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A LUNAR HABITAT EXPLORATION: HUMAN EMOTIONS AND COLOUR PREFERENCES IN A 14-DAY ISOLATION ENVIRONMENT

Abstract

Considering the plan for human lunar exploration, habitation research became a core focus in order to support the psycho-physiological effects and challenges of confined, narrow and isolated space habitat environment. At present, China's is developing higher habitability requirements to apply to the lunar exploration program called "Chang'e Project". The harmony of the body mechanics, psycho-physiological health and social relation and emotional regulation are only a few aspects that can be improved with a good habitability project. In specific colour plays a significant role in emotional regulation that affects the habitability of the space and as a consequence astronaut's comfort, efficiency and safety.

The study is in collaboration with the Covid-19 Quarantine Center in Xiangtan, China. Investigate the emotion and colour preferences of 20 people (12 male, 8 female) who were quarantined for 14 days due to Covid-19 prevention. Use seven colours (light red, beige, light blue, light green, lavender, light gray and white) to make scenes of the internal environment of the lunar habitat, participants rated how much they liked each of 7 colours on a 0-9 Likert scale. Besides, use the Positive and Negative Affect Schedule (PANAS) to measure the emotional changes of participants during isolation. Participants were tested on the first day, the seventh day, and the 13th day after the start of the quarantine experiment. The time of the three tests was between 10:00-11:00 am. The results showed that PANAS negative emotion scores all showed a slow decrease trend as the isolation time progressed. The positive emotion score is stable. The emotional scores are all in the normal range. The incidence of negative mood symptoms increased on the seventh day of isolation. In addition, the participants preferred light green and lavender, and least liked light gray and white during the isolation period. Colour preference does not change with the change of isolation time. This shows that the 14-day quarantine makes the emotional experience of the participants go from tension and excitement to calmness, from pain to adjustment, and during the whole quarantine, participants prefer cool colours. This research will provide a practical basis for human's emotion changes and colour preferences under spatial isolation and will have a certain reference value for the colour application of the internal environment of the from covid-19 isolation to the lunar habitat in the future.