

# How can we beat depression?

- Does early interdisciplinary control have a preventive impact on the risk of developing a depression after an acquired brain injury?

- preliminary results



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Unfortunately, data from all five regions in Denmark were not available, and the population is smaller than expected. Because of few one-year controls, we decided to focus on the prevalence of depression and the need for rehabilitation at the first visit in the outpatient clinic.

## Background

In addition to the physical and cognitive sequelae, many people with an acquired brain injury (ABI) struggle with depressive symptoms. Studies have reported a prevalence around 30% for developing a depressive disorder after TBI or Stroke (Bullock et al., 2015) (Schöttke, H. and Giabbiconi, CM, 2015). A new review has shown an increase in the prevalence of depression over time after a TBI (Scholten, A.C. et al., in press).

According to young people with ABI, Battista et al. (2014) found a connection between depression and health related quality of life in youth post-TBI.

## Method

The Ministry of Health and Elderly in Denmark has made a special initiative towards young people, years 15 - 30 with an acquired brain injury. Five regional outpatient clinics offer the young people an interdisciplinary examination.

### Subjects:

Young people between 15-30 years living in North Region Denmark with a diagnosis of possible ABI (TBI, Brain tumor, stroke, encephalopathy or CNS infection) were included in the study. The discharging hospital department or the general practitioner referred patients to the clinic. The patients were both newly diagnosed patients and patients with an older injury. Furthermore, we sent a letter to newly diagnosed patients who were not referred to the clinic within one month after discharge.

	N	Male (%)	Age years (SD)	Years since diagnose (SD)
All patients seen in the clinic	86	54 (62,79)	23,98 (4,38)	3,17 (5,28)
Patients diagnosed ≤ 365 days	45	29 (64,44)	23,46 (4,28)	0,514 (0,22)
Patients diagnosed > 365 days	41	25 (60,98)	24,55 (4,47)	6,09 (6,51)

Tabel 1 The groups

There is no difference between group 1 and group 2 according to gender ( $\chi^2(1, N=86)=0,110, p=0,74$ ) and age (unpaired t-test,  $t(84)=1,09, SD=0,94, p=0,25$ )

### Examination:

A younger doctor, neuropsychologist, occupational therapist and physiotherapist examined all patients. The patients were examined with a standard battery of test, including NIHSS, FIM, GOS-E, Mini-Best TEST, HIMAT, Major Depression Inventory (MDI) and neuropsychological testing. The neuropsychologist were sitting beside the patient when answering the MDI-questionnaire. This to secure that the cognitive disabilities did not affect the understanding of the questionnaire.

After the examination, the interdisciplinary team evaluated the need of rehabilitation.

## Results

There is a difference between the prevalence of patients meeting the diagnostic criteria for depression according to ICD-10 (12%) and the prevalence of patients, which have depressive symptoms according to the rating scale (36%).

Figure 1 shows the distribution of the patients seen in the outpatient clinic

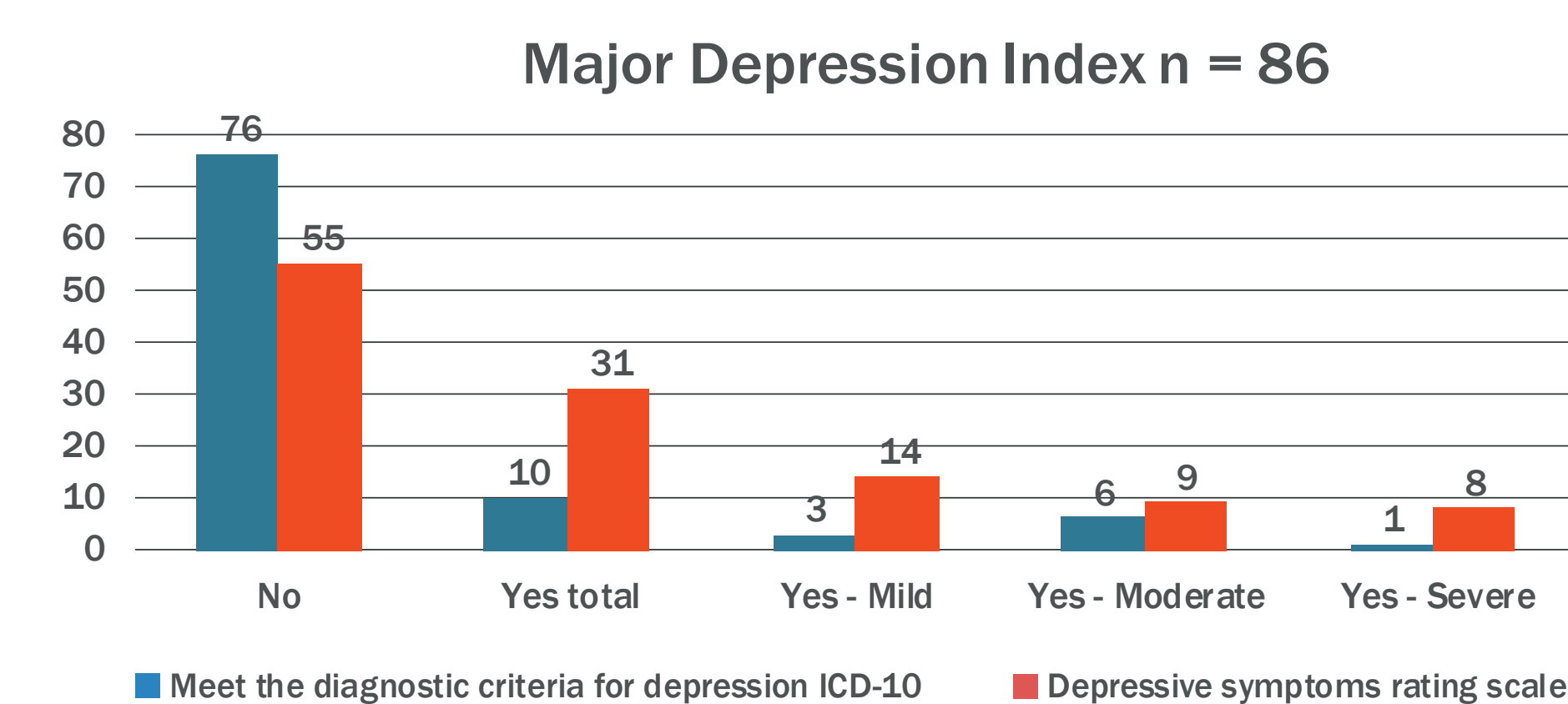


Figure 1: Depressive symptoms according to Major Depression Index

Both patients seen within one year after diagnosis and patients seen several years after diagnosis have a high prevalence of need for rehabilitation. Approximately, 3/4 (76%) of patients seen within a year after discharge, did have a need for rehabilitation and 2/3 of these (66%) got a prescription for rehabilitation. The prevalence is higher in the group discharged several years ago (90%), because this is a selected group with an unmet need for rehabilitation.

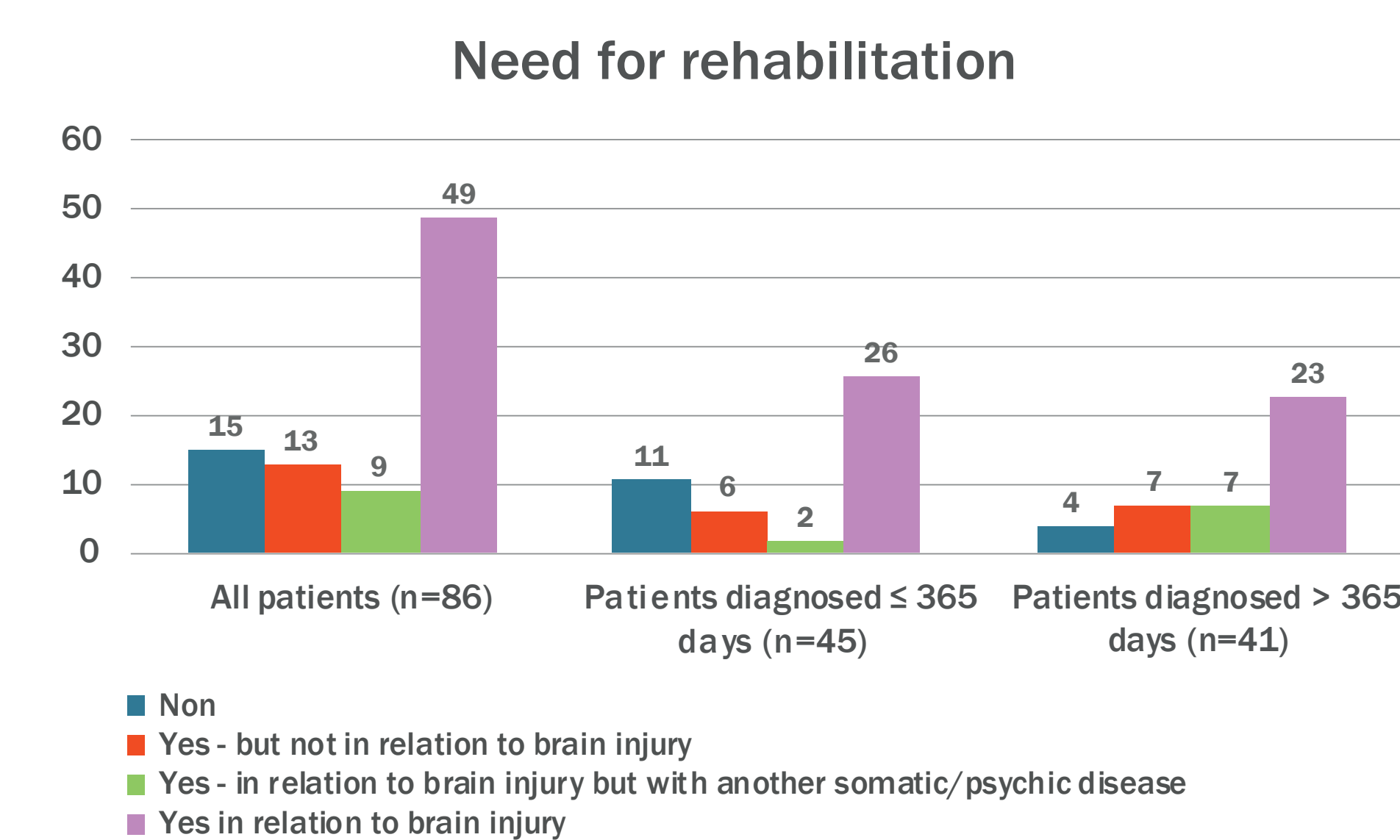


Figure 2: Need for rehabilitation

A  $\chi^2$ -test of independence was performed to examine the relation between MDI-score and the need for rehabilitation. The relation between these variables was significant for both the whole group  $\chi^2(1, N=86) = 10,24, p = 0,001$  and group 1  $\chi^2(1, N=45) = 5,91, p = 0,015$ . Patients with a MDI-score > 19 were more likely (100%/100%) to have a need for rehabilitation according to patients with MDI-score < 20 (72%/65%).

All patients	No need of rehabilitation	Need for rehabilitation	Total
MDI < 20	15	40	55
MDI > 19	0	31	31
Total	15	71	86

Tabel 2 Depressive symptoms and need for rehabilitation - all patients

Group 1	No need of rehabilitation	Need for rehabilitation	Total
MDI < 20	11	21	32
MDI > 19	0	13	13
Total	11	34	45

Tabel 3 Depressive symptoms and need for rehabilitation - group 1

## Discussion:

Young people living in North Region Denmark with a diagnosis that might cause a brain injury have a high risk of developing depressive symptoms. This is seen both when using the diagnostic criteria according to ICD-10 (11%) and the rating scale with cutoff on 20 points (36%). The prevalence according to the rating scale correspond to the prevalence reported in other studies.

Even though only 1/3 of the patients with depressive symptoms meet the diagnostic criteria for a depression, the presence of the depressive symptoms can complicate their rehabilitation and many of the patients need treatment for their depressive symptoms.

The data shows that 75% of the patient seen within one year after discharge, have a need for rehabilitation. 2/3 of those got a prescription for rehabilitation, which means that they did not get training when they came to the clinic.

This result indicates that young people with an acquired brain injury living in North Region Denmark will benefit from an interdisciplinary examination after discharge.

The results cannot tell which factors affects the risk of developing a depression after ABI. And it cannot tell how the connection is between depressive symptoms and need for rehabilitation.

## Conclusions and perspectives

- Young people between 15-30 years with an ABI have a high of developing depressive symptoms.
- There are a difference between prevalence of depression and depressive symptoms when comparing the diagnostic criteria according to ICD-10 and the rating scale.
- Many young people with an acquired brain injury have unmet need of rehabilitation.
- The results indicates a connection between the need of rehabilitation and higher level of depressive symptoms.
- Young people with an acquired brain injury living in North Region Denmark will benefit from an interdisciplinary examination after discharge.

## The results have raised further questions to answer:

- How do we diagnose depression after an acquired brain injury?
- Do young people with an acquired brain injury differ from other age groups in case of depressive symptoms and rehabilitation needs?
- How can the rehabilitation units and teams prevent the development of depressive symptoms?
- How do sequelae after an acquired brain injury and depressive symptoms affect quality of life among young people with an acquired brain injury?

### Referencer:

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