Journal of Pain Research

Dovepress
Taylor & Francis Group

Open Access Full Text Article

ORIGINAL RESEARCH

Validation of the Thai Version of the Chronic Pain Acceptance Questionnaire-8 (CPAQ-8T) in Chronic Pain Patients

Koravee Pasutharnchat, Rattaphol Seangrung, Prateep Lertmongkonaksorn, Sirima Kamdeang

Department of Anesthesiology, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Correspondence: Koravee Pasutharnchat, Department of Anesthesiology, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Rachathewi, Bangkok, 10400, Thailand, Tel +6622011523; +66814381248, Fax +6622011569, Email kpasuth@gmail.com

Purpose: Chronic pain significantly affects patients' quality of life, leading to the avoidance of activities that exacerbate their pain. Embracing pain acceptance and willingness is crucial to maintain patients' functionality. This study aimed to translate and validate the Chronic Pain Acceptance Questionnaire-8 (CPAQ-8) into the Thai language and to facilitate the assessment of pain acceptance in Thai patients.

Patients and Methods: The study involved the translation of the English CPAQ-8 into a Thai version, subsequently, referred to as the CPAQ-8T. The psychometric properties of the CPAQ-8T were examined. Study participants were administered a set of questionnaires, including the 100-mm Visual Analog Scale (VAS), CPAQ-8T, and the Barthel Index for Activities of Daily Living (ADL). Test-retest reliability was assessed by readministering the CPAQ-8T two weeks after the initial test. The validity and overall reliability of the CPAQ-8T were thoroughly assessed.

Results: A total of 160 patients with chronic pain at pain clinic, Ramathibodi Hospital completed all the questionnaires. The mean CPAQ-8T score was 24.2 (SD = 7.26). The CPAQ-8T score exhibited the expected correlation with the Barthel Index for ADL but showed no significant correlation with the VAS score, indicating moderate convergent validity. The internal consistency and test-retest reliability findings support the validity and reliability of the CPAQ-8T.

Conclusion: The translation and validation of the CPAQ-8 into the Thai language offers a reliable and valid instrument for assessing pain acceptance in Thai patients with chronic pain. The results suggested that the CPAQ-8T is a valuable tool for healthcare professionals and researchers working in the field of chronic pain management.

Keywords: chronic pain acceptance questionnaire, CPAQ-8, validation, reliability, psychometric properties

Introduction

Chronic pain, defined as pain persisting for more than three months, is a prevalent issue in Thailand and affects approximately 19.9% of the population.[1,2] This condition has profound effects on individuals' lives, encompassing their functionality, emotional well-being, and overall quality of life, making it a major health concern.[3]

Patients experiencing chronic pain often develop fear and avoidance behaviors in response to pain triggers, which can further contribute to muscle atrophy and increased disability.[4] The concept of pain acceptance is vital in understanding how patients respond and adapt to chronic pain.[5] Extensive research underscores the positive impacts of pain acceptance, including enhanced quality of life, reduced pain intensity, reduced avoidance and anxiety, improved work performance, and increased daily functioning.[6] Thus, evaluating pain acceptance in chronic pain patients is indispensable for predicting treatment outcomes and assessing overall quality of life.

In 2004, McCracken et al revised the Chronic Pain Acceptance Questionnaire (CPAQ), which was initially developed by Geisser, and recommended it as a psychometric instrument, comprising 20 questions.[7] Fish et al further modified the CPAQ-20, condensing it into 8 questions and encapsulating two key subscales: "activity engagement" (AE) and "pain

Received: 20 November 2024
Accepted: 5 February 2025
Published: 26 February 2025

willingness" (PW). This adaptation exhibited robust validity and reliability, rendering it particularly suitable for healthcare and clinical research applications.[8]

The CPAQ is a widely utilized tool for evaluating patients with chronic pain across various conditions and dimensions, including psychiatric aspects.[6] It plays a crucial role in understanding the interplay between pain acceptance, pain intensity, and daily life functioning. Moreover, it has been shown to predict postoperative pain intensity.[9,10]

Both the 20-item and 8-item versions of the CPAQ have been effectively translated and validated in numerous languages, such as Chinese, Spanish, Norwegian, Korean, and Japanese.[11–15] Surprisingly, there is no validated measure of pain acceptance in the Thai language. Thus, this study aimed to translate the original CPAQ-8 into a Thai version, referred to as the CPAQ-8T, and conduct a comprehensive validation of its psychometric properties.

Materials and Methods

This prospective observational study received approval from the ethics committee of Ramathibodi Hospital, Mahidol University, Bangkok, Thailand (ID MURA2022/698). All participants provided written informed consent, and the study adhered to the principles outlined in the Declaration of Helsinki. The study also followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.[16]

Patient Populations

The study included individuals aged 18 to 80 years who sought treatment at the pain clinic of Ramathibodi Hospital for chronic pain lasting longer than three months. Individuals who were illiterate, cognitively impaired, or unwilling to participate were excluded.

Translation and Cross-Cultural Adaptation of the Thai Version of the CPAQ-8

After obtaining permission from the authors of the original CPAQ-8, a comprehensive four-step process was employed for translating the questionnaire into Thai, adhering to recommendations and previous validation studies.[17]

1. Forward Translation: Two bilingual Thai translators, unfamiliar with the CPAQ-8, independently translated the original questionnaire into Thai, resulting in the CPAQ-T1 and CPAQ-T2 versions. A pain specialist then carefully examined each item and created a new version known as the CPAQ-T12.
2. Back Translation: The translated questionnaire was then back-translated into English, producing CPAQ-BT1 and CPAQ-BT2 by two distinct bilingual academicians unfamiliar with the original CPAQ-8.
3. Pre-Final Version: The CPAQ-BT1 and CPAQ-BT2 scores were reviewed and compared to the previous version by a pain specialist.
4. Content Validation Assessment: The Item Objective Congruence (IOC) method was employed for each item in the pre-final version. After evaluating the content validity, three pain specialists assigned a three-point score (0, 1, −1) to each item, with 1 meaning absolute agreement and −1 meaning absolute disagreement. Items scoring above 0.5 points were considered to exhibit good agreement, while items falling short of this criterion were reviewed.

Study Protocol

Following the inclusion criteria, participants aged older than 60 years were screened for cognitive function using the 6-item Cognitive Impairment Test (6CIT).[18] Those with a 6CIT score exceeding 10 were considered to have cognitive impairment and were subsequently excluded from the study. Informed consent was obtained from the eligible patients. Subsequently, participants completed a set of questionnaires, including the CPAQ-8T, a 100-mm Visual Analog Scale (VAS) to assess pain intensity, and the Barthel Index for Activities of Daily Living (ADL). Additionally, a subset of fifty participants was randomly chosen to evaluate the test-retest reliability of the CPAQ-8T over a 2-week interval. Patient characteristics were also reviewed as part of the study.

Measures

1. Sociodemographic data and pain information: Patient information included age, sex, type of pain, location of the most painful area (with a free description allowing for multiple answers), education level, working status, and duration of pain.
2. Pain acceptance: Pain acceptance was assessed using the CPAQ-8T, which is an adaptation of the original CPAQ-8.[8] The CPAQ-8 comprises two subscales: "Activity Engagement" (AE, four items) and "Pain Willingness" (PW, four items), making a total of eight items. All four PW items are reversed. Participants rated items on a scale from 0 ("never true") to 6 ("always true"). Each subscale has a total score ranging from 0 to 24, where higher scores revealed greater AE and PW.
3. Pain intensity: Pain intensity was assessed using the 100-mm VAS. It is a simple tool to measure subjective experiences like pain intensity. It consists of a 100-mm horizontal or vertical line, with endpoints labeled as "No pain" (0 mm) and "Worst pain imaginable" (100 mm). Participants marked a point on the line that reflects their current pain experience, and the distance from the 0-mm point to their mark (in millimeters) is measured as their score. This method is efficient, highly sensitive to changes, and widely recognized in both clinical and research contexts for its reliability.[19]
4. Pain disability: The Barthel Index for ADL is an ordinal scale used to assess functional independence in the domains of personal care and mobility among patients with chronic, disabling conditions, particularly in rehabilitation settings. The Barthel Index for ADL contains ten items that describe ADL and mobility. Each item is rated on a scale with a specific number of points assigned to each level or ranking. The scoring alters by item, with a possible total score of 100. The amount of time or physical assistance required to complete each task determines the proper score for each item, with higher scores indicating greater independence.[20]

Hypothesis

To assess the structural validity of the CPAQ-8T, we conducted a Confirmatory Factor Analysis (CFA), assuming the same two-factor structure as the original version.

Concerning convergent validity, this study examined the relationships between the CPAQ-8T score and other relevant scores, specifically pain acceptance, pain intensity, and pain-related life disability, using the CPAQ-8Tscore, the 100-mm VAS score, and the Barthel Index for ADL.

The hypothesis posited that the CPAQ-8T score would exhibit a weak to moderate negative correlation with the VAS score and a weak to moderate positive correlation with the Barthel Index for ADL.

Statistical Analysis

Sample Size Estimation

To ensure robust statistical analysis, the sample size was calculated following recommendations from several authors, suggesting 2 to 20 participants per item, with an absolute minimum of 100 participants.[21,22] Consequently, the needed sample size was established at 160 participants (20 participants per item).

Data Analysis

The demographic data are presented as numbers and percentages. The results of all measurements are reported as the mean and standard deviation (SD) and median (interquartile range: IQR). For item analysis, the mean and standard deviation (SD) of all items and the corrected item-total correlation (ITC) values were computed. Confirmatory Factor Analysis (CFA) was employed to evaluate the goodness of fit, with the following cutoff values for acceptability: CFI ≥ 0.95, TLI ≥ 0.95, RMSEA ≤ 0.08 for acceptable fit, and ≤ 0.06 for good fit. SRMR ≤ 0.1 was considered acceptable, and ≤ 0.08 was deemed good fit. Additionally, the χ^2-test results were considered significant at the 0.05 threshold.[23] Descriptive statistics for subscale and total scale scores on the CPAQ-8T were calculated, and the Shapiro–Wilk test was used to assess normality. For internal consistency, Cronbach's alpha was calculated for each subscale of CPAQ-8T score. Convergent validity was evaluated through Spearman's rank correlation between the CPAQ-8T and the VAS and the Barthel Index of ADL, based on the results of the

Shapiro–Wilk test. Correlations were interpreted as weak ($0.10 \leq |r| \leq 0.30$), moderate ($0.30 \leq |r| \leq 0.50$), and strong ($|r| \geq 0.50$).[24] Test-retest reliability was assessed by calculating the intra-class correlation coefficient (ICC) between two surveys. By test-retest reliability criteria, Mokkink et al[22] suggested a value of 0.70 or higher as desirable. All statistical tests were two-tailed, and p-values less than 0.05 were considered statistical significance.

Results

Demographic Data

A total of 160 chronic pain patients were included in this study. The majority of participants were women, accounting for 66.25% of the sample. The most common age group among the participants was 51–70 years, comprising 43.13% of the study population. A significant majority of the participants (92.5%) reported enduring chronic noncancer pain. Most participants (45.63%) had obtained a bachelor's degree or an equivalent level of education. The predominant areas of pain reported were in the lower back and buttocks (41.25%) and lower limbs (21.25%). Over half of the participants were unemployed. The median (IQR) pain duration was 48 (24–96) months with 86.87% of participants experiencing pain for more than 12 months. The demographic data are shown in Table 1.

Table 1 Demographic data (n = 160)

Variables	n (%)
Gender	
Male	54 (33.75%)
Female	106 (66.25%)
Age	
Older than 70 years	35 (21.88%)
51-70 years	69 (43.13%)
36-50 years	45 (28.13%)
25-35 years	9 (5.63%)
18-24 years	2 (1.25%)
Education	
Master's degree or higher level	13 (8.13%)
Bachelor's degree or equivalent level	73 (45.63%)
Secondary education or equivalent level	40 (25%)
Below secondary education	34 (21.25%)
Employment	
Student/University student	2 (1.26%)
Part-time job/Freelance	7 (4.38%)
Full-time job	56 (35%)
Unemployed	95 (59.38%)
Area of highest pain intensity	
Upper limb	7 (4.38%)
Lower limb	34 (21.25%)
Head	15 (9.38%)
Neck and shoulder	18 (11.25%)
Lower back and buttock	66 (41.25%)
Abdomen	11 (6.88%)
Chest wall and upper back	9 (5.63%)

(*Continued*)

Table 1 (Continued).

Variables	n (%)
Type of pain	
Cancer pain	12 (7.5%)
Chronic non-cancer pain	148 (92.5%)
Duration of	
Less than 12 months	21 (13.12%)
More than 12 months	139 (86.87%)

Note: Data are represented as n (%).

Content Validation Assessment

For the Thai version of CPAQ-8 (CPAQ-8T), the evaluation of content validity by the three pain specialists yielded a score of 0.83.

Item Analysis for the CPAQ-8T

The results of the item analysis conducted on the 160 participants are summarized in Table 2. The corrected item-total correlation (ITC) values, accounting for item overlap, ranged from 0.486 to 0.743.

Confirmatory Factor Analysis (CFA) of the CPAQ-8T

In the CPAQ-8T, which replicates the two-factor structure of the original version, a CFA was performed. After reviewing the modification indices, two authors identified commonalities among the item contents that went beyond the expected factors. Notably, all the items exhibited robust factor loadings of 0.50 or higher, indicating a strong association with their presumed factors[25] (Table 3).

Table 2 Item statistics for the CPAQ-8T

Item	Mean	SD	Corrected ITC
1. I am getting on with the business of living no matter what my level of pain is	4.56	1.64	0.662
2. Keeping my pain level under control takes first priority whenever I am doing something	1.66	1.84	0.604
3. Although things have changed, I am living a normal life despite my chronic pain	4.75	1.53	0.531
4. Before I can make any serious plans. I have to get some control over my pain	1.69	1.86	0.669
5. I lead a full life even though I have chronic pain	4.27	1.87	0.743
6. When my pain increases, I can still take care of my responsibilities	4.18	1.85	0.589
7. I avoid putting myself in situations where my pain might increase	1.29	1.84	0.539
8. My worries and fears about what pain will do to my are true	1.80	2.04	0.486

Abbreviations: CPAQ-8T, Thai version of the Chronic Pain Acceptance Questionnaire-8; ITC, item-total correlations.

https://doi.org/10.2147/JPR.S500597

Table 3 Factor Loadings of the CPAQ-8T Items

Item	AE	PW
Item 1	0.826	
Item 2		0.801
Item 3	0.720	
Item 4		0.842
Item 5	0.877	
Item 6	0.767	
Item 7		0.745
Item 8		0.694

Abbreviations: CPAQ-8T, Thai version of the Chronic Pain Acceptance Questionnaire-8; AE, activity engagement subscale; PW, pain willingness subscale.

The assessment of the model's goodness of fit yielded the following results: χ^2 (19) = 24.449 (p=0.059), CFI = 0.973, TLI = 0.961, RMSEA = 0.059, and SRMR = 0.058. These values align with the criteria established by Hu LT et al.[23]

Descriptive Statistics

In this study, the mean AE subscale was 17.76 (SD = 5.51), the kurtosis was 0.471, and the skewness was −0.935. The mean PW subscale was 6.44 (SD = 5.84), the kurtosis was 1.710, and the skewness was 1.235. The mean total score was 24.2 (SD = 7.26), the kurtosis was 2.235, and the skewness was −0.017. Nevertheless, the Shapiro–Wilk test affirmed that the assumption of normal distribution for AE, PW, and total scores was rejected. Therefore, Spearman's rank correlation coefficient was used in the subsequent construct validity study. Table 4 shows descriptive statistics of all measurements.

Internal Consistency

The Cronbach's alpha values for the AE and PW subscales were 0.81 and 0.772, respectively.

Table 4 Descriptive statistics of all measurements

Measurement	Statistic
Time to answer (min) (Mean (SD))	15.74 (4.11)
100-mm VAS (mm) (Median (IQR))	58.8 (52-63)
Barthel Index for ADL (0-100) (Mean (SD))	93.44 (10.73)
Pain willingness score (0-24) (Mean (SD))	6.44 (5.84)
Activity engagement score (0-24) (Mean (SD))	17.76 (5.51)
Total CPAQ-8T (0-48) (Mean (SD))	24.2 (7.26)

Abbreviations: SD, standard deviation; IQR, Interquartile range; VAS, Visual Analog Scale; ADL, Activities of Daily Living; CPAQ-8T, Thai version of the Chronic Pain Acceptance Questionnaire-8.

Table 5 Convergent validity between CPAQ-8T (Total), Barthel Index for ADL, and 100-mm VAS for pain intensity

	CPAQ-8T (Total)	Barthel Index for ADL	Compared with 100-mm VAS
CPAQ-8 T(Total)	1	0.205	-0.044
p-value	-	*0.009**	*0.578*
Barthel Index for ADL		1	-0.082
p-value		-	*0.301*

Notes: Convergent validity was measured using Spearman's correlation coefficient (r). *Correlation is significant at the 0.05 level (Data shown are correlation coefficients).
Abbreviations: CPAQ-8T, Thai version of the Chronic Pain Acceptance Questionnaire-8, ADL, Activities of Daily Living; VAS, Visual Analog Scale.

Convergent Validity

The results of Spearman's rank correlation analyses are presented in Table 5. Notably, there was no significant correlation between the CPAQ-8T score and the VAS score. In contrast, the CPAQ-8T score and the Barthel Index for ADL exhibited a significant relationship, albeit it was a weak positive correlation.

Test-Retest Reliability

To assess test-retest reliability, the Intraclass Correlation Coefficient (ICC) between the two surveys for the CPAQ-8T subscales and total score were computed. The results indicated an ICC of 0.905 with a 95% CI of [0.833, 0.946] for the AE subscale, an ICC of 0.824 with a 95% CI of [0.689, 0.9] for the PW subscale, and an ICC of 0.918 with a 95% CI of [0.856, 0.953] for the total CPAQ-8T.

Discussion

The primary objective of this study was to assess the psychometric properties of the CPAQ-8T. The results of structural validity, as determined by CFA, revealed a two-factor structure that closely resembled the original version and other translated versions in different languages.[8,11–15]

In terms of convergent validity, as anticipated, a statistically significant correlation was observed between the CPAQ-8T score and the Barthel Index for ADL. However, this correlation was relatively weak. This finding suggested that patients with higher levels of pain acceptance may experience more effective daily life activities than those with lower pain acceptance scores. It is worth noting that the CPAQ-8T score displayed no correlation with pain intensity, which contrasts with findings from previous studies of different language adaptations.[11–15] These inconsistencies could be attributed to the diversity of pain intensity among the different groups of chronic pain patients. Pain intensity, while an important factor, is not the sole indicator in these patients. Anxiety and depression symptoms also play crucial roles in chronic pain.[26] Furthermore, patients' reports of pain intensity might reflect their overall experiences, rather than their exact pain perception.

This study clarifies the multifaceted nature of pain acceptance and the complex interplay of various factors in the experience of chronic pain. The weak correlation between the CPAQ-8T score and pain intensity suggested that a comprehensive assessment of chronic pain patients should consider factors other than just the physical aspect of pain. However, further research is needed to explore the relationships between pain acceptance, psychological factors, and functional outcomes in this patient population.

According to the descriptive statistics, the mean total CPAQ-8T score was 24 (SD = 7.26). Specifically, the mean score on the AE subscale was 17.76 (SD = 5.51), while that on the PW subscale was 6.44 (SD = 5.84). These results suggest that most participants can be classified into a group with high AE and low PW, consistent with a study by Rovner et al. This classification system allows for the categorization of patients into four distinct groups (high AE high PW, high AE low PW, low AE high PW, and low AE low PW).[27] Individuals with high AE and low PW tend to view pain acceptance as "acknowledging the need for change". This group typically exhibits a problem-solving attitude, a tendency

to overdo activities, and a struggle to control their pain. These findings shed light on the diverse pain acceptance profiles of chronic pain patients and the potential impact of these profiles on their coping strategies and behaviors.[28]

In terms of internal consistency, the Cronbach's alpha values of each subscale indicate high internal consistency. While previous studies[11–14] have reported correlations between CPAQ-8 subscales, a study from Japan[15] demonstrated similar results as our study, indicating that the two factors were independent. This finding suggested that engaging in important activities while experiencing pain is separate from relinquishing the effort to control pain.

Reports of pain intensity from patients may capture their broad pain experiences, rather than precisely reflecting their actual pain perception. This indicates that the reported pain levels may be influenced not only by the biological sensation of pain but also by psychological and cultural factors. Cultural differences play a crucial role in shaping how individuals interpret and report their pain. For example, patients from collectivist cultures may underreport pain intensity to avoid burdening their caregivers, whereas patients from individualistic cultures may feel more encouraged to explicitly express their pain.

Furthermore, the cultural characteristics of Thai individuals could have influenced the results. A study involving interviews with chronic pain patients to explore pain perspectives in Thai culture found that a belief in "being patient with pain" made it easier for Thai patients to accept pain.[29] Many Thai individuals commonly cope with pain by attempting to ignore it, and they often tend to tolerate pain without struggling in painful conditions. This cultural aspect appears to be distinct from actively engaging in productive activities despite pain. These cultural differences could contribute to the variations in pain acceptance profiles observed in this study.

A qualitative study focusing on the meaning and process of pain acceptance in women with arthritis and fibromyalgia found that acceptance was a complex process involving realization and acknowledgment. The study emphasized that for these women, it was more important to gain control over their lives rather than attempting to control the pain itself. Interestingly, the idea of controlling pain was not a central aspect of acceptance, and the study highlighted that it was often easier to accept pain on a cognitive level than on an emotional level.[30] This sheds light on the intricate nature of pain acceptance and the various dimensions involved, emphasizing the importance of addressing not just the physical aspects of pain but also the emotional and psychological components in the context of chronic pain conditions.

In addition, it is important to note that all four PW items are reversed items. This can potentially lead to a misunderstanding phenomenon or create an incorrect outcome.[31] Careful consideration should be given to the interpretation of these reversed items to avoid any misinterpretation.

On a positive note, for test-retest reliability, the Intraclass Correlation Coefficient (ICC) values of each subscale were found to be within the acceptable range, affirming the stability of the CPAQ-8T over a 2-week interval. This finding implies that the overall CPAQ-8T score is reliable for future use, particularly for each subscale, indicating that the score can be a valuable tool for assessing pain acceptance in chronic pain patients.

Limitations

This study assessed content validity using the Item Objective Congruence (IOC) method, which evaluates item relevance through expert ratings. While practical and straightforward, this approach does not encompass aspects such as comprehensiveness or comprehensibility, which require input from the target population. Using more robust frameworks like the COSMIN Guidelines[22] could have enhanced validity by integrating both expert and user perspectives. However, the complexity, time, and resources required for COSMIN were beyond this scope of this study.

Additionally, the study might have achieved higher convergent validity if a broader range of standardized assessment tools or questionnaires had been employed to measure related constructs. Additionally, this study did not delve into other aspects of validity, such as discriminant validity. Subsequent research should explore the relationships between theoretically similar and distinct concepts, shedding more light on the distinctiveness of the CPAQ-8T. The handling of the PW subscale requires further investigation, as it exhibited a slightly dissimilar relationship pattern with other scales, including the AE subscale, than did the other translated versions. This divergence may be attributed to the impact of cultural characteristics and should be the subject of additional in-depth analysis in future studies.

Conclusions

This study is the first to assess the reliability and validity of the CPAQ-8 in Thai chronic pain patients, making a substantial contribution to the field. Future studies could explore the implications of CPAQ-8T in the context of chronic pain treatment in Thailand, potentially leading to improved interventions and treatments for these patients. The findings could potentially inform clinical practice and guide the development of more effective interventions tailored to the unique needs of chronic pain patients in the Thai cultural context.

Abbreviations

CPAQ-8T, Thai version of the Chronic Pain Acceptance Questionnaire-8; CPAQ-8, the Chronic Pain Acceptance Questionnaire-8; VAS, Visual Analog Scale; ADL, Activity of Daily Living; CPAQ-20, the Chronic Pain Acceptance Questionnaire-20; AE, Activity engagement; PW, Pain willingness; CPAQ-T1, Thai version of the Chronic Pain Acceptance Questionnaire-8 from a bilingual Thai translator No.1; CPAQ-T2, Thai version of the Chronic Pain Acceptance Questionnaire-8 from a bilingual Thai translator No.2; CPAQ-T12, Thai version of the Chronic Pain Acceptance Questionnaire-8, created by combination of CPAQ-T1 and CPAQ-T2; CPAQ-BT1, Back translation version of the Chronic Pain Acceptance Questionnaire-8, by a bilingual academician No.1; CPAQ-BT2, Back translation version of the Chronic Pain Acceptance Questionnaire-8, by a bilingual academician No.2; IOC, the Item Objective Congruence; 6CIT, the six-item Cognitive Impairment; CFA, Confirmatory Factor Analysis; SD, Standard deviation; IQR, Interquartile range; CFI, the comparative fit index; TLI, Tucker Lewis Index; RMSEA, The Root Mean Square Error of Approximation; SRMR, Standardized Root Mean Square Residual; χ^2, the chi-square test; STROBE, the Strengthening the Reporting of Observational Studies in Epidemiology; |r|, absolute value of r; ICC, Intraclass Correlation Coefficient; CI, Confidence interval.

Data Sharing Statement

The data sets generated or analyzed in the study are available from the corresponding author upon reasonable request after the deidentification of the data from any patient.

Acknowledgments

We received no specific funding for the study from any public, commercial, or non-profit organization. The authors would like to thank all patients who willingly participated in this study. The study was not possible without them. We thank the staff of Ramathibodi Hospital's Pain Clinic, particularly, Ms. Rojnarin Komonhirun, M.Ed., for coordination and administrative support.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approved of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

This manuscript has been uploaded to ResearchSquare as a preprint: https://www.researchsquare.com/article/rs-3922945/v1. The authors report no conflicts of interest in this work.

References

1. Kennedy R, Abd-Elsayed A. The international association for the study of pain (IASP) classification of chronic pain syndromes. *Pain*. 2019;2019:1011–1013.
2. Sakakibara T, Wang Z, Paholpak P, Weerachai K, Myint O, Yuichi K. A comparison of chronic pain prevalence in Japan, Thailand, and Myanmar. *Pain Physician*. 2013;16(6):603–608.

3. Breivik H, Collett B, Ventafridda V, Rob C, Derek G. Survey of chronic pain in Europe: prevalence, impact on daily life, and treatment. *Eur J Pain*. 2006;10(4):287–333. doi:10.1016/j.ejpain.2005.06.009
4. McCracken LM, Yang SY. The roles of values in a contextual cognitive-behavioral approach to chronic pain. *Pain*. 2006;123(1–2):137–145. doi:10.1016/j.pain.2006.02.021
5. McCracken LM. Learning to live with pain: acceptance of pain predicts adjustment in persons with chronic pain. *Pain*. 1988;74(1):21–27. doi:10.1016/S0304-3959(97)00146-2
6. Costa J, Pinto-Gouveia J. Acceptance of pain, self-compassion and psychopathology: using the chronic pain acceptance questionnaire to identify patients' subgroups. *Clin Psychol Psychother*. 2011;18(4):292–302. doi:10.1002/cpp.718
7. McCracken LM, Vowles K, Eccleston C. Acceptance of chronic pain: component analysis and a revised assessment method. *Pain*. 2004;107 (1–2):159–166. doi:10.1016/j.pain.2003.10.012
8. Fish RA, McGuire B, Hogan M, Morrison TG, Stewart I. Validation of the chronic pain acceptance questionnaire (CPAQ) in an Internet sample and development and preliminary validation of the CPAQ-8. *Pain*. 2010;149(3):435–443. doi:10.1016/j.pain.2009.12.016
9. Dance C, DeBerard MS, Gundy Cuneo J. Pain acceptance potentially mediates the relationship between pain catastrophizing and post-surgery outcomes among compensated lumbar fusion patients. *J Pain Res*. 2016;10:65–72. doi:10.2147/JPR.S122601
10. McCracken LM, Vowles KE. Psychological flexibility and traditional pain management strategies in relation to patient functioning with chronic pain: an examination of a revised instrument. *J Pain*. 2007;8(9):700–707. doi:10.1016/j.jpain.2007.04.008
11. Liu Y, Wang L, Wei Y, Wand X, Xu T, Sun J. Validation of a Chinese version of the chronic pain acceptance questionnaire (CAPQ) and CPAQ-8 in chronic pain patients. *Medicine*. 2016;95(33). doi:10.1097/MD.0000000000004339
12. Elisabet SR, Rocío V, Mélanie R, Ruben R, Mark PJ, Jordi M. Support for the Spanish version of the CPAQ-8 as a measure of chronic pain acceptance. *J Eval Clin Pract*. 2019;25(5):881–888. doi:10.1111/jep.13092
13. Eide H, Leren L, SØrebØ Ø. The Norwegian versions of the chronic pain acceptance questionnaire CPAQ-20 and CPAQ-8 – validation and reliability studies. *Disabil Rehabil*. 2017;39(14):1441–1448. doi:10.1080/09638288.2016.1198427
14. Cho S, Heiby EM, McCracken LM, Moon DE, Lee JH. Psychometric properties of a Korean version of the chronic pain acceptance questionnaire in chronic pain patients. *Qual Life Res*. 2012;21(6):1059–1064. doi:10.1007/s11136-011-0010-9
15. Fukumori T, Fujishima K, Iwasa K, Takao Y, Kobayashi Y, Nishie H. Validation of the Japanese version of the 8-item chronic pain acceptance questionnaire (CPAQ-8) *J Med Invest*. 2023;70(1.2):88–93. doi:10.2152/jmi.70.88
16. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. STROBE initiative. The strengthening the reporting of observational studies in epidemiology (STROBE) statement: guidelines for reporting observational studies. *J Clin Epidemiol*. 2008;61 (4):344–349. doi:10.1016/j.jclinepi.2007.11.008
17. Wild D, Grove A, Martin M, et al. Principles of good practice for the translation and cultural adaptation process for patient-reported outcomes (PRO) measures: report of the ISPOR Task Force for translation and cultural adaptation. *Value Health*. 2005;8(2):94–104. doi:10.1111/j.1524-4733.2005.04054.x
18. Aree-Ue S, Youngcharoen P. The 6-item cognitive function test-Thai version: psychometric property testing. *Rama Nurs J*. 2020;26(2):188–202.
19. Edwards RR, Berde CB. Pain assessment. In: Benzon HT, Raja SN, Liu SS, Fishman SM, Cohen SP, editors. *Essentials of Pain Medicine*. 3rd ed. Philadelphia, PA: Elsevier Saunders; 2011:28–33.
20. Laohaprasitiporn P, Jarusriwanna A, Unnanuntana A. Validity and reliability of the Thai version of the Barthel Index for elderly patients with femoral neck fracture. *J Med Assoc Thai*. 2017;100(5):539–548.
21. Anthoine E, Moret L, Regnault A, Sebille V, Hardouin J. Sample size used to validate a scale: a review of publications on newly-developed patient reported outcomes measures. *Health Qual Life Outcomes*. 2014;12:176. doi:10.1186/s12955-014-0176-2
22. Mokkink LB, Prinsen CA, Patrick DL, et al. COSMIN methodology for systematic review of patient-reported outcome measures (PROMs) user manual. 2018. Available from: https://cosmin.nl/wp-content/uploads/COSMIN-syst-review-for-PROMs-manual_version-1_feb-2018.pdf. Accessed August 14, 2021.
23. Hu LT, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Struct Equation Model*. 1999;6(1):1–55. doi:10.1080/10705519909540118
24. Cohen J. *Statistical Power Analysis for the Behavioral Sciences*. 2nd ed. Hillsdale, New Jersey: Lawrence Erlbaum Associates; 1988.
25. Hari JF, Black WC, Babin BJ, Anderson RE. *Multivariate Data Analysis*. 7th ed. Pearson; 2014:600–638.
26. Bromley Milton M, Börsbo B, Rovner G, Lundgren-Nilsson A, Stibrant-Sunnerhagen K, Gerdle B. Is pain intensity really that important to assess in chronic pain patients? A study based on the Swedish quality registry for pain rehabilitation (SQRP). *PLoS One*. 2013;8(6):e65483. doi:10.1371/journal.pone.0065483
27. Rovner G, Johansson F, Gillanders D. Cutoff scores for the 8-item version of the chronic pain acceptance questionnaire (CPAQ-8) to identify different profiles of pain acceptance patterns, levels of function and behavioral flexibility. *J Contex Behav Sci*. 2019;14:146–156. doi:10.1016/j.jcbs.2019.07.006
28. Biguet G. The meaning of acceptance and body awareness for individuals living with long term pain: implication for rehabilitation. Doctoral thesis. Karolinska Institutet; 2018. Available from: https://openarchive.ki.se/articles/thesis/The_meaning_of_acceptance_and_body_awareness_for_individuals_living_with_long-term_pain_implications_for_rehabilitation/. Accessed September 24, 2024.
29. Ruangrit T, Sindhavanada W. Pain perspectives in Thai chronic pain patients. *Thai J Anesthesiol*. 2018;44(3):127–135.
30. LaChapelle DL, Lavoie S, Boudreau A. The meaning and process of pain acceptance. Perceptions of women living with arthritis and fibromyalgia. *Pain Res Manage*. 2008;13(3):201–210. doi:10.1155/2008/258542
31. Lauwerier E, Caes L, Van Damme S, Goubert L, Rosseel Y, Crombez G. Acceptance: what's in a name? A content analysis of acceptance instruments in individuals with chronic pain. *J Pain*. 2015;16(4):306–317. doi:10.1016/j.jpain.2015.01.001