11. PHIT for Duty, a Mobile Health Assessment and Intervention Application of Post Traumatic Stress and Psychological Disorders
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Background and Objectives:
Psychological health problems, including major depression, sleep disturbances, generalized anxiety, and post traumatic stress disorder (PTSD), have an estimated prevalence of 16% in post-deployed soldiers and Marines. However, individuals with subclinical findings are not likely to be referred and may not avail themselves of psychological care or interventions that may prevent the development of PTSD or other disorders. Many could benefit from early self-help interventions (SHIs), thereby mitigating PTS symptoms and improving quality of life. Furthermore, many individuals with PTSD either do not seek treatment or drop out before they can benefit. The PHIT for Duty mobile application supports these at-risk populations by monitoring health and behavior in a private, personal way, offering tailored SHIs to mitigate symptoms and prevent disease, and advising those at great risk to seek professional help.

Methodologies:
Using RTI’s Personal Health Intervention Tool (PHIT) platform, PHIT for Duty integrates a suite of health assessments with an intelligent virtual advisor that recommends, tailors, and presents SHIs based on established rules and scripted processes. PHIT for Duty comprises a smartphone/tablet app, and optional physiological sensors for health status monitoring. Baseline and psychological assessments are entered using self-report forms and questionnaires. Objective data are acquired via interactive exercises and physiological sensors. To assess arousal, stress reactivity, and sleep quality, sensors for heart rate variability (HRV), sleep stages, and body motion transmit data to the smartphone via Bluetooth wireless. Periodic assessments of stress, depression, anxiety, alcohol use, and sleep quality are analyzed to recommend activities designed to reduce symptoms and prevent disease. These include stress relaxation meditation, progressive muscle relaxation, cognitive behavior therapy, cognitive restructuring, and tailored health messaging.

Results to date:
PHIT for Duty has been developed for Android and iOS smartphones and tablets, and currently includes over 25 psychometric, combat and trauma exposure, and other data collection instruments and evaluations. Self-help interventions have been developed for stress, sleep problems, and alcohol abuse, including multimedia health information modules, stress relaxation breathing exercises, and cognitive behavior therapies for sleep and alcohol use. The mHealth application is currently being evaluated in usability and other validation studies, and will be used in a randomized controlled trial of post-deployed military personnel.

Conclusions:
PHIT for Duty is being developed as a preventive methodology to reduce the impact of stress exposures in military personnel. The application provides psychological health assessment in a personal platform to provide privacy, reduce stigma, and encourage user adherence to tailored health interventions.