Clinical Trial Protocol
Iranian Registry of Clinical Trials

07 Nov 2026

Comparison of the Effects of Muscle Relaxation and Acupressure on Anxiety in Patients Undergoing Coronary Angiography

Protocol summary

Study aim
Compare effects of muscle relaxation and acupressure on anxiety severity in patients undergoing coronary angiography

Design
A total of 90 patients undergoing angiography were recruited for this double-blind, randomized, parallel-group clinical trial. Participants were allocated to two intervention groups and one control group via a color-coded randomization technique.

Settings and conduct
Patients who were candidates for coronary angiography at Ali Ibn Abi Taleb (AS) Hospital in Zahedan were randomly assigned to three groups. After recording baseline vital signs and anxiety levels, the first intervention group underwent muscle relaxation four times daily, and the second group received P6 acupressure four times daily. The control group received routine care. Finally, vital signs and anxiety levels were reassessed.

Participants/Inclusion and exclusion criteria
Ages 18-65 Verbal communication ability Coronary angiography candidate Full consciousness

Intervention groups
Muscle Relaxation Group: Participants completed four 20-minute sessions of progressive muscle relaxation (at 18:00, 23:00, 06:00, and pre-angiography). Patients were guided to progressively relax muscles from feet to face, close their eyes, and concentrate on breath (nasal inhalation, slow oral exhalation) while silently repeating a calming word. They were encouraged to disregard disruptive thoughts and let relaxation unfold naturally. Acupressure Group: Bilateral acupressure was applied to the P6 point (three finger-widths proximal to the wrist crease) at 18:00, 23:00, 06:00, and pre-angiography. Each session involved 3 minutes of continuous circular thumb pressure (3–5 kg at two revolutions per second) to induce mild numbness or tingling, followed by a 2-minute rest. Control Group: This group received standard ward care without additional interventions.

Main outcome variables
Patients' anxiety level

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20181028041484N4**
Registration date: **2026-07-12, 1405/04/21**
Registration timing: **prospective**

Last update: **2026-07-12, 1405/04/21**
Update count: **0**

Registration date
2026-07-12, 1405/04/21

Registrant information

Name
Aliakbar Keykha

Name of organization / entity

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Iran (Islamic Republic of)

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Recruitment status
recruiting

Funding source

Expected recruitment start date
2026-07-21, 1405/04/30

Expected recruitment end date
2027-11-21, 1406/08/30

Actual recruitment start date
empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of the Effects of Muscle Relaxation and Acupressure on Anxiety in Patients Undergoing Coronary Angiography

Public title

Comparison of Muscle Relaxation and Acupressure on Anxiety

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Ages 18-65 Verbal communication ability Coronary angiography candidate Full consciousness

Exclusion criteria:

Traumatic chest injury Open-heart surgery history History of psychiatric disorders Hearing and vision impairment Taking antipsychotics and sleeping pills

Age

From **18 years** old to **65 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Outcome assessor
- Data analyser

Sample size

Target sample size: **90**

Randomization (investigator's opinion)

Randomized

Randomization description

Participants were randomized into three parallel groups (muscle relaxation, acupressure, and control) in a 1:1:1 ratio. Allocation concealment was ensured using sequentially numbered, opaque, sealed envelopes containing colored cards (red, green, and white, respectively). An independent researcher, not involved in the recruitment or assessment process, prepared the allocation sequence. Participants were blinded to the assignment mechanism until after the envelope was opened and assignment was finalized.

Blinding (investigator's opinion)

Double blinded

Blinding description

To ensure blinding, vital signs were measured and anxiety questionnaires were administered by a trained nurse who was blinded to the group allocation (control vs. intervention). Furthermore, data were anonymized through a coding system prior to SPSS entry, preventing the statistical analyst from identifying the participants' group assignments.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Zahedan University of Medical Sciences

Street address

Zahedan University of Medical Sciences, Doctor hesabi Square, Persian golf Blvd., Zahedan

City

Zahedan

Province

Sistan-va-Balouchestan

Postal code

9816743463

Approval date

2025-03-02, 1403/12/12

Ethics committee reference number

IR.ZAUMS.REC.1403.473

Health conditions studied

1

Description of health condition studied

Coronary artery disease

ICD-10 code

I25.1

ICD-10 code description

Atherosclerotic heart disease of native coronary artery

Primary outcomes

1

Description

Patients' anxiety level

Timepoint

Pre- and post-intervention

Method of measurement

Spielberger Anxiety Inventory (StAI)

2

Description

Patients' vital signs

Timepoint

Pre- and post-intervention

Method of measurement

Sadat Company's bedside monitoring.

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: The muscle relaxation was administered four times daily (at 18:00, 23:00, 06:00, and immediately prior to angiography), with each session lasting 20 minutes. Patients were instructed to assume a comfortable position, close their eyes, and perform progressive muscle relaxation from the feet to the face. This was coupled with focused breathing (nasal inhalation and slow oral exhalation) and the silent repetition of a calming word. Additionally, patients were encouraged to disregard intrusive thoughts and allow the relaxation process to occur spontaneously.

Category
Treatment - Other

2

Description
Intervention group: Acupressure was applied bilaterally to the P6 point (three finger-widths proximal to the wrist crease). Using the thumb, circular pressure was applied at a rate of two rotations per second, with an intensity ranging from 3 to 5 kg. This intervention was administered in four daily sessions (at 18:00, 23:00, 06:00, and immediately prior to angiography). Each session consisted of 3 minutes of continuous pressure—applied until the patient reported a mild sensation of numbness—followed by a 2-minute rest period.

Category
Treatment - Other

3

Description
Control group: This group received standard ward care without additional interventions.

Category
N/A

Recruitment centers

1

Recruitment center

Name of recruitment center
Ali ibn Abitaleb Hospital (AS) Zahedan

Full name of responsible person
Aliakbar Keykha

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Ali ibn Abitaleb Hospital, KHalige Fars Blvd, Zahedan

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
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Full name of responsible person
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Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?
Yes

Title of funding source
Zahedan 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
Zahedan University of Medical Sciences

Full name of responsible person
Aliakbar Keykha

Position
Assistant Professor

Latest degree
Ph.D.

Other areas of specialty/work
Nursery

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Mashahir Square, School of Nursing and Midwifey, Zahedan University of Medical Sciences

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Person responsible for scientific inquiries

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Person responsible for updating data

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
Yes - There is a plan to make this available
Study Protocol
Yes - There is a plan to make this available
Statistical Analysis Plan
Yes - There is a plan to make this available
Informed Consent Form
No - There is not a plan to make this available
Clinical Study Report
Yes - There is a plan to make this available
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 of patients are collected without personal information and sent to other researchers by email upon request.
When the data will become available and for how long
It is possible to send patients' information after the publication of the article of this project (end of 2026).
To whom data/document is available
Researchers working in academic and scientific institutions.
Under which criteria data/document could be used
The use of data for research and therapeutic purposes is authorized in accordance with institutional ethical guidelines.
From where data/document is obtainable
Faculty of Nursing and Midwifery, Behdasht Blv, Zahedan aliakbar.keykha@zaums.ac.ir or aliakbar.keykha@gmail.com
What processes are involved for a request to access data/document
To access the information, you must first send your request to me via email. After receiving the request, I will make the necessary arrangements with the Vice President of Research and Technology of Zahedan University of Medical Sciences and if there is no legal prohibition, I will send the data to you via email.
Comments