inevitable. Currently, the Diagnostic and Statistical Manual of Mental Disorders V (DSMV) is the gold standard classification manual used by mental health professionals in the diagnosis and treatment of mental disorders. Currently, psychological, physiological and neurobehavioral effects of long duration spaceflights, and future permanence of living in space, are still unknown. With the help of the DSM V, we provide a workable and efficient way to develop the Integrated Space Psychiatry System - Virtual Embodiment Tele-psychiatrist Avatar (ISPS-VETA). ISPS is an AI-powered program designed to enhance astronauts' psychological well-being and be used as a countermeasure to psychological problems that may arise while they are on missions. VETA is a multi-modality holo-assisted digital telepresence that offers customized therapy interventions and diagnostic tests. Psychiatry and psychology are the two modes available on the ISPS-VETA. The Psychology mode integrates holistic principles of Body, Mind, and Spirit, or the "overview effect" of Space, using clinically validated therapeutic procedures, such as Cognitive Behavior Therapy to enhance mental wellbeing. During missions, the Psychiatric mode will concentrate on identifying and treating potential mental disorders. By combining astronauts' indications and symptoms experienced during deep space travels in unique mission design and variable gravity conditions, the ISPS-VETA system will enable DSM V scientific knowledge expansion. As a novel concept, ISPS-VETA will offer potential mitigation countermeasures necessary to enable significant improvements in the capabilities for personalized mental health assessment and evaluation, including preventative measures and predictive analytics to significantly improve astronauts' performance, wellbeing, and mental health, ultimately enhancing mission success.