นิพนธ์ต้นฉบับ

การศึกษาความตรงและความเที่ยงของแบบวัดการรับรู้ความสามารถของตนเอง ในการจัดการกับความปวดฉบับภาษาไทย ในผู้ป่วยมะเร็งที่มีอาการปวดเรื้อรัง

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บทคัดย่อ

ที่มาของปัญหา: แบบวัดการรับรู้ความสามารถของตนเองในการจัดการกับความปวดฉบับภาษาไทย (PSEQ-Th) เป็นแบบสอบถามที่ถูกพัฒนามาใช้กับผู้ป่วยที่มีอาการปวดเรื้อรังที่ไม่ได้เกิดจากมะเร็ง ซึ่ง PSEQ-Th สามารถนำไปใช้พยากรณ์พฤติกรรมที่เกี่ยวข้องกับความปวดได้ แต่ปัจจุบันยังไม่มีการศึกษาความน่าเชื่อถือเมื่อนำไปใช้ในกลุ่มผู้ป่วยมะเร็งที่มีอาการปวดเรื้อรัง

วัตถุประสงค์: เพื่อศึกษาความตรงและความเที่ยงของแบบวัดการรับรู้ความสามารถของตนเองในการจัดการกับความปวดฉบับภาษาไทยในผู้ป่วยมะเร็งที่มีอาการปวดเรื้อรัง

วิธีการศึกษา: ผู้ป่วยมะเร็งที่มีอาการปวดเรื้อรังที่มารับการรักษาที่หน่วยระงับปวด โรงพยาบาลศิริราช จะได้รับเชิญเข้างานวิจัย เพื่อตอบแบบสอบถาม 6 ชุดในครั้งแรก ประกอบไปด้วย Numeric Pain Rating Score (NPRS), Depression Anxiety Stress Scale-21 (DASS-21), Roland-Morris Disability Questionnaire (RMDQ), EuroQol Group-5 Dimensions-5 levels (EQ-5D-5L), Catastrophizing Score และ the PSEQ-Th และตอบแบบสอบถาม NPRS, PSEQ-Th ซ้ำอีกครั้งโดยห่างจากครั้งแรก อย่างน้อย 1 สัปดาห์

ผลการศึกษา: จากผู้เข้าร่วมวิจัยจำนวน 129 คน มีผู้ตอบแบบสอบถาม PSEQ-Th ในครั้งแรก 127 คนและครั้งที่ 2 จำนวน 113 คน ค่าเฉลี่ยของ PSEQ-Th ในครั้งแรกและครั้งที่ 2 เท่ากับ 38.8 (SD=14.6) และ 36.2 (SD=16.5) ตามลำดับ โดยมีค่าความเชื่อมั่น Cronbach's alpha เท่ากับ 0.92 และ internal class coefficient เท่ากับ 0.55 จากการศึกษาพบว่า PSEQ-Th มีความสัมพันธ์เชิงลบกับ NPRS (r=-0.41), RMDQ (r=-0.44), DASS-21 (Stress part: r=-0.57, Anxiety part: r=-0.59, Depressive part: r=-0.63) และ Catastrophizing score (r=-0.51) แต่มีความสัมพันธ์เชิงบวกกับคุณภาพชีวิต (EQ-5D-5L: r=0.59)

สรุป: แบบสอบถาม PSEQ-Th เป็นแบบสอบถามที่มีความน่าเชื่อถือเมื่อนำไปใช้ในกลุ่มผู้ป่วยมะเร็งที่มีอาการปวดเรื้อรัง แบบสอบถาม PSEQ-Th มีความสัมพันธ์ในเชิงลบกับแบบวัด NPRS, RMDQ, DASS-21, และ Catastrophizing score อย่างมีนัยสำคัญทางสถิติ แต่มีความสัมพันธ์ในเชิงบวกกับคุณภาพชีวิต

คำสำคัญ: pain self-efficacy, PSEQ-Th, ผู้ป่วยมะเร็งที่มีอาการปวดเรื้อรัง

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ORIGINAL ARTICLE

Validity and Reliability of the Pain Self–efficacy Questionnaire Thai Version (PSEQ–Th) in Chronic Pain Patients with Cancer

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ABSTRACT

BACKGROUND: The Pain Self-efficacy Questionnaire (PSEQ) is a self-reported questionnaire measuring self-efficacy in chronic non-malignant pain patients, and is correlated with the prognosis of pain behavior and disability. However, to the best of our knowledge, there has been no study yet with chronic malignant pain patients, so this study aimed to examine the reliability and validity of the PSEQ Thai version (PSEQ-Th) among chronic malignant pain patients in Thailand.

OBJECTIVES: To examine the validity and reliability of the PSEQ-Th in chronic malignant pain in Thai cancer patients.

METHODS: Overall, 129 patients with chronic cancer pain who visited the pain clinic at Siriraj Hospital were asked to complete 6 self-reported questionnaires: Numeric Pain Rating Score (NPRS), Depression Anxiety Stress Scale-21 (DASS-21), Roland-Morris Disability Questionnaire (RMDQ), EuroQol Group-5 Dimensions -5 levels (EQ-5D-5L), Catastrophizing Score, and the PSEQ-Th at their first visit to the clinic and then the PSEQ-Th and NPRS again at the second visit.

RESULTS: In total, 127 patients completed the PSEQ-Th questionnaires at their first visit and 113 completed them again at their second visit. The mean scores for the first and second PSEQ-Th were 38.8 (SD=14.6) and 36.2 (SD=16.5), respectively. For reliability, the Cronbach's alpha was 0.92 and the internal class coefficient was 0.55. For validity, the PSEQ-Th was statistically significantly negatively correlated with the NPRS (r=-0.41), RMDQ (r=-0.44), DASS-21 (Stress part: r=-0.57, Anxiety part: r=-0.59, Depression part: r=-0.63), Catastrophizing score (r=-0.51), and statistically significantly positively correlated with the health status value (EQ-5D-5L: r=0.59).

CONCLUSION: The PSEQ-Th is reliable for Thai patients with chronic malignant pain. The PSEQ-Th was statistically significantly negatively correlated with the NPRS, RMDQ, DASS-21, and Catastrophizing score, and statistically significantly positively correlated with the health status value.

KEYWORDS: pain self-efficacy, PSEQ-Th, chronic malignant pain

INTRODUCTION

Cancer is one of the highest burden diseases worldwide. According to the World Health Organization (WHO), nearly 10 million patients died from cancer in 2018. In Thailand, cancer has been the primary leading cause of death since 2013, with the numbers increasing each year. Cancer also has a major impact on the quality of life of patients, including their physical and mental wellbeing and in terms of social aspects[1]. Pain prevalence rates are 39.3%-66.4% in cancer patients[2]. However, it is still a challenge to assess cancer pain because cancer pain is influenced by multiple factors, including biological, psychological, and cognitive patterns.

In 2007, Michael K Nicholas developed a questionnaire for assessing self-efficacy in chronic non-malignant pain patients, called the Pain Self-efficacy Questionnaire (PSEQ),[3] which was based on Bandura's self-efficacy theory. The theory states that the expectations of personal efficacy are the ability to show coping behaviors and to sustain effort when facing negative experiences. With chronic pain, self-efficacy beliefs play an important role in daily functioning and coping with chronic pain. As reported in earlier studies, pain self-efficacy beliefs are an important determinant of pain behaviors, such as avoidance behavior, disability associated with pain, and depressive symptoms[4,5].

The PSEQ is a 10-item questionnaire that can be for evaluating a patient's self-efficacy beliefs. Each item is scored on a range from 0 (not at all confident) to 6 (completely confident). The maximum score is thus 60. The PSEQ has been used in assessment, treatment planning, and outcome evaluation in chronic non-malignant pain patients. A higher total score indicates stronger self-efficacy beliefs for doing activities despite the pain and is related to more positive outcomes after an intervention[3].

The PSEQ has a high internal consistency (Cronbach's alpha value of 0.92) and high reliability; the test-retest correlation was reported to be 0.73 [3]. The PSEQ has been translated into various other languages, including Thai (PSEQ-Th), and used to evaluate self-efficacy beliefs in chronic non-malignant pain patients worldwide. However, studies to date have only covered the validity and reliability of the PSEQ in chronic non-malignant pain patients[6–9] and to the best of our knowledge, no study has yet been done on the use of the PSEQ for chronic malignant pain. Consequently, this study aimed to examine the reliability and validity of PSEQ-Th for chronic malignant pain in Thai cancer patients to ensure that PSEQ-Th could be used effectively with cancer patients.

METHODS

In total, 129 patients with a history of chronic cancer pain for longer than 3 months who visited the pain clinic at Siriraj Hospital were invited to participate in the study. Patients who were unable to do the self-completion questionnaires were excluded. The included patients were instructed by the researchers about the study and were asked to do 6 self-completion questionnaires about their self-efficacy beliefs, pain severity, depression, anxiety, disability, and quality of life using the Thai version of the Numeric Pain Rating Scale (NPRS), Depression Anxiety Stress Scale-21 (DASS-21), Roland-Morris Disability Questionnaire (RMDQ), EuroQol group-5 dimensions-5 levels (EQ-5D-5L), Catastrophizing score, and the PSEQ-Th at their first visit to the clinic. At their second visit, they were asked to complete the PSEQ-Th and NPRS again.

Measurement tool

The PSEQ[3] is a 10-item self-reported questionnaire designed to assess a patient's self-efficacy beliefs.

Each item is scored from 0 (not at all confident) to 6 (completely confident). The maximum score is 60. A higher total score indicates stronger self-efficacy beliefs.

The NPRS measures pain intensity. It is scored from 0 (no pain) to 10 (worst pain possible).

The DASS-21[10] is a 21-item self-reported questionnaire designed to assess three negative emotional states: depression, anxiety and stress. Each item is scored from 0 (does not apply to me) to 3 (applies to me very much or most of the time). Normal scores range from 0-4 in the depression part, 0-3 in the anxiety part, and 0-7 in the stress part. This measurement has been validated in a chronic pain population[11].

The RMDQ[12] is a 24-item self-reported disability questionnaire for assessing functional status in patients with back pain. The total scores range from 0 (no disability) to 24 (severe disability). In this study, the RMDQ was modified with the term “back” replaced by “pain.”

The EQ-5D-5L[13] is a tool to assess the health -related quality of life, and consists of five dimensions: mobility, self-care, normal activities, pain/discomfort, and anxiety/depression. Each dimension has 5 levels: no problem, slight problem, moderate problem, severe problem, and extreme problem. The scores were calculated here using population-based preference scores on health derived from the Thai general population, with a higher score indicating a better health -related quality of life.

The Catastrophizing score[14,15] is a 13-item self -reported questionnaire for assessing catastrophizing thoughts in three dimensions: rumination (4 items), magnification (3 items), and helplessness (6 items). Each item is scored from 0 (not at all) to 4 (all the time). The maximum total score is 52. Higher scores represent a higher level of catastrophizing.

Sample size

According to Sapnas et al.[16], an effective sample size for testing psychometric measurement properties is 10 respondents per item; therefore, this research needed at least 100 samples in accordance with the 10 questions in the PSEQ-Th.

Statistics

Statistics Package for Social Science version 21 (SPSS) for Windows was used for the data analyses. Demographic data were analyzed using descriptive statistics.

For validity testing, there is no gold standard tool for assessing self-efficacy beliefs, but a previous study reported that self-efficacy is related to emotions, disability, and quality of life, so Pearson correlation coefficients were used here to assess the relationship between the PSEQ-Th and the other measurements.

For reliability testing, the internal consistency of PSEQ-Th was examined by Cronbach's alpha, derived from Kuder-Richardson’s formula, with values ranging from 0 to 1. A higher value means higher consistency. The test-retest reliability was assessed by analysis of the intraclass correlation coefficient from those completing the PSEQ-Th twice.

RESULTS

Descriptive statistics

In total, 129 chronic malignant pain patients from the pain clinic in Siriraj Hospital were recruited in the study during May 2020 until April 2021. Here, 58.1% were female; the mean age of the patients was 58 (SD=12.3) years old; 128 patients were Thai; 82.2% reported that pain affected their work performance; and 29.5% had resigned from their employment due to pain. The patients’ demographic characteristics are summarized in Table 1.

Table 1 Patients' demographic data and main characteristics (n=129)

Demographic data	N (%)
Gender	
• Male	54 (41.9)
• Female	75 (58.1)
Marital status	
• Married	92 (71.3)
• Single	20 (15.5)
• Divorce	6 (4.7)
• Others	11 (8.5)
Education level	
• Primary	37 (28.7)
• Secondary	26 (20.2)
• Graduate	66 (51.1)
Unemployment	86 (66.7)
Comorbidity	
• Preexisting medical problems	65 (50.4)
• Psychiatric disease	6 (4.7)
Resigned from work due to pain	38 (29.5)
Pain impacting work performance	106 (82.2)
Use pain medication	129 (100)
Pain location	
• Limbs	66
• Back	47
• Head and neck	32
• Chest	18
• Abdomen	18
• Buttocks	10

Among the participants, 127 completed the PSEQ-Th at their first visit to the clinic, with a mean PSEQ-Th score of 38.8 (range 7-60, SD=14.6). The scores for all the measurements are summarized in Table 2.

Table 2 Mean, median, IQT, SD and range of scores of other measurements

Measurements	Mean	Median	IQT	Std. Deviation	Range
PSEQ1	38.8	42	23	14.6	7-60
PSEQ2	36.2	39	26	16.5	0-60
NPRS	5.2	5	4	2.7	0-10
RMDQ	13.2	13	13	7.3	0-24
DASS-21 (Stress)	5.3	4	7	4.8	0-19
DASS-21 (Anxiety)	10.1	9	10	7.8	0-33
DASS-21 (Depression)	15.5	13	15	12.0	0-52
Catastrophizing score	20.0	18	27	14.9	0-52

PSEQ-Th, Thai version of the Pain Self-efficacy Questionnaire; NPRS, Numeric Pain Rating Scale; RMDQ, Roland–Morris Disability Questionnaire; DASS-21, Depression Anxiety Stress Scale-21; EQ-5D-5L, EuroQol group-5 dimensions-5 levels.

Reliability

The test-retest reliability was assessed by analysis of the intraclass correlation coefficient (ICC) for the 113 participants who completed the PSEQ-Th twice. The test-retest duration ranged from 1 to 24 weeks. The mean scores for the first PSEQ and second PSEQ were 38.8 (range 7-60, SD=14.6) and 36.2 (range 0-60, SD=16.5), respectively. The ICC was 0.55 (p<0.001), indicating moderate reliability[17].

Cronbach's alpha coefficient was used to evaluate the PSEQ-Th's reliability. Cronbach's alpha was used to evaluate the internal consistency. Cronbach's alpha for the PSEQ-Th use for chronic malignant pain patients was 0.92, which indicated a relatively high internal consistency, while the Cronbach's alpha if an item was deleted ranged from 0.907-0.929 (Table 3).

Table 3 Mean and SD, corrected item-total correlation, Cronbach's alpha if item is deleted, and item for the pain self-efficacy questionnaire (PSEQ-Th) (n=127)

Item	Mean	Std. Deviation	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item no.1	4.3	1.8	0.73	0.914
Item no.2	3.6	2.1	0.71	0.915
Item no.3	4.7	1.7	0.47	0.927
Item no.4	4.2	1.6	0.72	0.915
Item no.5	3.6	2.0	0.75	0.913
Item no.6	4.4	1.8	0.80	0.910
Item no.7	2.2	2.2	0.49	0.929
Item no.8	4.0	2.0	0.84	0.907
Item no.9	4.3	1.8	0.84	0.908
Item no.10	3.5	1.8	0.79	0.911

PSEQ-Th, Thai version of the Pain Self-efficacy Questionnaire; NPRS, Numeric Pain Rating Scale; RMDQ, Roland-Morris Disability Questionnaire; DASS-21, Depression Anxiety Stress Scale-21; EQ-5D-5L, EuroQol group-5 dimensions-5 levels.

Validity

Convergent validity was analyzed by Pearson's correlation between PSEQ-Th and the other measurements (Table 4). All the correlations were significant and in the expected direction. PSEQ-Th was significantly negatively correlated with NPRS (r=-0.41, p<0.01), RMDQ (r=-0.44, p<0.01), DASS-21 (Stress part: r=-0.57, p<0.01, Anxiety part: r=-0.59, p<0.01, Depression part: r=-0.63, p<0.01), and Catastrophizing score (r=-0.51, p<0.01), and positively correlated with the health status value (EQ -5D-5L: r=0.59, p<0.01). Remarkably, the PSEQ-Th had a higher negative correlation with DASS-21-Depression than the other measurements.

Table 4 Correlations between the PSEQ-Th and other measurements

Measurements	PSEQ	NPRS	Catastrophizing score	RMDQ	DASS-21-Stress	DASS-21-Anxiety	DASS-21-Depression	EQ-5D-5L
PSEQ	1	-0.41	-0.51	-0.44	-0.57	-0.59	-0.63	0.59
NPRS	-0.41	1	0.43	0.34	0.36	0.36	0.37	-0.52
Catastrophizing score	-0.51	0.43	1	0.44	0.72	0.70	0.71	-0.46
RMDQ	-0.44	0.34	0.44	1	0.44	0.48	0.50	-0.60
DASS-21-Stress	-0.57	0.36	0.72	0.44	1	0.95	0.94	-0.43
DASS-21-Anxiety	-0.59	0.36	0.70	0.48	0.95	1	0.97	-0.45
DASS-21-Depression	-0.63	0.37	0.71	0.50	0.94	0.97	1	-0.47
EQ-5D-5L	0.59	-0.52	-0.46	-0.60	0.43	-0.45	-0.47	1

DISCUSSION

The PSEQ was developed based on Bandura's self-efficacy theory, in which self-efficacy reflects a resilient self-belief system. The PSEQ scores are correlated with clinical outcomes after intervention. From Nicholas's study, patients with chronic non-malignant pain who had high PSEQ scores usually responded well to their treatment and had high functional gains [3]. If the use of PSEQ-Th in chronic malignant pain patients has a high degree of reliability and validity, it should be used to predict the patients' outcome and to reflect how resilient cancer patients would be in coping with chronic pain.

This study showed that the use of PSEQ-Th in patients with chronic malignant pain had a high internal consistency, with a Cronbach's alpha of 0.92, which corresponded to other studies performed for non-malignant pain, which reported scores of 0.88-0.94 [3,6–8.]

However, the ICC was 0.55, which was lower than the PSEQ in other languages. A previous study[7] reported ICC values of 0.76 and 0.75, respectively, with the test-retest period ranging from 1 to 4 weeks; while the test-retest period in the present study ranged from 1 to 24 weeks, thus was much longer. It is possible that the test-retest period influences the interpretation of the test-retest reliability[18]. Also, there might be other factors that affect self-efficacy beliefs, such as disease progression, treatment, stressors, or psychosocial factors.

The expected negative relationships found between the PSEQ-Th and the other measurements (NPRS, RMDQ, DASS-21, and Catastrophizing score), and the corresponding positive relationships with the health status value provide additional support for the validity of the PSEQ-Th. This study confirmed that self-efficacy was significantly associated with pain intensity, physical and psychological functioning, and quality of life. Remarkably, the PSEQ-Th showed a higher negative correlation with DASS-21-Depression than the other measurements (Table 4). Moreover, this study showed high corresponding positive relationships between the Catastrophizing score and DASS-21 (where the scores for the stress, anxiety, and depression parts were 0.72, 0.70, and 0.71, respectively).

Noteworthily from Table 3, the mean score for item no. 7, 'I can cope with my pain without medication', was 2.2 and the Cronbach's alpha if the item was deleted was 0.929, suggesting that Thai patients with chronic malignant pain lacked confidence to deal with the pain without medication.

This study has several limitations to note. First, it was not possible to control the other factors that could have affected the results; for example, pain control or other treatments that might affect the patient's pain and pain efficacy belief. Second, 24.16% of the patients were lost to follow-up and

there were varying durations between the first time and the second time of answering the questionnaires, possibly incurring some test-retest reliability inaccuracy. Last, this study was based on one clinic and was conducted in a tertiary care hospital, so it may not be representative of the general population.

CONCLUSIONS

The results from this study showed that the use of the PSEQ-Th in Thai patients with chronic malignant pain displayed high internal consistency, corresponding to the original study in patients with non-malignant pain; albeit the test-retest reliability was only 0.558, which was lower than in the original study, probably due to the varying durations between completing the two PSEQ - Th questionnaires. The PSEQ-Th might be useful for predicting cancer patients' outcomes after receiving treatment and their resilience for coping with chronic pain. Future studies about the effectiveness of the PSEQ-Th for cancer patients with chronic malignant pain should be done.

Conflicts of Interest: None

Financial Support: None

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