
POSTER ABSTRACT

Pilot Randomized Controlled Trial of Multi-Disciplinary Community-Based Biofeedback Vs Health Promotion Programs on Mental Health And Drug Use Among People Experiencing Homelessness

23rd International Conference on Integrated Care, Antwerp, Flanders, 22-24 May 2023

Adey Nyamathi¹

1: University of California Irvine, Sue & Bill Gross School of Nursing, Irvine, California, United States

Background: PEH are most vulnerable to COVID-19 due to high levels of chronic disease and social isolation. However, in Skid Row Los Angeles, there are limited resources for mental health and drug treatment services. Biofeedback (BF) has been found to decrease depression and substance use among drug users; however, no studies have assessed the impact of BF on PEH during the COVID-19 pandemic.

Aim: Our multi-disciplinary team designed and pilot tested an 8-week Heart Rate Variability-Biofeedback (HRV-BF) intervention, utilizing a nurse-led, Community Health Worker model of care with 50 people experiencing homelessness (PEH) as compared with a Health Promotion (HP) program. Our goal was to establish feasibility of the program, and to assess effects HRV-BF on measures of HRV, mental health and drug use as compared to HP.

Methods: Utilizing Community Based Participatory Research (CBPR) principles, a community advisory board was established to refine the HRV-BF intervention and assess acceptability and feasibility. We enrolled 40 PEH and randomized into HRV-BF vs HP program and assessed a) impact on anxiety and depression; b) HRV and cortisol indices; and c) drug and alcohol use among all participants.

Results: In total, 40 PEH were enrolled with 36 completing the intervention; 17 HRV-BF and 19 HP. Majority were male (80%) and were equally Black (37.5%) or Hispanic (35%). The mean age of PEH was 49 (SD 16.7), median age 53. The HRV measure RMSSD (root mean square of successive differences between normal heart beats, a time-based variable reflecting vagally mediated HRV), assessed during the resting 5-minute period, showed significant increases in 71% of participants (75% among HRV-BF and 68% among HP), using paired t-tests with natural log transformed variables, $p=0.004$, and by non-parametric tests, $p=0.006$ (p values one-sided). Across the sample, PHQ-9 (depressive symptoms) showed marginally significant improvement ($p=0.09$). Anxiety and Mental Health Inventory scores showed improvement, though not significant. Between-group analysis showed the HRV-BF group had better GAD-7 and MHI scores at 8 weeks (post-intervention), though not statistically significant. Chronic disease was found to be high in both groups (67% among HRV-BF and 82% among HP). No significant differences were found in terms of substance use.

Conclusions: As the first known study to date examining the role of a biofeedback self-regulation training on biomarkers of stress/mental health measures among PEH, our study shows

feasibility and acceptability among the study population and positive initial results for both arms of the study. We plan to extend the follow-up period beyond the intervention period of 8 weeks to establish the sustainability of the intervention.

Funding: Susan Samueli Integrative Health Institute Pilot Studies Award