Why EMA is suitable in measuring work-related stress

STRAW-PROJECT
Research about STRess At Work

Problem statement

Work-related stress has been **mainly assessed using surveys** [1] providing information at a single point in time. As a result, **no detailed investigations** on how various factors **gradually influence stress during the workday**, can be conducted.

Advantages of EMA

In contrast to surveys, the use of an Ecological Momentary Assessment (EMA) enables **measuring the dynamic changes in stress**, and what potentially evoked these changes, occurring throughout the workday in the **natural environment** [1, 2, 3]. Next, prompting measurements in real-time **reduces possible recall biases** in self-reported measures, subsequently **raising data validity** [2, 3].

Statistical analyses

- **Mixed-effects modelling** [1, 2, 3, 4] is well-suited to deal with irregular sampling intervals, missing data, and (notable) differences between individuals.
- Alternatively, **multilevel path analyses** [5] can be conducted in order to capture underlying relations between included variables (i.e., what variables moderate or mediate the observed relations).

Practical considerations

- EMA studies may **require additional expertise** in smartphone technology depending on the study protocol.
- Care should be taken in data collection considering workers experiencing the most work-related stress **may tend to not apply for participation** [3, 4].
- Conducting studies using EMA **require major commitment** from the investigator [2] given the need of additional technical and general support during data collection.

Gillian Debra

Why EMA is suitable in measuring work-related stress

STRAW-PROJECT
Research about STRess At Work

Contributions to the field of work-related stress

Higher perceived job demand is associated with higher reported stress and heart rate, while higher perceived job control does not lower heart rate [4]. Notably, a higher perceived job demand is linked to a higher work-family conflict [5]. Next to work stress**, daily social conflicts** are important predictors of the development of depression symptoms [1]. Similarly, both social tension and **pressure to perform** at work are associated with diminished emotional affect [2].

Take home messages

- EMA is a **feasible, effective, and user-friendly** [3] way to measure daily work-related stress in various professions.
- **Sample and job characteristics** (e.g., fixed or flexible working hours) should be considered carefully in designing EMA studies.
- The use of EMA contributes to the further understanding of stress-related aspects during work, thereby identifying factors that could be integrated in the design of **interventions aimed at improving well-being at work** [2].

References

1. Hruska, B., & Barduhn, M. S. (2021). Dynamic psychosocial risk and protective factors associated with mental health in Emergency Medical Service (EMS) personnel. *Journal of affective disorders, 282*, 9-17. https://doi.org/10.1016/j.jad.2020.12.130

2. Ryu, G. W., Yang, Y. S., & Choi, M. (2020). Evaluating real-time momentary stress and affect in police officers using a smartphone application. *BMC public health, 20*(1), 1154. https://doi.org/10.1186/s12889-020-09225-z

3. Shively, M., Rutledge, T., Rose, B. A., Graham, P., Long, R., Stucky, E., Weinger, M. B., & Dresselhaus, T. (2011). Real-time assessment of nurse work environment and stress. *Journal for healthcare quality: official publication of the National Association for Healthcare Quality, 33*(1), 39-48. https://doi.org/10.1111/j.1945-1474.2010.00093.x

4. Johnston, D., Bell, C., Jones, M., Farquharson, B., Allan, J., Schofield, P., Ricketts, I., & Johnston, M. (2016). Stressors, appraisal of stressors, experienced stress and cardiac response: a real-time, real-life investigation of work stress in nurses. *Annals of behavioral medicine: a publication of the Society of Behavioral Medicine, 50*(2), 187-197. https://doi.org/10.1007/s12160-015-9746-8

5. Steffensen, D. S., Jr, McAllister, C. P., Perrewé, P. L., Wang, G., & Brooks, C. D. (2021). "You've got mail": a daily investigation of email demands on job tension and work-family conflict. *Journal of business and psychology*, 1-14. https://doi.org/10.1007/s10869-021-09748-1

Gillian Debra