

## DOULEUR NEUROPATHIQUE EN 4 QUESTIONS (DN4)

### TURKISH TRANSLATION

#### **Bibliographic information for original (French) questionnaire**

*Reference*

Bouhassira D, Attal N, Alchaar H, Boureau F, Brochet B, Bruxelle J, Cunin G, Fermanian J, Ginies P, Grun-Overdyking A, Jafari-Schluep H, Lantéri-Minet M, Laurent B, Mick G, Serrie A, Valade D, Vicaut E. Comparison of pain syndromes associated with nervous or somatic lesions and development of a new neuropathic pain diagnostic questionnaire (DN4). *Pain*. 114: 29-36, 2005.

PubMed identifier (PMID): <http://www.ncbi.nlm.nih.gov/pubmed/15733628>

#### **Bibliographic information for translated (Brazilian Portuguese) questionnaire**

*Reference*

Unal-Cevik I, Sarioglu-Ay S, Evcik D. A comparison of the DN4 and LANSS questionnaires in the assessment of neuropathic pain: validity and reliability of the Turkish version of DN4. *J Pain* 11: 1129-1135, 2010.

PMID: <http://www.ncbi.nlm.nih.gov/pubmed/20418179>

*Contact details of author*

Name: Isin Unal-Cevik

Email: [isin.unalcevik@gmail.com](mailto:isin.unalcevik@gmail.com)

#### **Properties of the translated questionnaire**

*Purpose*

Diagnostic/screening: To identify whether pain is likely to be neuropathic in origin.

*Language*

Brazilian Portuguese

*Translation process:*

Forward and reverse translation, with consensus discussions after each phase of translation. Forward translation from the English version of the DN4 was completed by four native Turkish speakers; two healthcare professional, one expert in methodology and one English linguist. Forward translations were reverse translated by one native English speaker whose was fluent in Turkish. Consensus discussion was used to generate a Turkish version of the

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DN4 that was deemed to be the most accurate, understandable, and compatible with Turkish culture. Problems with meaning and conceptual framework was assessed in a group of 30 patients with pain complaints before generating the version of the Turkish DN4 that was used in the validation study.

*Changes from original questionnaire:*

None

### *Assessment*

SYMPTOMS (INTERVIEW):

Two questions addressing symptoms:

- Pain quality (presence of three symptoms assessed: burning, painful cold, electric shocks)
- Non-painful symptoms (presence of four symptoms assessed: numbness, tingling, itching, pins-and-needles)

SIGNS (CLINICAL EXAMINATION):

Two questions addressing sensory signs (requires a suitably trained person to administer the instrument):

- Assessments for mechanical hypoaesthesia (two modalities assessed: touch and pin-prick sensations)
- Assessment for mechanical dynamic allodynia (one modality assessed: brushing)

### *Scoring system*

All items are answered in the affirmative ('yes') or negative ('No'). All 'yes' responses are scored as 1, and 'no' responses are scored as 0. The individual item scores are summed and a total score calculated. A score of 4 or greater indicates that the pain is likely to be of neuropathic origin (**based on the validation of the original French DN4**).

### *Scoring direction*

Score  $\geq 4$  indicate that the pain is likely to be neuropathic in origin

### *Validation population*

One-hundred and eighty (180) adult Turkish-speaking pain patients who had pain at one anatomical site and who were capable of understanding the questionnaire were recruited to the study. Patients with mixed pain syndromes, pain of unknown origin, diffuse pain,

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headaches, severe depression, substance abuse or who were not able to understand the questions were excluded from the study. Pain was clinically diagnosed as being neuropathic in 121 patients and non-neuropathic in 59 patients. Fifty-two percent (52%) of the neuropathic pain group had radiculopathy (characterized by radicular pain in the affected limb and clinical signs of nerve root involvement). The non-neuropathic pain group and neuropathic pain group had similar sex ratios, body mass indices, educational levels, employment rate, and use of analgesic medications. The neuropathic pain group were older (53 yrs vs. 49 yrs) and experienced more pain (53 mm vs 47 mm on a visual analogue scale). Participants were assessed twice, two days apart, with the translated questionnaire, by the same assessor.

### *Psychometric properties*

**Diagnostic validity** (using a threshold score  $\geq 4$ )

Sensitivity: 95.0%

Specificity: 96.6%

Positive predictive value: 98.3%

Negative predictive value: 90.5%

Receiver-operating characteristic (ROC): Area under the curve (AUC) = 0.97

### **Construct validity**

Total score on the Turkish DN4 correlated well with the Total score of the Turkish Leeds Assessment of Neuropathic Symptoms and Signs (LANSS), a validated instrument (neuropathic pain group: Spearman's correlation:  $r = 0.60$ ,  $p < 0.001$ ; Non-neuropathic pain group: Spearman's correlation:  $r = 0.61$ ,  $p < 0.001$ ).

### **Convergent/criterion validity**

Not assessed

### **Reliability**

Internal consistency: Excellent (neuropathic pain group: Cronbach's alpha (total score) = 0.97, Cronbach's alpha (individual items, range) = 0.93 to 1.00; Non-neuropathic pain group: Cronbach's alpha = 0.98, Cronbach's alpha (individual items, range) = 0.79 to 1.00)

Test-retest: Excellent (neuropathic pain group: intraclass correlation coefficients (total score) = 0.95; Non-neuropathic pain group: intraclass correlation coefficients (total score) = 0.96)

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*Validation studies of translated questionnaire for specific pain conditions*

n/a

*Additional information*

n/a