



# Short-term efficacy of one mindful meditation session per workday during one week in residents, attending physicians and medical secretaries of a neurology department in France

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## Abstract

**Objectives:** Our aim was to test short-term efficacy of meditation sessions during one week in residents, attending physicians and medical secretaries in a French university neurology department. **Methods:** A total of 18 participants were included in this cross-over study. Half of the participants started with one week of group meditation sessions (listening together to one free access YouTube platform mindful meditation session per workday, with a median duration of 15 minutes per session) and the other half had control sessions during the same week (15-minute walk outside the hospital building with smart phone on airplane mode, once per workday). One month later the study participants switched session types. Outcome measures were Mindful Attention Awareness Scale (MAAS) and Perceived Stress Scale (PSS), assessed before and after each meditation and control session week. **Results:** MAAS and PSS scores before the first intervention (MAAS,  $p=0.37$ ; PSS,  $p=0.64$ ) were similar between the group starting with meditation and the group starting with control (walking) sessions. Differences in MAAS and PSS before and after the intervention were similar between the meditation and control sessions (median difference in MAAS was +2.5 for meditation sessions and +3 for control sessions,  $p=0.73$ ; median difference in PSS was -0.5 for both the meditation and control sessions,  $p=0.73$ ). **Discussion:** Free access mindful meditation sessions during one week are easy to use in daily practice and slightly increase mindfulness and decrease perceived stress on short-term although potential superiority to other activities has to be proven in larger studies.

**Keywords:** mindfulness, residents, department neurology, youtube, health giver

## Introduction

University students, residents, and health care givers are at risk for developing mental health issues, depression, suicidal thoughts, high levels of stress, anxiety and burnout. (1,2,3,4) Web- and non-web-based mindfulness platforms have been shown to promote mental health in this population. (5,6,7,8,9,10,11,12,13) Mindfulness has been described as a process of bringing attention

to experience life moment-by-moment. Mindfulness meditation uses various techniques to attain a state of mindfulness, by means to reduce emotional reactivity by guiding one's attention to their thoughts and feelings. These different meditation programs and mindfulness-based intervention programs seems to enhance emotional wellbeing, handle stress, and to promote higher levels

of self-compassion, stress regulation, and effective coping. Medical students, residents, and health care givers are accustomed to use technology and internet. Compared to traditional interventions, web-based online platforms provide more privacy and flexibility (i.e. to access them at any time), and pre-registered web-based intervention are perfectly reproducible which is ideal for the use in studies. Since some of these interventions are freely available on the internet, study participants who had experienced benefit from these interventions during the study have the opportunity to access these or other similar interventions available on the internet after the end of the study. Duration of web-based mindfulness platforms in health profession trainees in most of the earlier reports was ranging from 7 to 16 weeks (with most of the interventions lasting 8 weeks). (14,15) Another study used a 4.5-hour online course teaching foundations of well-being and mindfulness, and including a 2-week daily, self-selected, 10-minute, resiliency activity in first year residents showing improvement of resiliency, emotional exhaustion, and depersonalisation. Our aim was to test short-term efficacy of web-based mindfulness meditation sessions during one week in residents, attending physicians and medical secretaries in a French university neurology department.

## Methods

### Participants

All residents (n=8), attending physicians (n=13), and medical secretaries (n=8) working in the neurology department (Nîmes University Hospital, France) were invited to participate in this cross-over study.

Seven residents, five attending physician, and six medical secretaries accepted to participate, resulting in a total number of 18 participants. Among the persons who declined to participate, one person simply said not wanting to participate and the remaining persons declined the study invitation because of lack of time.

### Design and procedures

Half of the participants, randomly allocated, started with one week of group meditation sessions (listening together to one free access YouTube platform mindful meditation session [www.youtube.com/c/CedricMichel] per workday, with a median duration of 15 minutes) and the other half had control sessions during the same week (15-minute walk outside the hospital building with smart phone on airplane mode, once per workday). One month later the study participants switched session type.

### Intervention

For the mediation sessions, we used the free access YouTube platform of one of the most popular persons (i.e. Cedric Michel) offering guided mindfulness mediation session in French language (with fix screen image) with over five millions of views for some of the sessions. Meditation sessions took place at 2 pm in a silent room with participants in a sitting position with their eyes closed. A minimum of four completed meditation sessions was required

for study inclusion. Control sessions consisted of leaving physically the hospital building between 11 am and 15 pm, once per workday, during one week, and to go for a 15-minute walk with smart phone on airplane mode, alone or with others (participating or not in the study) with the only advice to take some time for their selves. A minimum of four control sessions was required for study inclusion. Control sessions were performed during the same week where the other participants had meditation sessions.

### Outcome analysis

Outcome measures were Mindful Attention Awareness Scale (MAAS, range 15-90) and Perceived Stress Scale (PSS, range 0-40) questionnaires. These questionnaires were filled in during the weekend before and after each meditation or control session week (resulting in a total of four MAAS and four PSS scores for each participant), and participants were asked to fill in the questionnaires based on what they experienced the week preceding the questionnaire. At the end of both meditation and control week, the participants were asked if the (meditation or control) sessions were experienced as "pleasant" (score 1-5: 1=very unpleasant, 2=unpleasant, 3=neutral, 4=pleasant, 5=very pleasant) and as "useful" in terms of well-being/stress (score 1-5: 1=very contra-productive, 2=contra-productive, 3=neutral, 4=useful, 5=very useful). One month after the end of the study, in the absence of any advice to do so, participants were asked if they had revisited at least once the YouTube platform to use individually the mindfulness sessions used for this study.

### Statistics

Fisher exact test was used for qualitative variables, and Mann Whitney U test was used for quantitative variables. Analyses were performed with a bilateral alpha level of 0.05 using SAS software, version 9.4 (SAS Institute, Cary, NC, USA).

### Ethics

All participants were informed of the procedures and the potential risks, and were asked to provide written informed consent.

## Results

### Participant demographics

Median age of the participants was 34 (IQR 28-45) and 15 (83%) were women. Nine participants (50%) had performed meditation at least once in their life, including seven participants who had performed at least one meditation session during the last year.

### Primary outcomes

Median baseline MAAS and PSS scores were 60 (IQR 47-66) and 17 (IQR 15-21.5) respectively. Baseline characteristics (sex,  $p=0.50$ ; age,  $p=0.71$ ) and MAAS and PSS scores before the first intervention (MAAS,  $p=0.37$ ; PSS,  $p=0.64$ ) were similar between the group starting with meditation and the group starting with control (walking) sessions. Forms were obtained from all participants

before and after the first week intervention. For the second week of intervention, the forms before and after the intervention could not be obtained from one person and four other persons did not restore the forms after the intervention. Overall, differences in MAAS and PSS before and after the intervention were similar between the meditation and control sessions (median difference in MAAS was +2.5 for meditation sessions and +3 for control sessions,  $p=0.73$ ; median difference in PSS was -0.5 for both the meditation and control sessions,  $p=0.73$ ).

There were no adverse events during the washout period.

### Secondary outcomes

Pleasant and utility scores were similar between the groups (median pleasant score was 4 for both groups,  $p=0.73$ ; median utility score was 4 for both groups,  $p=0.98$ ). One month after the end of the study, four participants (22%) had individually revisited at least once the YouTube platform used for this study, and four other participants continued their personal meditation sessions which they already practiced before the study.

### Discussion

Our study, including 18 participants (including residents, attending physicians and medical secretaries) and using MAAS and PSS, did not show superiority in terms of short-term efficacy of group meditation sessions of one free access 15 minutes YouTube platform mindful meditation session per workday during week compared with control sessions (consisting of leaving physically the hospital building for a 15-minute walk with smart phone on airplane mode). Both types of sessions slightly increased MAAS scores and decreased PSS scores, and were experienced as pleasant and useful for stress reduction. A major limitation of our study was the small number of participants. In addition, MAAS and PSS might not be adapted to measure short-term changes in mindfulness and stress reduction. Duration of each session and/or total duration of the intervention period might have been also too short to influence mindfulness and perceived stress compared with the control group. A positive result of our study was that half of the participants discovered mindful meditation for the first time of their life. Almost half of these participants re-used the mindful meditation YouTube platform during the month following the end of the study. The free access mindful meditation sessions used in our study were relative short (i.e. 15 minutes) and easy in to implement on a daily base in a workplace setting. However, more studies including larger numbers of participants are needed to show potential short-term efficacy (and superiority to other kind of activities) of short mindful meditation sessions.

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