

# 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

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 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

**Street address**

Fars Province, Shiraz, District 1, Ghasro Dasht St

**City**

Shiraz

**Province**

Fars

**Postal code**

07136268370

**Phone**

+98 71 3628 8080

**Email**

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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shiraz

**Province**

Fars

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+98 71 3235 7282

**Email**

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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ally zahra street Fatah Almbyn School of Public Health Nutrition

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## Person responsible for scientific inquiries

### Contact

**Name of organization / entity**

Shiraz University of Medical Sciences

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Negar Alighanbari

**Position**

Student

**Latest degree**

Bachelor

**Other areas of specialty/work**

Occupational Health

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School of Public Health and Nutrition, Razi s.t, Shiraz, Iran.

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## Person responsible for updating data

### Contact

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**Email**

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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