



Short Reports:

Helping Physicians Reduce Stress in the Workplace (Cleveland Clinic Abu Dhabi, UAE)

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Abstract: Medical teams across several multi-specialties set out to reduce stress at work by testing a point of care application-based stress reduction program. Using guided imagery to apply the BREATHE technique, clinicians in at the Cleveland Clinic Abu Dhabi (UAE) tested their heart rate prior to using and after use of the program. Our results showed that physicians were able to significantly reduce their heart rates to de-stress by using this technique. This is consistent with published research for nurses and other individuals and proven as an effective coping strategy for stress reduction. Stress reduction app-based programs may be used as a tool to prevent burnout and increase wellbeing in the workplace.

Key words: stress; burnout; BREATHE; workplace; healthcare; wellbeing; organization

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As efforts are underway to improve the wellbeing of employees in the UAE and abroad, it is of interest to see how small changes can improve workplace stress, particularly in the helping professions, known to experience burnout at high rates. Accordingly, we hypothesized that physicians in a multi-specialty medical group may effectively be able to lower workplace stress using an application (app)-based stress reduction program.

Data regarding stress in the workplace is of growing concern as work stress negatively impacts the health and wellbeing of the respective workforce. Research suggests that healthcare workers are not immune to workplace stress. In fact, data suggests heavy workloads, shift work, moral distress, and compassion fatigue are frequently experienced by clinicians and may lead to burnout (Epstein & Privitera, 2016). Recent research from the American Medical Association suggests nearly 50 percent of medical students across all U.S. medical schools experience burnout (Shanafelt et al., 2015). Stress reduction programs aimed at reducing workplace stress for clinicians, such as the use of point of care applications have been successful in preventing burnout; many of these include positive psychology interventions, such as mindfulness and mindfulness-based stress reduction (MBSR) methods (Janssen, Heerkens, Kuijer, van der Heijden, & Engels,



2018; Lomas, Medina, Ivtzan, Rupperecht, & Eiroa-Orosa, 2017; Panagioti et al., 2017; West, Dyrbye, Erwin, & Shanafelt, 2016).

The Present Study

Participants

Twenty-nine physicians in a multi-specialty medical group in Abu Dhabi (UAE) participated in a voluntary 30-day workplace stress reduction competition. Teams composed of physicians in various medical specialties were encouraged to use an application-based stress reduction program and were incentivized to participate with a wellness-related reward. Physicians representing 10 medical specialties participated and used an app-based stress reduction program. Data was collected and summarized with no identifiers and classified based on specialty groups.

Method

The application featured a seven-step stress reduction methodology known as the BREATHE technique which combines guided imagery and focused controlled breathing. Participants were encouraged to use the application during short work breaks. Users received real-time feedback from the smartphone application which included a heart rate sensor feature. All participants were prompted to record their heart rate once before, and once after completing the stress reduction exercise as demonstrated by the application.

Results

We found a statistically significant fall in heart rate in users of the stress reduction application, an objective measure of stress reduction. An average fall in heart rate of 5 beats/min was observed in app users with average heart rates of 70/min at baseline and 65/min post app usage. A fall in heart rate was observed in all physicians on all teams which were composed of 10 different medical specialties. ANOVA and paired t-tests were used for statistical analysis. The p -values were $p < .04$ and $p < .0001$ respectively. Results are significant at $p < .05$.

Discussion

The competition showed how an accessible, application-based stress reduction tool, equipped with real-time heart rate feedback, helped physicians effectively reduce stress at work. Stress reduction techniques demonstrated on the application were learnable and positive results were reliable, consistent and reproducible. Data also suggested users quickly learned the stress reduction technique and maintained proficiency of the skill. Learnability and reliability were illustrated by users who consistently exhibited a fall in heart rate with consecutive and repeated use of the app.

Limitations and Future Directions

Despite our small sample size, these findings are significant and consistent with previous literature indicating how individual-focused stress reduction programs can result in clinically meaningful reductions in burnout among physicians (Janssen et al., 2018; Lomas et al., 2017; Panagioti et al., 2017; West et al., 2016). Similarly, in a randomized trial of nurses at risk for burnout, subjective and objective reductions in stress levels were observed when the application-



based stress reduction program was used during short work breaks. The proposed mechanism for the significant fall in heart rate observed following application usage was likely due to a decrease in sympathetic tone and increase in parasympathetic tone which was elicited by controlled breathing and guided imagery.

Though further studies are needed, we believe an application-based stress reduction program is a viable solution to help encourage physicians to practice self-care and may help prevent burnout long term (Sanchez-Reilly et al., 2013). The application provides effective individual coping strategies, gives user's real-time feedback, helps build resiliency, and encourages self-care. We strongly believe, when practiced regularly, an application based program can help physician maintain meaning, balance and personal satisfaction throughout their careers and practice of medicine.

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