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## Open-plan office noise is stressful: multimodal stress detection in a simulated work environment

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### Abstract

The coronavirus disease 2019 (COVID-2019)-induced changes in the workplace present a timely opportunity for human resource management practitioners to consider and remediate the deleterious effects of noise, a commonly cited complaint of employees working in open-plan office (OPO) environments. While self-reports suggest that OPO noise is perceived as a stressor, there is little experimental research comprehensively investigating the effects of noise on employees in terms of their cognitive performance, physiological indicators of stress, and affect. Employing a simulated office setting, we compared the effects of a typical OPO auditory environment to a quieter private office auditory environment on a range of objective and subjective measures of well-being and performance. While OPO noise did not reduce immediate cognitive task performance compared to the quieter environment, it did reduce psychological well-being as evidenced by self-reports of mood, facial expressions of emotion, and physiological indicators of stress in the form of heartrate and skin conductivity. Our research highlights the importance of using a multimodal approach to assess the impact of workplace stressors such as noise. Such an approach will allow HR practitioners to make data-driven recommendations about the design and modification of workspaces to minimize negative effects and support employee well-being.

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