

Clinical Trial Protocol

Iranian Registry of Clinical Trials

21 Jun 2026

Effects of color temperature of the light emitted by computer screens on cognitive performance, alertness and sleep quality among Emergency Control Room operators

Protocol summary

Study aim

Effects of color temperature of the light emitted by computer screens on cognitive performance, alertness and sleep quality among Emergency Control Room operators

Design

Before-after clinical study, single group, not blinded

Settings and conduct

study was carried out in two stages; subjects were evaluated before the intervention and 30 days after installing F-Lux. In the baseline conditions, cognitive performance and alertness of the night shift staff were evaluated 3 times, at the beginning, in the middle and at the end of the work shift. To measure sleep quality, Pittsburgh Sleep Quality Index was completed by subjects. In the intervention phase, f.lux was installed on the operators' computer screens. Adjusting the monitor's color temperature using F.lux began, so that 6500 K color temperature fall to 3800 K and changes the light short wavelength towards a long wavelength. One month after the intervention and f.lux installation, the parameters evaluated in the baseline stage were evaluated again.

Participants/Inclusion and exclusion criteria

inclusion criteria: having more than 2 years of work experience and less than 45 years of age and being one of the night working operators of the Emergency Control Room who have been performing similar computer work for more than 4 hours a day. Exclusion criteria: traveling by plane 3 months before the study, taking sleep medications and psychotherapeutic drugs, excessive caffeine consumption, Alcohol and cigarette consumption

Intervention groups

alters light color temperature emitted from computer screens by f.lux software

Main outcome variables

Effects of color temperature of the light emitted by computer screens on cognitive performance, alertness and sleep quality

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20180415039304N1**

Registration date: **2018-05-11, 1397/02/21**

Registration timing: **registered_while_recruiting**

Last update: **2018-05-11, 1397/02/21**

Update count: **0**

Registration date

2018-05-11, 1397/02/21

Registrant information

Name

Negar Alighanbari

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 71 3648 7576

Email address

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2018-04-20, 1397/01/31

Expected recruitment end date

2018-06-19, 1397/03/29

Actual recruitment start date

2018-04-20, 1397/01/31

Actual recruitment end date

2018-06-20, 1397/03/30

Trial completion date

empty

Scientific title

Effects of color temperature of the light emitted by computer screens on cognitive performance, alertness and sleep quality among Emergency Control Room operators

Public title

Effects of color temperature of the light emitted by computer screens on cognitive performance, alertness and sleep quality among Emergency Control Room operators

Purpose

Prevention

Inclusion/Exclusion criteria**Inclusion criteria:**

having more than 2 years of work experience , less than 45 years of age (due to the effect of aging on cognitive performance) being one of the night working operators of the Emergency Control Room who have been performing similar computer work for more than 4 hours a day

Exclusion criteria:**Age**

From **20 years** old to **45 years** old

Gender

Female

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **35**

Randomization (investigator's opinion)

N/A

Randomization description**Blinding (investigator's opinion)**

Not blinded

Blinding description**Placebo**

Not used

Assignment

Single

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Ethics committee of Shiraz University of Medical Sciences

Street address

Central building of Shiraz University of Medical

Sciences Zand St., Shiraz, Iran

City

shiraz

Province

Fars

Postal code

7193714134

Approval date

2017-06-11, 1396/03/21

Ethics committee reference number

IR.SUMS.REC.1396.38

Health conditions studied**1****Description of health condition studied**

cognitive performance

ICD-10 code

R41

ICD-10 code description

Other symptoms and signs involving cognitive functions and awareness

Primary outcomes**1****Description**

cognitive performance

Timepoint

before and after intervention

Method of measurement

cognitive performance software

Secondary outcomes**1****Description**

sleep quality score

Timepoint

before and after intervention

Method of measurement

Pittsburgh Sleep Quality Index

Intervention groups**1****Description**

Intervention group: f.lux was installed on the operators 'computer screens. In order to use a one-way intervention, the software was installed during the opposite working shift. Adjusting the monitor's color temperature using F.lux began at 22:00, so that 6500 K color temperature fall to 3800 K and change of the light short wavelength towards a long wavelength was observed since 22:00

Category

Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Shiraz EMS(Emergency Medical Service)

Full name of responsible person

mohammad javad moradian

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Fars Province, Shiraz, District 1, Ghasro Dasht St

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shiraz University of Medical Sciences

Full name of responsible person

Vice-Chancellor for Research Shiraz University of Medical Sciences

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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

Shiraz 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

Shiraz University of Medical Sciences

Full name of responsible person

negar alighanbari

Position

student

Latest degree

Bachelor

Other areas of specialty/work

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Person responsible for updating data

Contact

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Undecided - It is not yet known if there will be 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

Undecided - It is not yet known if there will be a plan to make this available

Informed Consent Form

Undecided - It is not yet known if there will be a plan to make this available

Clinical Study Report

Not applicable

Analytic Code

Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary

Undecided - It is not yet known if there will be a plan to make this available