

Original article

## French version of the Copenhagen neck functional disability scale

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### Abstract

We conducted a study to validate the French version of the Copenhagen Neck Functional Disability Scale (CNFDS).

**Methods:** We used the CNFDS on data generated by a previous randomized controlled trial comparing pulsed electromagnetic field therapy (PEMFT), spa therapy, and standard therapy in patients with neck pain. Patients were recruited locally and examined by a physician who was unaware of the treatment group and independent from the trial. Treatment efficacy was evaluated based on a visual analog scale (VAS) for pain, the short-form-36 quality-of-life instrument (SF36), payments by public healthcare insurance, and overall assessments by the patients and physicians. Efficacy was evaluated at baseline, at treatment completion, and after 3 and 6 months. In addition, the patients completed the CNFDS at these time points.

**Results:** CNFDS scores were normally distributed. CNFDS scores and their variations correlated well with the other efficacy criteria. CNFDS scores were less sensitive to change than the VAS pain scores and more sensitive to change than the other efficacy criteria.

**Conclusion:** The CNFDS holds promise as a tool for evaluating neck pain. Score reproducibility needs to be studied. The CNFDS can be added to the other instruments that have been translated in recent years to serve as tools for clinical research. However, the ease of completion of the CNFDS is consistent with use in clinical practice.

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**Keywords:** Evaluation scales; Copenhagen; Neck pain

### 1. Introduction

Neck pain has an estimated prevalence of 10–15% in the general population in Europe [1,2] and among patients seeking help from general practitioners for musculoskeletal disorders [3,4]. Although neck pain may have a less severe impact than low back pain, adverse consequences include severe functional disability, as well as lengthy sick leaves in France. In addition, few validated treatments are available for neck pain [5]. Therefore, effective instruments are needed to evaluate the severity and impact of neck pain.

We evaluated the French version of the Copenhagen Neck Functional Disability Scale (CNFDS), a patient completed scale developed in 1998 by Jordan et al. [8]. We used the scale to examine the results of a randomized controlled trial of two treatments for neck pain that was published in abstract form in 2002 [6].

We developed our evaluation protocol in 1999. At the time, no neck pain evaluation scales were available in French. We focused on the CNFDS [7,8] because this scale is easily understood by patients. In contrast to the Neck Pain and Disability Scale [9], the CNFDS has no visual analog scales (VAS), which some patients find difficult to use. The amount of text is minimal, compared to 54 lines in the Northwick Park Pain Questionnaire [10]. Most importantly, the CNFDS uses qualitative items, and the clinical relevance of changes in item scores is readily perceived.

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## 2. Methods

### 2.1. Translation of the original questionnaire

The questionnaire was translated by three college students majoring in languages. First, the English was translated to French by Clotilde Lamy (Paris University, France). Then, the French version was back-translated to English by Andrea Newsomet (Middlebury, USA). Finally, the original and the back-translation were compared by Ashley Waddel (Middlebury College, USA), who considered that the two versions were equivalent. The original scale is shown in Table 1.

### 2.2. Patients

The patients were recruited by posters and announcements in a local newspaper. Each patient was allocated at random to spa therapy, pulsed electromagnetic field therapy (PEMFT), or no change in current treatment. Patients were eligible if they were 18–80 years of age and had mechanical neck pain of at least 3 months' duration with a VAS pain score of 30 or more. We excluded patients who had contraindications to either of the two treatments under study: very severe pain; pain radiating above the occiput or below the shoulder; cervical spondylotic myelopathy; peripheral neuropathy; systemic disorders known to involve the skeletal muscles; neck pain caused by a tumor, injury, infection, or inflammatory disease; immune deficiency; progressive heart disease; active malignancy; infection; inability to tolerate heat, baths, or swimming pools; pace-maker; metallic implant or metallic material in the cervical region; and migraine. We also excluded patients in whom the most prominent symptoms were due to a disorder affecting the shoulder or low back.

### 2.3. Study design

At baseline and at completion of the 20-day treatment period, each patient completed the French version of the CNFDS

alone then underwent a physical examination. All physical examinations were performed by the same physician, who was not otherwise involved in the study. Each patient completed the questionnaire on two additional occasions, 3 and 6 months after treatment completion, respectively; they mailed their completed questionnaires and subsequently answered a phone call by the same physician, who checked the answers, obtained additional information if needed, and completed a medication-use questionnaire. Use of healthcare services was assessed by a salaried employee of the local branch (Savoie) of the public health insurance system, without knowledge of treatment group assignment, by comparing payments during the 6 months before the study and the 6 months after the study. In France, all individuals are covered by the public health insurance system, which pays for physician-prescribed medications.

### 2.4. Evaluation criteria

Treatment efficacy was evaluated using the CNFDS score, three VAS pain scores as recommended by the French High Authority for Health (current pain, worst pain, and average pain over the last 8 days) [11], the validated French version of the short-form 36 quality-of-life questionnaire (SF36) [12–14], the patient's assessment of pain severity, the physician's assessment, use of medications intended to relieve neck pain, and healthcare services utilization as assessed by payments by the public health insurance system.

The CNFDS consists of 15 items that evaluate the impact of neck pain. For each item, the patient can choose among three boxes: “yes”, “occasionally”, and “no”, which are then scored 2, 1, and 0, respectively, except for the first item for which “yes” is scored 0 and “no” 2 points. Therefore, the total score can range from 0 (no impact of neck pain) to 30 (worst possible impact). The questionnaire requires about 90 s to complete. Items a and e directly evaluate pain severity; items b, c, d, e, g, h, i, j, and l evaluate disability during everyday activities; and items f, i, k, m, and n focus on social interactions and

Table 1  
CNFDS

	Yes	Occasionally	No
(1) Can you sleep at night without neck pain interfering?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) Can you manage daily activities without neck pain reducing activity levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3) Can you manage daily activities without help from others?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) Can you manage putting on your clothes in the morning without taking more time than usual?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(5) Can you bend over the washing basin in order to brush your teeth without getting neck pain?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(6) Do you spend more time than usual at home because of neck pain?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(7) Are you prevented from lifting objects weighing from 2 to 4 kg due to neck pain?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(8) Have you reduced your reading activity due to neck pain?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(9) Have you been bothered by headaches during the time that you have had neck pain?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(10) Do you feel your ability to concentrate is reduced due to neck pain?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(11) Are you prevented from participating in your usual leisure time activities due to neck pain?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(12) Do you remain in bed longer than usual due to neck pain?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(13) Do you feel that neck pain has influenced your emotional relationship with your nearest family?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(14) Have you had to give up social contact with other people during the past 2 weeks due to neck pain?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(15) Do you feel that neck pain will influence your future?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Points per question (inverted scoring for the first question)	2	1	0
Total points			

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