Multimodal Stress-Management Intervention Improves Physiological, Psychological, and Productivity of Assembly-Line Workers

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ABSTRACT

Stress-related problems experienced by blue collar workers have become one of the most prevalent health and safety risks and relate to loss of productivity or other poorer quality of work. Their inability to cope with the environmental demands leads to certain responses involving a complex interaction between physiological and psychological mechanism. This study aimed to evaluate the effect of multimodal stress management intervention at individual-level approach (biofeedback and work-life balance) on multiple outcome measures: physiological, psychological and productivity. A sample consisted of 18 female assembly-line operators who perceived extremely severe level of depression, anxiety, and stress, attended six-week heart rate variability (HRV) biofeedback and work-life balance training sessions. We found significantly improved physiological HRV physiological coherence, reduced negative emotional symptoms, and increased productivity (all \(p<0.01\)). The repeated measures correlation analysis also showed medium to strong association between all outcome measures (\(\mid r_{rm} \mid >0.53\)). The possible mechanism of these parallel findings discussed as well as its practical implication. Nevertheless, our lack of sample and less rigorous research design limited us to infer generalizability and causality. Despite these drawbacks, our study demonstrates a potential use of combining HRV biofeedback and other stress management approach for improving worker’s overall well-being and work performance.

KEYWORDS: Stress, Physiology, Biofeedback, Productivity, Assembly-Line, Ergonomics

DOI: [https://doi.org/10.7232/iems.2020.19.4.812](https://doi.org/10.7232/iems.2020.19.4.812)
ACKNOWLEDGMENT

This study was supported by a research grant under the pure sciences project category from the University of Malaysia Pahang (RDU 192404) “The Design of Stress and Work-Life Management Program to Improve Work Performance”. The authors acknowledge the BI Technologies Corporation, Sdn Bhd, particularly the production department staff and supervisors for assisting with the study.