Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

The Effect of Ergonomic Interventions of Work Posture Correction and a Short-Term Exercise Program on Fatigue, Musculoskeletal Discomfort, and Postural Risk in Female Carpet Weavers in Ravar County

Protocol summary

Study aim

This study will be conducted to investigate the effects of ergonomic interventions (including working posture correction and a short-term exercise program), which do not entail considerable financial costs, on fatigue, musculoskeletal complaints, and postural risk among female carpet weavers in Ravar County, Iran.

Design

Using a computer-generated randomization sequence, clusters were allocated to three groups—Intervention 1 (postural correction), Intervention 2 (exercise), and control. Workshops were randomly numbered 1–6, and 12 triple blocks (each containing the three interventions) were randomly selected; workshops were then assigned to groups according to this sequence. Outcome assessment was blinded.

Settings and conduct

The study population will consist of female workers employed in public carpet-weaving workshops in Ravar County.

Participants/Inclusion and exclusion criteria

Inclusion criteria were as follows: having at least one year of weaving work experience and being aged 18 to 50 years. Exclusion criteria included: work-unrelated musculoskeletal discomforts; musculoskeletal complications resulting from accidents or incidents; chronic musculoskeletal diseases (muscle wear, disc herniation, and scoliosis); underlying neuropathic diseases (diabetes, rheumatoid arthritis and lupus, gout, and osteoarthritis); psychological disorders (depression); being in the menstrual period (due to bias in self-reporting of discomfort); and pregnancy.

Intervention groups

Intervention group 1: Posture correction intervention Intervention group 2: Exercise intervention Intervention group 3: The control group will not receive any intervention during the study period. However, upon completion of the study, both interventions will be delivered to the participants in this group.

Main outcome variables

Primary outcome: Postural score Secondary outcomes: discomfort, fatigue, and grip strength

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20260608069697N1**
Registration date: **2026-10-29, 1405/08/07**
Registration timing: **registered_while_recruiting**

Last update: **2026-10-29, 1405/08/07**
Update count: **0**

Registration date

2026-10-29, 1405/08/07

Registrant information

Name

Mostafa Mohammadian

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 34 3132 5083

Email address

mmohamadian63@gmail.com

Recruitment status

recruiting

Funding source

Expected recruitment start date

2026-10-07, 1405/07/15

Expected recruitment end date

2027-10-07, 1406/07/15

Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
The Effect of Ergonomic Interventions of Work Posture Correction and a Short-Term Exercise Program on Fatigue, Musculoskeletal Discomfort, and Postural Risk in Female Carpet Weavers in Ravar County

Public title
Effect of Ergonomic Interventions on the Prevalence of Musculoskeletal Disorders among Carpet Weavers
Purpose
Supportive
Inclusion/Exclusion criteria
Inclusion criteria:
At least one year of weaving work experience Age between 18 and 50 years
Exclusion criteria:
pre-existing musculoskeletal discomfort prior to employment Musculoskeletal complications resulting from accidents or incidents Diagnosis of chronic musculoskeletal diseases (muscle strain, disc herniation, and scoliosis) Underlying neuropathic diseases (diabetes, rheumatoid arthritis and lupus, gout, and osteoarthritis) Psychiatric disorders (e.g., depression) Menstruation (due to bias in self-reporting of discomfort) History of surgery within 6 months prior to the study pregnancy
Age
From **18 years** old to **50 years** old
Gender
Female

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **216**
Randomization (investigator's opinion)
Randomized
Randomization description
Given the potential for between-group contamination, the unit of randomization in this study is the carpet-weaving workshop. First, a complete list of eligible workshops will be obtained through the Imam Khomeini Relief Committee (Carpet Provision for the Holy Shrines Project), and each workshop will be assigned a unique identification code. The workshops will then be screened based on inclusion and exclusion criteria, and 36 workshops will be selected by simple random sampling using SPSS. Considering the sample size of 216 participants (72 per group) and the selection of 36 workshops, an average of 6 individuals per workshop will enter the study (36 × 6 = 216; 12 workshops per group; 12 × 6 = 72). To allocate the workshops to the three groups—Intervention 1 (postural correction), Intervention 2 (exercise activity), and control—with a 1:1:1 ratio, block randomization with blocks of three and all six possible permutations will be used. Twelve triple blocks will be randomly selected, and the workshops will be assigned to the groups according to the randomization sequence. The randomization sequence will be generated using R software (the gtools package and the permutations function, along with set.seed for reproducibility) and, if needed, in SPSS by generating a random variable using RV.UNIFORM and sorting the cases (Sort Cases); then the permutation codes will be converted into group assignments.
Blinding (investigator's opinion)
Not blinded
Blinding description
Placebo
Not used
Assignment
Factorial
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics committee of Kerman University of Medical Sciences
Street address
School of Health, Kerman University of Medical Sciences, Haft Bagh-e-Alavi Road, Kerman, Iran
City
Kerman
Province
Kerman
Postal code
7616910002
Approval date
2026-08-16, 1405/05/25
Ethics committee reference number
IR.KMU.REC.1405.265

Health conditions studied

1

Description of health condition studied
Musculoskeletal Discomfort
ICD-10 code
M54.05
ICD-10 code description
Panniculitis affecting regions of neck and back, thoracolumbar region

2

Description of health condition studied
Fatigue
ICD-10 code

R53.83

ICD-10 code description

Other fatigue

3

Description of health condition studied

Posture

ICD-10 code

Z57.8

ICD-10 code description

Occupational exposure to other risk factors

Primary outcomes

1

Description

Posture

Timepoint

At baseline and at 6 and 12 months after the initial assessment.

Method of measurement

KIM-MHO pen-paper tool

2

Description

Musculoskeletal Discomfort

Timepoint

At baseline and at 6 and 12 months after the initial assessment.

Method of measurement

Localized Postural Discomfort (LPD) tool

3

Description

Fatigue

Timepoint

At baseline and at 6 and 12 months after the initial assessment.

Method of measurement

Multidimensional Fatigue Inventory [MFI-20]

4

Description

Hand grip strength

Timepoint

At baseline and at 6 and 12 months after the initial assessment.

Method of measurement

Dynamometer

Secondary outcomes

empty

Intervention groups

1

Description

Intervention Group 1 – Postural Correction: Following a detailed evaluation of improper postures in carpet weaving by the research team, the correct posture for each subtask was identified. The correct postures were then taught by the researcher in a two-hour group training workshop to all carpet weavers in Intervention Group 1. Given the financial limitations of the weavers and workshop supervisors, a fabric support band was selected as an auxiliary tool to correct and support proper posture. The weavers were instructed on how to apply the band to the shoulder and lumbar regions, and a video demonstration was provided to them.

Category

Prevention

2

Description

Intervention Group 2 – Short-Term Exercise: Given the feasibility of delivering the exercise intervention in a short period, a single exercise session (preferably mid-shift) of up to 20 minutes per work shift (daily) was implemented. During this time, the participants (Intervention Group B) walked in the workshop area for 10 minutes and performed stretching exercises for 10 minutes. The research team prescribed the stretching exercises based on the results of the Phase 1 ergonomic assessments (Steps 1 and 2) for body regions at high risk of musculoskeletal disorders.

Category

Rehabilitation

3

Description

Control Group: Participants in this group received no intervention. After the study concluded, in compliance with the principles of research ethics (namely, the principles of justice and beneficence), the two interventions—postural correction and exercise—were implemented for them.

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

Carpet-weaving workshops under the auspices of the Imam Khomeini Relief Committee in Ravar County, K

Full name of responsible person

Fatemeh Mortezaei

Street address

-

City

Ravar

Province

Kerman

Postal code
-
Phone
+98 913 044 6360
Email
faridehmrtz@gmail.com

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Kerman University of Medical Sciences
Full name of responsible person
Hamid Sharifi
Street address
Research and Technology Deputy, No. [Plaque No.], Beginning of Ibn Sina St., Somayeh (Tahmasebabad) Crossroads, Kerman, Iran
City
Kerman
Province
Kerman
Postal code
7613753767
Phone
+98 34 3226 3719
Email
sharifihami@gmail.com
Web page address
https://vresearch.kmu.ac.ir/fa/page/23215/%D9%85%D8%B9%D8%A7%D9%88%D9%86-%D8%AA%D8%AD%D9%82%DB%8C%D9%82%D8%A7%D8%AA-%D9%88-%D9%81%D9%86%D8%A7%D9%88%D8%B1%DB%8C
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Kerman University of Medical Sciences
Proportion provided by this source
100
Public or private sector
Public
Domestic or foreign origin
Domestic
Category of foreign source of funding
empty
Country of origin
Type of organization providing the funding
Academic

Person responsible for general inquiries

Contact
Name of organization / entity
Kerman University of Medical Sciences
Full name of responsible person
Mostafa Mohammadian
Position
Assistant professor
Latest degree
Ph.D.
Other areas of specialty/work
Ergonomics
Street address
School of health, Kerman University of Medical Sciences, Haft-Bagh Blvd
City
Kerman
Province
Kerman
Postal code
7616910002
Phone
+98 34 3132 5083
Fax
Email
mmohamadian63@gmail.com

Person responsible for scientific inquiries

Contact
Name of organization / entity
Kerman University of Medical Sciences
Full name of responsible person
Mostafa Mohammadian
Position
Assistant professor
Latest degree
Ph.D.
Other areas of specialty/work
Ergonomics
Street address
School of health, Kerman University of Medical Sciences, Haft-Bagh Blvd
City
Kerman
Province
Kerman
Postal code
7616910002
Phone
+98 34 3132 5083
Fax
Email
mmohamadian63@gmail.com

Person responsible for updating data

Contact
Name of organization / entity
Kerman University of Medical Sciences
Full name of responsible person
Mostafa Mohammadian
Position
Assistant professor
Latest degree
Ph.D.

Other areas of specialty/work
Ergonomics
Street address
School of health, Kerman University of Medical Sciences, Haft-Bagh Blvd
City
Kerman
Province
Kerman
Postal code
7616910002
Phone
+98 34 3132 5083
Fax
Email
mmohamadian63@gmail.com

Sharing plan

Deidentified Individual Participant Data Set (IPD)
Yes - There is a plan to make this available
Study Protocol
Undecided - It is not yet known if there will be a plan to make this available
Statistical Analysis Plan
Not applicable
Informed Consent Form
No - There is not a plan to make this available
Clinical Study Report
Not applicable
Analytic Code
No - There is not a plan to make this available
Data Dictionary
Not applicable
Title and more details about the data/document
All data may potentially be shared after de-identification of the participants; alternatively, only a subset of the data, such as that related to the primary outcome, may be available for sharing.
When the data will become available and for how long
Commencement of the access period following publication of the results
To whom data/document is available
Researchers employed in academic, scientific, and industrial institutions
Under which criteria data/document could be used
No specific requirements exist apart from adherence to the principles of research ethics
From where data/document is obtainable
Mostafa Mohammadian
What processes are involved for a request to access data/document
A data request email should be sent to the corresponding author; subsequently, the data will be provided to them after a two-week period.
Comments