Clinical Trial Protocol
Iranian Registry of Clinical Trials

09 Nov 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

alighanbari@sums.ac.ir

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 to3800 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

Street address
Fars Province, Shiraz, District 1, Ghasro Dasht St

City
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Province
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07136268370

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shiraz115@sums.ac.ir

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

Street address
Vice-Chancellor for Research, Shiraz University of Medical Sciences, Zand Blvd., Shiraz

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vcrdep@sums.ac.ir

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
Occupational Health

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Person responsible for scientific inquiries

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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