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Revised Thai short-form McGill Pain Questionnaire (Revised Th-SFMPQ)

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Problem/background : *The short-form McGill Pain Questionnaire (SF-MPQ) is widely used as pain assessment tool. In spite of this, some pain descriptors in the original version were difficult to understand, a Thai version was developed. In a recent research, the validity was proved, but 3 pain descriptors i.e. stabbing, gnawing, and splitting, could not meet the 33 % Melzack criteria. Another revised Thai version was developed and then validated to improve clinical applications for Thai patients.*

Objective : *To validate the revised Thai short-form McGill Pain Questionnaire*

Design : *Descriptive study*

Setting : *Outpatient rehabilitation medicine clinic at King Chulalongkorn Memorial Hospital*

Methods : *The Th-SFMPQ was revised. According to a recent study, three pain descriptors that could not meet the 33 % Melzack criteria were replaced by a blank-dotted line. The blank could be filled up in case that the respondent had any pain character other than those described in the list. A pilot study was done in 20 patients who had musculoskeletal or neuropathic pain. Nothing to adjust and the study continued. The study protocol has been approved by the Ethics Committee of the Faculty of Medicine, Chulalongkorn University and all patients gave their informed consent before interview.*

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Results : *Sixty patients participated in the study. Eighty percent of the subjects were female. Average age was 48.6 ± 13.58 years. Ninety percent of the patients had musculoskeletal pain. Seventy percent of them had pain less than 6 months. The most selected pain descriptor was punishing-cruel. Tender was the most selected sensory descriptor. Mean total score was 12.25 points. Cronbach's alpha value was 0.7052. However, hot-burning pain was chosen less than 33 %, it could not be deleted from the questionnaire, because only 10 % of the patients had neuropathic pain and 80 % of them chose this word.*

Conclusion : *The revised Th-SFMPQ has a good internal consistency. It has validity for assessing musculoskeletal and neuropathic pain in acute and chronic stage.*

Keywords : *Pain, pain assessment, Short-form McGill Pain Questionnaire.*

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เหตุผลของการทำวิจัย : *แบบประเมิน Short-form McGill Pain Questionnaire (SF-MPQ) เป็นเครื่องมือประเมินความปวดที่ใช้แพร่หลาย แต่เนื่องจากคำบางคำที่แสดงลักษณะอาการปวดในฉบับภาษาอังกฤษเข้าใจยาก และทำให้เกิดความเข้าใจผิดได้ ผู้วิจัยจึงสร้างแบบประเมินฉบับภาษาไทยขึ้น ผลการทดสอบพบว่ามีความเที่ยงตรงแต่มีอาการปวด 3 ลักษณะที่ถูกผู้ป่วยเลือกน้อยกว่าร้อยละ 33 ได้แก่ ปวดเหมือนถูกแทง (stabbing) ปวดเหมือนถูกแทะ (gnawing) และปวดเหมือนแตกเป็นเสี่ยง (splitting) ผู้วิจัยจึงปรับปรุงแบบประเมินและทดสอบความเที่ยงตรงของแบบประเมินดังกล่าว*

วัตถุประสงค์ : *ทดสอบความเที่ยงตรงของแบบประเมินความเจ็บปวด Thai short-form McGill Pain Questionnaire ฉบับปรับปรุง*

รูปแบบการวิจัย : *การศึกษาเชิงพรรณนา*

สถานที่ทำการวิจัย : *ห้องตรวจผู้ป่วยนอกฝ่ายเวชศาสตร์ฟื้นฟู โรงพยาบาลจุฬาลงกรณ์ สภากาชาดไทย*

วิธีการ : *ปรับปรุงแบบประเมินความเจ็บปวด โดยตัดลักษณะอาการปวดจากแบบประเมินเดิมออก 3 คำ เนื่องจากการศึกษาครั้งก่อนพบว่าคำทั้ง 3 คำถูกเลือกน้อยกว่าร้อยละ 33 ของผู้ป่วยทั้งหมด คำ 3 คำที่ถูกตัดออกจะเว้นช่องว่างไว้เพื่อเติมลักษณะอาการปวดที่ผู้ป่วยบอกนอกเหนือจากคำทั้ง 12 คำที่มีอยู่ในแบบสอบถาม ผู้ป่วยทุกรายได้รับ Informed consent และไม่พบข้อแก้ไขหลังศึกษานำร่องกับผู้ป่วย 20 ราย จึงทำการศึกษาต่อในผู้ป่วยที่มีอาการปวดจากโรคกระดูกข้อและกล้ามเนื้อและโรคทางระบบประสาท*

ผลการศึกษา : *ผู้ป่วยเข้าร่วมการวิจัย 60 ราย ร้อยละ 80 เป็นเพศหญิง อายุเฉลี่ย 48.6 $\pm$ 13.58 ปี ร้อยละ 90 มีอาการปวดจากโรคของกระดูก ข้อ และกล้ามเนื้อ ร้อยละ 70 มีอาการปวดน้อยกว่า 6 เดือน ลักษณะอาการปวดที่ผู้ป่วยเลือกมากที่สุด คือ รู้สึกทรมาน (punishing-cruel) ค่าเฉลี่ยของคะแนนรวม เท่ากับ 12.25 Internal consistency ของแบบประเมินมีค่า Cronbach's alpha เท่ากับ 0.7052 ด้าน Content validity พบว่าปวดแสบปวดร้อน (Hot-burning pain) ถูกเลือกน้อยกว่าร้อยละ 33 แต่ไม่ตัดคำนี้ออก เนื่องจากกลุ่มผู้ป่วยที่เป็น Neuropathic pain มีจำนวนน้อยและร้อยละ 80 ของกลุ่มเลือกคำนี้*

สรุป : *แบบประเมินความเจ็บปวด Thai short-form McGill Pain Questionnaire ฉบับปรับปรุงมี internal consistency ดีในการประเมินอาการปวดจากโรคของกระดูก ข้อ และกล้ามเนื้อและโรคทางระบบประสาท และมีความน่าเชื่อถือในการประเมินอาการปวดทั้งเฉียบพลันและเรื้อรัง*

คำสำคัญ : *ความเจ็บปวด, แบบประเมิน, short-form McGill Pain Questionnaire*

สถาบันวิทยบริการ
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Pain is a common symptom in rehabilitation and also in general practice clinics. Pain assessment is importance because it is use for detecting severity of disease and benefit of treatment. Assessment of pain includes: intensity, quality or descriptor, site, duration, and disturbance of daily activity.[1] Various scales can be classified into 3 categories i.e. self report, behavioral measures, and physiologic response. Self report is usually used in clinical setting. Examples of uni-dimensional self report scale are visual analogue scale (VAS), verbal rating and numerical rating scales. McGill Pain Questionnaire, short-form McGill Pain Questionnaire, and the brief pain inventory are multi-dimensional pain scales. Another is behavioral measures such as facial expression during pain and numbers of pain killer use. The physiologic response to pain, such as pulse rate response to pain, is not correlated with pain experience.[1,2] So far, the uni-dimensional self report scale is the most widely used because it is easy, simple and requiring short time to assess. However, the information about the disadvantage of the scale is not adequately collected, regarding the affective components of pain, making it less reliable for chronic pain where more affective components are involved.[3,4] According to the International Association for the Study of Pain (IASP), the affective or emotional aspects of pain should also be recognized.[5] The multi-dimensional pain measures fit in with this aspect. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) of United States of America recommended the multi-dimensional scale.[6] In 1975, Dr. Ronald Melzack developed McGill Pain Questionnaire (MPQ) that has become one of the most widely used pain measurement tools. It provides sensory, affective, site, pain pattern, and intensity information. It is both usefulness and valid for acute, chronic, musculoskeletal, surgical and neuropathic pain.[1,2,7-9] MPQ usually requires 15 -20 minutes to complete, which may be too long for patients in outpatient clinic. Dr. Melzack developed a short-form McGill Pain Questionnaire (SF-MPQ) that requires only 2-5 minutes to complete. The validity of this questionnaire was approved.[10] It is currently used in various researches and clinical settings.[11-14]

The original version of SF-MPQ is in English. Some pain descriptors were too difficult to understand when used in countries where English is not the mother tongues. This is a reason why SF-MPQ should be translated to Thai. It has already been translated into Czech[1], Swedish[15] and Greek.[16] The Thai version was translated in 2002 (with permission from Dr.Ronald Melzack) and validity test was done.[17] It has good internal consistency (Cronbach's alpha = 0.7881). The interrater validity of present pain intensity (PPI) was also good (Kappa coefficient = 0.7551). The correlations between two raters were high in all items (Pearson's correlation coefficient; $r > 0.8$). Regarding content validity, three pain descriptors did not meet the 33 % Melzack criteria. These were stabbing, gnawing and splitting. It means some difference in pain description between the United States of America and Thailand. In this study, the Thai short-form McGill Pain Questionnaire (Th-SFMPQ) was revised and validated again to improve its clinical advantage for Thai patient.

Objective

To validate revised Thai short-form McGill Pain Questionnaire (Revised Th-SFMPQ)

Study design

Descriptive analysis

Material and Method

Instrumentation

The revised Th-SFMPQ was pilot-tested in 20 patients. Each patient was informed consent then interviewed by researcher. The three sensory descriptors (stabbing, gnawing, and splitting) that not meet the 33 % Melzack criteria, from recent study, were replaced by blank-dotted line (descriptor number 9 -11). If a patient described a pain descriptor other than those in the Th-SFMPQ list, the new descriptor would be filled up in the blank space and ask for grading severity. No new descriptors fit in with the 33 % criteria. The blanks would allow respondent to fill and the point also add to total score. The sensory and affective score were calculated by adding the intensity values. The total score is the sum of all intensity values and the maximum is 45 points. The revised version is shown in figure 1.

Subjects

Sixty patients with musculoskeletal or neuropathic pain participated in this study. All patients were recruited from outpatient rehabilitation medicine clinic at King Chulalongkorn Memorial Hospital.

Inclusion criteria:

- pain from musculoskeletal or neuropathic etiology
- age more than 15 years on the interview day

Exclusion criteria:

- subject who has a brain disease leading to cognitive impairment
- a psychiatric patient who has an active psychiatric management
- subject older than 65 years with cognitive impairment

Method

The study protocol was approved by the Ethics Committee of the Faculty of Medicine, Chulalongkorn University and a subject was informed consent before interview. The cases included new and old patients. The Thai Mental Status Examination (TMSE) [18] was used for screening a cognitive impairment in patients older than 65 years. If total score was less than 23 points, this subject would be excluded. Demographic data were also noted. History taking and physical examination were performed for all subjects. Then, the patient would be asked about their current pain. Each pain descriptor was asked in a random order. The intensity was rated as: no, mild, moderate, or severe pain. Present Pain Intensity (PPI) and the Visual Analog Scale (VAS) were consequently assessed.

Statistical analysis

The pools of data were analyzed using the SPSS Statistics Program for Windows package version 10.0. The demographic data were presented as percentage, mean, standard deviation, minimum and maximum value. Sensory score, affective score, total score and count, PPI, and VAS of musculoskeletal and neuropathic pain group were presented as mean, standard error, minimum and maximum value. The frequency of each pain descriptors was presented. Cronbach's alpha was used to analyze internal consistency of the questionnaire. The correlations

แบบประเมินความเจ็บปวด Thai short-form McGill Pain Questionnaire ฉบับปรับปรุง

ชื่อ-สกุล..... วันที่ประเมิน.....

	ไม่ปวด/รู้สึก (none)	ปวด/รู้สึกน้อย ไม่รบกวนชีวิตประจำวัน (mild)	ปวด/รู้สึกปานกลาง รบกวนชีวิตประจำวัน (moderate)	ปวด/รู้สึกมาก จนทนไม่ได้ (severe)
ปวดตุ๊บ ๆ (throbbing)	0).....	1).....	2).....	3).....
ปวดจี๊ด (shooting)	0).....	1).....	2).....	3).....
ปวดแปลบ (sharp)	0).....	1).....	2).....	3).....
ปวดเกร็ง (cramping)	0).....	1).....	2).....	3).....
ปวดแสบปวดร้อน (hot-burning)	0).....	1).....	2).....	3).....
ปวดตื้อ ๆ (aching)	0).....	1).....	2).....	3).....
ปวดหนัก ๆ (heavy)	0).....	1).....	2).....	3).....
กดเจ็บ (tender)	0).....	1).....	2).....	3).....
.....	0).....	1).....	2).....	3).....
.....	0).....	1).....	2).....	3).....
.....	0).....	1).....	2).....	3).....
รู้สึกเหนื่อยล้า (tiring-exhausting)	0).....	1).....	2).....	3).....
รู้สึกไม่สบาย (sickening)	0).....	1).....	2).....	3).....
รู้สึกหวาดกลัวความเจ็บปวด (fearful)	0).....	1).....	2).....	3).....
รู้สึกทรมาน (punishing-cruel)	0).....	1).....	2).....	3).....

ไม่ปวด ----------ปวดมากที่สุด
(no pain) (worst possible pain)

ระดับอาการปวดในขณะนี้ (present pain intensity; PPI)

0 ไม่ปวด (no pain) .....
1 ปวดเล็กน้อย (mild) .....
2 ปวดพอรำคาญ (discomforting) .....
3 ปวดจนรู้สึกรบกวนการดำเนินชีวิต (distressing) .....
4 ปวดจนทุกข์ทรมาน (horrible) .....
5 ปวดมากจนทนไม่ได้ (excruciating) .....

Figure 1. The revised Thai short-form McGill Pain Questionnaire (revised Th-SFMPQ)

between subscales of the questionnaire were analyzed by Pearson correlation coefficient. The p-value of less than 0.05 was considered significant.

Table 1. Demographic data of the patient.

	N (%)
Age	
- < 65 years	55 (91.7)
- ≥ 65 years	5 (8.3)
Sex	
- male	12 (20)
- female	48 (80)
Education level	
- no education	2 (3.3)
- elementary school	20 (33.3)
- high school	10 (16.7)
- graduate	25 (41.7)
- postgraduate	3 (5)
Career	
- no/retire	12 (20)
- housewife	10 (16.7)
- government official	17 (28.3)
- merchant	3 (5)
- employee	6 (10)
- others	12 (20)
Situation	
- single	13 (21.7)
- married	43 (71.7)
- widow/divorce	4 (6.6)
Duration of disease	
- < 6 months	44 (73.3)
- ≥ 6 months	16 (26.7)
Category of disease	
- radiculopathy	11 (18.4)
- spine conditions	6 (10)
- limb arthritis/soft tissue rheumatism	38 (63.3)
- neuropathic pain	5 (8.3)

Results

Sixty patients were recruited in this study. Most of them were female. Average age was 48.6 ± 13.58 years old (range 20 -74). Nearly -half of the subjects were graduated. About one-third of their careers were office worker. Ninety percent of them had musculoskeletal pain. Arthritis and soft tissue rheumatism were more than half. Pain duration was usually less than 6 months. Average pain duration was 169.9 ± 310.49 days (ranged 2 - 1,825). The demographic data of the subjects are shown in table 1.

The validity of the questionnaire was shown as an internal consistency and a content validity. Cronbach's a value is 0.6865. If pain descriptor in the first blank (descriptor number 9 in the sensory subscale) was be deleted, Cronbach's a value was increased to acceptable value (Cronbach's a value = 0.7052). The ability of each pain descriptor of the questionnaire to measure a specific attribute as a cluster of variables was accepted if the descriptor number 9 was excluded. The third blank was a descriptor number 11. It could not be use for calculating the consistency because no one filled up the blank. The content validity is the percent use of descriptor by the patient. The word that was selected was at least was considered 33 % valid in its content. The descriptors did not fit in with the criteria i.e. hot-burning and three blank line descriptors. The first three selected descriptors were punishing-cruel (รู้สึกทรมาน, 76.7 %), tender (กดเจ็บ, 65 %), sharp (ปวดแปลบ, 55 %) and sickening (รู้สึกไม่สบาย, 55 %). Frequency and average intensity of each descriptor are shown in table 2.

Table 2. Frequency and average intensity of each descriptor.

Pain descriptor	Frequency (%)	Intensity (mean ±SE)
- throbbing	24 (40)	0.78 ± 0.14
- shooting	27 (45)	0.78 ± 0.13
- sharp	33 (55)	0.87 ± 0.12
- cramping	28 (46.7)	0.88 ± 0.14
- hot-burning	12 (20)	0.37 ± 0.11
- aching	24 (40)	0.68 ± 0.12
- heavy	26 (43.3)	0.83 ± 0.13
- tender	39 (65)	1.28 ± 0.14
- pain descriptors fill in the first blank	18 (30)	0.63 ± 0.14
- pain descriptors fill in the second blank	3 (5)	0.13 ± 0.08
- pain descriptors fill in the third blank	0 (0)	0.00 ± 0.00
- tiring-exhausting	28 (46.7)	1.03 ± 0.16
- sickening	33 (55)	1.10 ± 0.15
- fearful	28 (46.7)	1.11 ± 0.17
- punishing-cruel	46 (76.7)	1.73 ± 0.15

Mean of total score was 12 from 45 points. Total count means a number of selected pain descriptor. Mean of the total count is 6. The average of overall present pain intensity in this group is discomforting. Summary of subscale, total scale, total count, PPI, and VAS are shown in table 3.

According to the disease, sharp and cramping was most common complaint in the radiculopathy group. In spine condition without radiculopathy, sharp pain was found in all patients. Tenderness was the most common symptom in the arthritis of the limb and soft tissue rheumatism. Eighty percent of neuropathic

Table 3. Descriptive statistics of subscale, total scale, total count, PPI, and VAS.

Scale	Mean ± SE	Minimum-Maximum
Sensory score (0-33)	7.23 ± 0.51	1-17
Affective score (0-12)	4.98 ± 0.48	0-12
Total score (0-45)	12.25 ± 0.85	1-28
Total count (0-15)	6.15 ± 0.31	1-12
PPI (0-5)	2.37 ± 0.13	1-5
VAS (0-100)	47.63 ± 3.32	4-99

Table 4. Frequency of pain descriptors in each category of diseases.

Radiculopathy	Spine conditions	Limb arthritis/soft tissue rheumatism	Neuropathic
Sensory	Sensory	Sensory	Sensory
sharp (63 %)	sharp (100 %)	tender (70 %)	hot-burning (80 %)
cramping (63 %)	tender (75 %)	sharp (53 %)	aching (80 %)
aching (45 %)	throbbing (50 %)	throbbing (45 %)	tender (80 %)
	shooting (50 %)	shooting (45 %)	shooting (60 %)
	heavy (50 %)	cramping (45 %)	cramping (60 %)
		heavy (45 %)	
Affective	Affective	Affective	Affective
punishing-cruel (90 %)	punishing-cruel (75%)	punishing-cruel (70%)	punishing-cruel (80 %)
sickening (73 %)	fearful (75 %)	sickening (53%)	fearful (40 %)
tiring (63 %)		tiring (48%)	tiring (40 %)
fearful (63 %)			

pain group had a hot-burning, aching and tender. The affective descriptor, especially punishing-cruel, is almost complaint in all groups. The detailed frequency of pain descriptors of each group is shown in table 4.

Pearson correlation of the questionnaire is highly correlated in total score and sensory score, total score and affective score, total score and total count, and total count and sensory score. Moderate correlations are found in total count and affective score, PPI and affective score, and PPI and total score. Low correlations are found in sensory score and affective score, PPI and sensory score, PPI and total count, VAS and sensory score, VAS and affective score, VAS and total score, and VAS and total count. All correlations of score are statistical significant. The results are shown in table 5. Correlations between each questions are low to moderate. In this study, duration of disease was not correlated with affective scale and VAS.

Table 5. Correlation coefficient of subscale in the Th-SFMPQ.

	Affective score	Total score	Total count	PPI	VAS
Sensory score	0.45*	0.87*	0.83*	0.46*	0.46*
Affective score		0.83*	0.69*	0.57*	0.33**
Total score			0.90*	0.60*	0.47**
Total count				0.42*	0.33*

* $P < 0.001$; ** $P < 0.05$

Discussion

Pilot study of the revised Th-SFMPQ showed no new pain descriptor meet the 33 % Melzack criteria. If the patient's complaint does not meet the word list of pain descriptors, because of variable of pain characteristic, the total score may be under-estimated. Three blanks are provided for the patient to fill up their description in order to solve the problem. All patients were asked to fill up in the blank space if they have other pain sensation other than those in the word list. The sum of all 15 pain descriptors was calculated to define the overall severity of the pain. If a blank space is filled up, the maximal sensory score of this patient is 33 out of 45. Although the Cronbach's α value of this questionnaire can be accepted after the pain descriptor in the first blank is deleted, it should not be deleted, however, because the blank allows the respondent to fill up other pain descriptors. This will make the score not under-estimated. Because pain descriptors in the blank are individual complaint and vary, so they may affect the Cronbach's α value. The "hot-burning pain" does not fit in with the 33 % of Melzack criteria, this may be caused by sample size effect, but it should not be deleted, because only 10 % of the patients had neuropathic pain and 80 % of them chose the word.

Mean total score, PPI and VAS score of this study are similar to the result of musculoskeletal pain in the Melzack's study.[10] The Greek version is higher in total score and VAS score but less in PPI.[16]

The mean intensity of each descriptor is about 1 point. This means that most patients had mild pain. In the Greek version, mean intensity is 1.5 points. The mean pain duration in this study is about 6 months, i.e. a sub-acute period of pain. The mean duration of another study is 8 years that met the category of chronic pain.[16] Punishing-cruel is the most common pain descriptor. This is same as the recent study using the Thai short-form McGill Pain Questionnaire.[17] Exhausting is the most selected descriptor in a Greek version.[16] Tenderness is most common descriptor of sensory scale. This is not surprising because ninety percent of the subjects had musculoskeletal problem. Sharp and sickening were in the third rank. Thirty percent of the patients filled up the blank. The examples of descriptor in the blank are pricking (ปวดเหมือนเข็มแทง), electrical-shock like (ปวดเหมือนไฟฟ้าช็อต) and stiffening (ปวดเมื่อย).

A sharp, cramping and aching are the first three pain descriptors found in radiculopathy group. This is similar to the study of Dubuisson and Melzack.[19] Sharp pain was found in all patients with spine condition without radiculopathy. The study of Dubuisson and Melzack found 60 % of sharp pain in disc diseases. Tenderness and aching were found in all patients with musculoskeletal pain in the Melzack's study[10], but only 70 % were found in this study. According to neuropathic pain, hot-burning, aching, and tenderness were found in 80 % of the patients. Another study found sharp and tenderness are the most common in post-herpetic pain.[19] This is meant it is may be different pain character or descriptor of the same disease between different cultures. So the questionnaire that is appropriate for each country is necessary.

The total score shows good correlation with sensory subscale, affective subscale and the total count. It means the questionnaire assess a patient in the same way. Low correlation was apparent for sensory score and affective score. The sensory and

affective were correlated in a patient with chronic pain.[20] Eighty percent of the patient in this study had pain for a period of less than 6 months. This is the reason why they were not highly correlated. VAS and the total score showed low correlation and they should therefore be separately analyzed.

The result of the questionnaire is convincing because all patients have a negative for screening of cognitive deficit by the TMSE, most of them had higher than primary school education and all questions were structurally asked by the investigators. Some limitation was however found in this study. First, the score, PPI and VAS are not indicated a pain intensity of newly onset of each category of the disease. When the patient was asked in the questionnaire, they were in various stage of disease. Some had received their treatment, some were in their first visits, and no treatment was given when they answered the questionnaire. Secondly, some patients found that it was too difficult to understand some pain descriptors and they needed help from interviewers to clarify to them. It may be not suitable for a patient with cognitive impairment.

In conclusion, the revised Th-SFMPQ is simple, easy to use and requires less than 5 minutes to response. It has an internal consistency and content validity. The three blanks should be allowed to be filled up to solve any under-estimated problems of total pain score. The reliability and sensitivity are subject to ongoing research.

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