



**Karolinska  
Institutet**

From THE DEPARTMENT OF CLINICAL NEUROSCIENCE,  
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**STRESS REACTIVITY, COGNITIVE FUNCTIONING  
AND HIPPOCAMPAL MORPHOLOGY IN EXHAUSTION  
DISORDER, AND DEVELOPMENT OF A SELF RATING  
SCALE FOR EXHAUSTION DISORDER, KEDS**

AKADEMISK AVHANDLING

som för avläggande av medicine doktorsexamen vid Karolinska  
Institutet offentligen försvaras i Kugelbergssalen, Neurokliniken,  
Karolinska sjukhuset Solna fredagen den 20/1, 2012, kl 09:00.

av

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**Stockholm 2012**

## **ABSTRACT**

Stress is considered a major health problem in modern society and a prominent reason behind the long term sick leave (LTSL). Chronic stress may give rise to feelings of irritation and fatigue or exhaustion and may precipitate depression and anxiety as well as a number of unexplained medical conditions such as burnout. Burnout is not classified in the International Classification systems, but is instead noted among “Problems related to life-management difficulty”. Hence Exhaustion disorder (ED) was introduced in 2003 as a medical diagnosis to classify the closely associated terms vital exhaustion, mental fatigue and clinical burnout. According to the glucocorticoid-cascade hypothesis of stress and ageing, over-exposure or prolonged exposure to stress hormones (cortisol) may have adverse effects on the ability to turn off a stress response as well as memory functioning.

On the contrary to our hypothesis, study I-III, demonstrated that publicly employed women, who were initially on LTSL due to work stress related depression and Exhaustion disorder have a blunted ability to mount a stress response as measured by the Dex/CRH test. The cognitive test battery revealed that attention and working memory was slightly impaired at baseline but not in the 1 year follow-up. Magnetic resonance imaging (MRI) demonstrated that Hippocampus volume was not changed, nor any other cortical area.

In study IV, a new self rating scale for assessment of ED-symptoms, The Karolinska Exhaustion disorder scale, KEDS was constructed and evaluated. The scale has 9 items, ranging from 0-6 points, with a maximum summated score of 54. Lower scores reflect no or mild symptoms, and 19 points is associated with sensitivity and specificity above 95% suggesting that the scale has a high discriminative capacity.

In summary, LTSL patients who suffered from work stress related depression and ED at baseline, demonstrated a neuroendocrine deficiency that remained at 1-year follow-up and at 7-years follow-up despite clinical improvement. Symptoms of Exhaustion disorder may be assessed using the 9 item self rating scale, KEDS.

ISBN 978-91-7457-619-7