ISRCTN81684777 https://doi.org/10.1186/ISRCTN81684777

Hand in Hand - a work environment intervention for improved employee health in early education and care

Submission date 26/09/2025	**Recruitment status** No longer recruiting	[_] Prospectively registered [X] Protocol
Registration date 06/10/2025	**Overall study status** Ongoing	[_] Statistical analysis plan [_] Results
Last Edited 21/10/2026	**Condition category** Other	[_] Individual participant data [X] Record updated in last year

Plain English summary of protocol

Background and study aims

Of all sectors in Norway, the Early Education and Care (ECEC) sector not only has the highest sickness absence, it has the highest work-related sickness absence. With near 50% of the sickness absences in the ECEC being work-related, there is substantial potential to intervene and improve employee health. The most common sickness absence diagnoses among ECEC employees are musculoskeletal disorders and common mental disorders, i.e., anxiety and depression. Hence, improvements to the work environment should target known factors that are related to these disorders. The improvements include optimising physical workload and emotional work.

This study builds on and extends previous interventions, the TOY-project (where ergonomics and pedagogics go hand in hand) and Goldi-Daycare project (improving employee health by increase high intensity physical activity). Where these interventions aimed to address ergonomics in ECEC, this intervention extends the concepts from these interventions to the psychosocial work domain by addressing emotional work. The intervention aims to enhance the health of ECEC staff by promoting a better ergonomic and emotional work environment, particularly in areas where the work environment and quality of (ECEC) intersect.

Who can participate?

All employees directly involved in childcare who work in the participating childcare centres during the intervention period.

What does the study involve?

Employees will wear wearable sensors (accelerometers and heart rate monitors) for 7 days, they will be observed by a researcher, and they will be asked to answer a questionnaire about their psychosocial work environment, their health and their perception of the quality of care provided by the daycare center. Further, the employees will participate in a workshop that will provide them with tools to prioritise issues related to the work environment and to come to solution. Additionally, the employees will receive two workplace visits to evaluate how the solutions have been implemented and whether adjustments need to be made.

What are the possible benefits and risks of participating?
The study aims to improve ECEC staff health as well as quality of care provided by them. Other than a potential skin irritation as a reaction to the adhesive used to attach the wearable sensors, there are no risks to participating.

Where is the study run from?
The study is run from the National Institute of Occupational Health in Norway. The intervention will take place in 19 daycare centres in Norway.

When is the study starting, and how long is it expected to run for?
February 2025 to December 2026

Who is funding the study?
National Institute of Occupational Health (Norway)

Who is the main contact?
Suzanne Merkus, suzanne.merkus@stami.no

Contact information

Type(s)
Public, Scientific, Principal investigator

Contact name
Miss Suzanne Merkus

Contact details
Pb 5330 Majorstuen
Oslo
Norway
0304
+47 (0)23 19 52 65
suzanne.merkus@stami.no

Additional identifiers

Protocol serial number
878385

Study information

Scientific Title
Hand in Hand - a work environment intervention for improved employee health in early education and care: a Goldilocks Work inspired cluster-randomised controlled trial

Acronym
Hand in Hand

Study objectives

The overall aim of the Hand-in-Hand project is to implement and evaluate the effectiveness and implementation process of a participatory tailored work environment intervention that aims to promote a better work environment by considering quality in early education and care (ECEC). The intervention aims to optimise emotional work and optimise physical workload, and thereby reduce work-related fatigue, musculoskeletal discomfort, and depression and anxiety symptoms of ECEC staff.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 19/05/2025, Regional committees for medical and health research ethics (REK) South-East C (Postboks 1130, Blindern, Oslo, 0318, Norway; +47 (0)228 45 511; rek-sorost@medisin.uio.no), ref: 878385

Primary study design
Interventional

Study design
Multicenter interventional cluster-randomised wait-list controlled trial

Study type(s)
Prevention

Health condition(s) or problem(s) studied
Occupational health among ECEC staff

Interventions
The aim of the intervention is to enhance the health of ECEC staff by promoting a better work environment, particularly in areas where the work environment and quality of (ECEC) intersect. The trail is a tailored organizational intervention with a participatory approach and is inspired by the Goldilocks Works-principle. The participatory approach ensures worker involvement, ownership of the intervention process, and tailoring to the needs of each workplace, which is essential for intervention effectiveness.

The participating ECEC centres will be randomised to either the intervention or a waitlisted control group. The control group will a report of the results from the workplace mapping and the employees will receive an individualised report of their ergonomic demands. The participating ECEC centres will be informed of their group allocation by researchers before the start of baseline measurements.

At baseline and 1-year follow-up, ECEC staff will participate in a workplace mapping that will assess the work environment, perceived quality of care, and staff health. Every 3 months throughout the 1-year intervention, ECEC will be asked to respond to questionnaires that assess the primary outcomes of the trial.

The intervention components will consist of the workplace mapping, a workshop during working hours in which the results from the workplace mapping will be integrated, and two workplace

visits. During the workplace mapping ergonomic factors will be assessed with wearable sensors (accelerometers and heart rate monitors for 7 days) and by observation, while psychosocial work factors, quality of care and staff health will be assessed by questionnaire.

In the workshop, based on the results from the workplace mapping, the employees will choose between two packages: one related to ergonomics or one related to emotional work. Throughout the workshop, the employees will gain experience in using tools to prioritise areas for improvement within the work environment (either ergonomics or emotional work) and quality of care, and on how to find solutions to their issues based on the Hand in Hand approach. Hence, during the workshop, the intervention will be tailored to the needs of each ECEC centre. During two workplace visits, employees will reflect on whether solutions have been implemented and whether changes need to be made to the suggested solutions.

The workshop and workplace visits will be led by consultants from the local NAV-Arbeidslivssenter with assistance from Human Resources (HR) staff as well as union representatives of the participating municipalities. The consultants and assistants will all receive training in how to deliver the workshop and workplace visits.

Throughout the intervention year, information from the consultants, meetings with the municipality representatives, questionnaires answered by the employees, and a focus group interview among employees will contribute to evaluate the implementation of the intervention.

Intervention Type
Behavioural

Primary outcome(s)
Current primary outcome(s) as of 21/05/2026:

1. Work-related fatigue is measured using four single items regarding energy, physical fatigue, mental fatigue, and emotional fatigue adapted from Hooff et al (2007) at baseline and every three months until 1 year follow-up
2. Need for recovery is measured using the Need for Recovery scale at baseline and every three months until 1 year follow-up

---

Previous primary outcome(s):

1. Physical workload is measured using wearable sensors at baseline and 1 year follow-up
2. Emotional dissonance is measured using the Frankfurt Emotional Work Scales at baseline and 1 year follow-up
3. Emotional demands are measured using the Copenhagen Psychosocial Questionnaire (COPSOQ) at baseline and 1 year follow-up
4. Work-related fatigue is measured using three single items regarding physical fatigue, mental fatigue, and emotional fatigue adapted from Hooff et al (2007) at baseline and 1 year follow-up
5. Need for recovery is measured using the Need for Recovery scale at baseline and 1 year follow-up
6. Depression and anxiety symptoms are measured using the Hopkins Symptom Checklist (HSCL-5) at baseline and 1 year follow-up
7. Musculoskeletal pain is measured using the Standardised Nordic Questionnaire at baseline and 1 year follow-up

Key secondary outcome(s)
Current key secondary outcome(s) as of 21/05/2026:

1. Physical workload is measured using wearable sensors at baseline and 1 year follow-up, and with two questions at baseline and every three months until 1 year follow-up on lifting based on a question from Statistics Norway and on self-perceived physical exertion measured using the Borg CR10 scale
2. Musculoskeletal pain is measured using the Standardised Nordic Questionnaire at baseline and every three months until 1 year follow-up
3. Interference of musculoskeletal pain with work performance is measured using the Standardised Nordic Questionnaire at baseline and every three months until 1 year follow-up
4. Emotional dissonance is measured using the Frankfurt Emotional Work Scales at baseline and every three months until 1 year follow-up
5. Emotional demands are measured using the Copenhagen Psychosocial Questionnaire (COPSOQ) at baseline and 1 year follow-up
6. Compassion satisfaction is measured using the ProQOL – Compassion Satisfaction subscale at baseline and 1 year follow-up
7. Depression and anxiety symptoms are measured using the Hopkins Symptom Checklist (HSCL-5) at baseline and every three months until 1 year follow-up
8. Interference of depression and anxiety symptoms with work performance is measured using two items based on the Health Survey Short Form (SF-36) at baseline and every three months until 1 year follow-up
9. Awareness of how the work environment and ECEC quality go hand-in-hand is measured using questionnaire at baseline and 1 year follow-up
10. Sickness absence is measured using register-based physician-certified sickness absence data (number of days) at baseline and 1 year follow-up
11. ECEC quality is measured using a questionnaire adapted from EBBA (En Bedre Barnehage for Alle) [Better daycare for all] at baseline and 1 year follow-up

_____

Previous key secondary outcome(s):

1. Awareness of how the work environment and ECEC quality go hand-in-hand is measured using questionnaire at baseline and 1 year follow-up
2. Meaningfulness of work is measured using the ProQOL – Compassion Satisfaction subscale at baseline and 1 year follow-up
3. Interference of musculoskeletal pain with work performance is measured using the Standardised Nordic Questionnaire at baseline and 1 year follow-up
4. Sickness absence is measured using register-based physician-certified sickness absence data (number of days) at baseline and 1 year follow-up
5. ECEC quality is measured using a questionnaire adapted from EBBA (En Bedre Barnehage for Alle) [Better daycare for all] at baseline and 1 year follow-up

Completion date
30/12/2026

Eligibility

Key inclusion criteria

All employees directly involved in childcare from the recruited institutions who consent to participate in the scientific evaluation

Participant type(s)
Employee

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 Years

Upper age limit
70 Years

Sex
All

Total final enrolment
285

Key exclusion criteria
Current key exclusion criteria as of 21/05/2026:

1. From the ergonomic evaluation: Pregnant women with adjusted work tasks
2. Allergy to tape or tape adhesive

———

Previous key exclusion criteria:

1. From the ergonomic evaluation: Pregnant women
2. Allergy to tape or tape adhesive

Date of first enrolment
26/09/2025

Date of final enrolment
21/11/2025

Locations

Countries of recruitment
Norway

Study participating centre
National Institute of Occupational Health
Pb 5330 Majorstuen
Oslo
Norway
0304

Sponsor information

Organisation
National Institute of Occupational Health

ROR
https://ror.org/04g3t6s80

Funder(s)

Funder type
Government

Funder Name
Statens arbeidsmiljøinstitutt

Alternative Name(s)
National Institute of Occupational Health, Norwegian National Institute of Occupational Health, National Institute of Occupational Health, Norway, STAMI

Funding Body Type
Government organisation

Funding Body Subtype
Research institutes and centers

Location
Norway

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study will be available upon request from Suzanne Merkus (suzanne.merkus@stami.no). Data that may be requested will be anonymised, and may be requested after the planned manuscripts have been published.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol article		05/10/2026	21/10/2026	Yes	No
Study website		11/11/2025	11/11/2025	No	Yes