The effect of multisensory recharge rooms on healthcare frontline mental health

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Introduction

Clinician burnout, characterized by reduced professional efficacy, depersonalization emotional exhaustion, had been increasing in the United States long before the coronavirus disease 2019 (COVID-19) pandemic arrived. Surges of critically ill patients have required physicians, nurses, and other clinicians to endure extreme workloads in unfamiliar practice environments with shortages in personal protective equipment and other supplies, all while navigating severe disruptions to daily life outside of work. The confluence of these factors can impose moral suffering, fear, outrage, disgust, and depletion among health care workers who may feel unprepared, unprotected, and unheard. Given the potential consequences for patient safety and care quality, the current need for brief, feasible, and scalable interventions to promote health care worker wellness and resilience is unprecedented. Healing environments designed to reduce stress and increase control can result in less need for pain medication, fewer medical errors, better sleep, and improved outcomes but to our knowledge have not been implemented or investigated in front line healthcare workers treating patients with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

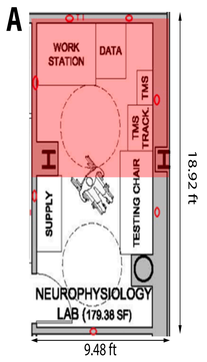
Table 1: User experience questionnaire characteristics.

Question (Response Range)	Lower anchor	Upper Anchor
1. *What was your stress level like when you walked in? (1-6)*	Not stressed at all	Extremely stressed
2. *What is your stress level like after your experience? (1-6)*	Not stressed at all	Extremely stressed
3. *How would you rate your overall experience? (0-6)*	Not good at all	Very good
4. *How likely are you to recommend this experience to a friend or colleague? (0-10)*	Not at all willing	Very willing
5. *Any additional comments? (N/A)*	N/A	N/A

Design :

We rapidly converted custom-designed ”Recharge Rooms” to provide an opportunity for the staff to rest and feel rejuvenated. The rooms featured multisensory input inspired by nature. They included silk imitation plants, projected scenes of soothing natural landscapes, low lighting tailored in color to match the landscapes being projected, high-definition audio recordings of nature sounds paired with relaxing music, and an infusion of essential oils and calming scents.

A



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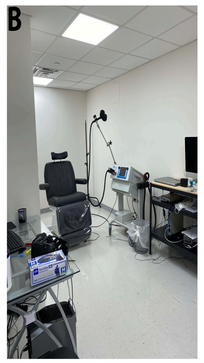

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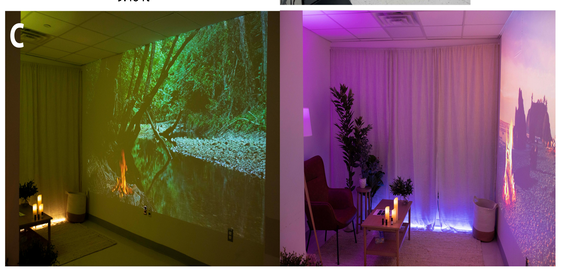


Methods :

Prior to entering the Recharge Rooms, users were prompted to complete a single-item Likert-style measure of perceived stress (Question 1, Table 1) on a tablet. After a 15-minute experience in the Recharge Room, as users exited the room, they were again prompted to complete a measure of their perceived stress levels (Question 2, Table 1), an overall rate of their experience (Question 3, Table 1) and the Net Promoter Score, a well validated measure of user experience (Question 4, Table 1). Finally, respondents were given the option of providing additional comments in an open-ended “additional comments” section prior to submission of the online survey form (Question 5, Table 1). We calculated descriptive statistics, conducted a paired t-test to quantify changes in stress levels, and calculated a net promoter score. All analyses were conducted in MATLAB version R2019b.

Results:

Four-hundred ninety-five front line healthcare workers requested use of the space during an unselected consecutive 4-day period. At the time of data collection, the hospital had already admitted and managed 6,690 COVID-positive inpatients, with 1034 of these requiring intubation and ventilator management. The surge continued throughout the data collection period, with hospital staff admitting more than 600 COVID-positive cases daily and ventilator utilization was at nearly 70% of the hospital’s capacity. After a single 15-minute experience, users reported an average 60% reduction in stress levels ($p<0.001$; paired t-test). The overall perceived stress level (0 to 6 range) prior entering the Recharge Room was 4.58±0.04 (Figure 1) and after the recharge room experience was 1.85±0.05 (Figure 2). 92% of the participants rated the experience as very good (score rating 6). The Net Promoter Score for the experience was 91%, with 100% of respondents identifying as “promoters” (scores ranging between 8-10) of the experience.

Figure1

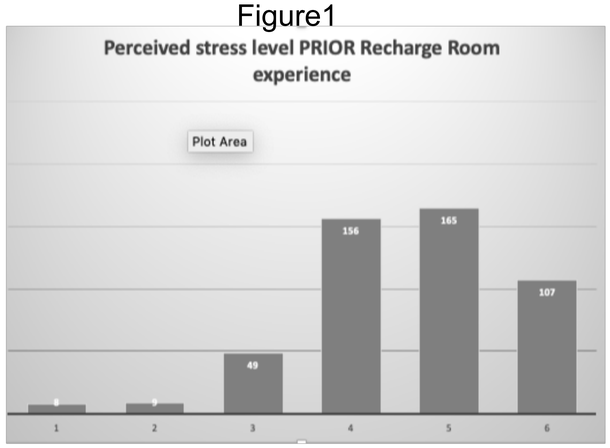
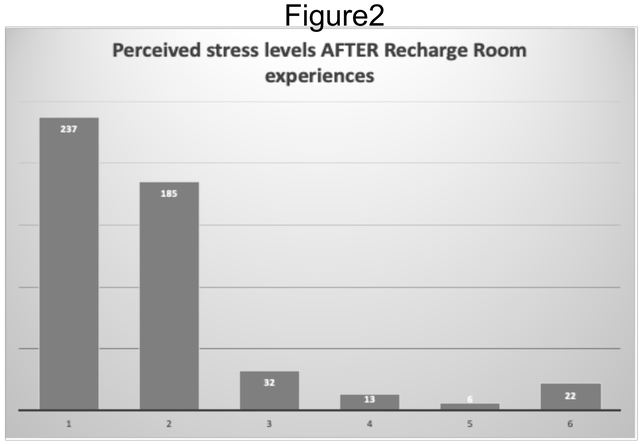


Figure2



Conclusion:

These findings support the potential utility and importance of this low-cost, readily scalable space for healthcare workers There exists only limited evidence for the effectiveness of interventions designed to address stress and burnout in healthcare workers, though the need for such interventions is widely recognized. Recharge Rooms such as those described herein may facilitate short-term alleviation of distress experienced by front line responders to the COVID pandemic.

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