

# IMC Bootcamp on Stress

Tuesday 30<sup>th</sup> August 2016



## Program:

- 9.15 Dr **Karen Johanne Pallesen**, Aarhus University Hospital:  
**Stress, too complex to be true?**
- 9.50 Dr **Dan Mønster**, Aarhus University:  
**Physiological measures of arousal in teams performing a team task.** (Including showcasing of new field technology)
- 10.20 Coffee break
- 10.30 Dr **Djuke Veldhuis**, AIAS, Aarhus University:  
**The trials and tribulations of measuring stress and anxiety in the field**
- 11.00 Prof. **Joseph Herbert**, Cambridge Neuroscience:  
**All about stress - relationships with major depression**
- 12.00 Lunch (complimentary)
- 13.00 Prof. **Victor Carrion**, Stanford University:  
**Stress from a developmental psychiatry perspective**
- 14.00 **Anders Prior**, Aarhus University:  
**How the perception of stress is related to morbidity and mortality**
- 14.30 **General Discussion:** The interactive perspective (with afternoon tea/coffee & snacks)
- 16.00 End

## Organisers:

**Djuke Veldhuis** [djukev@aias.au.dk](mailto:djukev@aias.au.dk),

**Karen Johanne Pallesen** [karen.johanne.pallesen@clin.au.dk](mailto:karen.johanne.pallesen@clin.au.dk) and

**Katrin Heimann** [katrinheimann@cas.au.dk](mailto:katrinheimann@cas.au.dk)

## **Abstracts**

### **Joseph Herbert: All about stress - relationships with major depression**

The real problem about stress is defining it. A physiological, psychological or social (the three overlap) demand outside the ordinary is one way, but this puts the onus on the subject, not the observer. What constitutes stress will depend almost entirely on individual perceptions, circumstances, experience and genetic constitution. However, we can measure the response to a supposed stressor, and this may give us a clue as to whether it really is stressful. Unlike stress itself, the response to it is more standardised.

Given this variability, can we categorise stressors? Physiological stressors are usually those that threaten homeostasis, such as food deprivation, dehydration or excessive heat or cold. I am not going to dwell on these, except to point out that coping with them depends largely on physiological defence mechanisms, and behavioural adaptation (for example, in dehydration, endocrine mechanisms for retaining water and constricting blood vessels, then looking for water). Famines show clearly that individuals differ in their ability to resist food deprivation (the old and the young are particularly vulnerable).

Psychological and social stress is more pertinent for mental illness. Persistent social difficulties, particularly when followed by a more acute life event (eg a loss) may precipitate major depression (MDD). It is also becoming evident that early life adversity (eg poor parenting) can result in increased vulnerability for later psychiatric disorder, including MDD. What do we know of the mechanisms linking these events, and why do they vary between individuals? This will be the subject of my presentation.

### **Victor Carrion: Stress from a developmental psychiatry perspective**

The real problem about stress is defining it. A physiological, psychological or social (the three overlap) demand outside the ordinary is one way, but this puts the onus on the subject, not the observer. What constitutes stress will depend almost entirely on individual perceptions, circumstances, experience and genetic constitution. However, we can measure the response to a supposed stressor, and this may give us a clue as to whether it really is stressful. Unlike stress itself, the response to it is more standardised.

Given this variability, can we categorise stressors? Physiological stressors are usually those that threaten homeostasis, such as food deprivation, dehydration or excessive heat or cold. I am not going to dwell on these, except to point out that coping with them depends largely on physiological defence mechanisms, and behavioural adaptation (for example, in dehydration, endocrine mechanisms for retaining water and constricting blood vessels, then looking for water). Famines show clearly that individuals differ in their ability to resist food deprivation (the old and the young are particularly vulnerable).

Psychological and social stress is more pertinent for mental illness. Persistent social difficulties, particularly when followed by a more acute life event (eg a loss) may precipitate major depression (MDD). It is also becoming evident that early life adversity (eg poor parenting) can result in increased vulnerability for later psychiatric disorder, including MDD. What do we know of the mechanisms linking these events, and why do they vary between individuals? This will be the subject of my presentation.

### **Anders Prior: How the perception of stress is related to morbidity and mortality**

In individuals with chronic disease and multimorbidity, psychiatric disorders are associated with poor prognosis, but it remains unknown whether this holds for individuals with elevated levels of perceived stress as measured by the validated and widely used Cohen's Perceived Stress Scale. Our objective was to determine whether perceived stress is associated with increased mortality taking into account individual lifestyle and socioeconomic factors. We also evaluated the number of potentially preventable hospitalizations and rehospitalizations for ambulatory care-sensitive conditions (ACSCs).

A population-based longitudinal cohort study was performed combining nationwide survey data on perceived stress and lifestyle with national register data. Multimorbidity was assessed using health register information on diagnoses and drug prescriptions within 39 chronic condition categories. Mortality rates rose with increasing levels of stress in a dose-response relationship ( $P$ -trend  $< 0.0001$ ), independently of multimorbidity status. Mortality hazard ratios (highest stress quintile vs. lowest) were 1.51 (95% confidence interval (CI): 1.25, 1.84) among persons without multimorbidity, 1.39 (95% CI: 1.18, 1.64) among those with 2 or 3 conditions, and 1.43 (95% CI: 1.18, 1.73) among those with 4 or more conditions, when adjusted for disease severities, lifestyle, and socioeconomic status.

Our findings suggested that perceived stress contributes significantly to higher mortality and ACSC-hospitalization rates in a dose-response pattern, and more stress-associated deaths occurred in people with multimorbidity. The implication for health care systems could be a stronger focus on mental health in guidelines and risk stratification.