

# Subjective Cognitive Symptoms and Cognitive Functioning in the Swedish Working Population

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## Background

Otherwise healthy persons in the work force may, at times, experience difficulties in focusing attention, thinking clearly, in remembering adequately and in making decisions in their jobs and elsewhere. We refer to these as cognitive symptoms (CS). The experience of CS is related to stress<sup>1</sup> and is also part of other common psychiatric conditions in the population like depression<sup>2</sup> and anxiety, also associated to stress<sup>3,4</sup>. CS in the working population are relatively common, approx. 10% reporting that they have these symptoms often or always, and have also been associated to working conditions<sup>5</sup>.

Cognitive functioning is essential in coping with life's challenges and the cognitive/intellectual demands of modern work life. Cognitive impairment is a risk factor of ill health and may increase the risk for decreased work ability and early labour market exit. However, no firm conclusions regarding the relation between subjective and objective cognitive functioning in the general working population can be drawn from previous studies. This knowledge is important for considering methods and strategies for enhancing/optimizing functionality and well-being in this population- at the individual level and in the design of work and work environment.

## Aim

To test the relation between subjective CS and objective cognitive functioning in a sample of the general working Swedish population, using tests that are more sensitive to effects that are caused by stress exposure, rather than using screening tools for detection of more severe cognitive impairments such as dementia.

In *study 1*, the aim was to test the relation between subjective CS and episodic memory function, with and without distraction/diverted attention.

In *study 2*, the aim was to test the relation between subjective CS and working memory capacity.

## Method

*Participants* were 233 cases and controls with a high or a low level of CS respectively, matched on sex, age, education and geographical area, drawn from the general gainfully employed Swedish population (and part of SLOSH<sup>6</sup>). Participants were tested on **1**) immediate free recall of words in conditions without distraction and with distraction (concurrent card sorting), and **2**) the reading span task.

The studies were part of a larger project where



additional cognitive and physiological measures were also collected from participants.

Z scores of test measures were analysed with ANOVAs, including the covariates age, sex and education.

# Results & Discussion

Participants with a high level of subjective CS, compared to controls with a low level of CS:

**1**) did not differ in simple episodic memory recall without distraction [ $F(1)=0.25$ , n.s.; figure 1], but had poorer episodic memory recall in conditions with a distracting task [ $F(1)=6.62$ ,  $p=0.011$ ; figure 2], and

**2**) had a lower working memory capacity on the reading span task [span level:  $F(1)=12.92$ ,  $p<0.001$ ; figure 3].

Together the results indicate that a high level of cognitive symptoms in this group is related to a poorer ability in executive functions required in working-memory tasks. These functions and corresponding functional brain regions are also those that appear to be particularly sensitive to immediate<sup>7-9</sup> and prolonged<sup>4,10</sup> elevation of stress levels. A discussion of the significance of suboptimal stress levels, acutely and in the longer term, for optimal cognitive functionality/performance in the working population seems relevant to the findings.

Figure 1. Episodic Memory in Low & High Cognitive Symptoms

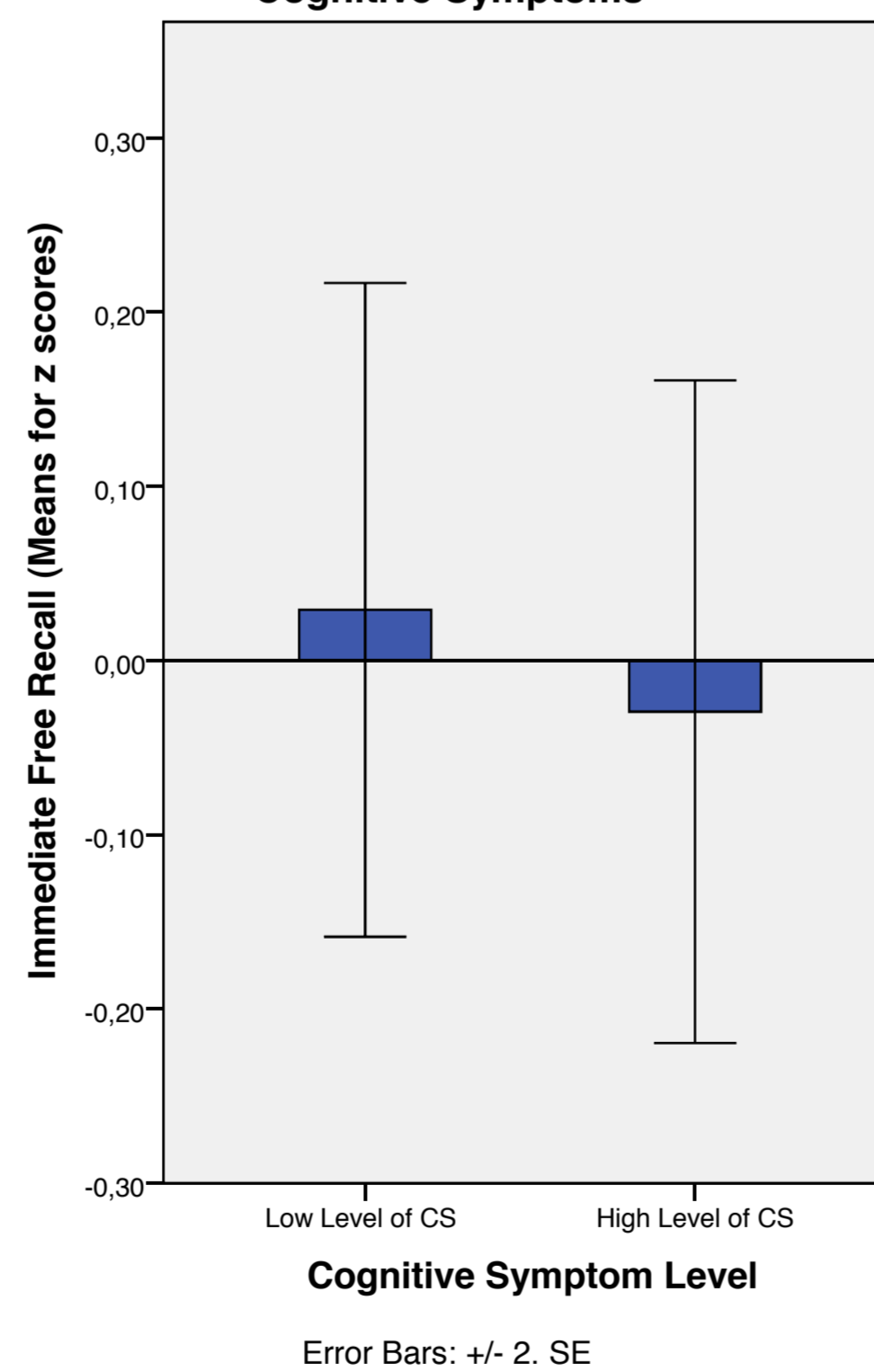


Figure 2. Distracted Episodic Memory in Low & High Cognitive Symptoms

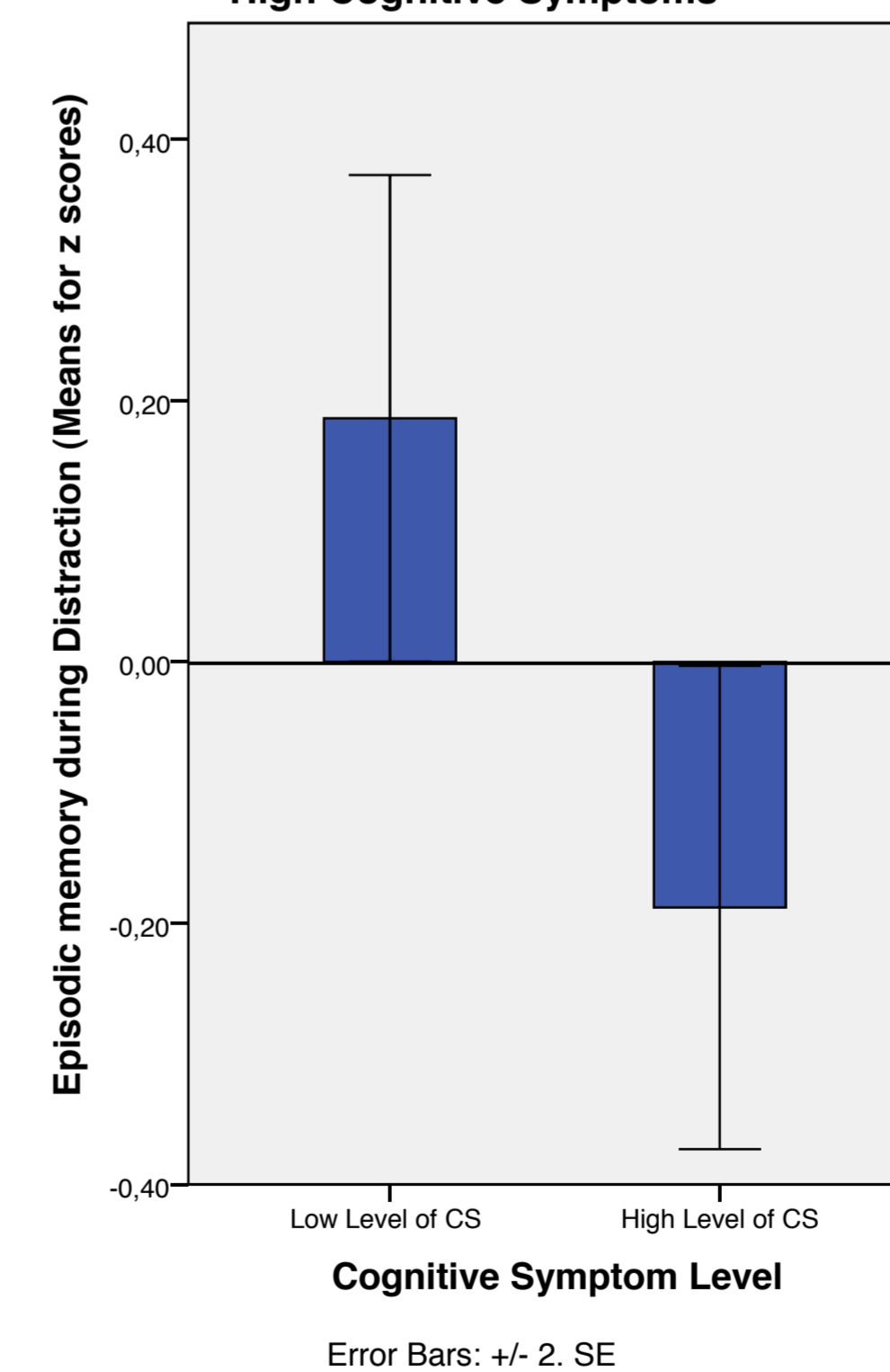
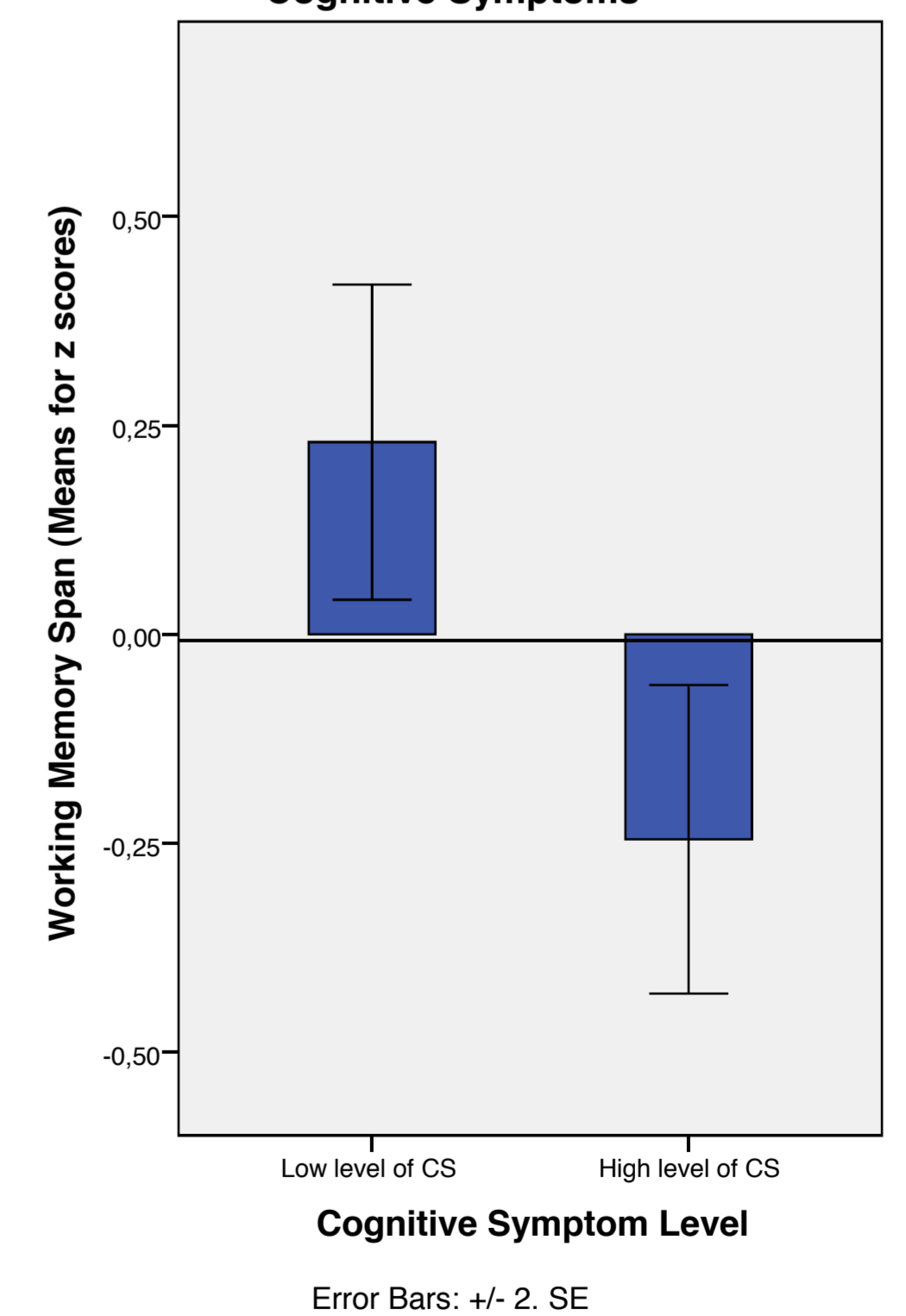


Figure 3. Working Memory in Low & High Cognitive Symptoms



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## CONTACT