

# Emotion recognition in patients with functional neurological disorder:

## A comparison between alexithymia and facial emotion recognition

### Background and aim:

Patients with Functional Neurological Disorder (FND) are known to have difficulties processing emotions. Prior research indicates that patients with FND have higher levels of alexithymia, but little is known about recognizing and naming emotions expressed by other people

### Method:

As part of the EMIN-FND study, we analyzed data from 24 patients with FND (sensory, motor or combined subtypes; mean age = 42.9 [ $SD = 15.4$ ] years, 12 women [50%]), and 24 controls (mean age = 50.6 [ $SD = 15.7$ ] years, 14 women [58%]). The Bermond-Vorst Alexithymia Questionnaire (BVAQ) was used to measure alexithymia and the Ekman 60 faces test (EFT) to measure facial emotion recognition.

| EFT Scale | Patient or control | Mean score | Standard deviation | p-value |
|-----------|--------------------|------------|--------------------|---------|
| Anger     | Patient            | 8.00       | 1.41               | 0.39    |
|           | Healthy Control    | 7.54       | 2.17               |         |
| Sadness   | Patient            | 7.13       | 1.62               | 0.93    |
|           | Healthy Control    | 7.08       | 1.64               |         |
| Happiness | Patient            | 9.96       | 0.20               | 0.66    |
|           | Healthy Control    | 9.92       | 0.41               |         |
| Fear      | Patient            | 6.54       | 2.59               | 0.19    |
|           | Healthy Control    | 7.38       | 1.69               |         |
| Surprise  | Patient            | 8.71       | 1.76               | 0.08    |
|           | Healthy Control    | 9.42       | 0.78               |         |
| Disgust   | Patient            | 6.13       | 2.59               | 0.12    |
|           | Healthy Control    | 7.25       | 2.33               |         |
| Total     | Patient            | 46.46      | 5.93               | 0.22    |
|           | Healthy Control    | 48.58      | 5.81               |         |

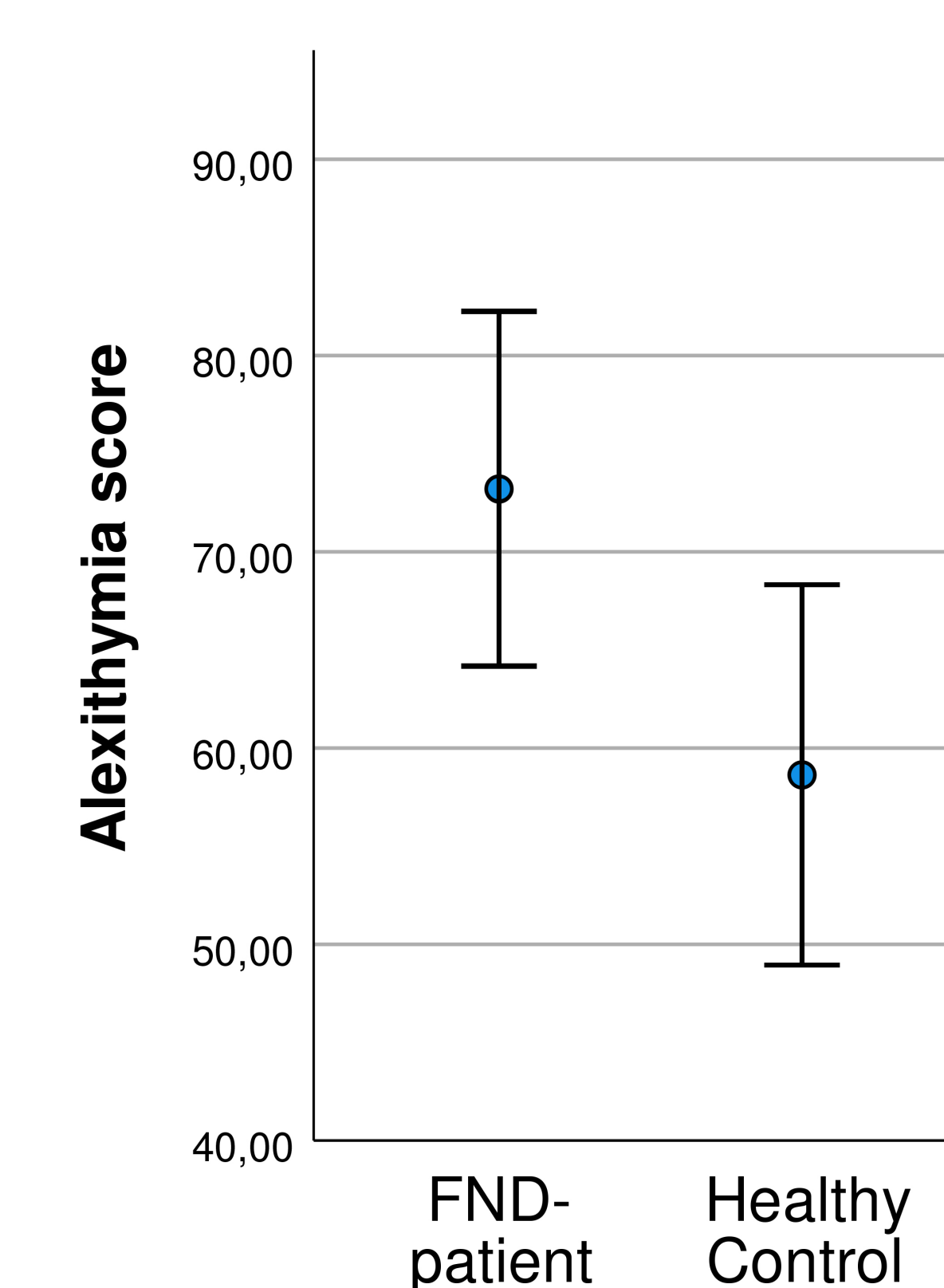
**Table 1:** there were no significant differences between patients on any subscale or sum-scale of the Ekman 60 faces test (EFT).

### Conclusion:

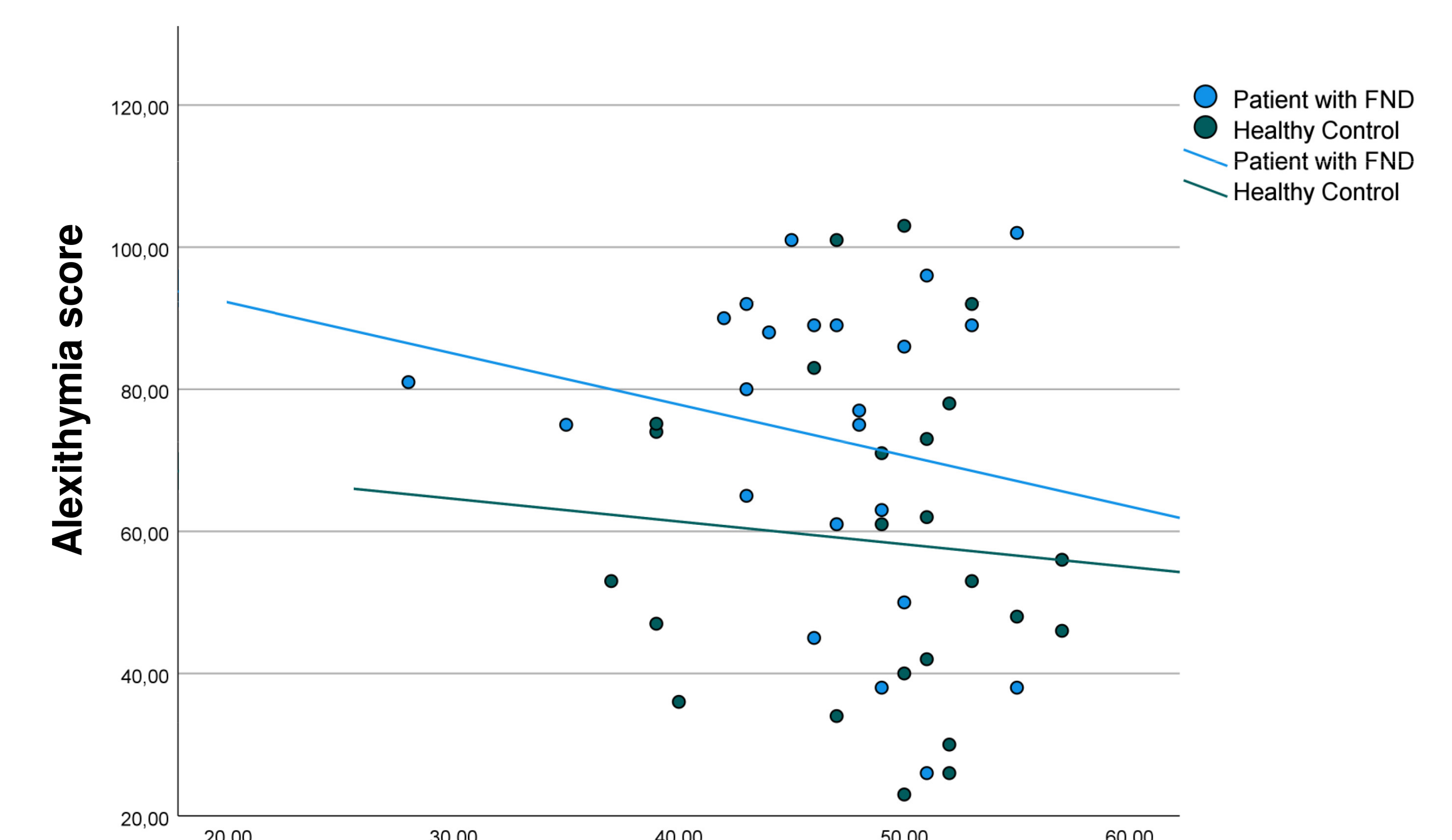
The current data confirm prior observations that patients with FND have higher levels of alexithymia than controls without FND. The difficulties recognizing emotions seem to be stronger for internal emotions than for emotions expressed by others. These findings require replication in a larger and more diverse sample.

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**Figure 1:** patients with FND had higher alexithymia scores (BVAQ) than healthy controls.



**Figure 2:** scatter plot showing the association between alexithymia (BVAQ-total score) and facial emotion recognition (Ekman 60 faces test).

### Results:

Patients with FND had a higher alexithymia total score than controls (BVAQ = 73.5 [ $SD = 21.4$ ] versus 58.6 [ $SD = 22.9$ ],  $p=0.028$ , Cohen's  $d = 0.66$ ). The subscale examining internal emotion identification showed a similar difference (13.0 [ $SD = 6.6$ ] versus 8.2 [ $SD = 5.9$ ],  $p=0.01$ , Cohen's  $d = 0.77$ ). In contrast, the difference between FND patients and controls on the Ekman 60 faces test was smaller: the mean number of facial emotions recognized by patients with FND was 46.5 ( $SD = 5.9$ ) versus 48.6 out of 60 in controls ( $SD = 5.8$ ) Cohen's  $d = -0.360$ . This difference was not significant. Higher levels of alexithymia (BVAQ total score) were associated with poorer facial emotion recognition, but these relationships were not statistically significant (FND  $\beta = -0.20$ ; Control  $\beta = -0.08$ ;  $p$ -values  $> 0.35$ ).