



HAL
open science

Unexpected factors determine the level of stress, fatigue and well-being in French medical Students during their first academic year

Olivier Coste, Léa Ruelle, Thierry Fusaï, Carole Burillon, Gilles Rode, Marion Trousselard

► To cite this version:

Olivier Coste, Léa Ruelle, Thierry Fusaï, Carole Burillon, Gilles Rode, et al.. Unexpected factors determine the level of stress, fatigue and well-being in French medical Students during their first academic year. AMEE, Aug 2017, Helsinki, Finland. hal-03774999

HAL Id: hal-03774999

<https://hal.science/hal-03774999>

Submitted on 12 Sep 2022

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Unexpected factors determine the level of stress, fatigue and well-being in French medical Students during their first academic year

Olivier Coste¹, Léa Ruelle^{1,4}, Thierry Fusai¹, Carole Burillon², Gilles Rode³, Marion Trousselard⁴

¹ Ecole de santé des armées (Bron) ² Faculté de médecine Lyon-Sud (Université Lyon 1) ³ Faculté de médecine Lyon-Est (Université Lyon 1)

⁴ Institut de recherche biomédicale des armées (Brétigny-sur-Orge)



BACKGROUND

French military medical students have to pass high selective exams during their first academic year. They are submitted to a high amount of stress and chronic sleep restriction, generating anxiety, fatigue, and sleepiness. They are dispatched in two medicine faculties having their own pedagogic programs and time scheduled organization. The aim of the study was to monthly evaluate the psychological profile of students during their first academic year, using a psychometric approach including 21 variables.

METHODS

Subjects

152 students (73 males and 79 females), aged 17 to 24 years old, were involved. Their participation was entirely free.

Protocol

The study was approved by ethics committee and took place between 2015 November and 2016 April in Lyon at 45.8° North latitude.

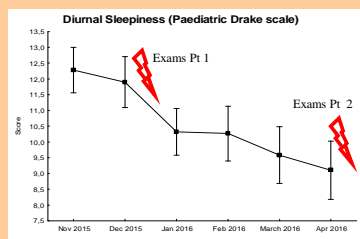
Psychological feelings, diurnal sleepiness, fatigue and anxiety-state were monthly evaluated by Bond & Lader visual analogue scales (BLVAS), adult and paediatric sleepiness scales (ESS and PDSS), the Chalder fatigue questionnaire (CFQ) and Spielberger questionnaire (SQ-A) respectively.

Data analysis

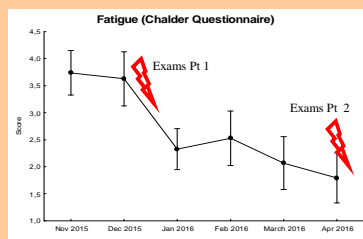
Data were analysed by repeated measure ANOVA using STATISTICA Software. We specifically analysed four main effects related to Gender (male vs. female), Academic Achievement (academic achievement vs. year repetition), medical school Pedagogic Organization (Lyon-Sud vs. Lyon-Est), and Time of measure respectively. We also analysed G x T, AA x T, and PO x T interactions.

RESULTS

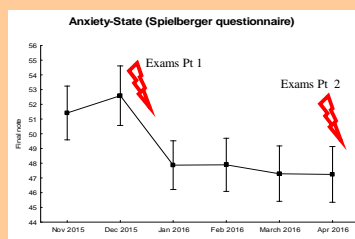
- 1) Gender differences affected 41% of the variables. Females did not feel as strong, skilful, capable, quiet, and relaxed as males along the study. Their anxiety, fatigue and depression scores were also higher.
- 2) Differences related to year repetition affected 41% of the variables. Students repeating a year felt more sleepy, tired, and depressed, and did not feel as interested, pleased, and happy.
- 3) **Differences related to pedagogic organization affected 85.7% of the variables.** Lyon-Sud students were more tired, anxious, and depressed than Lyon-Est students. The global pattern of VAS showed that Lyon-Sud was also doing less well, except for one item (i.e. 'Calm/Excited').
- 4) **90.5% of the variables presented a seasonal pattern with a significant impairment in autumn**, except for two items of VAS (i.e. 'Nonchalant/Peppy' and 'Antagonistic/Amicable').



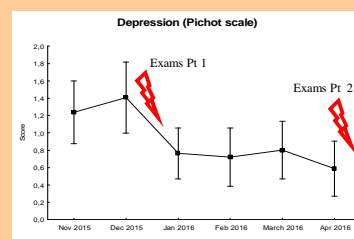
Diurnal sleepiness time course



Fatigue level time course



Anxiety-State time course



Depression level time course

CONCLUSIONS

The degradation of psychological condition in autumn and winter may be linked to seasonal affective disorders due to low light exposure. The time scheduled organization also plays a major role. The faculty scheduling courses in the afternoon is not doing as well as the faculty scheduling courses in the morning.

These results need further confirmation, but may modify current strategies of stress prevention among medical students. Luminotherapy and time scheduling optimization in accordance with human circadian time structure may have indeed a huge interest and perhaps a greater impact than more traditional individual stress coaching programs.