Cross-Cultural Adaptation to the Thai Language of the Neuropathic Pain Diagnostic Questionnaire (DN4)

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Objective: *To cross-culturally adapt the neuropathic pain diagnostic questionnaire (DN4) to Thai language*
Material and Method: *Phase 1: Forward and backward translation followed by assessment of semantic equivalence. Phase 2: Testing of the questionnaire in 30 neuropathic pain patients who were seen and diagnosed by experts, followed by modifications to produce a final version.*
Results: *All the Thai translated pain descriptors except 'tingling' got high percentages of understanding among neuropathic pain patients in the first round of testing. After some adaptation of the Thai word for 'tingling' had been made, the new translated word was retested, and all subjects doing the retest understood the word very well.*
Conclusion: *The Thai DN4 questionnaire was systematically translated and validated. This offers a simple Thai neuropathic pain diagnostic tool for clinical use.*

Keywords: *Thai language, Neuropathic pain, Diagnostic questionnaire*

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Neuropathic pain (NeP), as defined by the International Association for the Study of Pain, is pain that is initiated or caused by a primary lesion or dysfunction of the nervous system[1,2]. Epidemiological data show that neuropathic pain is not uncommon. Neuropathic pain has been seen in 8% of patients with vascular accident, at least 20% of those with multiple sclerosis, and over 60% of patients who have undergone an amputation[3,4]. A recent neuropathic pain survey at Siriraj Pain Clinic found that during the years 2002-2004, 37.8% of patients had neuropathic pain[5].

Neuropathic pain is often intense, incapacitating, and chronic in nature. Clinically neuropathic pain is generally characterized by the association of unspecified positive and negative sensory symptoms, but there is still no consensus on the diagnostic criteria of neuropathic pain[6-8]. This has led to the recent development of many neuropathic pain diagnostic tools. Unfortunately, Tools such as McGill Pain Questionnaire, Brief Pain Inventory and Neuropathic Pain Scale fail to provide a satisfactory specificity level[9,10]. The Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) Pain Scale, which consists of open questions, does not include single items but associations of several descriptors [11].The questions have different weights in the total score, which makes the scoring system complicated. More recently, a new neuropathic pain diagnostic questionnaire-Douleur Neuropathique en 4 questions (DN4) (neuropathic pain four questions in English) has been developed. It is a

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10-item questionnaire developed by a French Neuropathic Pain Group in 2004[12]. The advantages of DN4 over other questionnaires are that it consists of close questions and has a simple scoring method. DN4 also includes both pain descriptors and items related to bedside examinations, which leads to a more specific diagnosis. At present DN4 is available in many languages but not Thai. There is no single published diagnostic questionnaire for neuropathic pain in the Thai language. A cross-cultural adaptation of the instrument must be performed before it can be accepted for clinical use. The cross-cultural adaptation has a specific methodology, mostly relating to translation quality and the comparability of results in different languages. The aim of the present study was to do a translation and linguistic validation of the DN4 questionnaire for use in the Thai culture.

Material and Method

The process of cross-cultural adaptation is based on guidelines developed by Sperber AD and Peters M et al[13,14].

Phase 1:

Translation and back-translation

Two pain specialists with extensive experience in the management of neuropathic pain independently perform the forward translation of the English neuropathic pain (NeP) questionnaire into Thai. Both specialists also kept a log of which items caused problems in the translation. A consensus meeting among translators was held after the translation was completed, then cultural and linguistic issues were discussed. These translations were combined into a preliminary Thai version. Another two translators independently performed the back translations into English.

Assessment of the semantic equivalence

All translators assessed the semantic equivalence, which consisted of the transference of the significance of the two languages. The original English version of the NeP questionnaire, the back-translated versions, and the Thai version would be compared item by item. At the end, a pre-final Thai version of NeP questionnaire was obtained.

Phase 2:

Testing in the neuropathic pain patient

The linguistic validation of the pre-final Thai version of the NeP questionnaire was performed on 35 neuropathic pain patients from different social classes and with various levels of education. The patients were interviewed by six raters to test their interpretation of the translation. They were asked to explain what they understand about each pain descriptor. The raters consisted of one anesthesiologist, three rehabilitation physicians, and two orthopedists. They were independent of the translators. They performed modifications to produce the final version.

The present method used rating sheets for evaluation. The similarity of interpretability of words, phrases, and sentences were compared and discussed among the raters and translators. The translation was revised according to the consensus of all the raters and translators to come up with the final version.

Results

The results of Phases 1 and 2 are shown in Table 1.

After testing the pre-final version of the Thai DN4, the results showed that all of the pain descriptors except 'tingling' were well understood by the target patients (93-100%). As shown in Table 1, the pain descriptor that got the lowest percentage (73%) of understanding is 'tingling'. A number of possible

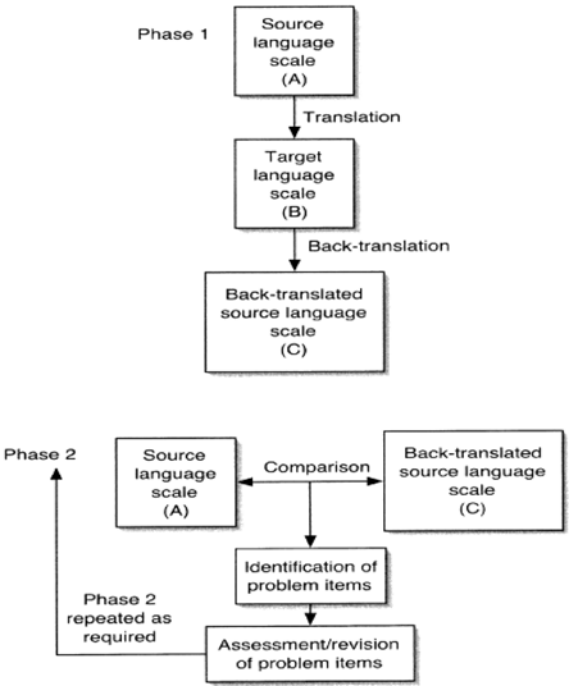

Fig. 1 Flow diagram of the translation and validation process[13]

Table 1. Assessment of semantic equivalence between the forward and backward translations and percentage of understanding of the pre-final Thai version of DN4

Original English words	Thai-translated words 1	Thai-translated word 2	Back translation to English words 1	Back translation to English words 2	Testing (% of patients understanding)
Burning	แสบร้อน Saaep Raawn	ปวดแสบร้อน Bpuaat Saaep Raawn	Hot burning	Burning	100
Painful cold	ปวดเหมือนถูกน้ำแข็ง Bphaat Meuuan Thuuk Nahm Khaeng	ปวดเย็น ๆ Bphaat Yen Yen	Cold	Cold pain	90
Electric shock	ปวดเหมือนถูกไฟช้อต Bphaat Meuuan Thuuk Fai Chawt	ปวดเหมือนไฟช้อต Bphaat Meuuan Fai Chawt	Electric-shock like	Electric-shock pain	93
Tingling	ซู่ซ่าคล้ายเป็นเหน็บ Suu Saa Khlaay Bpen Naaep	ยิบ ๆ Yip Yip	Tingling	Temporary numbness	73
Pins and needles	แปลบปลาบคล้ายเข็มตำ Bplaaep Bplaap Khlaay Khem Dtahm	ปวดเหมือนถูกเข็มตำ Bphaat Meuuan Thuuk Khem Dtahm	Pricking	Pins and needles	100
Numbness	ชาไม่รู้สึก Chaa Mai Ruu Seuk	เหน็บชา Naaep Chaa	Numbness	Continuing numbness	96
Itching	คัน Khan	คัน Khan	Itching	Itching	100
Hypothesia to touch	รับรู้สัมผัสได้น้อยกว่าปกติ Rap Ruu Sam Phant Dai Naawy Gwaa Bpa Ga Dti	รับรู้ได้น้อยกว่าปกติเมื่อถูกสัมผัส Rap Ruu Dai Naawy Gwaa Bpa Ga Dti Meuua Thuuk Sam Phant	Hypesthesia	Loss of sensation that less than normal	90
Hypothesia to prick	รับรู้เมื่อถูกเข็มตำได้น้อยกว่าปกติ Rap Ruu Meuua Thuuk Khem Dtahm Dai Naawy GwaaBpa Ga Dti	รับรู้ได้น้อยกว่าปกติเมื่อถูกของแหลมทิ่ม Rap Ruu Dai Naawy Gwaa Bpa Ga Dti Meuua Thuuk Khaawng Laaem Thim	Hypoalgesia	Loss of feeing from the needle prick that less than normal	100
Brushing	การลูบด้วยแปรงขน Gaan Luup Duay Bpraaeng Khohn	ลูบด้วยขนม้า Gaan Luup Duay Khohn Maa	Brushing	Brushing	96

translations were explored and 'รู้สึกยิบ ๆ ซ่า ๆ' (Ruu Seuk Yip Yip Saa Saa) was finally selected. The new translation was retested in a small group of subjects. The results were satisfactory. The Thai version of DN4 was then finalized, as shown in Appendix.

Discussion

Up to now, there is no consensus in the literature regarding the best strategy to perform a cross-cultural adaptation. The method the authors used in the present study was based on guidelines proposed by Sperber AD and Peters M et al[13,14]. The two guidelines explain the translation and cultural adaptation processes in detail.

Generally, there are three types of translation methods: (1) one-way translation, (2) committee approach,

and (3) forward and backward translation. One-way translation is the fastest and cheapest method but there are concerns about the quality of the translation. Forward and backward translation is the most frequently recommended or used approach. It requires at least two translators, who work independently of each other. However, panel translations, (i.e., the committee approach), have also been put forward as the best method to ensure high-quality translations. The translation of the DN4 questionnaire used the forward and backward translation method and the committee approach. The research committee consisted of two panels with four members each, one panel for forward and backward translation and the other for assessing the translation and testing it in the target population.

The Scientific Committee of the Medical Outcomes Trust described the review criteria for the assessment of health status and quality of life instruments, including criteria for the cultural and language adaptations and translations[14]. Developers are recommended to describe the methods to achieve linguistic and conceptual equivalence, identify, and explain any significant differences between the original and the translated versions, and explain how inconsistencies were reconciled. When addressing equivalence, it is important to note the difference between semantic and conceptual equivalence, since items that are equivalent in meaning may not be equivalent conceptually. Since this DN4 questionnaire mainly consists of short words describing pain, only semantic equivalence is relevant. All pain descriptors in the DN4 questionnaire except the word 'tingling' are simple and commonly used in both English and Thai. At first, the authors found it very difficult to match one simple Thai word with 'tingling'. It was quite confusing between 'tingling' and 'numbness'. According to a standard English-Thai dictionary, the Thai word for 'tingling' is 'รู้สึกซ่า' (Ruu Seuk Saa Saa). That meaning is not quite relevant to pain description. After rechecking with many native speakers and bilingual experts, the authors found that 'tingling' has many meanings and it is sometimes not an unpleasant feeling. After many rounds of discussion, the authors agreed to use the word 'รู้สึกยิบ ๆ ซ่า ๆ' (Ruu Seuk Yip Yip Saa Saa) for 'tingling'. When the authors did a retest on this new translation, it was found that subjects understood this word better than the previous one. The original French version of DN4 showed 83% sensitivity and 90% specificity when compared to clinical diagnosis in the development study[12]. With more than 90% patient understanding in linguistic validation, the Thai version of DN4 would be used as a screening tool for Neuropathic Pain in clinical practice.

During the whole translation process, some notices have been made.

1. Using a metaphor would make a meaning clearer.

2. Patients who experienced a certain type of pain would have a deeper understanding when asked about that pain.

3. The level of education does matter in describing and understanding pain.

Conclusion

The Thai version of the DN4 questionnaire passed through intensive and systematic translation and validation processes. This assures its accuracy for clinical use. This work offers the simple diagnostic tool for neuropathic pain in the Thai context. It would help identify neuropathic pain patients and increase awareness of neuropathic pain in Thailand.

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การแปลแบบสอบถามสำหรับการวินิจฉัยภาวะเจ็บปวดทางระบบประสาทเพื่อการประยุกต์ใช้ในวัฒนธรรมไทย

พงศ์ภารดี เจฑะเกษตริน, ประดิษฐ์ ประทีปะวณิช, วรัท ทรรศนะวิภาส, สมศักดิ์ ลีเชวงวงศ์, วารี จิรอดิศัย, วสุวัฒน์ กิติสมประยูรกุล

วัตถุประสงค์*: เพื่อแปลแบบสอบถามสำหรับการวินิจฉัยภาวะเจ็บปวดทางระบบประสาท เพื่อการนำมาใช้ภาษาไทย*
วัสดุและวิธีการ*: ขั้นที่ 1: แปลไปและแปลกลับ ตามด้วยการประเมินความเท่าเทียมกันของความหมายของคำ ขั้นที่ 2: ทดสอบในกลุ่มผู้ป่วย 30 คน ที่มีภาวะเจ็บปวดทางระบบประสาทและตามด้วยการปรับคำแปลเพื่อให้ได้ต้นแบบในที่สุด*
ผลการศึกษา*: ในการทดสอบรอบแรก ผู้ป่วยที่มีภาวะเจ็บปวดทางระบบประสาทส่วนใหญ่เข้าใจ คำแปลไทยของคำบรรยายความเจ็บปวดทุกคำ ยกเว้นคำว่า tingling หลังจากเปลี่ยนแปลงคำแปลของคำว่า tingling แล้ว และนำไปทดสอบซ้ำในกลุ่มทดสอบอีกกลุ่มหนึ่ง พบว่า ผู้เข้ารับการทดสอบเข้าใจความหมายที่แปลใหม่ได้ดี*
สรุป*: แบบสอบถามสำหรับการวินิจฉัยภาวะเจ็บปวดของระบบประสาทฉบับภาษาไทย ได้รับการแปลและทดสอบอย่างเป็นระบบการศึกษานี้นำเสนอเครื่องมืออย่างง่ายสำหรับแพทย์เพื่อช่วยในการวินิจฉัยภาวะเจ็บปวดทางระบบประสาท ฉบับภาษาไทย*

Appendix

กรุณาตอบแบบสอบถามนี้ โดยเลือกคำตอบได้เพียงหนึ่งข้อ

การสัมภาษณ์ผู้ป่วย

คำถาม 1. ความปวดมีลักษณะต่อไปนี้หรือไม่

	ใช่	ไม่ใช่
1. ปวดแสบร้อน		
2. ปวดเย็นเหมือนถูกน้ำแข็ง		
3. ปวดเหมือนถูกไฟช็อต		

คำถาม 2. ปวดพร้อมกับมีอาการต่อไปนี้ในบริเวณที่ปวดหรือไม่

	ใช่	ไม่ใช่
4. ซู่ซ่าเหมือนเป็นเหน็บ		
5. แปลบปลาบคล้ายเข็มตำ		
6. ชาไร้ความรู้สึก		
7. คัน		

การตรวจร่างกาย

คำถาม 3. จากการตรวจร่างกายพบลักษณะต่อไปนี้ในบริเวณที่ปวดหรือไม่

	ใช่	ไม่ใช่
8. รับรู้สัมผัสได้น้อยกว่าปกติ		
9. รับรู้เมื่อถูกเข็มทิ่มตำได้น้อยกว่าปกติ		

คำถาม 4. ในบริเวณที่ปวด อาการปวดเกิดขึ้นหรือเพิ่มมากขึ้นโดย

	ใช่	ไม่ใช่
10. การลูบด้วยแปรงขน		