

Fiscal Year:	FY 2015	Task Last Updated:	FY 10/13/2014
PI Name:	Rose, Raphael Ph.D.		
Project Title:	Self-Guided Multimedia Stress Management and Resilience Training		
Division Name:	Human Research		
Program/Discipline:	HUMAN RESEARCH		
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Behavior and performance		
Joint Agency Name:	TechPort:	Yes	
Human Research Program Elements:	(1) HFBP :Human Factors & Behavioral Performance (IRP Rev H)		
Human Research Program Risks:	(1) BMed :Risk of Adverse Cognitive or Behavioral Conditions and Psychiatric Disorders		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
PI Email:	rose@psych.ucla.edu	Fax:	FY 310-825-9048
PI Organization Type:	UNIVERSITY	Phone:	310-825-9048
Organization Name:	University of California, Los Angeles		
PI Address 1:	Department of Psychology		
PI Address 2:	Box 951563, 1285 Franz Hall		
PI Web Page:			
City:	Los Angeles	State:	CA
Zip Code:	90095-1563	Congressional District:	33
Comments:			
Project Type:	GROUND	Solicitation / Funding Source:	Directed Research
Start Date:	12/11/2013	End Date:	12/10/2016
No. of Post Docs:		No. of PhD Degrees:	
No. of PhD Candidates:	1	No. of Master' Degrees:	
No. of Master's Candidates:		No. of Bachelor's Degrees:	
No. of Bachelor's Candidates:	1	Monitoring Center:	NASA JSC
Contact Monitor:	Leveton, Lauren	Contact Phone:	
Contact Email:	lauren.b.leveton@nasa.gov		
Flight Program:			
Flight Assignment:	NOTE: Period of performance changed to 12/11/2013-12/10/2016 per NSSC information (previously noted as 9/18/2013-10/31/2015 per HRP information)--Ed., 9/9/14		
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Craske, Michelle Ph.D. (University of California, Los Angeles) Smith, Scott Ph.D. (NASA-Johnson Space Center Nutrition Biochemistry Lab)		
Grant/Contract No.:	NNX14AC47G		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	Stress and anxiety-related problems are some of the most common and costly behavioral health problems in society. For those working in operational environments (i.e., astronauts, flight controllers, military), stress and anxiety-related problems before, during, or after missions can seriously compromise efficiency, safety, and performance. To address behavioral health issues like stress, it is important to maximize the privacy, validity, and acceptability of the training and countermeasures used. Technology-based behavioral health programs (e.g., computer or web-based programs) are effective for treating behavioral health problems. These programs increase availability of evidence-based interventions to individuals who are not able or willing to receive such in-person treatments. Our prior research validated the autonomous multimedia resilience training program we created (i.e., Stress Management and Resilience Training for Optimal Performance; SMART-OP). SMART-OP interactively trains users to manage stress and build resilience over 6 weekly training sessions lasting approximately 45 minutes each. Results from a randomized controlled trial with a stressed but otherwise healthy sample (N=66) indicated that SMART-OP decreased perceived stress, improved perceived control over stress, and was rated as significantly more useful than an attention control group that received marketed videos and published material on stress management. SMART-OP was also rated as “excellent” in terms of user-friendliness, acceptability, and had low dropout, and high homework adherence. We propose to evaluate the effectiveness, usefulness, and usability of SMART-OP with a sample of flight controllers and instructors (including those in training flow) at Johnson Space Center by comparing it to an attention control group. Additionally, we will examine the effects of self-guided stress management and resilience training on biomarkers for stress (i.e., cortisol, a-amylase), heart rate, and cognitive and behavioral performance. Based on several meetings with the Space Flight Resource Management (SFRM) Working Group, we learned that trainees are not progressing through the training flow satisfactorily and that they identified stress as a potential contributor to poor trainee performance. Additionally, stress was identified as an area of concern to address with flight controller and instructors. Since SMART-OP significantly reduced perceived stress, increased perceived control over stressors, and was rated as highly useful, SMART-OP could provide helpful stress management training for flight controllers. Also, since SMART-OP is evidence-based, confidential, and self-directed, it may be more acceptable to flight controller trainees than other programs.
Rationale for HRP Directed Research:	This research is directed because it contains highly constrained research.
Research Impact/Earth Benefits:	An important aspect of the research that NASA supports is the potential applications on Earth and benefits to society in general. Stress-related health and mental problems are among the most common and costly in the country. Further validation and development of SMART-OP can help potential further dissemination of the program to other populations, for example, those who work in operational settings (e.g., military, police, emergency room personnel), including their family members, or to those who lead stressful lives (which could be applicable to nearly any individual). SMART-OP could have significant impact on Earth in helping people manage the deleterious effects of stress thereby addressing a major aspect of the important work that NASA pursues and supports.
Task Progress:	Summary: SMART-OP (Stress Management and Resilience Training for Optimal Performance) is a self-guided, multimedia, interactive, computer-based, stress management and resilience training program based on evidenced-based cognitive-behavioral principles. The main aim of this project is to evaluate SMART-OP for efficacy and acceptability in a randomized controlled trial (RCT) with a sample of stressed but healthy flight controllers/instructors at NASA-Johnson Space Center (JSC). During this past (first) year of the project, we worked on various areas required to set up the study at JSC and also began participant recruitment and enrollment. Study Implementation: The majority of work this past year was spent on various aspects of implementing the study at JSC. The study is designed to be conducted in a self-guided fashion where possible which means the study participant needs to conduct much of the assessment and all of the stress management training independently (i.e., without research coordinators). IRB (Institutional Review Board) protocols and approvals were obtained at JSC and UCLA to conduct the study. Biweekly teleconferences with NASA Behavioral Health and Performance (BHP) personnel addressed various areas of study implementation and maintained regular communication. Our progress this year covered several areas including reserving and setting up a study room on site to conduct the study including assessments. Study computers and iPads were programmed and authenticated for use in the study. Additional study materials were purchased including heart rate monitors. There were several logistical/technical issues/hurdles that were addressed to give the UCLA research team required access to conduct the study from afar. Accomplishing this involved regular communication with JSC BHP and IT staff and personnel. The UCLA research team made two trips to JSC to address various aspects of study implementation including giving several informational session presentations for study recruitment; adding software and other information to JSC computers for assessments and stress management training sessions; testing computers for functionality and reliability; and testing the downloading of training session and assessment data for functionality. Assessment Procedures: The UCLA research team created several assessment tasks required for the study. The tasks involved computer programming so that study participants could conduct much of the assessments in a self-guided fashion. These involved creating online questionnaires, programming for computerized tasks designed to frustrate/stress users, modification of the neuropsychological battery for use in current study, creation of study protocols instructing the user how to conduct assessments and stress management training sessions on their own. The JSC Nutritional Biochemistry Lab (NBL) is leading a portion of the assessment procedures which involve collection of saliva and urine to measure stress biomarkers (cortisol and alpha amylase). This part of the assessment procedures was developed jointly between the UCLA and NBL teams, protocols formulated, and then the procedures were tested during the visits of the UCLA team to JSC. SMART-OP Program Revisions: We made modifications to the SMART-OP program needed for implementation in the current study. Recruitment: Participant recruitment is being coordinated by the UCLA team in conjunction with TSS and BHP personnel. Several presentations were made by the Principal Investigator (PI) at JSC to generate study interest; advertising was done in the JSC Today; pamphlets, and email announcements sent to various departments and personnel at JSC. Randomized Controlled Trial: Study enrollment recently commenced. At the time of this report, 17 individuals have been cleared by TSS at NASA to participate in the study; 12 of them have been consented, 10 screened, and 5 of those met our eligibility criteria. Of the 5 eligible participants two have completed their pre-assessments and the remainder are scheduled to complete theirs.

Bibliography Type:	Description: (Last Updated: 02/11/2021)
Articles in Peer-reviewed Journals	Rose RD. "Self-guided multimedia stress management and resilience training." Journal of Positive Psychology. 2014;9(6):489-93. http://dx.doi.org/10.1080/17439760.2014.927907 , Apr-2014