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The impact of real-world implementation of environmentally sustainable work practices on mental and physical health of healthcare workers: a longitudinal cohort study in Dutch healthcare organisations

Submission date
09/12/2024

Recruitment status
Recruiting

Registration date
10/12/2024

Overall study status
Ongoing

Last Edited
09/06/2025

Condition category
Other

[X] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[_] Record updated in last year

Plain English summary of protocol

Background and study aims

To reduce the environmental impact of the Dutch healthcare sector, the Dutch government developed the Green Deal for Sustainable Healthcare. To achieve the objectives of this initiative, several measures are implemented in the healthcare sector which requires that healthcare workers change their work practices, e.g. through waste separation, transitioning from disposable to reusable products (which often require cleaning or sterilization), and reducing unnecessary use of disposable items such as nonsterile gloves. However, healthcare workers already experience high work pressure and mental health problems, leading to high sickness absence rates and high turnover intention. The required transition to sustainable work practices may lead to an increased amount of work and decreased task clarity, thereby resulting in increased job demands. Additionally, these practices often come with stricter protocols and guidelines which are likely to reduce autonomy, an important job resource. This combination of rising job demands and diminishing job resources could add to the already high levels of job strain and work stress, potentially impacting workers' mental and physical health. In the long term, these health effects may lead to reduced productivity and increased rates of sickness absence. On the other hand, studies in sectors outside of healthcare suggest that employee pro-environmental or "green" behaviour at work can have beneficial effects on workers, such as increased well-being and work engagement. The study aims to investigate the impact of sustainable work practices in healthcare on working conditions and, subsequently, healthcare workers' health and well-being.

Who can participate?

The study is open to Dutch-speaking healthcare workers aged 18 years years and older who are exposed to a sustainability intervention that requires a change in their work practices. The department in which they work must commit to participating in the study.

What does the study involve?
This study has two parts: a quantitative study and a qualitative study.
- Quantitative study: healthcare workers will fill out questionnaires at multiple time points during the study. Before new sustainable work practices are introduced, participants will complete two initial questionnaires. After the work practices are implemented, they will fill out follow-up questionnaires at 1, 2, 3, and 6 months. These questionnaires will ask about working conditions, perception of their work, mental and physical health, stress, productivity, and sickness absence, among other variables. Participants will use a mobile app to fill out these questionnaires.
- Qualitative study: to better understand how sustainable work practices influence working conditions and health, and what facilitates or hinders their implementation, participants will be asked to take part in interviews or focus groups. These discussions will explore how the new sustainable work practices affect their jobs and well-being. Additionally, structured observations at workplaces will be conducted to see how the changes in work practices affect time management and daily tasks.

What are the possible benefits and risks of participating?
Participants who complete all questionnaires up to and including month 6 will receive a €25 gift card as compensation for their time. Those who complete the questionnaires up to and including month 3 will receive a €15 gift card. Participants who take part in an interview or focus group will also receive a €25 gift card.

There are no anticipated risks associated with participation in the study. The main burden is time: participants will need to spend about 1 hour in total completing questionnaires throughout the study. Interviews or focus groups will also take 1 hour.

Where is the study run from?
The study is being run from Erasmus University Medical Center (Erasmus MC) in Rotterdam, The Netherlands.

When is the study starting and how long is it expected to run for?
August 2024 to January 2028

Who is funding the study?
The European Union’s Horizon Europe Research and Innovation Program (INTERCAMBIO; https://intercambio-project.eu/)

Who is the main contact?
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Additional identifiers

Protocol serial number
EU Horizon Europe Research and Innovation Programme grant agreement No. 101137149 (INTERCAMBIO: https://intercambio-project.eu/).

Study information

Scientific Title
The impact of sustainable work practices on mental and physical health of healthcare workers

Study objectives
Negative hypothesis:
The introduction of sustainable work practices may lead to an increased amount of work and decreased task clarity, thereby resulting in increased job demands. Additionally, these practices often come with stricter protocols and guidelines which are likely to reduce autonomy, an important job resource. This combination of rising job demands and diminishing job resources could add to the already high levels of job strain and work stress, potentially impacting workers' mental and physical health. In the long term, these health effects may lead to reduced productivity and increased rates of sickness absence.

Positive hypothesis:
Sustainable work practices may contribute to healthcare workers feeling that they are making a positive impact on societal issues through their work, thereby improving their work engagement. Additionally, working more sustainably can provide healthcare workers with a

sense of agency, particularly those who are concerned about climate change and environmental pollution. Both pathways can positively impact mental health.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 27/02/2025, Non-WMO Review Committee of Erasmus MC Rotterdam (Dr. Molewaterplein 40, Rotterdam, 3015 GD, Netherlands; +31 10-70 34428; metc@erasmusmc.nl), ref: MEC-2024-0800

Primary study design
Observational

Study design
Single-centre observational longitudinal cohort study

Study type(s)
Other

Health condition(s) or problem(s) studied
Working conditions, productivity, mental health, and physical health in healthcare workers.

Interventions
The study will assess the impact of changes in work practices introduced through real-world sustainability projects. Since the researchers have no control over the nature or timing of these interventions, the study qualifies as a "natural experiment". Various sustainability projects that will start shortly or are already underway have been identified. These projects focus on reducing the use of disposable products and unnecessary medication prescriptions in hospital wards, reducing the environmental impact of endoscopy units, and saving plastics, water, energy, and other resources in hospital laboratories. Other sustainable work practices implemented during the study can also be added to the evaluation.

Repeated questionnaires will be administered to healthcare workers through a mobile app. The questionnaire will be administered twice before the implementation of sustainable work practices to establish a baseline, and subsequently at 1, 2, 3, and 6 months after implementation to measure the outcomes over time. Healthcare workers will provide data on working conditions, perception of their work, mental and physical health, stress, productivity, and sickness absence, among other variables.

Intervention Type
Behavioural

Primary outcome(s)
Mental and physical health are measured using the WHO-5 wellbeing index and the self-rated health question, respectively, at baseline and 3 and 6 months after implementation of the intervention.

Key secondary outcome(s)
1. Working conditions, measured at baseline and 1, 2, 3, and 6 months after implementation of the intervention:

1.1. Amount of work, measured using 1 item from the STREAM cohort study
1.2. Procedural clarity, measured using 1 ad hoc item
1.3. Autonomy, measured using 1 ad hoc item
2. Perception of work, measured at baseline and 1, 2, 3, and 6 months after implementation of the intervention:
2.1. Work engagement, measured using 1 item from the Copenhagen Psychosocial Questionnaire III
2.2. Sense of agency, measured using 1 item from the 9-item agency scale
2.3. Intention to leave, measured using 1 item from Robroek et al. (2015)
3. Stress, measured using the single-item stress question (SISQ), at baseline and 1, 2, 3, and 6 months after implementation of the intervention
4. Sleep parameters, measured using 2 ad hoc items, at baseline and 3 and 6 months after implementation of the intervention
5. Productivity loss, measured using 2 items from the QQ method at baseline and 3 and 6 months after implementation of the intervention.
6. Sickness absence, measured using 1 generally used question, at baseline and 3 and 6 months after implementation of the intervention

Completion date
01/01/2028

Eligibility

Key inclusion criteria
1. Employed in a hospital (e.g. physician, nurse, laboratory worker) or other healthcare organisation, such as a nursing home or general practice, in the Netherlands
2. 18 years or older
3. Mastering the Dutch language
4. Must have access to a smartphone

Participant type(s)
Health professional

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Sex
All

Key exclusion criteria
1. Being on long-term sick leave (over three months) at time of the start of the study

Date of first enrolment
01/03/2025

Date of final enrolment
01/03/2027

Locations

Countries of recruitment
Netherlands

Study participating centre
Erasmus University Medical Center (Erasmus MC)
Dr. Molewaterplein 40
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Sponsor information

Organisation
Erasmus MC

ROR
https://ror.org/018906e22

Funder(s)

Funder type
Government

Funder Name
HORIZON EUROPE Reforming and enhancing the European Research and Innovation system

Alternative Name(s)
Reforming and enhancing the European Research and Innovation system, Reforming and Enhancing the European R&I System, Reforming and enhancing the EU research and innovation system, Reform and Enhance the EU R&I system, Reform und Verbesserung des europäischen Forschungs- und Innovationssystems, Reformar y mejorar el sistema europeo de investigación e innovación, Reforma a posílení evropského systému výzkumu a inovací, Réformer et renforcer le système européen de recherche et d'innovation, REERIS

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study will be stored in a non-publicly available repository (the specific repository and further information will be determined at a later date).

IPD sharing plan summary
Stored in non-publicly available repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Study website	Study website	11/11/2025	11/11/2025	No	Yes