

## Disentangling the Sources and Context of Daily Work Stress: Study Protocol of a Comprehensive Real-Time Modelling Study Using Portable Devices

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**Abstract :** Introduction and Aim: Chronic workplace stress and its health-related consequences like mental and cardiovascular diseases have been widely investigated. This project focuses on the sources and context of psychosocial daily workplace stress in a real-world setting. The main objective is to analyze and model real-time relationships between (1) psychosocial stress experiences within the natural work environment, (2) micro-level work activities and events, and (3) physiological signals and behaviors in office workers. Methods: An Ecological Momentary Assessment (EMA) protocol has been developed, partly building on machine learning techniques. Empatica® wristbands will be used for real-life detection of stress from physiological signals; micro-level activities and events at work will be based on smartphone registrations, further processed according to an automated computer algorithm. A field study including 100 office-based workers with high-level problem-solving tasks like managers and researchers will be implemented in Slovenia and Belgium (50 in each country). Data mining and state-of-the-art statistical methods – mainly multilevel statistical modelling for repeated data – will be used. Expected Results and Impact: The project findings will provide novel contributions to the field of occupational health research. While traditional assessments provide information about global perceived state of chronic stress exposure, the EMA approach is expected to bring new insights about daily fluctuating work stress experiences, especially micro-level events and activities at work that induce acute physiological stress responses. The project is therefore likely to generate further evidence on relevant stressors in a real-time working environment and hence make it possible to advise on workplace procedures and policies for reducing stress.

**Keywords :** ecological momentary assessment, real-time, stress, work

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