

Translation and cross-cultural adaptation of the Polish Central Sensitization Inventory

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Abstract

Objectives: The Central Sensitization Inventory (CSI) is a new, simple clinimetric instrument intended to help doctors who deal with pain of unclear origin. It may be particularly useful when there is a large component of neuropathic pain and to assess non-specific symptoms associated with the phenomenon of central sensitization known under the common name of the central sensitization syndrome. The aim of this study is to perform translation of the CSI into Polish, its cultural adaptation and its preparation for further validation. The proposed adaptation of the scale may be applied both at the clinical level and at the level of primary care.

Material and methods: The CSI translation process took place in several stages. Firstly, the text of the questionnaire was translated from English to Polish by five independent translators. Secondly, the optimal version of the text was determined and, at the third stage, it was submitted to a linguist in order to assess it in the context of the idiomatic and semantic clarity. Thirdly, the translation was passed on to a native speaker who verified the congruence of the Polish translation with its original version. At a later stage, the effect of translating the scale and its usefulness were discussed by a group of experts in order to adapt a cultural tool. The final step was to provide it to be completed and evaluated by twenty anonymous patients with the aim of pre-assessing the level of its understanding.

Results: The final result of the undertaken activities is the Polish version of the CSI ready for validation.

Conclusions: After the multistage preparation and thorough verification of the Polish questionnaire at conceptual, empirical, semantic and idiomatic levels, necessary due to numerous cultural and linguistic differences, the Polish translation of the CSI seems to be a product ready for further validation and introduction to clinical practice.

Key words: central sensitization, central sensitization syndrome, Central Sensitization Inventory, chronic pain.

Introduction

Central sensitization (CS) is a relatively recent phenomenon explaining a series of symptoms associated

with chronic pain in which there is increased excitability of neurons of the central nervous system, and thus hypersensitivity to both noxious and innocuous stimuli [1].

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It was only in 1983 and in the following years that Woolf [2] pointed to the phenomenon of strengthening sensory signaling in the central nervous system as a cause of hyperalgesia in the course of tissue damage or inflammation and the possibility of pain spreading to areas not damaged by disease [2–6]. The International Association for the Study of Pain defined CS as an increased response of nociceptive neurons of the central nervous system to normal or subliminal afferents [7].

Woolf et al. [2] described CS as „an amplification of transmitted signals in the central nervous system that cause increased pain sensations”. In other words, CS is a kind of hypersensitivity of neurons located in the spinal cord or at higher levels of the nervous system, leading to the extension of the area of pain sensation, its severity and prolongation [8]. Neuroplasticity is the basis of this phenomenon [6, 8]. The symptoms characteristic of CS are allodynia, hyperalgesia or secondary hyperalgesia, among others, the extent of which is disproportionate to the stimulus and damage of the nervous system [8].

Central sensitization is often related to diseases such as rheumatoid arthritis [8], osteoarthritis [8, 9], temporomandibular joint complaints [8, 10], fibromyalgia [8, 11], neck pain [12], headache [8], neuropathic pain [8], musculoskeletal complaints [8, 13], postoperative pain [8, 14], complex regional pain syndrome [8], visceral pain [8], cancer pain [15], and low back pain [16, 17].

In order to assess the symptoms of non-specific pain and refer them to the central sensitization syndrome (CSS), the Central Sensitization Inventory (CSI) was created [18, 19]. The background to the creation of this tool was the fact that a number of symptoms accompanying pain, previously perceived as separate disorders and described as functional or non-specific, have a common etiology [20–22]. What is more, Yunus's [20] term “central sensitization syndrome, CSS”, proposed in 2000, also contributed to the creation of the CSI and served for the collective identification of these symptoms. Finally, the analysis of pain symptoms [21–24] and other ailments in which pain is not the main component, such as post-traumatic stress disorder, restless legs syndrome, insomnia, chronic fatigue syndrome [21, 23, 24], depression, fears and trauma [23, 25, 26], became the basis for creating a tool such as the CSI [19].

Symptoms assessed by the CSI are often complex, which makes it impossible to establish a clear diagnosis. This fact forces the clinician to reject symptoms such as signs of mental illness, stress or somatisation, or to deepen diagnostics with imaging or invasive tests in order to introduce appropriate treatment [19]. The purpose of the CSI was to screen the symptoms presented by patients in such a way as to identify those associated with CS and indicative of the onset of CSS [18] and to in-

roduce effective targeted treatment of these symptoms as soon as possible [19]. If a significant CS component is found, the treatment should be directed to the central, non-peripheral nervous system [27].

The Central Sensitization Inventory is a questionnaire divided into two parts (A and B). Part A contains 25 questions regarding the patient's current presentation of symptoms. In each case, a patient chooses one of 5 responses to which the appropriate score is assigned (from 0 to 4 points). Completing this part allows one to get a score between 0 and 100 points. Part B concerns ten different diseases (restless legs syndrome, chronic fatigue syndrome, fibromyalgia, temporomandibular joint diseases, migraines and tension headaches, irritable bowel syndrome, multiple chemical sensitivities, neck injuries, anxiety or panic attacks, depression), which the patient had in the past and currently reports in a treatment history and which may be related to CS [18, 19]. Part B is informative, not evaluated and provides knowledge about the current course of the disease [18, 19]. In their studies Neblett [1, 28] (2013 and 2015) and Nijs [29] (2014) confirmed that CSS is diagnosed in a patient obtaining at least 40 points in part A of the questionnaire [1, 28, 29]. In the aforementioned studies by Neblett and in Mayer's work [1, 18, 19], the correlation between higher results obtained in the questionnaire and a more severe clinical picture of CS was also confirmed. The advantage of CSI is that it can be completed by a patient himself and that it can be used to evaluate a number of different disease entities associated with CS [18].

To our knowledge, the CSI has not been translated or validated for clinicians and researchers in Poland yet.

The aim of the work is to carry out a translation, cultural adaptation and preparation of the Central Sensitization Inventory for validation for the Polish population.

Material and methods

The translation of the CSI into Polish was based on generally accepted guidelines developed by Beaton in 2000 [30].

The first stage of the work was translation of the original questionnaire by 5 independent Polish-speaking translators fluent in English. They were: an experienced neurologist; a specialist in medical rehabilitation; a psychologist; and two medical students (previously unfamiliar with the CS phenomenon). Then the translators established the final version of the translation. The effect of the team's work was passed on to a linguist to establish the idiomatic and semantic unambiguity.

Next, the questionnaire was handed over to an English native speaker (fluent in Polish) for the pur-

pose of reverse translation and evaluation of the unambiguity of the original with its Polish version. The next stage was the establishment of a committee consisting of translators, an English native speaker, a linguist, a specialist in pain management, a rheumatologist with many years of experience in the treatment of non-specific pain syndromes, a neurologist with specialization in medical rehabilitation, a physiotherapist and a patient. The team discussed the effect of the translation. The empirical and conceptual as well as semantic and idiomatic layers were subjected to analysis. The goal was to adjust the translation in such a way that it would be understandable in a textual form to a 14-year-old patient.

The final step was the preliminary evaluation of understanding of the translation by a group of 20 random patients with pain syndrome, treated in the Rehabilitation Clinic of the National Institute of Geriatrics, Rheumatology and Rehabilitation in Warsaw. The group consisted of 13 women and 7 men at an average age of 63 (SD: 19.4). Patients were asked to complete the test. Then a rehabilitation physician involved in translating the CSI asked patients to indicate difficult or unclear phrases and ambiguities in the text of the questionnaire. All such issues were noted and discussed by the translators. Then, it was decided to change and prepare the text of the questionnaire for further validation.

The study was approved by the Warsaw Medical University Bioethics Committee.

Results

The result of the work is the translation and cultural adaptation of the questionnaire. The text of the Polish version of the CSI is available as Appendix 1.

Discussion

The main purpose of the work was to perform a translation into Polish and cultural adaptation of the questionnaire originally created in English and its preparation for further validation. This process consisted of translation, unification of the translation, linguistic evaluation, reverse translation with linguistic unambiguity assessment, cultural reconciliation, pilot study, correction, and approval of the final language version of the questionnaire. As a result of the above actions, a tool for assessing central sensitization was prepared for validation for the Polish population.

To our knowledge, the translated questionnaire is the first and only document of this kind in Poland. The process was carried out in accordance with a rigorous plan and ended with the approval of the translation and adaptation based on international guidelines [30].

We are aware of a number of limitations. A particular challenge in adapting the tool was to preserve the sense and intent of the original version. We tried to introduce it in such a way that, despite cultural differences, we have retained its essence and intelligibility. Therefore, our goal was to obtain a cultural, not literal translation.

There were some difficulties in the translation process. They resulted from various interpretations of individual concepts evaluated in the questionnaire (e.g. a translation of the word trauma as a multi-organ trauma or as a difficult past event). All discrepancies were discussed by translators so that only the wording resulting from the general consensus appears in the final version of the questionnaire. This required the analysis and some modifications of the formulations originally contained in the tool. In this way, all discrepancies were resolved, and in the final version of the translation, only the wording resulting from agreed arrangements is used.

The initial assessment of understanding on a group of patients showed no significant difficulty in understanding the text. Three patients reported one remark on the text (one patient noted the synonymy of the words “sometimes” and “rarely”, one patient made comments on the questionnaire asking for clarification of skin symptoms [14 index statement], and one patient noted the possibility of changing the word trauma to stress). After analyzing these comments, it was decided not to correct the content of the translated tool.

Conclusions

As a result of cultural translation and adaptation, a tool ready for further validation for the Polish population was obtained. The full usefulness of this tool can be assessed only after a reliable validation process. The fullness of the unambiguity of the intentional tool in our translation with the original instrument can be assessed only after conducting another international analysis taking into account the Polish version of the tool.

The authors declare no conflict of interest.

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Appendix 1

Indeks Centralnej Sensytyzacji (Część A)

Imię i nazwisko

Data

Proszę zaznaczyć odpowiedź najbardziej pasującą do stwierdzenia.
Klucz odpowiedzi: nigdy = 0, rzadko = 1, czasami = 2, często = 3, zawsze = 4

Czuję się zmęczony i niewypoczęty po przebudzeniu	Nigdy	Rzadko	Czasami	Często	Zawsze
Moje mięśnie są sztywne i obolące	Nigdy	Rzadko	Czasami	Często	Zawsze
Mam napady lęku	Nigdy	Rzadko	Czasami	Często	Zawsze
Zaciskam zęby lub zgrzytam zębami	Nigdy	Rzadko	Czasami	Często	Zawsze
Mam biegunki i/lub zaparcia	Nigdy	Rzadko	Czasami	Często	Zawsze
Potrzebuję pomocy w wykonywaniu codziennych czynności	Nigdy	Rzadko	Czasami	Często	Zawsze
Jestem wrażliwy na jasne światło	Nigdy	Rzadko	Czasami	Często	Zawsze
Łatwo męczę się podczas aktywności fizycznej	Nigdy	Rzadko	Czasami	Często	Zawsze
Odczuwam ból całego ciała	Nigdy	Rzadko	Czasami	Często	Zawsze
Mam bóle głowy	Nigdy	Rzadko	Czasami	Często	Zawsze
Odczuwam dyskomfort w pęcherzu moczowym i/lub odczuwam pieczenie podczas oddawania moczu	Nigdy	Rzadko	Czasami	Często	Zawsze
Źle sypiam	Nigdy	Rzadko	Czasami	Często	Zawsze
Mam trudności z koncentracją	Nigdy	Rzadko	Czasami	Często	Zawsze
Mam problemy ze skórą, takie jak: suchość, swędzenie, wysypka	Nigdy	Rzadko	Czasami	Często	Zawsze
Stres pogarsza moje dolegliwości fizyczne	Nigdy	Rzadko	Czasami	Często	Zawsze
Czuję się smutny lub przygnębiony	Nigdy	Rzadko	Czasami	Często	Zawsze
Mam mało energii	Nigdy	Rzadko	Czasami	Często	Zawsze
Odczuwam napięcie mięśni karku i barków	Nigdy	Rzadko	Czasami	Często	Zawsze
Mam bóle szczęki	Nigdy	Rzadko	Czasami	Często	Zawsze
Niektóre zapachy (np. perfumy) sprawiają, że mam zawroty głowy i/lub nudności	Nigdy	Rzadko	Czasami	Często	Zawsze
Często oddaję mocz	Nigdy	Rzadko	Czasami	Często	Zawsze
Gdy idę spać, odczuwam w kończynach dolnych dyskomfort i niepokój	Nigdy	Rzadko	Czasami	Często	Zawsze
Mam trudności z zapamiętywaniem	Nigdy	Rzadko	Czasami	Często	Zawsze
Przeżyłem traumę w dzieciństwie	Nigdy	Rzadko	Czasami	Często	Zawsze
Mam bóle w okolicy miednicy	Nigdy	Rzadko	Czasami	Często	Zawsze
Suma punktów w kolumnach					
Całkowita suma punktów					

Indeks Centralnej Sensytyzacji (Część B)

Imię i nazwisko

Data

Czy był/a Pan/Pani diagnozowany/a z powodu jednej z poniższych chorób?
Zaznacz odpowiedź dla każdej choroby i podaj rok diagnozy.

	Tak	Nie	Rok diagnozy
Zespół niespokojnych nóg			
Zespół chronicznego zmęczenia			
Fibromialgia			
Choroby stawu skroniowo-żuchwowego			
Migrena lub napięciowe bóle głowy			
Zespół jelita drażliwego			
Nadwrażliwość/uczulenie na substancje chemiczne			
Urazy szyi (w tym urazy kręgosłupa szyjnego)			
Zaburzenia lękowe lub napady paniki			
Depresja			

Indeks Centralnej Sensytyzacji (ICS)

Oceń, w jakim stopniu ból związany ze zjawiskiem centralnej sensytyzacji przyczynia się do Twoich ogólnych dolegliwości bólowych.

Indeks centralnej sensytyzacji jest używany do określenia nasilenia bólu w centralnej sensytyzacji. Indeks składa się z 25 pytań, na które pacjent odpowiada samodzielnie. Na każde pytanie można odpowiedzieć następująco: nigdy (0 pkt), rzadko (1 pkt), czasami (2 pkt), często (3 pkt), zawsze (4 pkt). Suma punktów odzwierciedla nasilenie bólu w centralnej sensytyzacji. Poniżej przedstawiono przedziały wyników i odpowiadające im nasilenie dolegliwości.

Subkliniczny: od 0 do 29
Łagodny: od 30 do 39
Średni: od 40 do 49
Ciężki: od 50 do 59
Ekstremalny: od 60 do 100

Indeks składa się z części A i B. Do oceny bólu w przebiegu centralnej sensytyzacji służy jedynie 25 pytań z części A. Część B ma na celu zestawienie wyników testu z wcześniejszymi diagnozami pacjenta. Daje nam informacje na temat przebiegu choroby.