

Self-Reported Cognitive Decline, Emotional Symptoms and Daytime Sleep After Ischemic Stroke

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Background

After stroke, emotional symptoms (such as depression or anxiety), cognitive decline and increased daytime sleep are common. However, the relationship between these sequelae remains unclear.

We aimed to study:

- If self-reported cognitive decline and emotional symptoms 3 months after hospital discharge are associated with increased self-reported daytime sleep at 1 year.
- If increased self-reported daytime sleep at 3 months is associated with self-reported emotional symptoms and cognitive decline at 1 year.

Method

Ischemic stroke patients **without recorded previous history of dementia or depression** were included in this study. Data from patients' **medical journals** were used, and the following symptoms were assessed 3 months and 1 year after hospital discharge **using postal surveys**:

- Self-reported symptoms of anxiety and depression were assessed using the Hospital Anxiety and Depression Scale (HADS).
- Self-reported increase in daytime sleep and decline in concentration and memory were each assessed with one dichotomous item.

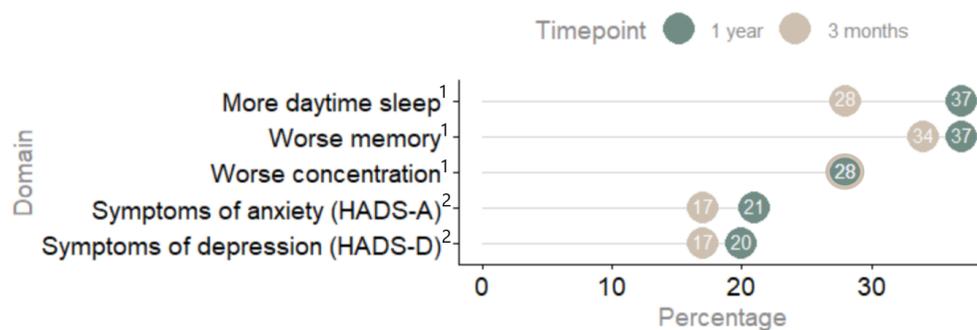
Multiple linear and binary logistic regression controlling for age, sex and stroke severity (NIH Stroke Scale, NIHSS) were used.

Results

Patient characteristics (N=140)

Sex: 57.1% male
Age (M±SD): 73.2 ± 10.9 years
Education: 21.4% Primary school
 41.0% Secondary school
 37.6% 3- or 5-year university education
Mini-Mental State Examination score during hospital stay (M±SD): 25.2 ± 4.9
NIHSS score within 24 hours after stroke (M±SD): 3.6 ± 4.3
Barthel Activities of Daily Living index score:
 3 months (M±SD) = 89.4 ± 24.8
 1 year (M±SD) = 93.9 ± 17.6

Figure 1. Percentage of self-reported symptoms.



Note: ¹ Compared to before stroke. ² Self-reported symptoms above clinical cut-off score (HADS-A/D-score ≥8).

Sample description

Self-reported decline in memory and concentration, as well as higher HADS-A and HADS-D scores at 3 months were significantly associated with self-reported **increased daytime sleep** at 1 year.

Table 1. Relationship of self-reported emotional symptoms and cognitive decline (3 months) with daytime sleep (1 year).

	1 year		
	Increased daytime sleep		
		95% CI	
3 months	OR	Lower	Upper
Worse concentration*	4.9	1.9	13.0
Worse memory*	4.2	1.8	9.7
Higher HADS-D score*	1.2	1.0	1.3
Higher HADS-A score*	1.2	1.1	1.3

Note: *Significant at $p < .00625$ (Bonferroni correction). Controlled for age, sex, and NIHSS.

Self-reported daytime sleep at 3 months was **not significantly associated** with self-reported cognitive function or with emotional symptoms at 1 year.

Table 2. Relationship of self-reported daytime sleep (3 months) with emotional symptoms and cognitive decline (1 year).

	1 year			
	Worse concentration	Worse memory	Higher HADS-D score	Higher HADS-A score
3 months				
Increased daytime sleep	ns	ns	ns	ns

Note: ns=non-significant result ($p \geq .00625$, Bonferroni correction); Green circle=positive beta/OR > 1. Controlled for age, sex, and NIHSS.

Regression analyses

Conclusion

Patients with self-reported **higher levels of depression and anxiety** and with **decline in concentration and memory 3 months** after hospital discharge, may be at a **higher risk for increased daytime sleep at 1 year**. Interventions targeting emotional symptoms and cognitive decline in the subacute phase may prevent excessive daytime sleep and may thereby secure patients' engagement in rehabilitation and successful recovery.



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