

at intake and followed during outpatient treatment for an average of 531 days. Eighty-three percent of the patients underwent cognitive behavioral therapy, the families of 75% of the patients were included in the treatment and 48% of the patients took antidepressants (SSRI).

**Results** Both body mass index at assessment and illness duration appeared to be independent factors significantly affecting the outcome. The role of neuropsychological variables was explored including cognitive performance in a multivariate analysis including BMI at intake, duration of illness and diagnostic subtype. The inclusion in the model of the Wisconsin Sorting Card Task performance and the central coherence index (calculated by the Rey Figure Test) significantly increased the prediction ability of the model for full remission at the end of treatment.

**Conclusions** This is the first study to show that neuropsychological characteristics may predict treatment response in AN. These data support the implementation of cognitive remediation techniques in the treatment of AN.

**Disclosure of interest** The authors have not supplied their declaration of competing interest.

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#### EW0532

### Prevalence and correlates of perceived stress in young medical undergraduates

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**Introduction** Emotional distress—specifically symptoms of anxiety and/or depression—in undergraduate medical student represent a major health issue for university life and for the entire society, as the onset of negative affectivity in young age is lowering quality of life of the affected individual and implicitly, the professional evolution.

**Objective** The purpose of this study is to investigate the prevalence of perceived stress in medical undergraduates and relationship between perceived stress and emotional distress.

**Methods** The study comprised a randomised population of 356 students from 1st and 2nd year in Faculty of Medicine who signed the informed consent for the research. Mean age in the group was 20.04 ± 0.9 years old. Instruments used in the study were self-rated Zung Anxiety Scale and Zung Depression Scale and Perceived Stress Scale. Data were analysed with SPSS 16. Statistical significance was at  $P < 0.05$ .

**Results** Perceived stress of medium and high intensity was found in 62.5% of the students in the study. There is a significant effect of perceived stress on presence of emotional distress ( $F_{(3,352)} = 36,431$ ,  $P < 0.001$ ). In the emotional distressed group, perceived stress in the period before the exams session is predicting emotional distress in the period of exams (academic stress) with OR = 1.145,  $P = 0.04$ , IC 95% = 1.006–1.303.

**Conclusions** There is a high prevalence of perceived stress and perceived stress in the period before session of exams is a predictive factor for having emotional distress in session of exams. Therefore, we are signaling the necessity of implementation of stress management programs in medical undergraduates from the pre-clinical years.

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#### EW0533

### Microstructural changes in patients with Parkinson's diseases and REM sleep behavior disorder: Depressive symptoms versus non-depressed

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**Introduction** REM sleep behaviour disorder (RBD) is associated with psychiatric symptoms, such as anxiety and depression. RBD is characterized by loss of normal skeletal muscle atonia during rapid eye movement (REM) sleep with prominent motor activity and dreaming and is a usual symptom of the early stages of Parkinson's disease (PD). Diffusion MRI connectometry was used to carry out group analysis between age and gender matched PD patients with RBD in with and without depression to characterize possible depression-related white matter microstructural changes in the Parkinson patients with RBD.

**Method** DWI images were obtained for 15 PD-RBD with depression and 27 PD-RBD without depression. This dataset was acquired on a 3 Tesla Siemens scanner, producing 64 DWI at  $b = 1000$  s/mm<sup>2</sup> and one b0 image. Diffusion MRI data were corrected for subject motion, eddy current distortions, and susceptibility artefacts due to the magnetic field inhomogeneity. Diffusion MRI connectometry was conducted in a total of 27 subjects using percentage measurement.

**Results** PD-RBD Patients with depressive symptoms showed decreased anisotropy ( $FDR < 0.05$ ) in the fornix bilaterally, right cingulum, inferior longitudinal fasciculus bilaterally, right corticospinal tract and Genu of corpus callosum compared to PD-RBD patients without depression.

**Conclusion** Since RBD is considered to be an early symptom of PD and also a marker of progression to PD, these results might PD-RBD patients with depression may progress dementing processes and visuospatial dysfunction earlier since fornix, cingulum and ILF have proven to be associated with these cognitive dysfunctions respectively.

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#### EW0534

### Light as an aid for recovery in psychiatric inpatients: A randomized controlled effectiveness pilot trial

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**Introduction** Electric indoor lighting can disturb sleep and increase depressive symptoms; both common complaints in psychiatric inpatients.

**Aims** To improve quality of sleep in patients using an indoor hospital lighting environment simulating nature in intensity, color, and circadian timing.

**Methods** Investigator-blinded parallel group randomized controlled effectiveness trial supplied with qualitative interviews in an inpatient psychiatric ward with fully automatic and adjustable lighting. Admitted patients received a room with a naturalistic lighting environment (intervention group) or lighting as usual (control group). The primary outcome was the Pittsburg Sleep Quality Index and secondary outcomes included the Major Depression Inventory and WHO-five Well-Being Index.

**Results** In this ongoing trial, we included 28 patients (16 treated and 12 controls). Patients in the intervention group reported higher subjective sleep quality and sleep efficiency, lower use of sleep medication (mean difference, 4.68 mg; 95% CI, 0.54; 53.5), fewer depressive symptoms (mean difference, 5; 95% CI, -2; 13), but lower well-being (difference, -4 percentage points; 95% CI, -20; 16), compared with the control group. At discharge, fewer patients in the intervention group had experienced use of involuntary treatment. Qualitative data indicated no side effects apart from issues in performing indoor leisure activities in dim light.

**Conclusions** A naturalistic lighting environment was safe and improved sleep and mood in our small patient sample. The trial integrated well with routine clinical care and our sample reflected the heterogeneity of the target population (Funded by Region Midtjylland and others; Clinicaltrials.gov number, NCT02653040)

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#### EW0535

### Psychological and psychophysiological mechanisms of mental stress reaction in patients with 'hypertension at work', as compared with 'classical' version of essential hypertension

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**Introduction** 'Hypertension at work' today is found one of the most frequent forms of stress-induced hypertension.

**Objectives** To inquire into the specifics of psychological and psychophysiological mechanisms of stress reaction in patients with 'hypertension at work', as compared with 'classical' essential hypertension (EH).

**Materials and methods** The study developed simulation of emotional stress with the aspiration level (AL) modeling. The level of state anxiety (SA), BP values, urine catecholamine levels and levels of renin and angiotenin I in blood plasma were taken before and after the experiment. Eighty-five patients with 'hypertension at work' (mean age was  $45.9 \pm 2.8$ ) and 85 patients with 'classical' EH (mean age was  $47.4 \pm 4.5$  years) took part in the study.

**Results** Rates of 'hypertension at work' patients, when compared with second group patients, revealed a significant increase ( $P < 0.001$ ) of systolic BP in response to stress loads (on average, for  $16.1 \pm 1.9$  mmHg and  $4.1 \pm 0.7$  mmHg, respectively). Initially 'hypertension at work' patients had significantly lower levels of catecholamines, than the second group, while the levels of renin and angiotenin I were comparable. During the experiment, the patients

in the first group showed a significant decrease in all parameters. After the experiment, the patients with 'HTN at work' did not show increase of SA, but revealed more frequent inadequacy (69.4%) and instability (56.5%) on the AL. Patients with 'classical' EH more often demonstrate adequate AL and lower growth of BP after the experiment.

**Conclusions** Patients with 'hypertension at work' are more prone to repress their emotions. They reveal physiological features of chronic stress and psychophysiological exhaustion, if compared with second group patients.

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#### EW0536

### Longitudinal changes in sleep disturbances, mental toughness, and physical activity in patients with multiple sclerosis

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**Background** Multiple sclerosis (MS) is a chronic progressive autoimmune disease. Fatigue, depression and cognitive impairments are the most common symptoms of patients with MS. Whereas there is extant research on fatigue, depression, and cognitive impairment of patients with MS during the clinical course, no research focused on the long term changes of psychological functioning, sleep problems, and physical activity on these patients. The aims of the present study were therefore to examine changes in physical activity, sleep disturbances, and mental toughness over a 1.5-year period of time in people with multiple sclerosis after the onset their MS.

**Methods** A total of 18 patients with diagnosed MS (mean age:  $M = 33.61$  years) took part in this study. They completed a booklet of questionnaires covering socio-demographic data, mental toughness, sleep disturbances, and physical activity, at the onset of disease and 1.5 years later.

**Results** In total, 1.5 years after the onset of MS, patients had lower levels of vigorous physical activity, but not statistically significant change in moderate physical activity. Patients with sleep disturbances at the onset of disease had statistically significant sleep disturbances also 1.5 years later.

**Conclusions** Compared to the onset of disease, 1.5 years later, patients with MS reported similar mental toughness traits, sleep disturbances and levels of moderate physical activity. The pattern of results of the present pilot study suggests that the onset of MS is not an obstacle for doing moderate physical activity. Based on the result of this study, sleep disturbances remains stable by time.

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