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Implementing wearables for longitudinal well-being monitoring: feasibility and lessons learned

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Health in Healthcare professionals

RISKS
emotional exhaustion and a reduced sense of personal accomplishment

OPPORTUNITIES
Technology can facilitate measurements
which could improve health
and maintain healthcare quality

AIMS
Evaluation of a real-world implementation of extended data collection approach capitalizing on passive monitoring with wearable devices.

Arnetz et al. (2020), Barac et al. (2024), Dobešová Cakirpaloglu et al. (2024), Lee et al., (2024)

Study timeline & samples



Sept. - Oct. 2024

Start

Informed consent

Demographics questionnaire

Device set-up

Oct. 2024 - March 2025

Naturalistic use

Use of Fitbit device and app

N = 83

March - May 2025

Fitbit Focus Weeks

Fitbit use, weekly questionnaires, and feedback reports

Preceded by resilience and recovery questionnaires

N = 37

Sept. 2025

Closing

Device return

Nov. 2025

Interviews

Invited interviews

N = 7

Exploratory data insights from FFW

Values generally stable across week

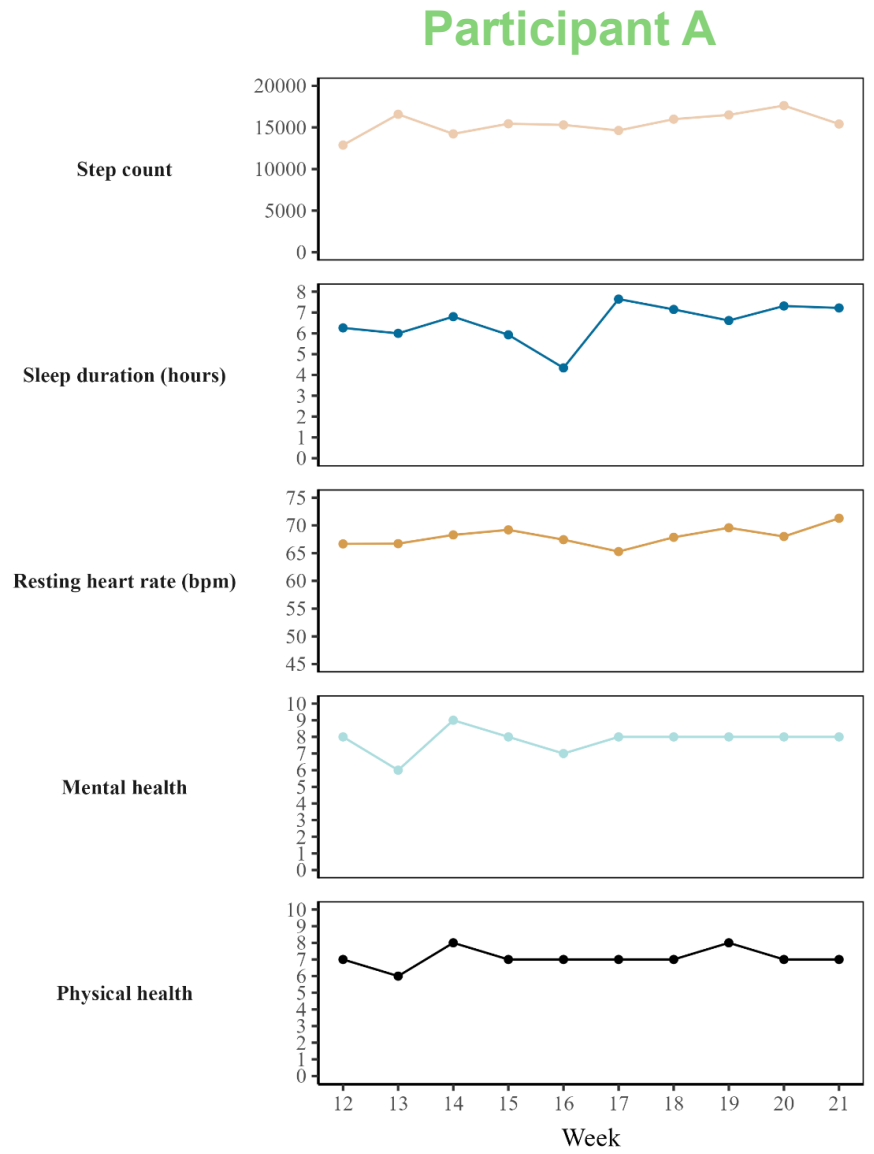
Variability between individuals (N = 33)

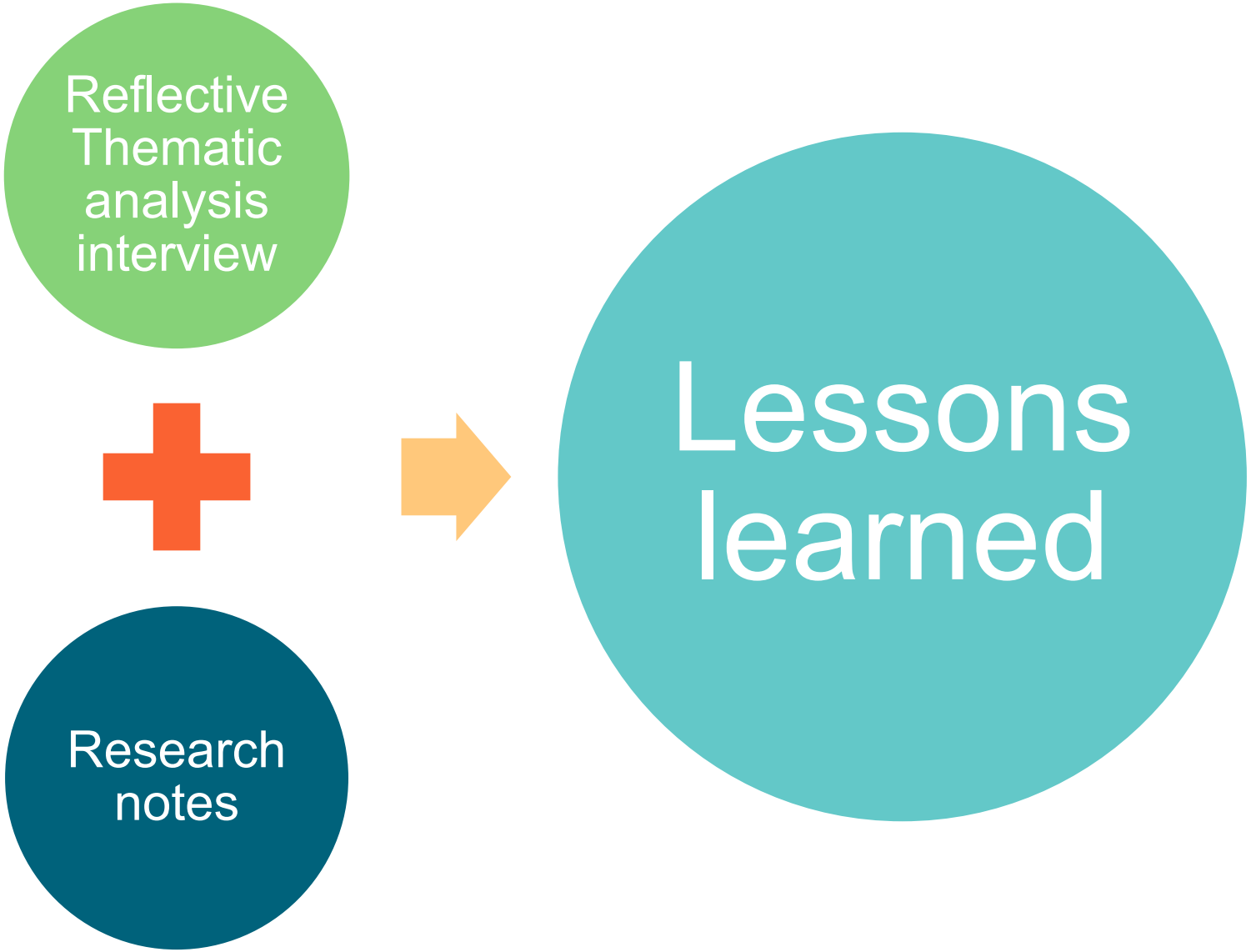
Step count: M = 11,110.55 (SD 5181.56)

Sleep: M_{hours} = 6.29 (SD 1.88)

Self-assessment of health: M_{mental} 7.22 (SD 1.57)

$M_{physical}$ 7.27 (SD 1.64)




Reflective Thematic analysis interview
Research notes
Lessons learned

Lessons learned

Device selection

Evaluate and select devices for e.g.,

- Accuracy
- Ease of data access and transfer
- Contextual fit (in terms of wearing location and use)



Feature selection

Select or develop indicators for wearables based on e.g.,

- Relevance for research aims
- Potential for (privacy-sensitive) group comparisons when relevant

Platform Design

Assess the need for a platform for data collection, processing, storage and visualization. When platform development is needed:

- Take stakeholder needs into account
- Take development timelines into account for study planning

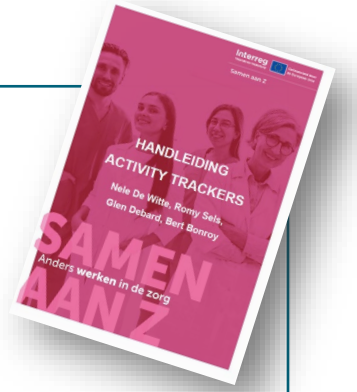


Lessons learned

Onboarding & support

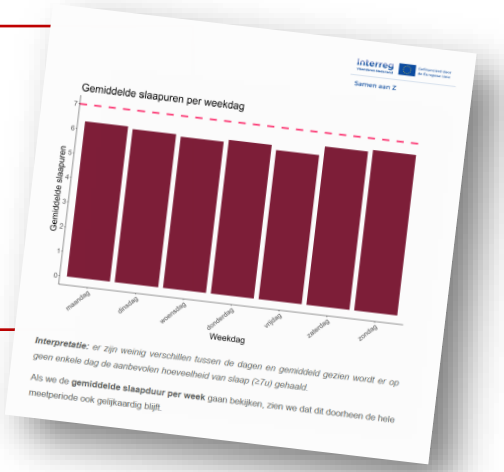
Facilitate smooth onboarding by
- providing an in-person set-up
- providing manuals

Expect technical problems and provide support (e.g., spares)



Tailored and accessible reporting

Co-design the reporting strategy and allow for flexibility & tailoring
- Facilitate comprehension (but don't provide too much text)
- Include relevant reporting dimensions,
  e.g., comparison between parameters during and outside of work



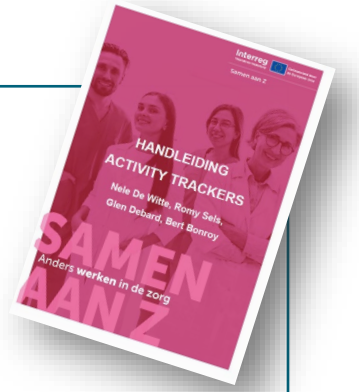
> *People who go for walks in private usually do so to relax or clear their heads. Here, there is a rush against time, which actually causes even more stress. [I6]*

Lessons learned

Onboarding & support

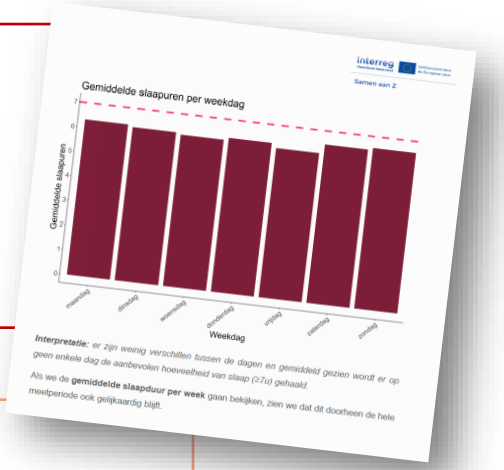
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Participant motivation

Aim to increase personal motivation by
- Providing regular access to relevant data insights
- Adding a team dimension to facilitate peer support
- Adherence-promoting interventions when reduced use is detected

Lessons learned

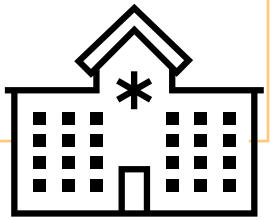
Provide optional guidance

Provide researcher contact details to participants and proactively contact participants to ask about challenges and progress towards goals.

Group insights

Co-design a transparent group-level feedback strategy:

- Critical assessment of the relevance of data sharing (context + variable)
- Individual preferences for data sharing
- Privacy by design and fostering trust
- Organisation's capacity to use insights to promote well-being



Limitations and conclusions

Conclusions

- Wearables could provide a comfortable measurement approach to complement well-being monitoring, also in a professional context
- Challenges: technical development, user experience, and motivation
- Need for more research & platforms facilitating high-quality and continuous access to well-being insights

Limitations

- Sample size & drop-out
- Technical development & measurement approach
- Interviews: most interested participants?

Paper with full results is under review

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Thank you!

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